StriveTogether®

Every child. Cradle to career.

Cradle-to-Career Outcomes Playbook: Postsecondary Enrollment

Contents

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Contributors

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Introduction

Communities across the country recognize that supporting students beyond high school is critical to future success — for young people and for the long-term health of the economy. In a rapidly changing world, ensuring that all students have access to meaningful postsecondary options is no longer optional; it's essential.

This playbook is designed to help educators, community leaders and partners increase postsecondary enrollment — defined as students enrolling in two- or four-year colleges, career and technical education programs that lead to industry-recognized credentials, registered apprenticeships, military service or entry into the skilled trades. These options all share a common goal: preparing students for careers that offer at least a living wage and a pathway to economic mobility.

With 70% of U.S. jobs expected to require education or training beyond high school by 2031, boosting postsecondary enrollment is a powerful lever for improving individual opportunity and community well-being (CEW, 2021). Higher enrollment and completion rates are associated with lower unemployment, increased civic engagement, stronger tax bases and better health outcomes.

To do this effectively, community leaders need evidence-based insights on what drives young people to stay on track for postsecondary enrollment, but accessing this information can be challenging. Leaders often spend valuable time conducting research when they could be engaging with their communities. Consider three real examples:

- An organization is launching a new college enrollment campaign and needs a comprehensive understanding of the key factors that influence student enrollment.
- A cross-sector group of educators, employers and community leaders is convening to identify concrete, evidence-based strategies to support students in successfully transitioning from high school to postsecondary pathways that lead to a living wage.
- A city planning group working to boost local employment is meeting with business leaders and needs clear research on how improving postsecondary enrollment rates can help build a stronger, more skilled workforce.

This playbook serves as a comprehensive guide to the latest research and best practices on postsecondary enrollment. It equips community leaders with the tools to identify opportunities, co-design effective strategies with their communities and build support for collective investment ensuring young people can launch successfully into adulthood.

The playbook is organized around 12 essential questions that help communities understand their starting point and identify potential focus areas. Each question aligns to research-based topics that support postsecondary enrollment rates and offers a menu of possible indicators to track, as well as practices and policies to implement. These indicators, practices and policies have been compiled from a variety of frameworks with sources indicated in parenthesis.

Example

Essential Question *Areas to focus*	Indicators *Metrics to track*	Practices and Policies *Actions to take*
Are students matriculating to well-matched postsecondary institutions that successfully graduate their students with credentials of value?	The percentage of students who enroll at a postsecondary institution directly after high school (EdStrategy, From Tails to Heads). Application start and completion among underrepresented populations (IHEP, Toward Convergence). Financial aid application completion by underrepresented population (IHEP, Toward Convergence).	On an annual basis, school districts should select at least one indicator from the Preparing, Applying and Enrolling areas to set a goal for improvement and focus capacity and resources to drive change (EdStrategy, From Tails to Heads). Deploy capacity to offer direct student advising and assistance. Capacity, whether internal to the school district or through a partnership, is necessary to target individual student supports (EdStrategy, From Tails to Heads). District leaders should communicate to the state when barriers arise for supporting students' postsecondary preparation and transitions. For instance, unnecessary prerequisites may hinder the ability of students to enroll in advanced coursework, even if they have previously been identified as having potential. States can issue waivers around these requirements (EdStrategy, From Tails to Heads). Miami Dade College (MDC) partnered with the K-12 school district to develop Shark Path, a three-tier advising program. Shark Path starts with prospective students receiving pre-college advising support in their high school, with more than 90% of Miami Dade high school students receiving support from an MDC advisor (EdStrategy, From Tails to Heads).

This guide is not intended to serve as a checklist. Rather, communities should use the essential questions to explore options and choose what works for them.

Essential Questions for Postsecondary Enrollment

Postsecondary Enrollment. Postsecondary enrollment should ensure that students are attending well-matched institutions that not only offer strong financial aid and adequate resources but also support students through to completion with credentials of value. This path can be to a two- or four-year college, into the workforce from a Career and Technical Education program or into a workforce training program. Regardless of the route, enrollment should set students on a path toward early momentum, increasing their likelihood of on-time graduation or entry into the workforce — and long-term success.

1	Are students matriculating to well-matched postsecondary institutions (two- or four-year colleges, apprenticeships, work-based learning programs) that successfully graduate their students with credentials of value?
2	For students planning to attend postsecondary institutions (two- or four-year colleges), do those institutions provide adequate financial aid and are adequately funded to offer a quality educational experience?
3	For students planning to enroll in internships, apprenticeships or work-based learning programs (including career and technical education programs), are the programs broadly accessible, aligned to workforce needs and offer pay?

Postsecondary preparation. Students are taking the necessary steps to prepare for their postsecondary journey, whether that includes college applications, enrollment in job training or gaining workforce experience. Students are surrounded by well-trained and effective advisors who can guide a student in building their postsecondary plans.

4	Are all students graduating from high school on time, ready to successfully transition into further education, training or employment?
5	Do students have access to and complete rigorous and accelerated coursework to prepare them for college, career and life success?
6	Are students taking the necessary steps to apply to college, enroll in postsecondary training or enter the workforce after high school with sufficient counseling support?

Support networks that build social capital. Having support networks that build social capital means students are connected to strong, supportive relationships with teachers, counselors, mentors and other influential adults who reflect their identities and understand their needs. These networks not only foster belonging and guidance but also open doors to real-world opportunities like internships that expand students' access to future academic and career pathways.	
7	Do students have strong, supportive relationships with teachers, counselors, mentors and other influential adults?
8	Do students have effective, representative teachers and leaders?
Experiences and neighborhood conditions. Students who live in well-resourced neighborhoods, where families have access to public support — such as health care, nutrition programs and economic assistance — are more likely to thrive academically.	
9	Do families live in well-resourced neighborhoods?
10	Do families with children have access to public support (i.e., health care access, nutrition programs, economic support, etc.)?
Positive, supportive environments: Positive college and career bound cultures can foster safety, inclusivity and holistic student development. High schools can intentionally cultivate a strong sense of identity by helping students build confidence in their ability to engage with challenges, overcome obstacles and achieve success across all areas of learning.	
11	Do students attend high schools, postsecondary institutions and/or work-based programs with safe, inclusive and supportive environments?
12	Do students attend high schools, postsecondary institutions and/or work-based programs that prioritize their social, emotional and physical development and well-being?

The Case for Postsecondary Enrollment

Postsecondary enrollment refers to the pathway students take after high school that leads to further education, training or employment. This includes enrollment in two-year and four-year colleges and universities, participation in career and technical education (CTE) programs that result in industry-recognized certifications, registered apprenticeships, entry into skilled trades or military service. In today's economy, postsecondary enrollment encompasses pathways that are explicitly aligned with earning a degree, credential or skill set of value that leads to a career offering at least a living wage. It is no longer sufficient for students to graduate high school alone; success now depends on gaining the postsecondary preparation necessary to access economic mobility and long-term stability.

The importance of increasing postsecondary enrollment cannot be overstated — for individuals, for communities and for the broader economy. As we note in the introduction, the Georgetown University Center on Education and the Workforce has found that 70% of jobs in the U.S. economy will require some form of postsecondary education or training beyond high school by 2031(CEW, 2021). Yet, as of recent data, only about 62% of U.S. high school graduates enroll in college directly after graduation, with even fewer accessing career training or military pathways that provide similar long-term economic benefits.

Postsecondary enrollment — particularly when students successfully complete a degree, certification or training — translates into significant lifetime economic advantages. The same Georgetown study found that individuals with associate degrees earn about $400,000 more over a lifetime than those with only a high school diploma, while bachelor's degree holders earn nearly $1 million more.

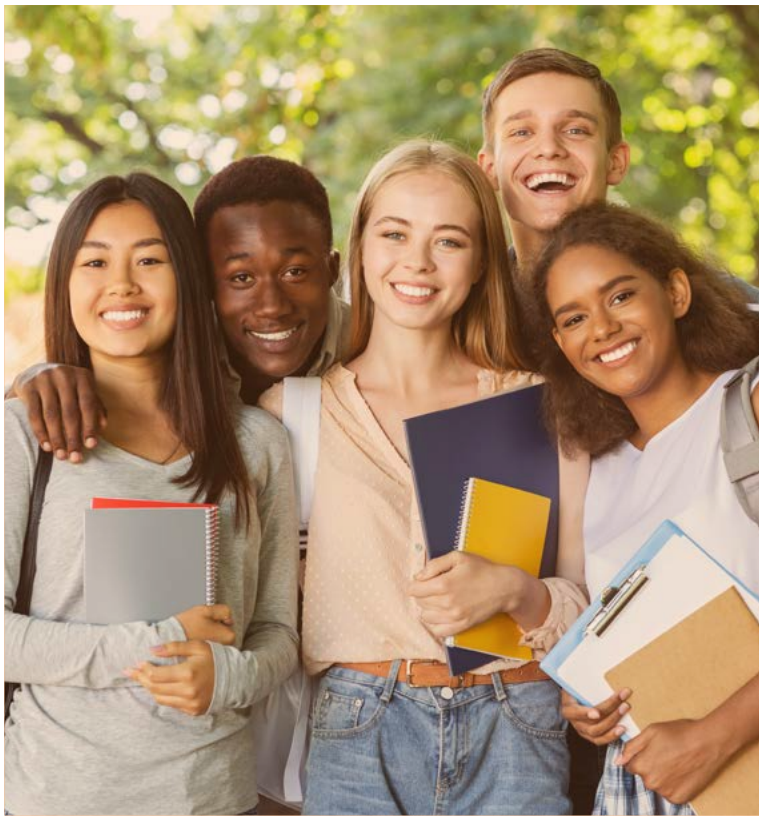
Beyond individual outcomes, higher rates of postsecondary enrollment and attainment are directly linked to broader community well-being. Regions with more educated workforces tend to experience:

- Lower unemployment rates
- Increased civic engagement
- Higher tax revenues
- Better public health outcomes

In contrast, low postsecondary enrollment and completion rates perpetuate cycles of poverty and inequality — particularly for Black, Latine and low-income students, who face systemic barriers to access and success in postsecondary pathways. By increasing access to a range of high-quality postsecondary options, we not only expand opportunity for individual students, but also invest in the social and economic resilience of entire communities.

About the Postsecondary Enrollment Playbook

StriveTogether's Cradle-to-Career Playbook: Postsecondary Enrollment synthesizes leading research, indicators and evidence-based practices to improve outcomes in postsecondary enrollment across communities. While the playbook builds on existing frameworks that are valuable in their own right, it does not replace them. Instead, it serves as a comprehensive tool that guides you to resources in areas where deeper exploration is needed. Communities can use the 12 essential questions to navigate to topics relevant to their specific needs, interests and goals.



The Education-to-Workforce Framework and supporting research

Mathematica's Education-to-Workforce Framework is the inspiration behind the playbook's organization and content. StriveTogether's Cradle-to-Career Playbook: Postsecondary Enrollment includes all of the applicable research, content and aligned essential questions included in the Education-to-Workforce Framework. It is also organized in a similar way. The playbook supplements the Education-to-Workforce Framework by incorporating research on early childhood reading development, strategies for improving high school graduation rates, the need for high-quality, trained representative educators and more. Eighty-one percent (47 out of 58) of the indicators, practices and policies included in the Postsecondary Enrollment Playbook come from the Education-to-Workforce Framework.

About the playbook structure

The playbook is organized around 12 essential questions that help communities understand their starting point and identify potential focus areas. Each question offers a menu of possible practices and policies to implement, as well as key indicators to track.

Essential questions: areas to focus

The 12 essential questions help communities ask and answer questions that help them identify areas where co-designed solutions can improve postsecondary enrollment rates. The content of each question provides starting points for designing and collaborating on solutions. Inspired by and aligned with the Education-to-Workforce Framework, these questions are clear, offer various entry points for communities and provide an organizing structure for elaboration.

The playbook includes close to 1,000 indicators, policies and practices, though implementing all of them is neither necessary nor intended. Each community has its own unique assets, needs and resources. StriveTogether's Cradle-to-Career Playbook: Postsecondary Enrollment helps communities identify key metrics to track, pinpoint effective strategies and determine where to start, enabling them to steadily improve postsecondary enrollment.

Indicators: metrics to track

Contributing indicators help communities see what it looks like when postsecondary enrollment rates improve for learners across a community. Contributing indicators are valuable because research shows they influence outcomes in a positive direction and are measured at the individual learner level (e.g., percentage of students enrolling in college). They can help communities establish student-centered priorities and provide information earlier than outcome data is available, allowing communities to know if an initiative is working and to support continuous improvement of multiple initiatives.

Systems indicators help communities track the supports that influence outcomes at the system level, such as district, city, county or state efforts. These indicators are crucial because they allow communities to monitor the system, identify gaps and address them proactively. Measured at the family, caregiver or geographic level, systems indicators reflect institutional actions and their impact. For example, the percentage of eligible families with access to a library within walking distance is a key system indicator that reveals how well resources are distributed.

Practices and policies: actions to take

Practices and policies describe what can be done at every level of the system. Practices are evidence-based efforts, like teacher professional development, that create strong conditions for results. Policies are laws, regulations, procedures, administrative actions or incentives of governments or other institutions. Communities may see a policy listed that is currently not enacted in their district, city or state, offering an opportunity to align on advocacy efforts. Federal policies are listed to create awareness so communities can leverage or utilize them to support state and local efforts.
Scaling a solution often has a lifecycle that starts with a local practice that is proven effective, scaled locally (e.g., scaled from a classroom to a district,

then to another district) and then used to inform the creation of a state-level policy that provides access to funding for further scaling.

This approach is outlined within the StriveTogether Theory of Action™. This playbook categorizes strategies into a practice or policy. But, a practice can turn into a policy over time or a policy can initiate a practice if it comes first. Lines begin to blur as scale takes over.

Not every contributing indicator has an identified systems indicator, practice or policy. That may be a result of limited research available or identified to date. Indicators, practices and policies can help answer multiple essential questions, but for simplicity, we've grouped each indicator with one essential question. To help communities choose the most relevant indicators for their context, each indicator is presented as it appears in its original source. This allows communities to understand the specific nuances that may be important to them. However, this approach means the language of indicators may vary, some may be duplicated across different sources, and language choices may need to change based on local preferences.

This resource aims to be an encyclopedia of evidence-based indicators and implementation strategies that can be used with community groups, referenced during annual planning and leveraged to prioritize initiatives as needed. Its purpose is to help you and your community understand possible levers at every level — learner, neighborhood, school, district, city and state — to improve postsecondary enrollment rates.

How to use this playbook

How this playbook is used will be different for each organization or community, depending on their planning process, goals and priorities. The playbook might be shared with a community working group in its entirety, referenced internally as a way to brainstorm potential solutions to discuss with others or leveraged in various other ways. After reading it, leaders can ask: How do we want to use this with our community?

This resource does not replace the voice and perspective of community members, who often know the solutions that will work best in their communities. Instead, consider this playbook a resource that community members can also access to support the co-designing of solutions and to inform your planning. For support on engaging with your community, visit StriveTogether's Results-Based Facilitation 101 course, available for free on the Training Hub.

This playbook offers several practical uses for community organizations. It can be used to onboard new staff or introduce organizations to cradle-to-career work. It helps explore aligned practices and policies, guiding the selection of working group topics and potential solutions. Communities can share the entire playbook with working groups or community members to support exploration and implementation. Additionally, it serves as a valuable resource during internal reviews for annual goal-setting and planning. Finally, this playbook can be used alongside other StriveTogether resources for a more comprehensive approach. If you are interested in diving deeper into the research supporting the indicators, visit the citations included throughout the playbook. The appendix also includes an annotated bibliography.

Due to the limited research on place-based partnerships, StriveTogether's Cradle-to-Career Playbook: Postsecondary Enrollment highlights initiatives and examples from StriveTogether Cradle to Career Network members making clear progress on their postsecondary enrollment outcomes, illustrating what has worked for them.

Postsecondary Enrollment Progress

Postsecondary enrollment is successful when students pursue well-matched college or work-based pathways — such as apprenticeships — that offer strong financial support, adequate resources and clear routes to earning credentials of value.

1 **Are students matriculating to well-matched postsecondary institutions (two- or four-year colleges, apprenticeships, work-based learning programs) that successfully graduate their students with credentials of value?**

Why this matters

Matriculating to well-matched postsecondary institutions — those that align with a student's academic preparation, interests and financial needs as well as in-demand employment opportunities — significantly increases the likelihood of college/program completion and long-term economic mobility. Research from the Brookings Institution and the Georgetown Center on Education and the Workforce highlights that students who attend institutions with strong graduation rates and programs aligned to labor market demand are more likely to earn credentials of value, translating to higher lifetime earnings and career stability (Carnevale et al., 2020). Conversely, undermatch — when academically qualified students attend less selective institutions — can result in lower graduation rates and diminished returns on investment (Bowen, Chingos, & McPherson, 2009). Ensuring students enroll in colleges that not only admit them but also support them to graduate with degrees that hold labor market value is essential to promoting equity and closing opportunity gaps, particularly for students from historically marginalized backgrounds.

Enrollment in college or career and technical education directly after high school graduation or direct workforce participation after graduation

Key source: E-W Framework

Indicators

Contributing indicators

- The percentage of students who enroll at a postsecondary institution directly after high school (EdStrategy, From Tails to Heads).
- Percent of students who enroll within 6 months of high school graduation (NCAN).
- The percentage of students who enlist in the military, enter the workforce (in a position with family-sustaining wages) or participate in a registered apprenticeship (EdStrategy, From Tails to Heads).
- Postsecondary enrollment rate of high school graduates (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Graduates who complete one advanced math course beyond Algebra II or more than one AP/IB course were more likely to enroll in 4-year colleges (Cumpton, G. et al., Factors associated with education and work after high school for the classes of 2008 and 2009).
- Graduates not classified as college-ready based on Texas' statewide TAKS exit exams were less likely to enroll in 4-year schools in all statistical models (Cumpton, G. et al., Factors associated with education and work after high school for the classes of 2008 and 2009).
- Failure to meet the eighth-grade math standard was consistently linked to lower 4-year enrollment rates (Cumpton, G. et al., Factors associated with education and work after high school for the classes of 2008 and 2009).
- Ever having participated in the free or reduced lunch program was linked to reduced college enrollment of any kind (Cumpton, G. et al., Factors associated with education and work after high school for the classes of 2008 and 2009).
- Models that incorporated senior survey variables found students who graduated in the top 10% of a high school class, took an SAT/ACT preparation course, visited one or more college campuses or reported submitting a FAFSA were more likely to enroll in a 4-year college, after controlling for all other factors, confirming findings from earlier Student Futures Project reports (Cumpton, G. et al., Factors associated with education and work after high school for the classes of 2008 and 2009).
- Percent of students participating in summer bridge programs (NCAN).
- Enrollment or continuation of Career and Technical Education (CTE) programs.
- Percentage of students earning an industry-based credential, an associates degree and/or earn college credits upon high school graduation.
- Number of credits earned each year.

System indicators

- Enrollment: 12-month headcount that includes all undergraduate students who enroll at any point during the calendar year. Measure d as the 12-month unduplicated undergraduate headcount by credential level and student enrollment status and attendance intensity. Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (IHEP, Toward Convergence).
- Recruitment of underrepresented populations; application start and completion among underrepresented populations (IHEP, Toward Convergence).
- Financial aid application completion by underrepresented populations; financial aid gap for underrepresented populations (IHEP, Toward Convergence).

- Acceptance rates for underrepresented populations (IHEP, Toward Convergence).
- Yield for underrepresented populations (IHEP, Toward Convergence).
- Enrollment in Science, Technology, Engineering and Math (STEM) fields by underrepresented populations (IHEP, Toward Convergence).
- Date of application or enrollment relative to term start date (IHEP, Toward Convergence).
- Dual or summer enrollment before first term (IHEP, Toward Convergence).
- Co-enrollment in another institution (IHEP, Toward Convergence).
- The Institute for Higher Education Policy recommends defining the population for most progression and completion metrics as all students who enter an institution during a 12-month period (12-month cohort, also known as a full-year cohort), instead of only students who enter the institution in the fall (fall cohort). This specification enables the metrics to capture the one in four students who start college outside the fall term, a particular issue in the community college and for-profit sectors, where about 35% and 45% of students begin at times other than the fall, respectively (IHEP, Toward Convergence).
- The Institute for Higher Education Policy recommends separating each cohort by enrollment status (first-time or transfer-in) and attendance intensity (full-time or part-time). This approach creates the following four distinctive cohorts: first-time full-time (FTFT), first-time part-time (FTPT), transfer full-time (TFT) and transfer part-time (TPT), as determined by students' status at entry. All four of these cohorts should be defined in each credential-seeking category (IHEP, Toward Convergence).
- The Institute for Higher Education Policy recommends distinguishing cohorts by credential level sought — including non-credential-seeking, certificate-seeking, associates-seeking and bachelors-seeking students — because these degree types differ in expected time to completion (IHEP, Toward Convergence).
- Sector, level and degree or program mix are commonly used in research to distinguish institutions at their most basic level: who controls the institution and what degree types are available. The size and resources of the institution establish the fiscal framework of the institution — small, resource-rich schools operate in a very different environment than do larger, under-resourced schools (IHEP, Toward Convergence).
- Modality is becoming increasingly important, as institutions expand their online learning capacities (IHEP, Toward Convergence).
- Enrollment in programs with industry recognized certifications (adapted from Perkins Collaborative Resource Network).

Practices and Policies

Practices

- Text Campaign: After reviewing data that revealed that 64% of high school seniors completed the state's ApplyTX application, yet only 49% actually enrolled in a Texas institution, Dallas Commit partnered with four school districts and 11 colleges to launch a texting campaign. Students received reminders about college enrollment milestones and could text back to receive support from counselors or college staff. The 1,000+ high school seniors who opted in to participate in the pilot were 13% more likely to enroll in a postsecondary institution compared to their peers, even when controlled for race/ ethnicity, socioeconomic status, GPA and gender. More importantly, the texts created a coordinated handoff between the high school advisor and college staff. Once a student made their college decision, their account was transferred to the higher education partner, allowing the student to text directly with admissions and financial aid representatives (EdStrategy, From Tails to Heads).

- Text "nudges" should make it easier for students to follow through on their own intentions. Text campaigns should not just focus on what students need to do – they should also make completing them easier (Ben Castleman, 2021).
- Realizing that waiting for students to arrive as freshmen was too late to begin providing the advising support students need to succeed in postsecondary education, Miami Dade College (MDC) partnered with the K-12 school district to develop Shark Path, a three-tier advising program. Shark Path starts with prospective students receiving pre-college advising support in their high school, with more than 90% of Miami Dade high school students receiving support from an MDC advisor. Students complete a noncognitive assessment, a career assessment, assistance with applying for financial aid and scholarships and an online curriculum prior to their participation in first-year orientation. Shark Path has increased the number of students who have registered for courses by 12%, with 78% of students enrolling in a credit-bearing English and mathematics course. Once students transition to college, they continue to receive support from their advisor on course selection and degree planning, which have contributed to the program's fall-to-fall retention rate of 75% (EdStrategy, From Tails to Heads).
- To combat summer melt, Georgia State developed an artificial intelligence-enhanced chatbot, "Pounce," to answer questions from incoming students in real time through text. During the first summer of implementation, Pounce delivered more than 200,000 texts, and the university saw a 22% increase in their seamless enrollment rate, equating to an additional 324 first-year students enrolled. Georgia State paired this approach with enhancing its online student portal, which guided students through the most common obstacles experienced by students in transitioning to higher education, including submitting financial aid documents and immunization records, taking placement exams and registering for classes (EdStrategy, From Tails to Heads).
- School districts adopt momentum metrics as a core measure of success. District leaders need to prioritize postsecondary preparation and successful transitions as the ultimate measure of their systems' success. This means holding themselves and their administrators accountable for improvement and sharing progress publicly (EdStrategy, From Tails to Heads).
- School districts convene cross-sector leaders to review data and plan for improvement. District leaders need to ensure that their district has access to the Momentum Metrics data. Many of the metrics can be calculated using data already collected at the district level; however, understanding where students are enrolling after graduation requires additional effort. Every district should subscribe to the National Student Clearinghouse's StudentTracker (or the College Scorecard) to gain those valuable data and ensure appropriate training supports exist. District leaders then should convene school teams to analyze all of the Momentum Metrics, reach out to community-based organizations, business leaders and postsecondary representatives to jointly strategize solutions for closing identified postsecondary preparation and transition gaps (EdStrategy, From Tails to Heads).
- School districts set goals for improvement. While all of the metrics are important, having too many priority indicators may diminish focus. On an annual basis, each district should select at least one indicator from the Preparing, Applying and Enrolling areas to set a goal for improvement and focus capacity and resources to drive change. Having clearly-defined targets and publicly reporting on progress can bring needed attention to the highest-leverage steps along a student's journey through high school. This can have an even greater impact if there are specific expectations for improvement on building or district administrators (EdStrategy, From Tails to Heads).
- School districts deploy capacity to offer direct student advising and assistance. Capacity, whether internal to the district or through a partnership, is necessary to target individual student supports. Districts should either employ

an individual directly responsible for monitoring student data, working with school educators and administrators and coordinating outside advising support, or work with partners that can bring that capacity. In the latter scenario, the district will need to ensure that their partner organization can appropriately access student data, so that they can provide the necessary individualized support (EdStrategy, From Tails to Heads).

- School districts integrate metrics into regional postsecondary attainment strategies. As communities work to meet attainment goals and prepare students for the workforce, it will be critical that students are able to seamlessly transition from high school to postsecondary education and training. The momentum metrics should be used as leading indicators of whether the community is on the path to meet its attainment goal (EdStrategy, From Tails to Heads).
- School districts partner with postsecondary institutions to address gaps. The Momentum Metrics data should be used as a flashlight to see what hurdles stand in the way of student success and identify how students of color and low-income students fare compared to their peers. However, it's not enough to stop at illumination; schools and districts need to partner with their local postsecondary institutions to facilitate seamless transitions. For instance, if too many students that go on to the local community college fail to complete a gateway mathematics or English course in their first year, it may make sense for the district to work with that community college to develop a 12th grade transition course or summer bridge program to improve students' academic preparation (EdStrategy, From Tails to Heads).
- School districts identify policy barriers that impede progress. District leaders should communicate to the state when barriers arise for supporting students' postsecondary preparation and transitions. For instance, unnecessary prerequisites may hinder the ability of students to enroll in advanced coursework, even if they have previously been identified as having potential. States can issue waivers around these requirements, as Ohio has, or institute regulations, similar to those in Washington, that automatically enroll students in advanced courses if they have shown potential (EdStrategy, From Tails to Heads).

Policies

- Affordable and No-Cost Tuition Options: In 2024, legislative actions in Colorado have made it possible for middle- and lower-income households to have access to affordable/no-cost burden options for learners. Under Colorado legislation HB24-1340, eligible students working towards their first 65 credits in certificate, associate, and bachelor's degree programs at Colorado's public institutions will benefit from a refundable state income tax credit (starting in the academic year 2024-25 and tax year 2025) that covers tuition and fees for those with annual family incomes of $90,000 or less. This legislation, called Colorado Promise: Two Free Years of College Expanded, reimburses the cost of tuition and fees for the first two years of a postsecondary degree for Colorado students who fall within this income bracket (Colorado Workforce Development Council, 2024 Talent Pipeline Report).
- Colorado is a national leader in connecting education and workforce systems. In recent years, the State has worked with educational and industry partners to diversify pathways between high school graduation and postsecondary enrollment . Starting with the students whose anticipated year of high school graduation is 2029, 100% of graduating students will have achieved at least one of the following: Earned a quality, in-demand non-degree certification; Earned 12 college credits that count toward a postsecondary credential; Participated in one high-quality work-based learning (WBL) opportunity (from the Learning Through Work and Learning at Work sections of the Work-based Learning Continuum) (Colorado Workforce Development Council, 2024 Talent Pipeline Report).
- Colorado high school students are provided with opportunities to receive postsecondary education and industry-recognized quality

credentials. Career and technical education (CTE), Colorado's Concurrent Enrollment Programs, the Career Development Incentive Program, and other programs support Colorado K-12 learners with options to receive college credit, industry certifications, and work-based learning experiences while in high school (Colorado Workforce Development Council, 2024 Talent Pipeline Report).

- As of August 2024, Colorado's Reskilling, Upskilling, and Next-skilling (RUN) programs have enrolled 5,710 individuals in vocational training, resulting in 4,629 Coloradans completing training programs, and several hundred still working towards completion. RUN programs have an 81.1% completion rate and have grown enrollment by nearly 4% between June 2024 and August 2024. The majority of enrollments are associated with Heavy and Tractor-Trailer Truck Drivers, RNs, and Nursing Assistants - three occupations that are high-need, high-demand in Colorado. RUN funding has also enabled many Coloradans to access digital literacy training, workforce readiness classes, and even programs to earn a high school equivalency diploma. While a large portion of RUN enrollees are based in metropolitan areas, the program has seen several hundred trainees in rural Colorado (Colorado Workforce Development Council, 2024 Talent Pipeline Report).
- The Office of New Americans (ONA) at the Colorado Department of Labor and Employment serves as the point of contact for state agencies, the business community, and the public to advance the seamless integration and inclusion of New Americans in Colorado. It is estimated that just over 1% of individuals receiving WIOA services in Colorado are New Americans. With New Americans representing nearly 10% of Colorado's total population and nearly 83% of those are working age, ONA is dedicated to and actively engaged in implementing strategies across the state's workforce ecosystem to address this inequity (Colorado Workforce Development Council, 2024 Talent Pipeline Report).
- Strengthening support for employers' talent development: Colorado's Regional Talent Summits Act, established by House Bill 24-1365, aims to address workforce shortages by convening state and regional stakeholders to discuss the economic and workforce needs of Colorado's diverse communities. This program will bring together regional industry, business associations, community-based organizations, talent development practitioners, local workforce centers, local education providers, institutions of higher education, and state agencies to identify and prioritize the skills needed in a particular community. These convenings will build important local relationships to ensure that skill development is aligned to economic development goals and real business needs. One objective of these convenings is to produce two and five year tactical plans that develop career pathways in specified fields facing regional workforce challenges (Colorado Workforce Development Council, 2024 Talent Pipeline Report).
- Colorado's House Bill 22-1215 established the Secondary, Postsecondary and Work-based Learning Integration Task Force charged with developing and recommending policies, laws and rules to support the equitable and sustainable expansion and alignment of programs that integrate secondary, postsecondary and work-based learning opportunities in every region of the state (Secondary, Postsecondary and Work-based Learning Integration Task Force Report).
- The partnering organizations of Colorado's Homegrown Talent Initiative share a vision that by the time a Coloradoan turns 21, they should have no-cost access to opportunities that ensure they leave high school having attained at least one of, "the Big Three": in-demand industry credentials; twelve college credits as part of a defined postsecondary workforce readiness pathway; or high-quality work-based learning opportunities. They plan to bring about this vision by: (a) Supporting the development of a statewide longitudinal data system that measures and makes available the data that school districts will be held accountable to, streamlines school district data processes and

begins to address data integrity challenges; (b) Strengthening program structures to create more equitable and sustainable access to the Big Three; and (c) Ensuring policy conditions for aligned accountability systems and sustained and streamlined postsecondary workforce readiness pathways and funding that enables school district access (Colorado Education Initiative and Colorado Succeeds, Homegrown Talent Initiative).

- Utah's House Bill 260 (2025) created a First Credentialing Program that establishes a master credential list of approved industry-recognized credentials; ensures credits are transferable to higher education institutions and technical colleges; provides a scholarship for students who complete the first credential program; requires annual review and updates based on labor market needs; provides a grant for implementation and incentives for outcomes; mandates partnerships between schools, employers, and apprenticeship programs; and promotes stackable credentials that lead to career advancement (Utah State Legislature).
- Guaranteed college admission policies, like Admit Utah (Admit Utah).
- Incorporate the metrics in the state longitudinal data system. Perhaps the most important role that the state can play in facilitating data-driven conversations about students' postsecondary preparation and success is to ensure that policymakers and practitioners have access to the highest-leverage data on student progress (EdStrategy, From Tails to Heads).
- Use the measures to track progress toward meeting the state's postsecondary attainment goal. State leaders could create a dashboard to monitor progress across all of the measures and visualize the trajectory of students on their path to postsecondary matriculation (EdStrategy, From Tails to Heads).
- Create incentives for districts to set and meet metric goals. In a time of significant competing priorities and budget reductions, communities will need incentives to prioritize the identified metrics. This is especially true if the metrics are not a component of the state's accountability system. States should consider grant competitions, using federal stimulus dollars, or other award approaches to encourage districts to set and meet annual improvement targets. States could look to the model used by Texas in its HB 3 legislation, which awards districts additional dollars based on student postsecondary preparation outcomes, with greater awards for helping students further behind achieve those outcomes (EdStrategy, From Tails to Heads).
- Analyze statewide data to identify and promote bright spots. The state education agency — potentially in partnership with the state's higher education agency — should produce an annual report that highlights the state's progress in moving each of the metrics and points to specific schools, districts or communities that have demonstrated significant year-over-year improvement. These "bright spots" should be showcased both in terms of state-level communications and through the execution of peer learning networks. The agency should also use the data analysis to identify gaps in the metrics, in terms of race/ ethnicity, income status and geography (EdStrategy, From Tails to Heads).
- Target supports using research-backed interventions. As outlined in the descriptions above, there are research-backed strategies that practitioners and policymakers can implement to improve student outcomes for each of the metrics. States should use their programmatic funds and bully pulpit to promote strategies that have proven to be effective in improving students' postsecondary preparation and success. For instance, the University of Chicago has produced a series of tools and trainings on how to improve students' grade point average. This information could be collected into a toolkit for communities on how to best use the available data to target supports (EdStrategy, From Tails to Heads).
- Facilitate peer learning networks. To actually facilitate the use of the identified research-backed interventions, as well as to learn from the bright spot districts, states should consider

developing peer learning networks around specific metrics. This will give educators and administrators a way to learn not only about what they should do, but also importantly, how they can implement the strategies. The California CORE districts represent a good model for this collaboration. They are currently working as a collective to identify and implement the best approaches for increasing the number of students that are "on-track" to postsecondary exiting the 9th grade and completion of advanced coursework, among other key measures (EdStrategy, From Tails to Heads).

- Create supportive policies. The state's role in setting the appropriate enabling conditions for success is paramount. State leaders must identify policy approaches that inspire action and remove barriers to improve students' postsecondary preparation and transitions. This includes both broad strategies for increasing data transparency and use and specific policies, such as the implementation of co-requisite remediation, that research has shown will lead to student success, especially for students of color and those from low-income families (EdStrategy, From Tails to Heads).
- Communicate about the most predictive indicators of student progress and success. State leaders should organize appropriate communications targeted both at the public and school and district officials to make them aware of the critical leverage points in a student's path to and through postsecondary education and training. The more attention the state can bring to things like FAFSA completion, the greater the likelihood that students and families will prioritize some of the most predictive indicators of future success (EdStrategy, From Tails to Heads).
- Researchers have consistently found that policies and programs that reduce the cost of college increase college enrollments (Do high school Peers Have Persistent Effects on College Attainment and Other Life Outcomes?).

2 For students planning to attend postsecondary institutions, do those institutions provide adequate financial aid and are adequately funded to offer a quality educational experience?

Why this matters

Attending well-funded postsecondary institutions that offer adequate financial aid significantly improves students' chances of completing a degree, particularly for low-income and first-generation students. Research from the Urban Institute shows that institutions with more resources can provide better academic support, advising, and student services, which are strongly correlated with higher graduation rates (Urban Institute, 2019). Furthermore, the National College Attainment Network (NCAN) finds that insufficient financial aid is one of the primary barriers to college completion, with students often forced to drop out due to unmet financial need (NCAN, 2023). When students enroll in colleges that can support both their academic and financial needs,

they are more likely to persist, graduate and gain credentials that lead to stable, well-paying careers. Research from the University of Chicago found that many students limit their college search because of what has been termed "sticker shock," making decisions about whether to go to a four-year college on the basis of the price tag of college rather than what would be expected to pay after financial aid. Second, many students limit their college options and encounter barriers to enrollment because they simply do not complete their FAFSAs or apply so late that they minimize the financial aid that they can obtain. This is a national problem (From high school to the Future: Potholes on the Road to College).

Post–high school work-based learning programs — such as those at technical colleges, community colleges, and training centers — typically involve some cost to students, including tuition, tools, uniforms, and other materials. While tuition at these institutions is generally lower than at four-year colleges, full-time students may also need support for housing, transportation, or childcare. However, many programs are subsidized or even free, especially in high-demand fields like healthcare, information technology and the skilled trades, with funding available through federal financial aid, state grants and workforce development programs (National Center for Education Statistics, 2023).

Unmet financial need

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of undergraduates who received any aid and any federal, nonfederal, state, institutional and employer aid, by control and level of institution (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Average amount received by undergraduates who received any aid and any federal, nonfederal, state, institutional, and employer aid, by control and level of institution (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving any state grant aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving need-based state aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving merit-based state aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving any institutional grant aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving need-based institutional aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving merit-based institutional aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).
- Percentage of undergraduates receiving private employer aid and average amount received, by selected institutional and student characteristics (NCES, Trends in Undergraduate Non Federal Grant and Scholarship Aid).

- Student confidence in their ability to pay back student loans. A study by Jobs for the Future found that while Black students and female students of all backgrounds were more likely than other students to rely on loans to pay tuition, they also felt less confident in their ability to pay back those loans after graduation. While Latine students were not more likely than other students to rely on loans, they too were more likely than white students to not feel confident in their ability to pay back those loans. This research showed that Black students were 45% less likely than white students to feel confident they could pay back their loans, while Latine students were 16% less confident than white students. (Jobs for the Future, Unveiling Disparities).

System indicators

- Net Price: The average cost of attendance (COA) for an institution less all grant aid in a given year. *Net Price = COA – All Grant Aid*. The Cost of Attendance follows federal definitions for costs associated with a year of college, including tuition and fees; room and board (determined by living arrangements); books and supplies; and other expenses, like travel and personal items Grant aid includes grants from all sources (federal, state or local, institutional, and other). Measured population includes all first-time, full-time students and all full-time undergraduates by credential level; includes all students, not just aid recipients; excludes out-of-state students. Population is disaggregated by credential level, economic status (at that time), academic preparation, race/ethnicity, gender, age, first-generation status, program of study (at that time) (IHEP, Toward Convergence).
- Additional metrics related to net price include: Percentage of students applying for aid; Percentage of students receiving grant aid (by type or source); Net price for students receiving grant aid; Net price by dependency status; Net price divided by average income within quintiles; Net price for part-time, transfer, out-of-state students; Net price by year in college; Number of hours worked; Number of dependents (IHEP, Toward Convergence).
- Unmet need: The average net price for an institution less the average expected family contribution (EFC) in a given year. *Unmet Need = COA – All Grant Aid – EFC = Net Price – EFC.* Measured population includes all first-time, full-time students, and all full-time undergraduates by credential level; includes all students, not just aid recipients; excludes out-of-state students. Population is disaggregated by credential level, economic status (at that time), academic preparation, race/ethnicity, gender, age, first-generation status, program of study (at that time) (IHEP, Toward Convergence).
- Additional metrics related to unmet need include: Percentage of students applying for aid; Percentage of students receiving aid; Percentage of students with unmet need and their average unmet need; Unmet need for aid recipients by type or source; Unmet need by year in college; Part-time, transfer, and out-of-state unmet need; Student payment methods for meeting unmet need; Completion rates by level of unmet need; Number of hours worked; Number of dependents (IHEP, Toward Convergence).
- Student Share of Cost: The percentage of Education and Related (E&R) Expenditures covered by net student tuition revenue versus institutional subsidies in a fiscal year. Additional metrics include: Sticker price and net price; Net tuition revenue per 12-month FTE enrollment; E&R per 12-month FTE enrollment; Subsidy per 12-month FTE enrollment. This metric is drawn directly from the Delta Cost Project, which refers to it as the net tuition share of E&R. The metric quantifies the proportion of education-related expenditures paid for by net tuition revenue relative to other institutional resources, such as state and local appropriations, investment or endowment incomes or other revenues generated by the institution — or what Delta Cost calls the "subsidy share." (IHEP, Toward Convergence).

Practices and Policies

Practices

- Students can use unmet need to evaluate whether that particular institution is affordable for them and how it financially serves students in similar financial situations.
- Students can appeal financial aid decisions in order to close the gap between costs and need.
- FAFSA completion rate
- Applying for state-based financial aid and/or scholarships

Policies

- Double Pell: The Pell Grant has served as the cornerstone of financial aid for students from low-income backgrounds pursuing higher education since its creation in 1972. This need-based grant provides crucial support for around 7 million students each year, or about one-third of undergraduates. At its peak, the maximum Pell Grant was worth more than 75% of the average cost of attendance at a four-year public university. Today, it covers less than 30%. Congress should restore the maximum Pell Grant to 50% of this cost, or roughly double the current amount. Congress should then tie the Pell Grant to inflation to sustain its purchasing power (NCAN, DoublePell for College Affordability).
- A CSA, or Child Savings Account, is a savings account whose proceeds are designated to pay for a student's higher education after age 18. These accounts are often created by a state or local government or nonprofit organization and intended to encourage more students to pursue postsecondary education. Many CSA programs offer savings incentives for families from low-income backgrounds who make their own deposits or engage in activities related to college preparation or financial literacy. Investment growth in the accounts can be tax-free at the federal or state level (NCAN, College Access and College Savings).
- College Savings Accounts: The Minnesota Kids Investment and Development Savings (MinneKIDS) Act is a bill that would allow the state of Minnesota to create a 529 college savings program to help children build savings for their future, such as college, technical school, apprenticeships and more. Accounts would be opened by the state for every baby born after June 2026, with small deposits made to seed the account. Accounts grow through family contributions and incentives, such as savings matches. Savings help pay for postsecondary education. Research shows that kids with college savings accounts are 3x more likely to attend college and 4x more likely to graduate (Minnesota Kids Investment and Development Savings).
- Policymakers should use net price results to evaluate how institutions and states spend their aid dollars and determine whether their practices align with the priorities of the federal government in lowering the net price for low-income students.
- Policymakers could use the metric of unmet need in tandem with net price to assess the full scope of financial burden that is placed on students and families and adjust financial aid policies accordingly — or encourage institutions to do so.
- The Student Share of Cost metric is highly relevant to policymakers because it quantifies the impact of decreased state support for higher education — and its direct impact on students. As per-student state investment has declined, students and families have had to pick up an increasing share of college costs, affecting their ability to access and succeed in college, especially for low-income students with fewer resources to draw on. A report using Delta Cost Project data noted that decreased state funding is responsible for almost 80% of the rise in public education tuition between 2001 and 2011. While more recent analysis shows a slight increase in per-student state and local funding for public colleges and universities (5.4% between 2013 and 2014), longer-term trends in state disinvestment in higher education have had a major impact on college affordability.

State policymakers should work to restore appropriations to at least pre-recessions levels, and institutions should realign institutional aid practices to address the financial hardships of low-income students and families, who were unduly burdened by cuts (IHEP, Toward Convergence).

- Need-Based Student Aid: The price of higher education is ever rising, and students are bearing a greater proportion of this burden. Meanwhile, attainment is more important now than ever before. Unfortunately, students with limited resources have far worse outcomes than those from higher-income families. States can support students who may not have the financial means by investing in need-based aid (National College Attainment Network, Need-Based Student Aid).
- Equitable Free College: "Free college" has become a major policy discussion at the state and federal levels. Generally, states have implemented "free college" programs that cover the full cost of tuition and fees at a public, in-state, two-year (and, in some cases, a four-year) institution. An example of a more equitable approach would be for states to implement a "first-dollar" program (National College Attainment Network, Need-Based Student Aid).
- In-State Tuition for Undocumented Students: Students brought to the US as children deserve the chance to complete their education, but they face unique barriers to college access and affordability. To best support these students, for example, states should allow undocumented students to pay in-state tuition and provide need-based aid for those who are income-eligible (National College Attainment Network, Access and Affordability for Undocumented Students).
- Support All Our Students: All students regardless of their race, ethnicity, or immigration status deserve the opportunity for affordable higher education. To support this goal, Congress should allow students from low-income backgrounds who are DACA/TPS recipients or those meeting similar requirements to be eligible for federal financial aid (NCAN, Support All Our Students).

- Need-Based Aid: Of the National College Attainment Network's (NCAN's) state policy priorities, need-based student aid was the issue with the greatest number of NCAN members identifying it as a higher priority for their state. Members often discussed need-based aid as an essential component of support for achieving better postsecondary access and attainment outcomes. While many states that identified this issue area as a higher priority currently offer some level of need-based student aid, many expressed that support levels are too low (e.g., Ohio). Most states (e.g., California, New York, Ohio, Tennessee) mentioned the importance of including support for students' basic needs and the true cost of attendance (housing, food, broadband, transportation, etc.) within aid programs (NCAN, Building Momentum at the State Level).
- Access and Affordability for Undocumented Students: Another NCAN state policy issue is access and affordability for undocumented students. Interviewees in multiple states identified supports for undocumented students as a high priority but expressed concerns regarding the political viability of such policies (NCAN, Building Momentum at the State Level).
- Equitable Free College: Members in California discussed the California College Promise program, which provides support for a variety of costs for students at community colleges. In Ohio and Texas, interviewees highlighted free-college programs that exist at the local level. Members in these states suggested that regional partnerships with community colleges may continue to be the source of free college for the time being. In other states (Florida, New York, Tennessee), members expressed concerns that free-college efforts may be susceptible to political challenges and would be unlikely to move forward. In those states, it was suggested that the label of "free" may be a hang-up. Some interviewees mentioned that policymakers may believe that free- or affordable-college opportunities are already being provided in their state, limiting the political will to expand

such programs beyond community college or consider expanding aid available through current programs. (NCAN, Building Momentum at the State Level).

- Standardize Financial Aid Award Letters: Financial aid award letters can be difficult to decipher, and their formatting can vary from institution to institution. They can characterize PLUS loans as "awards," fail to explain what "work-study" requires, and obscure the bottom line. Students need and deserve clarity – about how much they will receive in grant funding, how much they will need to take out in loans and how much they will pay out of pocket. Congress should require standardized terms and formatting for award letters to help students make informed postsecondary decisions. (NCAN, Standardize Financial Aid Award Letters).
- Improve Loan Counseling: Student loans play a considerable role in how college students finance their education today. As student loan borrowing grows in prevalence, policymakers are increasingly aware of the need to improve its system of lending to students. An area of policy reform that would improve borrower experience and has bipartisan consensus is that borrowers should have more effective loan counseling. The U.S. Department of Education should ensure student loan counseling is consumer-tested with students and balances an informative process with one that does not create barriers to aid. Counseling provided to borrowers should include the cumulative student loan debt accrued and should advise borrowers to not to take on more debt than their expected starting salary (NCAN, Student Loan Counseling).
- Reform Work-Study: The Federal Work-Study program allows institutions to provide funding for students to work, either on or off campus (with limitations), to earn money that can be used to defray the cost of a higher education. Institutions of higher education receive a lump sum of dollars from the federal government, and then determine which students are eligible for work-study awards based on their enrollment. Currently, the total lump sum for each college is determined in part by the length of time an institution has participated in the Federal Work-Study program. This formula gives an advantage to older institutions, including elite ones enrolling fewer low-income students, over younger colleges. Congress should rework this outdated formula to target funds to schools with the largest portions of students from low-income backgrounds. Lawmakers should also increase investment in FWS, which at current funding levels can only support 10% of Pell Grant recipients (NCAN, Improve Federal Work-Study).
- Strengthen AmeriCorps: National and community service programs play an important role in the college access and success movement. Support for service programs, such as AmeriCorps, will help more underrepresented students engage with advisers and others who can help them navigate the path to (and through) postsecondary education. AmeriCorps participants may be eligible to receive an Education Award, which provides as much as the maximum Pell Grant in scholarship aide or to pay off student loans, in return for their service (NCAN, Support AmeriCorps for College Success).

Expenditures per student

Key source: E-W Framework

Indicators

Contributing indicators

- Per pupil expenditures: For elementary and secondary schools, data are reported annually at the state, district, and school levels through the U.S. Department of Education's Office of Elementary and Secondary Education (OESE) Per Pupil Expenditure Transparency website. Disparities in funding can be assessed vertically

at the federal, state, and local levels, as well as horizontally between schools within the same district or postsecondary institutions within the same state (Education-to-Workforce Framework).

- Equity Factor, a measure that indicates variance in per-pupil funding within a state (see this brief by New America for more information) (Education-to-Workforce Framework).

System indicators

- Expenditures per student: Education and related (E&R) expenditures per full-time equivalent (FTE) student based on 12-month enrollment. Measured population is twelve-month FTE enrollment calculated using 12-month instructional activity credit hours in IPEDS (IHEP, Toward Convergence).
- Additional metrics related to expenditures per student include: Distribution of students by credential level or program of study; Instructional expenditures per FTE student and as a percentage of E&R expenditures; Salaries as a percentage of instructional expenditures; Student support expenditures per FTE student and as a percentage of E&R expenditures; Administration expenditures per FTE and as a percentage of E&R expenditures; E&R expenditures as a percentage of total education and general expenditures; FTE faculty/staff per FTE student (IHEP, Toward Convergence).

Practices and Policies

Practices

- Colleges can use data on per-student expenditure to track trends in their spending per student over time and in relation to peer institutions. Expenditure measures can help colleges determine how changes in spending over time impact resource allocation to core educational functions, such as instruction and student services, which can help contextualize changes in student completion rates. When interpreting trends in expenditures per student, institutions should evaluate whether changes in the metric resulted from changes in enrollment, changes in expenditures (or available revenues), or both, for better interpretation and use (IHEP, Toward Convergence).
- For students, the per-student expenditure metric is not usually a concern or consideration in the decision-making process, but may be indicative of how much an institution makes available to spend on students relative to other institutions.
- The per-student expenditure metric can be useful for policymakers in clarifying the causes of price increases. It is a widely held belief that increases in student tuition and fees are the result of surges in college spending, but analysis from the Delta Cost Project shows that institutional spending has not risen as fast as prices. Rather, they find that a decrease in public subsidies is a primary contributor to price increases. (IHEP, Toward Convergence).

Policies

- State Higher Education Funding: Tuition at public colleges depends on what states allocate for higher education, with students paying more when state investment falls or fails to keep pace with inflation. The unpredictability of state budget processes can also make it difficult for students to budget for the cost of college and risks negatively impacting college persistence (National College Attainment Network, State Higher Education Funding).
- Create a Federal-State Partnership: Less than 23% of public bachelor's degree institutions are affordable for a student receiving the average Pell Grant and community college students don't fare much better – with just 41% of institutions affordable. Congress should create a federal-state partnership that incentivizes states to invest in need-based aid and in stabilizing or reducing the cost of college. Doing so would provide additional support to students from low-income backgrounds.(National College Attainment Network, A Federal-State Partnership).

- State Higher Education Funding: Participating members of the National College Attainment Network (NCAN) identified state funding for higher education as a high priority. A Florida-based organization mentioned that a state-held council, which meets annually to discuss policy, regularly identifies state higher education funding as a top priority. Members in Ohio noted that higher education institutions typically receive little funding from the state and pointed to increased federal and state funding allocated in light of the pandemic as extremely beneficial. Some interviewees suggested that increased federal and state funding for postsecondary education, as appropriated in response to the COVID-19 pandemic, would be helpful for the state to continue long term. Interviewees also mentioned that the funding flexibilities extended during the pandemic should continue as well. In other interviews, some NCAN members expressed a lack of confidence in understanding the landscape of higher education funding and how it differed from policy priorities around financial aid (NCAN, Building Momentum at the State Level).
- Spending per student enrolled in certification/training program/apprenticeship

3 For students planning to enroll in internships, apprenticeships or work-based learning programs (including career and technical education programs), are the programs broadly accessible, aligned to workforce needs and offer pay?

Why this matters

In-demand CTE pathways: Recent studies of CTE offerings indicate that CTE programs are frequently misaligned with projected job openings in local regions. For example, one study of CTE programs in high schools in West Virginia found that only about half of the state's CTE programs were aligned to at least one occupation in high demand among employers in the region. An earlier study in Tennessee found that only 18% of graduates concentrated in program areas aligned to high-demand occupations. Research shows that the benefits of CTE vary widely across fields, with certain high-demand fields such as health yielding greater economic returns to participants (Education to Workforce Framework).

Successful career transition after high school: Students can follow multiple pathways after high school on a course to economic and social mobility, including apprenticeships or job training, military service or employment. To present a complete picture of where students transition after high school, this indicator tracks data on alternatives to immediate enrollment in postsecondary education — an approach increasingly being adopted. For example, students in Chicago Public Schools are now required to have a "postsecondary plan" that can include college admission, acceptance into an apprenticeship or job training program, military enlistment or employment. Of the 98% of seniors who submitted a plan in 2020, 17% were

pursuing pathways outside of college (Education to Workforce Framework).

Access to internships: Access to internships during the transition from high school to postsecondary education is instrumental in shaping students' academic and career trajectories. Internships provide real-world experience, allowing students to explore potential career paths and gain practical skills that enhance college applications and future employment prospects. Additionally, internships help students develop soft skills such as communication and time management, which are essential for success in both academic and professional settings. By engaging in internships, students build professional networks and gain insights into workplace cultures, better preparing them for the demands of postsecondary education and beyond.

Apprenticeships: Most registered apprenticeship programs do *not* cost students money, and in fact, they usually pay the student (called an apprentice) a wage while they learn, making apprenticeships an attractive path for young people with a clear career interest and a desire to earn income right after high school. Apprenticeships typically combine on-the-job training with classroom instruction or "related technical instruction". At completion, apprentices typically earn a nationally recognized credential and often industry certifications. Apprenticeships are most common in skilled trades (electrician, plumbing, HVAC), healthcare, IT, advanced manufacturing, etc.

Access to in-demand CTE pathways

Key source: E-W Framework

Indicators

Contributing indicators

- CTE Access: Number of CTE participants as calculated for the Strengthening Career and Technical Education for the 21st Century Act (Perkins V). State-specific calculations for a Perkins V CTE participant is defined in the law as an individual who completes not less than one course in a CTE program or program of study of an eligible recipient (Achieving Inclusive CTE).
- CTE Access: Number of CTE participants as calculated for Perkins V enrolled in high-wage, in demand career pathways (Achieving Inclusive CTE).
- Success within CTE Programs: Number of CTE concentrators as calculated for Perkins V. State-specific calculations for a Perkins V CTE concentrator is defined in the law as: (a) At the secondary school level, a student who is served by an eligible recipient and has completed at least two courses in a single CTE program or program of study; (b) At the postsecondary level, a student who is enrolled in an eligible recipient and has (i) earned at least 12 credits within a CTE program or program of study or (ii) completed such a program if the program encompasses fewer than 12 credits or the equivalent in total (Achieving Inclusive CTE).
- Success within CTE Programs: Number of CTE concentrators as calculated for Perkins V enrolled in high-wage, in-demand career pathways (Achieving Inclusive CTE).
- Success within CTE Programs: Number of CTE concentrators who have completed sustained work-based learning experiences such as internships, apprenticeships and/or clinicals (Achieving Inclusive CTE).
- Success within CTE Programs: Number of CTE concentrators who have completed advanced coursework such as Advanced Placement, International Baccalaureate, and/or dual or concurrent enrollment courses (secondary). State-specific calculations for the Perkins V postsecondary credit attainment indicator, which is defined in the law as the percentage of CTE concentrators graduating from high school

having attained postsecondary credits in their CTE program or program of study through a dual or concurrent enrollment program or another credit transfer agreement (Achieving Inclusive CTE).

- Success within CTE Programs: Number of CTE concentrators that have completed higher-level coursework (postsecondary) (Achieving Inclusive CTE).
- Success within CTE Programs: Number of CTE concentrators who have earned recognized postsecondary credentials such as industry certifications, postsecondary certificates and/or degrees. State-specific calculations for Perkins V credential attainment indicators are defined in the law as: (a) The percentage of CTE concentrators graduating from high school having attained a recognized postsecondary credential; and (b) The percentage of [postsecondary] CTE concentrators who receive a recognized postsecondary credential during participation in or within one year of program completion. State-specific calculations for the WIOA credential attainment indicator (D), which is defined as the percentage of those participants enrolled in an education or training program (excluding those in on-the-job training and customized training) who attain a recognized postsecondary credential or a secondary school diploma, or its recognized equivalent, during participation in or within one year after exit from the program. A participant who has attained a secondary school diploma or its recognized equivalent is included in the percentage of participants who have attained a secondary school diploma or its recognized equivalent only if the participant also is employed or is enrolled in an education or training program leading to a recognized postsecondary credential within one year after exit from the program (Achieving Inclusive CTE).
- Student Participation in CTE: Average number of Carnegie credits and percentage distribution of total credits earned by public high school graduates, by course type and subject area (NCES, Career and Technical Education Statistics).
- Student Participation in CTE: percentage of public high school graduates who concentrated in a career and technical education (CTE) subject area, by CTE coursetaking pattern and CTE subject area (NCES, Career and Technical Education Statistics).
- Student Participation in CTE: percentage of public high school graduates who earned Carnegie credits in each career and technical education (CTE) subject area and, among those graduates, average number of credits earned and percentage who concentrated in each CTE subject area (NCES, Career and Technical Education Statistics).
- Student Participation in CTE: Average number of career and technical education (CTE) Carnegie credits and percentage distribution of total CTE credits public high school graduates earned, by grade level (NCES, Career and Technical Education Statistics).
- Student Participation in CTE: percentage distribution of public high school graduates with each career and technical education (CTE) coursetaking pattern, by selected student race/ethnicity categories and gender (NCES, Career and Technical Education Statistics).
- Public School Teachers of CTE: percentage of public school teachers of grades 9 through 12, by field of main teaching assignment and selected demographic and educational characteristics (NCES, Career and Technical Education Statistics).
- Public School Teachers of CTE: percentage of public and private elementary and secondary schools hiring for at least one open teaching position, and among schools with at least one opening schoolwide, percentage hiring in various subject-matter fields, by selected school characteristics (NCES, Career and Technical Education Statistics).
- Public School Teachers of CTE: Among public and private elementary and secondary schools

that were hiring for at least one open teaching position in a specific field, percentage that found it very difficult or were not able to fill the opening, by subject-matter field of opening and selected school characteristics (NCES, Career and Technical Education Statistics).

- CTE Coursetaking: percentage of public and private high school graduates who earned at least one Carnegie credit in selected career/technical education courses in high school, by selected student and school characteristics (NCES, Career and Technical Education Statistics).
- CTE Coursetaking: Number of 2013 public high school graduates and percentage ever enrolled in postsecondary education by June 2016 or June 2021, and selected postsecondary outcomes among 2013 public high school graduates ever enrolled in postsecondary education by June 2021, by high school career and technical education (CTE) concentrator status (NCES, Career and Technical Education Statistics).
- CTE Coursetaking: Among 2013 public high school graduates ever enrolled in postsecondary education by June 2021, percentage of high school career and technical education (CTE) concentrators who earned postsecondary degrees/certificates and whose highest postsecondary degree/certificate was in the same field or a different field as their high school CTE concentration, by field of CTE concentration during high school and highest postsecondary degree/certificate earned (NCES, Career and Technical Education Statistics).

System indicators

- Number and percentage of CTE program offerings considered "in demand." Recent studies of CTE offerings indicate that CTE programs are frequently misaligned with projected job openings in local regions. (Education-to-Workforce Framework).
- CTE Alignment with the Labor Market: One study of CTE programs in high schools in West Virginia found that only about half of the state's CTE programs were aligned to at least one occupation in high demand among employers in the region (Assessing the Alignment between West Virginia's high school Career and Technical Education Programs and the Labor Market).
- CTE Post-Program Outcomes – Placement: Number of CTE concentrators placed in postsecondary education, advanced training or the workforce after completing a CTE program as calculated for Perkins V. State-specific calculations for Perkins V placement indicators are defined in the law as: (a) The percentage of CTE concentrators who, in the second quarter after exiting from secondary education, are in postsecondary education or advanced training, military service, or a service program under the National and Community Service Act; are volunteers in the Peace Corps; or are employed; (b) The percentage of [postsecondary] CTE concentrators who, during the second quarter after program completion, remain enrolled in postsecondary education; are in advanced training, military service, or a service program under the National and Community Service Act; are volunteers in the Peace Corps; or are placed or retained in employment (Achieving Inclusive CTE).
- CTE Post-Program Outcomes – High-Wage, High-Demand (HWHD) Placement: Number of CTE concentrators who were enrolled in high-wage, in-demand career pathways and were placed in postsecondary education, advanced training or the workforce after completing a CTE program as calculated for Perkins V. State-specific calculations for WIOA employment rate and education and employment rate indicators (Achieving Inclusive CTE).
- CTE Post-Program Outcomes – Wages: Number of CTE concentrators who, after completing a CTE program, earned at or above the state's definition of "high wage" (Achieving Inclusive CTE).
- CTE Post-Program Outcomes – HWHD Wages: Number of CTE concentrators who, after completing a CTE program, earned at or above

the state's definition of "high wage" and were enrolled in high-wage, in-demand career pathways (Achieving Inclusive CTE).

- Opportunity gaps: When analyzing opportunity gaps, state or local leaders look at the gap between the percentage of career pathways enrollees, CTE participants or CTE concentrators who are members of a particular learner group and the percentage of learners in the community who are members of that learner group (Achieving Inclusive CTE).
- Performance gaps: When considering performance gaps, state or local leaders analyze the gap between the percentage of learners in a particular learner group who meet a performance target and the percentage of all learners who meet that performance target (Achieving Inclusive CTE).
- Number of CTE program areas available in high schools, and which program areas are most and least common statewide and by region (a cluster of neighboring counties with similar labor market characteristics) (Aligning career and technical education with high-wage and high-demand occupations in Tennessee).
- Percentage of high school graduates who graduated from schools with at least one available CTE program area, and how this varies by region (Aligning career and technical education with high-wage and high-demand occupations in Tennessee).
- Percentage of high school graduates who complete at least one CTE concentration (Aligning career and technical education with high-wage and high-demand occupations in Tennessee).
- Statewide and for each region, how many CTE concentrators would need to change program areas to match the distribution of workers in the labor market? For each program area, how does the percentage of high school graduates who completed a concentration compare with the percentage of workers employed in corresponding occupations? (Aligning career and technical education with high-wage and high-demand occupations in Tennessee).
- For each region, which CTE program areas correspond to projected low-, moderate-, and high-wage occupations? What percentage of projected jobs are in program areas that correspond to high- wage occupations? What is the percentage of CTE concentrators in these program areas? How do the median annual wages in occupations that correspond to each program area vary by education level? (Aligning career and technical education with high-wage and high-demand occupations in Tennessee).
- For each region, which CTE program areas correspond to projected low-, moderate-, and high-demand occupations? What percentage of projected jobs are in CTE program areas that correspond to high- demand occupations? What is the percentage of concentrators in these program areas? (Aligning career and technical education with high-wage and high-demand occupations in Tennessee).
- Career pathway system characteristics and design features, including these basic characteristics: (a) Primary target population (e.g., low-income adults, participants with limited English-language proficiency, disadvantaged youth); (b) Length of the pathway (e.g., less than one year, one to two years, or over two years in duration); (c) Industry focus (e.g., health care, manufacturing, construction); (d) Academic goals, the credential to which the career pathway program leads (e.g., certificate, Associate's degree, Bachelor's degree); (e) Sources of funding (e.g., federal, state, or foundation funding) (A Framework for Measuring Career Pathways Innovation).
- Information on career pathway system design, including: (a) Sequence of education and training offerings: This includes the specific elements of the pathway instruction for a particular occupation or industry sector; (b) Skill assessments: This includes industry-

approved technical skill assessments, based on industry standards, and state-developed or state-approved assessments, particularly where industry-approved standards do not exist; (c) Supportive services: This includes child care, transportation assistance, and tutoring; (d) Case management: Sometimes also referred to as proactive advising, this can assist participants in identifying their needs for supportive services, and it can help participants arrange for access to those services; (e) Employer involvement: This included efforts to encourage an active role for employers in pathway design and support and in the assessment of participant competencies (A Framework for Measuring Career Pathways Innovation).

- Career pathway participant characteristics, including: (a) percentage of low-income: Most of the pathway systems reviewed target lower-income adults and collect data on this characteristic; (b) Other characteristics: other participant characteristics that are relevant to targeting and assessing results (e.g., the percentage of participants requiring remediation, percentage with English language deficiency) (A Framework for Measuring Career Pathways Innovation).
- Career pathway implementation metrics, including: (a) Enrollment: the change in the number of participants enrolled in career pathway or bridge programs from one year to the next; (b) Pathway programs in use: Most include a measure of the change in the number of career pathway programs or bridge programs from year to year; (c) Funding level: the change in the amount or percentage of funding devoted to career pathways or bridge programs from year to year; (d) Number of participants who use various support services and other program features (e.g., case management, mentoring); (e) Number of employers engaged in pathway design and delivery; (f) Adherence to program design standards set by the state; (g) Market penetration (e.g., percentage of developmental education courses incorporated into a career pathway) (A Framework for Measuring Career Pathways Innovation).
- Transition metrics (following participants across education and training funding sources or settings). For example, career pathway initiatives in Minnesota, Washington, and Wisconsin have undertaken "pipeline" studies that examine the transitions of adult education, ESL, and developmental education participants from these settings into and through postsecondary programs (A Framework for Measuring Career Pathways Innovation).
- Interim education and training outcomes for participants, including: (a) Passing grades: The number and percentage of participants who obtain a passing grade in a bridge course or developmental education course in the pathway; (b) Skill gains: The number and percentage of participants who attain the intended reading, writing, or mathematics levels (or gains targets) based on comparison of pre and post-program assessment results. Metrics of this type are required for Adult Education and for WIA youth programs; (c) Postsecondary enrollment: The number and percentage of participants enrolling in one or more credit bearing postsecondary courses. This metric is similar to the skill-gains requirement for Adult Education and WIA youth programs, but those do not require entry into credit-bearing courses; (d) Academic course completion: The number and percentage of participants obtaining a passing grade in one or more college-level academic courses within a postsecondary program of study; (e) Postsecondary program retention: The number and percentage of participants returning for the second semester of a postsecondary program (A Framework for Measuring Career Pathways Innovation).
- Pathway education and training outcomes. Technical skill attainment is a required measure under Perkins postsecondary programs, as is

receipt of an industry-recognized credential, certificate or diploma. Attainment of a degree or certificate is a required measure for WIA youth programs, as well as for WIA adult programs in states where the common measures have not been adopted. Outcomes measures can include: (a) Program completion: the number and percentage of participants completing a career pathway program; (b) Postsecondary program completion: the number and percentage of participants completing a postsecondary program and obtaining a credential; (c) Grade Point Average: the cumulative GPA of participants; (d) Apprenticeships: the number of participants completing a registered apprenticeship program. (Under WIA and Adult Education, entering an apprenticeship program also counts as entering employment.); (e) Short-term programs: the number of participants who complete a short-term vocational program; (f) Technical diploma: the number of participants who obtain a one-year or two-year technical diploma; (g) Associate's degree: the number of participants who obtain an Associate's degree in a vocational or academic transfer program; (h) Postsecondary program completion: the number of participants who complete at least one postsecondary program of any type (A Framework for Measuring Career Pathways Innovation).

- Labor market outcomes, including: (a) Employment: the number and percentage of postsecondary completers who obtain employment. This is a required measure for Adult Education, Perkins postsecondary programs, and WIA youth, adult, and dislocated worker programs; (b) Program-related employment: the number and percentage of postsecondary program completers who obtain employment in an industry or occupation related to the postsecondary program; (c) Employment retention: the number and percentage of postsecondary program completers who retain employment. This is a required measure for Adult Education, Perkins postsecondary programs, and WIA adult and dislocated worker programs; (d) Earnings gains: the average earnings gain for postsecondary program completers who obtain employment. Longer-term earnings gains at 18, 24 or 36 months. WIA adult and dislocated worker programs must report on average earnings for the second and third quarters following exit but not on earnings gains; (e) Full or part-time employment of graduates (A Framework for Measuring Career Pathways Innovation).

Practices and Policies

Practices

- A career pathway as a well-articulated sequence of quality education and training offerings and supportive services that enable educationally underprepared youth and adults to advance over time to successively higher levels of education and employment in a given industry sector or occupation. The career pathway approach reorients existing education and workforce services from a myriad of disconnected programs to a structure that focuses on the individuals in need of education and training and their career paths, and it provides clear transitions, strong supports and other elements critical to the success of participants (The Alliance for Quality Career Pathways Approach).
- Adopting the career pathway approach means redesigning the delivery of education, training, and employment services to be much more integrated, aligned and participant-centered. In tight fiscal environments, it can be financially prudent for partners at the state and local levels to commit to supporting a shared strategy, rather than for them to implement separate — or even competing — approaches (The Alliance for Quality Career Pathways Approach).
- A state career pathway system is a partnership of state-level agencies, organizations, and employers or an industry that provides a supportive policy environment for local/regional career pathway systems and programs and

promotes the quality, scale, and sustainability of career pathways (A Framework for Measuring Career Pathways Innovation).

- A local/regional career pathway system is a partnership among local and/or regional agencies, organizations, institutions, and employers or an industry. It includes specific structural elements such as multiple entry and exit points and supportive services and navigation assistance. The system generally consists of linked and aligned career pathway programs. The partnership follows six key guiding principles: (1) Adopt and articulate a shared vision; (2) Demonstrate leadership and commitment to institutionalizing career pathways; (3) Ensure that career pathways are demand-driven, focus on sectors/occupations, and deeply engage employers; (4) Align policies, measures, and funding; (5) Use and promote data and continuous improvement strategies; (6) Support professional development (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is comprised of the following structural elements that make up the career pathway: (a) A well-articulated sequence of education and training offerings; (b) Multiple entry points that accommodate participants entering at differing skill levels (including adults and out-of-school youth with very low basic skills); (c) Multiple exit points at successively higher levels of education and employment that are aligned with marketable, stackable, "creditable" credentials; and (d) Supportive services and navigation assistance for participants in the pathways (A Framework for Measuring Career Pathways Innovation).
- Ideally, a career pathway that focuses on educationally underprepared adults and youth starts with basic skill "bridge" programs. They provide seamless transitions for participants to earn marketable credentials in demand-driven fields that bear or articulate to postsecondary credit (i.e., are "creditable") and accumulate to higher credentials (i.e., are "stackable"). The pathway should lead to employment paying self-sufficient or family-supporting earnings and offering opportunities for advancement. (More robust career pathway systems may include stackable credentials that provide wages well beyond self-sufficiency.) The specific credentials included and the length of the career pathway will vary based on the industry or occupation (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is managed by a partnership that adopts and articulates a shared vision. Partners adopt a shared vision of the career pathway system and a governance structure (formal or informal) that clearly delineates each partner's roles and responsibilities (e.g., through a memorandum of understanding) (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is managed by a partnership that demonstrates leadership and commitment to institutionalizing career pathways. Partners demonstrate collaborative leadership and a commitment to building, sustaining and scaling up career pathways. This approach becomes the way they do business on a regular basis (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is managed by a partnership that ensures that career pathways are demand-driven, focuses on sectors/occupations, and deeply engages employers. The career pathway system is responsive to the specific, dynamic contexts of the regional labor market and significantly engages multiple employers within a sector or occupational area in an interactive, ongoing working relationship (through sector strategies where applicable) (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is managed by a partnership that aligns policies, measures, and funding. Partners align related policies, performance and accountability

measures, and funding for career pathways, including through the use of aligned and braided funding across funding streams (A Framework for Measuring Career Pathways Innovation).

- A local/regional career pathway system is managed by a partnership that uses and promotes data and continuous improvement strategies. Partners are data-driven and focus on continuously improving efforts by measuring participants' interim and ultimate outcomes as well as process indicators (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is managed by a partnership that supports professional development. Partners support robust and ongoing professional development for career pathways practitioners and administrators (A Framework for Measuring Career Pathways Innovation).
- A local/regional career pathway system is an extensive undertaking that almost always encompasses more than a single partnership or program. Usually, a series of career pathway programs are linked together to form a local/regional system (A Framework for Measuring Career Pathways Innovation).
- Career pathway programs are the building blocks of career pathways. They blend a set of interventions in a specific industry or occupation and are aligned in a longer-term career pathway leading to marketable, stackable, "creditable" credentials. Career pathway programs are comprised of the following interventions: (a) Learner-centered approaches to instruction and occupational training, including contextualization, dual enrollment, acceleration, and prior learning assessment; (b) Appropriate and meaningful assessment of participants' skills and needs (including accessibility needs for participants with disabilities); (c) Supportive services, including academic supports (e.g., tutoring and advising); non academic supports (e.g., child care, transportation, and financial assistance); career exploration; and, navigation assistance through the career pathway program and, ideally, into retained employment; and (d) Quality work experiences, including job placement assistance and, ideally, quality sector/occupation-specific pre-employment work experiences (e.g., internships, apprenticeships) (A Framework for Measuring Career Pathways Innovation).
- A state career pathway system is a partnership of state-level agencies, organizations, and employers/industry that provides leadership and a supportive policy environment for local/regional career pathway systems and programs and that promotes the quality, scale, and sustainability of career pathways. Partners at the state level may include the state workforce agency, adult basic education, postsecondary education, economic development, and human services. (For more information, see the Six Key Elements of Career Pathways developed by the U.S. Departments of Education, Health and Human Services, and Labor.) Partnerships also should include agencies focusing on youth, people with disabilities, and those in the corrections system (A Framework for Measuring Career Pathways Innovation).
- At the state level, governors, legislators, and state agency heads can be important stakeholders who can demonstrate leadership and commitment to institutionalizing career pathways. Under the guiding principle of "demand-driven, sector/occupational based, and employer engagement," the roles of the state partnership are to ensure that local/regional career pathways are responsive to specific and dynamic regional labor market contexts, and to significantly engage multiple employers in an interactive, ongoing relationship, ideally through a connection to any state sector strategy (A Framework for Measuring Career Pathways Innovation).
- The state system partnership should align related policies and performance measures and braid funding at the state level. In addition, it should develop statewide policies that specifically support career pathways. Policies and measures

should be aligned both horizontally across agencies and vertically within each agency among state, regional and local levels of government. Finally, the state system should include professional development opportunities for local/ regional staff and state-level staff involved in career pathways (A Framework for Measuring Career Pathways Innovation).

- States may be at different stages of system development. For example, in some states, a local area or region may have developed a robust career pathway system with multiple career pathways in the absence of a state system. In other states, highly visionary and committed state leaders may be leading the way and helping local areas and regions develop career pathway systems. In still other states, the two levels may be emerging together, albeit at different paces given funding opportunities and leadership (A Framework for Measuring Career Pathways Innovation).
- The U.S. Department of Labor developed six key elements of Career Pathways. These are: (1) Career Pathways build cross-agency partnerships and clarify roles. Key cross-agency partners at the local and state levels are engaged to participate in the initiative. Roles and responsibilities are clearly defined and formalized; (2) Career Pathways identify sector or industry and engage employers. Sectors and industries are selected, gap analysis is conducted, and employers are engaged in the development of career pathways; (3) Career Pathways design programs and provide a clear sequence of education courses and credentials that meet the skill needs of high-demand industries; (4) Career Pathways identify funding needs and sources. Necessary resources are raised and/or leveraged to develop and implement career pathway programs; (5) Career Pathways help align federal, state, and local legislation or administrative policies to promote career pathway development and implementation; (6) Career Pathways measure system change and performance. Measures are used to assess and determine system change and performance including policy changes for system-wide change (Six Key Elements of Career Pathways).
- Career pathways (i.e., a clear sequence of education coursework and/or training credentials) are aligned with the skill needs of industries important to the regional or state economies in which they are located, and reflect the active engagement of employers in targeted industry sectors regarding the skill requirements for employment or career progression in high demand occupations (Six Key Elements of Career Pathways).
- Career pathways include the full range of secondary, adult education, and postsecondary education options, including registered apprenticeship, with a non-duplicative progression of courses clearly articulated from one level of instruction to the next, with opportunities to earn postsecondary credits and lead to industry-recognized [and/or] postsecondary credentials (Six Key Elements of Career Pathways).
- Career pathways include curriculum and instructional strategies that make work a central context for learning (contextual learning) and help students attain work readiness skills (Six Key Elements of Career Pathways).
- Career pathways include, as appropriate for the individual, integrated education and training that combine occupational skills training with adult education services, give credit for prior learning and adopt other strategies that accelerate the educational and career advancement of the participant (Six Key Elements of Career Pathways).
- Career pathways lead to the attainment of an industry-recognized degree or credential, which may include stackable credentials of value in the labor market and that articulate progressively to higher-level credentials or degrees (Six Key Elements of Career Pathways).

- Career pathways help a worker enter or advance within a specific sector or occupational field, regardless of their skills at the point of entry (Six Key Elements of Career Pathways).
- Career pathways include academic and career counseling, wrap-around support services particularly at points of transition, and support the development of an individual career plan (Six Key Elements of Career Pathways).
- Career pathways are organized to meet the particular needs of adults, including childcare, accommodating work schedules with flexible and non-semester-based scheduling, alternative class times and locations and the innovative use of technology (Six Key Elements of Career Pathways).
- Career pathways have the goal of increasing an individual's educational and skills attainment and employment outcomes (Six Key Elements of Career Pathways).
- Adapt pathway programs of study to prioritize door-opener dual enrollment courses to provide foundational industry exposure and ensure students have many options as they transition to postsecondary. When appropriate, incorporate strategic dual enrollment courses, which increase students' opportunity to earn credentials or degrees that launch high-wage, high-growth careers (JFF, Promising Credentials).
- Identify and adapt postsecondary health science programs of study (for example) to increase the credential applicability of recommended foundational door-opener dual enrollment courses such as Medical Terminology or Anatomy and Physiology (JFF, Promising Credentials).
- To support students through multiple stages of academic and career development, identify and pursue strategic opportunities to align and streamline industry-recognized credentials to stackable associate's degree-level credentials. Every step must align with promising careers in the region (JFF, Promising Credentials).
- Provide training for guidance counselors and advisors to review degree opportunities, dual enrollment and labor market information with students. Ensure that support staff have the resources to communicate career growth, wage data and course outcomes directly to students. Embed labor market discussions into sustained career advising (JFF, Promising Credentials).
- Vet data and program outcomes with regional industry leaders to determine labor market needs that cannot be identified by external evaluations. Work with industry leaders to identify in-demand employability and technical competencies (JFF, Promising Credentials).
- Develop systems for career exploration that incorporate student interest, passion, and career exposure to help youth make informed choices about their futures (JFF, Promising Credentials).
- Conduct further analysis to account for students who relocate, including job opportunities in neighboring labor markets (JFF, Promising Credentials).
- Identify barriers, particularly those faced by historically marginalized populations, to enrollment in dual credit courses. The goal is to increase the number of students who can access dual credit coursework. This includes providing early supports for academic readiness in English and math (JFF, Promising Credentials).

Policies

- State departments of education could evaluate the alignment of CTE programs with workforce demands to help school districts address unserved, high-demand occupations. They could help develop new high school CTE programs aligned to high-demand occupations in each region (Assessing the Alignment between West Virginia's high school Career and Technical Education Programs and the Labor Market).
- State departments of education could restructure programs that do not align to high-demand occupations or conduct additional analyses on whether programs align to other occupations in the region or around the state. If

a region is preparing students for occupations that are not available in the region, these leaders might want to consider whether there is an opportunity to attract new industries to the region that would align to these CTE programs and thus would have a well-prepared potential workforce (Assessing the Alignment between West Virginia's high school Career and Technical Education Programs and the Labor Market).

- Expanded income support during training Unemployment Insurance in the United States is typically offered for a maximum of 26 weeks, although this may be expanded during national or local recessions. Other safety net programs for prime-age workers are limited and, increasingly, may prioritize work over training to maintain eligibility. Strittmatter (2016) noted that, in Germany, most workers engaged in training have some form of income support; in the United States, only one-in-five training participants receive income support. Workers who must choose between training and a return to employment are likely to face strong financial incentives to return to work, even if it means accepting low-wage work or returning to an industry clearly in decline. Recent proposals for wage insurance or reemployment insurance over the short- to medium-term could make engagement in, and completion of, training more feasible for a significant segment of the workforce (What works in Career and Technical Education).
- Support for capacity building among public sector training providers, especially community colleges. Given the greater fiscal variability at the state level, a federal role in supporting CTE provision, especially during economic downturns, is likely to be essential to avoid capacity constraints that limit effective training. Federal funding for programs aimed at individual workers should be accompanied by funding for CTE programs (What works in Career and Technical Education).
- Improved student access to information about program quality and expected outcomes. Additional investments in training opportunities for individual workers need to be accompanied by well-designed access to information. As noted throughout, training often raises earnings and employment, but results vary dramatically by the training provider, field of study and across individuals with different work and career histories. At a minimum, workers in need of training support should have answers to the following questions: (a) How often do individuals with similar education, work experience, and prior earnings complete a particular CTE program? (b) What are the earnings and employment outcomes of individuals who complete this CTE program? Prior to completing the program, were the education, employment, and earnings of those completing the program similar to mine? (c) What are the employment and earnings of workers who have been dislocated from jobs in my industry but do not engage in some form of training? (What works in Career and Technical Education).
- Example of Emerging State Career Pathway System – Virginia's Career Pathways: This interagency effort developed out of a Governor's Task Force in 2008 that brought together leaders from the Office of the Governor, the Department of Labor and Industry, the State Council of Higher Education, the Virginia Community College System, the Virginia Department of Education, the Virginia Economic Development Partnership and other state agencies. This task force created a set of coordinated strategies for building a statewide workforce development and education pathway. The principal purpose was to develop a workforce customized to the needs of industry and responsive to regional labor market demand. Through a combination of state, federal and private investments, Virginia is expanding upon this work to create industry-specific career pathways that extend from middle school through retirement age in each region of the state. These activities include scaling up the promising PluggedInVA model, which combines basic skills instruction and

GED preparation with industry certifications and for-credit college coursework. Participants graduate with a GED, an industry certification, a Career Readiness Certificate, a digital literacy certificate, at least 12 community college credits and experiences with local employers. Virginia's progress in career pathways is suggested by the Governor's inclusion of both proposed legislation and budget amendment in his workforce package presented for consideration in Virginia's 2013 General Assembly and by the creation of a new Director of Education and Workforce Development who acts as a liaison between the Secretariats of Education and Commerce and Trade (A Framework for Measuring Career Pathways Innovation).

CTE pathway concentration

Key source: E-W Framework

Indicators

Contributing indicators

- Of students who participate in career and technical education (CTE) coursework, the percentage that concentrate in an in-demand pathway, as defined by regional labor market data (EdStrategy, From Tails to Heads).
- Rate of completion of a career pathway program while in high school (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share of high school graduates earning a career readiness certificate by high school completion (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share of high school graduates earning a military or workforce certification by high school completion (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share of high school graduates possessing marketable trade skills by high school completion (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

System indicators

- The High-Quality CTE Pathway Participation measure presents a particular challenge to define. Definitions of quality may take into account one or more of the following: (a) High-Skill: The pathway presents the opportunity for students to move beyond the high school program into an aligned postsecondary program in that field of study; (b) High-Wage: The median wages for the occupations that the pathway is preparing students for are at or exceed a living wage in the state; (c) In-Demand: The pathway leads to significant job openings now and into the future. A region or state can determine that through a combination of looking at volume of jobs regionally or statewide, annual openings, and growth projections. At the state level, this information should be considered relative to the state's size and economy (EdStrategy, From Tails to Heads).

Practices and Policies

Practices

- "High quality" goes beyond labor market alignment. Pathways should include access to early postsecondary credit in the field of study, work-based learning opportunities, industry credential opportunities where appropriate and clear and direct links between academic and technical coursework. This combination of quality elements is arguably just as important as alignment to the labor market. Whether a particular community considers these elements at the regional or state level should be guided by the mobility of their students. In places where students are highly mobile and likely to move, understanding migration patterns for students could help communities look beyond their own boundaries to identify what pathways best serve students as well as those that serve the local economy. In places where very few people leave

the community/region, a much more localized look at the data makes sense (EdStrategy, From Tails to Heads).

Policies

- Kentucky has systematically analyzed labor market information to identify the top five priority industry sectors and specific fields within them that meet rigorous skill, demand and wage thresholds. The state has brought together K-12 districts, postsecondary institutions and employers to design career pathways that meet the needs of the identified industries. The Department of Education tracks district-by-district pathway offerings to examine alignment to the high-demand industry sectors. It also reviews the number of juniors and seniors concentrating in pathways leading to the top occupations in those high-demand pathways. Both measures are captured on a "heat map" and used to target assistance and bring transparency to the state's work. At the same time, as part of the program approval process, the Department of Education disallows local districts from using state or federal funds to support pathways that are not aligned with these priority industries and occupations. That policy has been key to phasing out pathways that lack labor market relevance (EdStrategy, From Tails to Heads).
- Tennessee has a statewide initiative to create alignment between K-12, postsecondary institutions and employers for students to have clear and guided pathways to move seamlessly into the workforce. Alongside Tennessee Promise and Tennessee Reconnect, the Tennessee Pathways program directly supports the statewide attainment goal, Drive to 55. The program is structured around three key elements to support student success: high quality college and career advising, early postsecondary and work based learning opportunities in high school, and seamless vertical alignment as a result of effective partnerships. Regional coordinators are housed at institutions across the state to foster partnerships between high schools and local colleges and employers. Grounded in regional labor market information, 122 pathways at 74 high schools across the state have been certified. The state has begun to track enrollment in these pathways to examine how students fare beyond high school, as compared to students enrolled in career technical education pathways without the certification (EdStrategy, From Tails to Heads).
- South Carolina has incorporated pathway participation metrics into their state accountability system. Their school and district report cards capture data on pathway participation, course completion, credential attainment, the types of industry credentials earned by career cluster, and participation in dual enrollment as part of students' pathway coursework. By transparently reporting on pathway metrics, South Carolina has signaled the value of career readiness programs with students and families — and empowered them with information to guide their decision to enroll (EdStrategy, From Tails to Heads).

Industry-recognized credential

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of students enrolled in a credit or non-credit CTE program who earn at least one industry-recognized credential (Education to Workforce).
- Percentage of program participants who have completed at least one industry-recognized credential (Education to Workforce).

Practices and Policies

Practices

- To identify high-value credentials, states should build stronger employer signaling analyses to identify the industry-recognized credentials that are valued by industry by using specific criteria, including the extent to which employers: (a)

state in their job postings and advertisements which credentials are required or preferred for hiring; (b) use the credential as a factor in selecting candidates for interviews and/or in determining which candidates are chosen for a job; (c) offer higher wages for those who have earned the credential; and/or (d) use a common credential within the same industry, providing portability across employers (Education Strategy Group, Credential Currency).

- To identify high-value credentials, states should identify which industry-recognized credentials count for credit toward postsecondary education and training, noting that credentials with the greatest postsecondary currency: (a) are transferrable for postsecondary course credit or credit hours in core program courses; (b) count toward hours in an aligned apprenticeship program at the postsecondary level; and/or (c) "stack" to allow students to progress to a more advanced industry credential within a specific field (e.g., machining levels 1, 2 and 3) or to a postsecondary certification, an associate degree, a bachelor's degree or beyond within a given field (Education Strategy Group, Credential Currency).
- To identify high-value credentials, states should build a cross-sector priority industry-recognized credential list spanning the education and workforce systems that is backed by labor market data and has demonstrated postsecondary value, which includes: (a) designing and executing a systematic, evidence-based process across K-12, higher education, and workforce development that utilizes a balanced collection of primary and secondary sources, including both real-time and lagging labor market data, to decide which credentials fall above and below the line; (b) maintaining the identification process through annual or biennial reviews to update and validate the list over time to ensure it reflects changing workforce needs; and (c) undertaking longitudinal analyses that track credential holders into the marketplace to be certain that credentials identified as high value do in fact lead to greater employment outcomes for learners over time (Education Strategy Group, Credential Currency).
- To identify high-value credentials, states can take their high-value credential identification work a step further by developing new technology-based approaches to streamline employer signaling, establishing industry-recognized credentials that are the industry-accepted standard and building cross-state agreements to award postsecondary credit for both youth and adults seeking to upskill (Education Strategy Group, Credential Currency).
- Providing an Incentive to establish industry-recognized credential programs: Successful states encourage school districts to offer industry certification courses to students by creating a financial incentive tied to performance and/or by adopting these industry-recognized credentials into the school accountability rating system (Massachusetts Business Alliance for Education).
- Labor Market Alignment: States use labor market data from their workforce agencies and workforce development boards to identify the credentials most in-demand and focus their programs to meet those needs (Massachusetts Business Alliance for Education).
- Data Collection and Reporting: Data collection and reporting allows states to identify progress in certain credentialing areas, monitor and assess student interest and program quality and analyze the demographics of credential earners to ensure equal access (Massachusetts Business Alliance for Education).
- Employer Engagement: Employer engagement and communication helps inform which pathways and occupations are in demand, and the education and training students need, leading schools and districts to better align offerings with labor market needs (Massachusetts Business Alliance for Education).
- Interagency Collaboration and State Policy: Collaboration between state agencies and coordination of various state policies ensures these programs serve students and business well. Each stakeholder undertakes distinct aspects of the work in close collaboration with public and private sector partners (Massachusetts Business Alliance for Education).

- Statewide Communication: States must promote credential programs to schools, districts, and the students to be served, as well as to their families. Every stakeholder must be a part of the communication strategy to inform students and parents of the opportunity to earn industry-recognized credentials and the benefits of doing so (Massachusetts Business Alliance for Education).
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- States can take their high-value credential identification work a step further by developing new technology-based approaches to streamline employer signaling, establishing industry-recognized credentials that are the industry-accepted standard, and building cross-state agreements to award postsecondary credit for both youth and adults seeking to upskill (Education Strategy Group, Credential Currency).
- Inspire and support students' high-value credential attainment to show the clear value proposition such credentials offer by: (a) communicating the workforce and higher education benefits of credentials of value; (b) removing financial and access barriers to earning high-value industry credentials; (c) enabling priority industry credentials to count for postsecondary credit or hours; and (d) making attainment of high-value industry credentials a graduation expectation (Education Strategy Group, Credential Currency).
- Spark school and district prioritization of high-value credential attainment, encouraging and rewarding them for offering more pathways that lead to credentials and increasing the number of students who earn them by: (a) providing funding for high-value industry credential attainment; (b) recognizing schools and districts for success and improvement; and (c) making

high-value credential attainment count in accountability systems (Education Strategy Group, Credential Currency).

- Recognize and emphasize the importance of high-value credentials statewide to communicate to the public that attainment of high-value industry-recognized credentials matters by: (a) leveraging the program of study approval process to ensure that career pathways are anchored in high-value credentials; and (b) publicly reporting high-value credential attainment for all students and schools (Education Strategy Group, Credential Currency).
- States can leverage additional opportunities to advance their work by counting high-value industry-recognized credentials in postsecondary attainment goals, leveraging online credential databases to capture and promote priority credentials and harnessing collective buying power by partnering with other states to lower credential price points (Education Strategy Group, Credential Currency).
- Set a new minimum data threshold for collection through one of two different approaches: (a) execute data-sharing agreements with each vendor offering a credential from the state's high-value list to receive student-level data on exam taking and passage rates by credential type; or (b) initiate secure data transfers of individual student credential certificates from schools and districts (Education Strategy Group, Credential Currency).
- Create a standardized reporting framework that allows for tracking high-value credentials tied to specific pathways and courses (Education Strategy Group, Credential Currency).

Policies

- Industry-based credential programs across the country: Delaware and Ohio integrate credentials into the school curriculum and career preparation activities like work-based learning opportunities and internships (Massachusetts Business Alliance for Education).
- Industry-based credential programs across the country: Delaware established its Delaware Pathways program in 2014 with 27 students in an advanced manufacturing pathway. The state saw a growing gap between the needs of employers and the skills students possessed as well as a gap in the number of black, Latine and low-income students who left high school with the skills to pursue higher education or a middle skill job. Today, there are 14 pathways serving over 9,000 students in fields such as finance, healthcare and information technology. In collaboration with business, secondary and postsecondary institutions and families, Delaware aims to enroll 20,000 students in pathways by 2020 (Massachusetts Business Alliance for Education).
- Industry-based credential programs across the country: In Ohio, students can earn industry-recognized credentials as one of 13 career fields with a choice of over 250 in-demand credentials. The program is included in one of three pathway options for high school graduation supported by the Ohio Department of Education. The program was developed in 2014 by a coalition of 15 school districts, Columbus State Community College, and various community and business partners in four industries – Information Technology, Logistics, Healthcare and Advanced Manufacturing. Students in any district can sign up for an industry-recognized credential course. Ohio includes the awarding of industry-recognized credentials as a measure of how well schools prepare students for life after high school on school report cards (Massachusetts Business Alliance for Education).
- Industry-based credential programs across the country: Florida, Wisconsin and Louisiana have implemented similar models, but have adopted incentives – bonus funding for schools and districts for each student who earns an industry certification – to dramatically increase the number of students earning high-value industry recognized credentials in high-wage, in-demand fields. As a result, these states

see student demand and enrollment in the program increase year over year. Each state's incentive program was created by an act of the legislature and receives its funding through legislative appropriation (Massachusetts Business Alliance for Education).

- Industry-based credential programs across the country: Wisconsin's program was enacted by the state legislature in 2013 and capped funding at $3 million with incentives set at $1,000 per student. Funding is limited to $1,000 per pupil regardless of the number of approved credentials students earn. The program was oversubscribed in its first year and incentives were prorated at $882 per student. In 2018, the program budget increased to $3.5 million. Student demand for this program continues to grow. The incentive program is managed by the Department of Workforce Development (Massachusetts Business Alliance for Education).
- Industry-based credential programs across the country: Louisiana's program began in 2014 with 14,473 students who earned national or state industry based credentials. In 2017, over 41,000 high school students attained a credential. Louisiana distributes incentives through its Career Development Fund which is uncapped and currently stands at $12 million. The incentive rate is $241 per student, per credit for each student who enrolls in an industry-recognized credential course in a high demand pathway through the JumpStart career diploma pathway. For example, if students participate in a two-credit course and a two-credit internship, the school would receive $952 as an incentive. After four years of implementation and increasing student demand, 2018 was the first year in which industry recognized credential courses were a requirement for high school graduation. The program is run through the Louisiana Department of Education (Massachusetts Business Alliance for Education).
- Industry-based credential programs across the country: Florida's program is the oldest. It was enacted by the legislature in 2007 and is funded through the Florida Education Finance Program which funds the operation of schools. The program began with 803 students earning industry certifications. The initial cost of the incentive program was $550,000 for the 2007-2008 academic year. By 2015-2016, the state investment was $50 million as a result of rising student demand. Incentives ranged from $416-$832 per student in 2016-2017. During the 2017-2018 school year, 105,131 students earned over 120,000 industry-recognized credentials. Student enrollment in the program continues to rise each year. Florida has included industry certifications in high school grading formulas since 2010 (Massachusetts Business Alliance for Education).

Participation in work-based learning

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of students who participate in a work-based learning opportunity before graduation (Education to Workforce).
- Percentage of workforce training program participants who participate in a work based learning opportunity before program completion (Education to Workforce).

System indicators

- Number of new apprenticeships over time (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Demographic characteristics of apprenticeship cohorts (e.g., age range, gender, race/ethnicity, educational attainment, veteran status, justice system involvement) (Mathematica, An

Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).

- Change in demographic characteristics over time per enrollment cohort (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Representation of women in apprenticeship programs. Analysis by the Center for American Progress found that women are much less likely to participate in apprenticeship programs than men. In 2017, 92.7% of those completing Registered Apprenticeships were men and 7.3% were women (CAP, The Apprenticeship Wage and Participation Gap).
- Earnings of women who complete apprenticeship programs. Analysis by the Center for American Progress found that women who participate in apprenticeship programs make far less than men. In 2017, among people who completed a Registered Apprenticeship, a woman made only 42 cents to a man's dollar. Surprisingly this trend has worsened since 2008, when women made 53 cents to a man's dollar (CAP, The Apprenticeship Wage and Participation Gap).
- Black and Hispanic participation in apprenticeships. Analysis by the Center for American Progress found that Black and Hispanic participation in apprenticeships roughly mirrors these groups' participation in the labor force (CAP, The Apprenticeship Wage and Participation Gap).
- Earnings by race/ethnicity of those who complete apprenticeship programs. Analysis by the Center for American Progress found that Black or African American apprentices had the lowest exit wages of all racial and ethnic groups examined, at $14.35 per hour in fiscal 2017. White apprentices had the second-lowest earnings at $26.14 — still more than 50% greater than black or African American apprentices' wages. Median exit wages for completing apprentices were highest for AIAN, Native Hawaiian/Pacific Islanders, Hispanic/Latino, and Asian apprentices — all of whom earned around $30 per hour (CAP, The Apprenticeship Wage and Participation Gap).
- Occupations of enrollment cohort (e.g., electricians, child care workers, plumbers, nursing aides, orderlies and attendants, carpenters, home appliance repairers, heavy and tractor-trailer truck drivers, sheet metal workers, electrical power-line installers and repairers, correctional officers) (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Changes in apprenticeship occupations over time (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Amount of on-the-job training (OJT) and related technical instruction (RTI) required per apprenticeship program and changes in program requirements over time (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Program outcomes for Registered Apprenticeship participants (i.e., completed, cancelled, active) and average time spent in program (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Average Annual Earnings Differences for Apprenticeship Participants Versus Nonparticipants, both short term (i.e., sixth year after enrollment) and medium term (i.e., ninth year after enrollment). Data source: RAPIDS and state UI wage records (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Estimated Expenditures per Apprentice (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Social Costs and Benefits: Medium-Term (i.e., for 9 years after enrollment) and Career (i.e., for 36 years after enrollment) Under Baseline Assumptions. Data source: RAPIDS, state UI

wage records, and OA and SAA annual budget estimates. Mathematica calculated social benefits as the sum of productivity benefits and reduced administrative costs of unemployment insurance, welfare, and food stamps (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).

- Female apprentices views of Registered Apprenticeship (RA). Mathematica explored these issues through discussions with women who have participated in the program, executive directors of community-based organizations that received DOL grants from the Women in Apprenticeship and Nontraditional Occupations (WANTO) program, and state apprenticeship directors (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Undertake Targeted Outreach: Grantees from Women in Apprenticeship and Nontraditional Occupations (WANTO) and four of the state RA directors agreed that school-age girls should be a target audience for advertisements about RA in the skilled trades. They explained that teaching girls and young women about the trades through career fairs, summer camps, subsidized summer employment programs and visits to schools may help break down stereotypes that women should not or cannot work in industries such as construction (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Develop skills and manage expectations through pre-apprenticeship training. According to the Women in Apprenticeship and Nontraditional Occupations (WANTO) grantees, many women they work with lack the basic occupational skills required to have a successful RA experience in the skilled trades, such as trade-related math skills, Occupational Safety and Health Administration training, and the appropriate level of physical fitness. To address this and prepare women for the rigors of construction apprenticeships, four of the WANTO grantees operate pre-apprenticeship training programs (when they have adequate funding). Through these programs, women acquire the basic required skills before entering an apprenticeship. They also meet tradeswomen (and tradesmen) and learn about the sometimes complicated RA application process. Armed with this knowledge, a woman is better equipped to decide if the trades are truly the best career path for her and select the occupation that best matches her skills, interests, and life circumstances (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Provide child care support or classes that better accommodate the schedules of single mothers. Finding adequate child care that accommodates rigorous apprenticeship schedules is challenging, as is finding the money to cover these extensive child care needs. RA could consider providing child care subsidies, as suggested by directors in two states and by women respondents. Alternative, more convenient, class schedules or online learning (when possible) could be arranged. A focus on setting up detailed child care plans before the apprenticeship begins, perhaps as a step in the application process, could also be helpful. For example, one Women in Apprenticeship and Nontraditional Occupations (WANTO) grantee requires women to have a child care plan, a backup child care plan and a backup to their backup plan before helping them get into an RA program. According to the grantee, this has been a successful strategy (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).

- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Address the Culture of Male-Dominated Construction Worksites. Help employers create and enforce policies to prevent harassment and discrimination at worksites. The WANTO grantees provide technical assistance to employers to develop methods to recruit women and to develop and implement effective sexual harassment policies. However, because of limited funds, it is not possible to provide these services to all employers that could benefit from them. WANTO grantees suggested that employers use existing resources like Hard Hatted Women's TOOLKIT to develop procedures and train male employees to follow them. This manual reviews effective methods for developing, revising, implementing and monitoring sexual harassment policies on job sites (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Set goals for enrolling women in RA. State RA offices recommend targets for the percentage of women apprentices in a program based on calculations of the percentage of women in the local area, but these are not quotas. An administrator in one state noted that his state used to have targets for women in construction trades (2 to 6%, for example), but they have not been able to meet those goals for the past 20 years (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Increase monitoring of sponsors and employers. Monitoring RA programs for compliance with equal employment opportunity (EEO) laws focuses on ensuring that program sponsors are making "a good-faith effort" to recruit women, but it is perhaps less successful in ensuring that women are treated well in the workplace. Although EEO laws offer continual protection to workers from harassment or discrimination, and women can make a complaint at any time, women and the WANTO grantee directors stated that harassment and discrimination are prevalent across construction industry worksites. Moreover, some women we spoke to had hesitated to file complaints for fear of being labeled troublemakers or inviting further harassment (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Recommendations for increasing women's success in Registered Apprenticeship (RA) programs – Connect women with effective mentors and peer support. The learn-while-working model of apprenticeships means that new apprentices rely on peers at the worksite to teach them vital occupational skills and help them acclimate to workplace cultures and norms. The WANTO grantees emphatically suggested that apprenticeship programs should teach effective mentorship techniques to all workers. State RA directors from two states concurred that connecting women to a mentor is the single most important form of support for women in the program (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).

Practices and Policies

Practices

- Intentionally design and structure career pathways to enable students to further their education, secure a job and advance in employment. A basic career pathway model includes multiple entry points to facilitate access to training in occupational skills and knowledge valued by employers and stackable credentials that match labor market demand. Multiple exit points aligned with employment opportunities offer participants flexibility to access employment at different stages of the career

ladder. Individuals may enter and exit career pathways at multiple points as they advance in their careers (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Align career pathways to industry needs. When developing career pathways, community colleges should assess and identify regional industry needs to ensure the pathways will provide students with the occupational skills and knowledge that employers demand. Community colleges developing career pathways should collaborate with employers and industry partners to review labor market information and consult them to identify occupations for which training is needed (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Define and create accessible pathways with clearly defined entry and exit points. Career pathways options that are clearly defined enable students to see how the education and occupational training along a pathway can lead to specific occupations or clusters of occupations. When pathways align with in-demand occupations within an industry sector, colleges can optimize the chance that students acquire the skills and knowledge needed to earn a credential and gain employment (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Stackable credentials: Well-designed career pathways provide students with opportunities to continuously build or "stack" content knowledge and indemand credentials as they progress along the pathway. Stackable credentials promote vertical movement to the next-higher-skill job in a sector, with each new credential providing a new set of skills to master (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Allow sufficient time for curriculum development and approval, but seek accelerated approval when feasible. If new courses will be required for a pathway, community colleges will need to allow sufficient time for curriculum development and approval. College administrators should carefully review their program development steps and processes to identify institutional roadblocks that could potentially be removed. They can also consider whether there are any fast-track program approval options in their state, which may facilitate their efforts to respond more quickly to industry changes (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Connect students to pathways that align with their knowledge, skills, educational interests and career goals. Students interested in pursuing a career pathway can benefit from recruitment and intake procedures that are designed to assess their knowledge, skills and educational and employment background as well as their career aptitude and goals (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Deliver contextualized or integrated basic skills instruction to accelerate students' entry into and successful completion of career pathways (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Assess CTE instructional materials to identify the math, literacy and writing skills students need to successfully progress along career pathways, assess students to determine their skill levels and identify opportunities to contextualize instruction. Reviewing course textbooks, assignments and other materials from courses offered at various points along a career pathway is one way to determine the skills students need in order to be successful and master the occupational content in a course. Community college faculty and staff can better design instructional supports for students if they know the levels of skills required to understand the course content as well as the skill levels of their incoming students. Data from intake assessments of basic skills proficiency can inform what types

of skills instruction students need, as well as how much instruction they need to help them better understand course content (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Determine strategies for teaching basic skills that are appropriate for the student population served and the resources available. Two common strategies for teaching basic skills needed to succeed along a career pathway are (1) pre-pathway bridge programs that offer contextualized basic skills curricula and (2) integrated instruction, where students begin an occupational training course on a pathway, but are team taught by an occupational instructor and a basic skills instructor. Bridge programs are offered just before or as the first step of a career pathway and can be designed to help students master basic skills needed to support their transition into pathway courses, especially when contextualization helps them see direct connections and applications of those skills in the occupations they are pursuing. Integrated instruction, on the other hand, embeds basic skills instruction into the technical content and is applied at each pathway step (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- If implementing a team teaching model for courses with integrated instruction, select a model that best fits your institution and faculty. Options for team teaching may range from monitoring, where one teacher is responsible for instruction while the other circulates around the classroom monitoring students' needs, to shared teaching duties, where the occupational instructor and basic skills instructor each focus on their own area of expertise. Considerations for selecting a specific model include instructional needs of students, abilities of instructors and how adaptable the subject area is for team teaching (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Provide professional development and collaborative planning time to support team teaching. The What Works Clearinghouse expert panel believes occupational instructors can learn pedagogical approaches from basic skills instructors; conversely, basic skills instructors can ensure basic skills are applied in more meaningful ways when they understand the contexts in which those skills need to be applied. Adequate, ongoing planning time for faculty to coordinate their teaching styles and the instructional content can promote more successful team teaching. Additionally, devoting time and resources to professional development for both occupational instructors and basic skills instructors may help ensure they are adequately prepared for their team teaching assignments (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Assess whether basic skills instruction (contextualized or integrated) is delivered in a manner that is resulting in students achieving their learning goals. Program directors can use a number of approaches to assess the delivery of contextualized basic skills instruction in bridge programs or integrated courses offered on campus. For example, they can observe classroom instruction, conduct interviews with faculty or program staff or collect feedback from students through surveys or focus groups (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Offer flexible instructional delivery schedules and models to improve credit accumulation and completion of non-degree credentials along career pathways. Students must balance their education and training with jobs, families and other obligations. Often, that can make traditional course formats and schedules problematic. Flexible delivery of instruction, through non-traditional course times and/or online or self-paced courses, can help students combine college with other commitments to facilitate access and progress along career pathways. Acceleration strategies, including

awarding credit for prior learning and offering competency-based courses, can also help ensure that students acquire — and demonstrate mastery of — both technical and basic skills as they progress along a career pathway (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Assess the institutional readiness and resources needed to offer flexible scheduling and/or instructional delivery models. Setting up flexible scheduling and course offerings in multiple formats requires coordination and logistics. For example, academic calendars and schedules may need to be modified to accommodate flexible course scheduling. Designing innovative instructional delivery models requires similar levels of coordination as well as resources for instructional technology and professional development for the instructors who will use the technology. Institutional capacity assessments can help community colleges think about which things they need to work on first when designing more flexible course schedules and models (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Tailor flexible course schedules and instructional models to diverse student needs and instructional preferences. Students have different capabilities, needs, barriers and learning preferences that influence their ability to engage, to be retained, and to be successful along a career pathway. Community colleges can use various strategies to maximize flexible scheduling, such as block scheduling, evening and weekend course offerings, and self-paced online modules. These should be carefully aligned with, and respond to, the diverse needs of students (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Provide training and support to instructors developing flexible instructional delivery models. Developing hybrid, online and flipped classroom formats requires skill sets that extend beyond those used in developing more traditional courses. Faculty designing and delivering flexible instructional models for career pathways must learn to leverage instructional technology while remaining attentive to student engagement strategies.15 They must also ensure course learning objectives, instruction and assessment align to industry needs, as identified during the creation and implementation of the career pathways. Successful design and delivery of alternate course formats may require additional funding for instructional technology, as well as time and resources for instructors to collaborate with instructional designers to ensure their new hybrid or online courses are effective (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Use acceleration strategies, such as prior learning assessments and competency-based education, to reduce the time between students' pathway entry and their attainment of non-degree credentials. Awarding credit for prior learning, offering co-requisite courses and/ or offering competency-based courses, programs and assessments can accelerate or compress students' time to earning credentials. Prior learning assessments (PLAs), one mechanism for awarding credit for prior learning, help students move from the non-credit- to the credit-bearing parts of a career pathway. Another acceleration strategy is Competency-Based Education (CBE). CBE is a curriculum design in which students acquire and demonstrate their knowledge and skills by engaging in learning exercises and activities that target clearly defined competencies. Credentialing is based on mastery of targeted competencies, rather than on seat-time, clock-hours and face-to-face instruction (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Continuously monitor and respond to students' needs regarding flexible course offerings and delivery modes. Administrators, instructors

and staff in career pathways should continually assess whether students are able to access the courses they need to make progress toward credit accumulation and credential attainment. This includes ensuring required courses are offered frequently, and at varied times. Community colleges must also consider whether students have the necessary hardware and internet connectivity to connect to and participate in courses that require remote lectures, labs or other activities. Many Learning Management Systems now incorporate surveys that continuously monitor students' progress and challenges, including scheduling and student attendance problems. These types of student data may indicate unmet needs that could be addressed. As needed, community colleges may use data on student progress and outcomes to inform adjustments to when, how frequently, and in what format courses are offered (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Provide coordinated comprehensive student support to improve credit accumulation and completion of non-degree credentials along career pathways. Students often need to navigate a variety of academic and non-academic challenges that can affect their ability to complete coursework and progress toward earning a credential. These challenges include choosing the right program of study and career, balancing education with family and work obligations, and covering tuition costs and related educational expenses. Providing comprehensive student support in a coordinated fashion helps students to be resilient to these challenges. The What Works Clearinghouse expert panel believes colleges should provide a broad range of academic and non-academic, career and financial support services. These may include proactive academic advising, mentoring, coaching, counseling, career navigation and financial aid, as well as referral to other support services. The panel believes these student supports should be intentionally integrated into the student experience so they are unavoidable as students progress along their career pathway — from intake to completion (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Conduct an inventory of available supports and clearly define which college departments are responsible for delivering specific supports. Student support services may be provided by a large network of professionals, including those within a community college and those in the surrounding community. For this reason, the What Works Clearinghouse expert panel suggests it is important to conduct an organizational review of the services offered and clearly define who is responsible for them. Resource mapping provides an organizational overview of who will offer academic supports, non-academic (personal) supports, career and employment supports and financial supports to the students. Further, colleges should consider how to engage internal and external partners so that they can collectively identify gaps in support services and improve how students access available services (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Assess students' needs and connect one-on-one to provide them with relevant supports, from intake to program completion and beyond. The What Works Clearinghouse expert panel recommends that during the career pathways recruitment and intake process, student support staff conduct a comprehensive needs assessment with each student. This needs assessment should be holistic, focusing on both academic and non-academic (personal) issues. The primary aim of the assessment is to ensure students are matched with and connected to the right supports to help them be successful. Students should leave the intake process with a clear overview of the steps and available supports along their chosen career pathway (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Integrate available supports into the student experience. Students may be unaware of student support services, unsure of how to access or make use of student supports, or even reluctant to seek out relevant supports. Therefore, the What Works Clearinghouse expert panel believes faculty and staff should proactively provide student supports. There are several ways to integrate student support services into the student experience. For example, faculty could introduce career navigators as part of their instructional teams, have them participate actively in class activities and integrate student support services into class exercises. In addition, making student support staff accessible in the evenings and on weekends will enhance accessibility for students balancing work and family obligations. For some student populations, using technology and online formats can increase accessibility and nudge students to make better use of existing student supports (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Monitor student progress, academic and non-academic needs and supports accessed. Identifying needs and connecting students with relevant supports do not end at intake. The What Works Clearinghouse expert panel encourages all staff and faculty who engage with students throughout their program of study to be attentive to changes in students' academic and non-academic barriers. Upon detecting barriers, faculty and staff should refer or connect students to services that can help meet students' emerging needs. This requires that faculty be keenly aware of and understand all the support services available and that faculty and student support staff work in tandem (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- There are several strategies for monitoring student progress. Some pathway programs have proactive advisors, who initiate contact with students several times during their progression along the career pathway; other programs also dedicate resources to provide follow-up supports to students after program completion. The What Works Clearinghouse expert panel encourages staff to pay particular attention to student progress at transitions between education and employment, where students may experience challenges re-entering the career pathway, as these phases may offer practical opportunities for building in new supports (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Consider hiring sector-specific career navigators. The transition from college to career can be difficult. Discipline- or sector-specific career navigators, advisors, mentors or coaches can tailor their advising and career guidance to the occupational sector in which a student plans to seek employment. When implemented well, navigators and career coaches can positively affect a student's retention in a program and completion of a credential. Navigators can provide students with individual coaching, career planning and assistance navigating the transition to further education and employment. Navigators can also serve as an important resource in connecting students to necessary services (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Develop and continuously leverage partnerships to prepare students and advance their labor market success. Career pathways that leverage employment-focused partnerships offer students both classroom- and work-based experiences to acquire the skills needed to be ready for work on day one. The benefits of investing in, building, and deepening employment-focused partnerships include: (a) improving the relevance and alignment of the curriculum to employer or industry needs; (b) expanding the opportunities for students to engage meaningfully with employer partners through employer presentations, onsite visits, work-based learning opportunities, and career fairs; and (c) increasing the potential for job

placement and advancement. Ultimately, improving student labor market outcomes benefits students, employers and colleges alike. There is an incentive for administrators, faculty, and staff to work together with employment-focused partners to design, implement and continuously evaluate career pathways (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Identify ways to get employers strategically engaged in each aspect of planning and implementing career pathways. When employers and industry partners are continuously engaged in all aspects of career pathways design and implementation, students are better prepared when they take an exit along the career pathway for employment. Community colleges can engage employment-focused partners in a variety of ways and at various stages of career pathways planning and delivery. Employer engagement can be in the form of curriculum planning and review, assessment of local labor market information, assistance with student recruitment, provision of mentorship or work-based learning opportunities as well as active promotion of the career pathway program (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Conduct an inventory to identify current and potential employment-focused partnerships. In order to best leverage employment-focused partnerships to support students' labor market success, community colleges should conduct an inventory to identify current and potential partners and think critically about how to engage with them. To identify new employment-focused partners, colleges can first connect with local workforce boards. They can also reach out to local, state or regional industry associations. Colleges may consider conducting a "self-check" to identify opportunities to strengthen or deepen partnerships with leaders in specific occupational sectors that are relevant to the career pathway(s) offered by the college. The National Council for Workforce Education suggests colleges should develop an employer engagement plan that includes an environmental scan of internal and external perceptions of employer engagement and its effectiveness; college goals; an employer checklist and database; and a communication plan that covers internal and external communications (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Designate staff time and resources to build and sustain employment-focused partnerships. Engagement with employment focused partners allows college administrators and staff opportunities to better understand employer and industry expectations and labor market needs. Involving employers and industry partners in the planning and design of career pathways may improve job placement rates when students complete their pathway studies (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Collaborate with employers and industry partners to provide students hands-on learning opportunities that are relevant to occupations along their chosen career pathway. When career pathways provide students with hands-on exposure to occupations they are pursuing — or might pursue in the future — students can develop realistic expectations about those occupations. Project-based learning, high-fidelity simulations and experiential field trips are strategies that instructors can use to align course content and delivery with students' career interests. Internships, work-based learning opportunities, clinical placements and apprenticeships allow students to gain employment experience as they progress along a career pathway. As appropriate, faculty and staff can advise students to take advantage of employment opportunities at transition points along the career pathway. When doing so, they should consider how and when they will encourage students to return for additional education and training, and what kinds of

supports students will need to successfully re-enter their career pathway program (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).

- Regularly review the employment-focused partnership inventory to assess whether or not the right partners are involved to help advance students' labor market outcomes. Community college administrators and staff can use partnership inventories to identify gaps that may need to be filled by strategically engaging employers and industry partners. Ongoing communications with current and former students and employers is important for program improvement. Colleges should consider developing and implementing mechanisms to allow employers the opportunity to provide feedback on their pathways programs and student hires, including the extent to which colleges are preparing workers with the right skills (What Works Clearinghouse, Designing and Delivering Career Pathways at Community Colleges).
- Registered Apprenticeship (RA) is a career-training program that offers structured on-the-job training combined with related technical instruction tailored to industry needs. The program, created in 1937, seeks to produce well-trained workers whose skills are in high demand. In 2010, almost 450,000 people across the nation were enrolled in RA. Apprenticeship programs range from one to six years and are offered in approximately 1,000 occupations, including the traditional skilled trades such as electrician, plumber and carpenter, as well as such occupations as truck driver, child care worker, nursing aide and correctional officer. For apprentices, RA provides on-the-job training, related technical instruction, incremental wage increases as skills are attained and upon completion, nationally recognized certification in the chosen career area. (Mathematica, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States).
- Support apprenticeship systems and program designs through support models, like Jobs for the Future's Center for Apprenticeship and Work-Based Learning, which aims to connect a diverse population of youth and adults to quality jobs and enable businesses to develop workers with the skills they need to grow (Jobs for the Future).
- Leverage third party, external support to employers for building high-quality apprenticeship programs. Creating and sustaining high-quality apprenticeship programs poses significant challenges for many employers, particularly small and midsize businesses. In addition to demanding substantial resources, apprenticeships are difficult to develop and require time, training expertise, and organizational capacity — resources that many employers feel they lack. Without external support to help employers establish and manage apprenticeship initiatives, scaling such programs nationally remains a formidable task (Jobs for the Future).
- Apprenticeships: Apprenticeship models involve an industry- and employer-driven structured approach to occupational training. Apprenticeship models typically combine paid, work-based learning; on-the-job training and mentorship; related technical instruction, often provided in a classroom setting; and an industry-recognized credential upon completion. Apprentices are paid, productive employees of an employer that sponsors or partners with the apprenticeship program. Apprenticeship has long been dominated by the construction trades, and the existing evidence has largely been focused on these trades. However, DOL and state apprenticeship offices have recently focused on expanding apprenticeship programs in sectors with high demand for skilled workers, most notably health care, information technology and advanced manufacturing. (The Workforce Innovation and Opportunity Act Research Portfolio).

- Transitional employment: Transitional jobs, also referred to as subsidized jobs, are a form of earn-and-learn employment program that provide participants with work experience and help them find employment by paying all or some of their wages. Transitional employment programs are not always included with other work-based learning models, because these programs offer a mix of strategies. For example, some transitional employment programs provide only work-based income support, whereas others aim to improve future employability by addressing employment-related barriers such as educational attainment and vocational skills. Transitional employment programs may often provide classroom training, job search assistance and basic education services. They may also conduct job readiness assessments and tailor services based on career interests or by allowing participants to explore different vocational training opportunities (Sattar 2010) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Career pathways programs allow participants to progress through education and training in multiple discrete, stackable components in particular sectors by offering a clear sequence of education coursework or training credentials aligned with employer-validated work readiness standards and competencies (Kozumplik et al. 2011). Career pathways programs under the Workforce Innovation and Opportunity Act are defined as programs that offer a clear sequence, or pathway, of education coursework and/or training credentials aligned with employer-validated work readiness standards and competencies, and are guided by six essential components. The six components are: (1) building cross-agency partnerships and clarifying roles, (2) identifying industry sectors and engaging employers, (3) designing education and training programs, (4) identifying funding needs and sources, (5) aligning policies and programs, and (6) measuring system change and performance (U.S. DOL and Manhattan Strategy Group 2015) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Sector-oriented training programs are related to career pathways programs and aim to provide training that produce workers with the skills needed by groups of employers in a particular industry or sector that has strong local demand and offers the opportunity for career advancement (Schaberg and Greenberg 2020). These programs are often provided through partnerships between employers and training and educational organizations. Input from employers and published labor market information are used to design these programs, and employers also provide work-based training opportunities, such as internships or on-the-job-training, to participants (Holzer 2015). Many sector-oriented training programs also provide participants with job search assistance and job placement services, and some programs continue working with participants after they find a job (Schaberg and Greenberg 2020). Common industries targeted by sector-oriented training programs include health care, information technology, manufacturing, and transportation (Schaberg and Greenberg 2020). (The Workforce Innovation and Opportunity Act Research Portfolio).
- Incumbent worker training (IWT) programs provide those who are currently employed with services such as mentoring, on-the-job learning, and other training to help with career advancement and job retention. Under WIOA, IWT programs focus on ensuring that employees of a company can acquire the skills necessary to retain employment and advance within the company, or to acquire skills necessary for averting a layoff (WIOA 2017b). (The Workforce Innovation and Opportunity Act Research Portfolio).
- Elements of Workforce Innovation and Opportunity Act (WIOA) Youth programs: (a) Tutoring, study skills training, instruction and dropout prevention; (b) Alternative secondary school services or dropout recovery services; (c) Paid and unpaid work experience; (c) Occupational skills training; (d) Education offered concurrently with workforce preparation

and training for a specific occupation; (e) Leadership development opportunities; (f) Supportive services; (g) Adult mentoring; (h) Follow-up services; (i) Comprehensive guidance and counseling; (j) Financial literacy education; (k) Entrepreneurial skills training; (l) Services that provide labor market information; (m) Postsecondary preparation and transition services (The Workforce Innovation and Opportunity Act Research Portfolio).

- Job Corps, supported under the WIOA legislation, is the nation's largest and most comprehensive career technical training and education program for at-risk youth. The program's objective is to help disconnected youth become more responsible, employable and productive citizens by providing them with individualized academic education, vocational training, counseling, and job placement assistance. A defining feature of Job Corps is its residential component: Most participants live in a Job Corps center during the week, where all education, training and counseling services are provided. The National Job Corps Study, a nationally representative randomized controlled trial, found impacts on earnings and hours worked in the fourth year after enrollment (Schochet et al. 2008) (The Workforce Innovation and Opportunity Act Research Portfolio).
- The YouthBuild program, also funded under WIOA, aims to provide at-risk youth ages 16 to 24 with services to help them attain a high school diploma or equivalent and teaches them construction skills, and it has expanded to offer youth career pathways training in high-demand industry sectors (YouthBuild 2020) (The Workforce Innovation and Opportunity Act Research Portfolio).
- The National Guard Youth Challenge program is a six-month residential program to improve the education, life skills and employment potential of high school dropouts. Upon completing the residential phase of the program, participants receive a year of structured mentoring and are placed in employment, education programs or the military. An RCT evaluation of the program found that three years after enrollment, program participants had higher rates of employment and earnings than the control group (Millenky et al. 2011) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Year Up provides urban young adults with intensive training and offers internship tracks in desktop/network support, quality assurance, project management, advanced system administration and cyber security at corporate partner locations. An RCT of Year Up's career pathways program for youth found that the program increased participant earnings, with program participants earning $1,895 more than those in the control group in the sixth and seventh quarters following random assignment (Fein and Hamadyk 2018) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Youth Transition Demonstration (YTD) projects, conducted between 2006 and 2012, were intended to help youth ages 14 to 25 with disabilities who received or were at risk of receiving Social Security disability benefits to become more economically self-sufficient. Participants were offered some combination of benefits counseling, career counseling, and coordination of services, as well as internships, job shadowing, job coaching, competitive paid employment and empowerment training. An RCT study examining the program implemented in West Virginia observed positive impacts on employment and earnings one year after implementation (Fraker et al. 2012). However, an RCT measuring the impacts for all six YTD project sites 24 months after random assignment found no significant impacts on employment and earnings outcomes (Hemmeter 2014) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Youth Corps provides youth with a stipend as well as educational services, employment and training and community service activities. An

RCT study of Youth Corps found positive impacts on earnings 18 months after enrollment but no impacts on employment or education (Price et al. 2011) (The Workforce Innovation and Opportunity Act Research Portfolio).

- Youth Career Connect (YCC) is a high school-based program designed to encourage America's school districts, institutions of higher education, the workforce investment system and their partners to scale up evidence-based high school models that will transform the high school experience for America's youth to connect them to college and careers. The program blends features of the career academy and sector-based models, including small learning communities; college preparatory curriculum based on a career theme that aligns occupational training with employer needs; and employer, higher education, and community partners (Maxwell et al. 2019) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Work-based learning, a strategy used in many programs funded by WIOA Youth to provide youth with occupational and basic skills training in a work-like setting, is found to have positive effects on employment and earnings outcomes (Carter et al. 2011) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Genesys Works recruits high schoolers from underrepresented student groups and places them in year-long paid internships in the IT departments of tech and non-tech companies in their senior year, with the hope that the exposure to computers, corporate culture and adult mentors working in professional jobs will get them on the path to a technology-related college career (Genesys Works).

Policies

- Promote policies that modernize and expand states' apprenticeship system to increase access to high-quality apprenticeships (Jobs for the Future).
- Advocate for expanded Apprenticeship Budget at the Federal Department of Labor. In Fiscal Year 2024, the government spent $184.35 billion on higher education via the Office of Federal Student Aid and Office of Postsecondary Education alone, while the Department of Labor's apprenticeship budget for FY24 was only $285 million. This funding gap reflects a longstanding emphasis on traditional degree programs despite growing recognition that apprenticeships offer a high quality, work-based alternative (Jobs for the Future).
- Strengthen incentives for employer participation (Policy Blueprint to Modernize and Expand Apprenticeships Nationwide).
- Establish a national framework for youth apprenticeship (YA) (Policy Blueprint to Modernize and Expand Apprenticeships Nationwide).
- Expand and strengthen pathways into apprenticeship (Policy Blueprint to Modernize and Expand Apprenticeships Nationwide).
- Position intermediaries as the facilitators of apprenticeship (Policy Blueprint to Modernize and Expand Apprenticeships Nationwide).
- Mitigate the "cliff effect" by disregarding income earned during apprenticeship training from means tested public assistance programs (Policy Blueprint to Modernize and Expand Apprenticeships Nationwide).
- As policymakers continue to make investments necessary to grow apprenticeship programs, their policies must center around women, people of color, and other underrepresented groups to ensure equitable access. Policymakers can help facilitate that access by continuing to support equity intermediaries and other workforce intermediaries that can help with recruitment and the coordination of supportive services such as child care, transportation and legal assistance. The Center for American Progress has called for investments in labor management-led intermediaries that can fill this role (CAP, The Apprenticeship Wage and Participation Gap).

- Policymakers should work to eliminate occupational segregation in apprenticeship programs, as well as ensure that women and people of color have access to apprenticeship programs in the highest-paying occupations. Analysis by the Center for American Progress shows that gender wage gaps narrow significantly when women have access to male-dominated apprenticeship programs (CAP, The Apprenticeship Wage and Participation Gap).
- Policymakers should ensure that apprenticeship programs are required to comply with the Davis-Bacon Act and support wage progression. These policies help ensure that the highest-wage programs remain well-paying. (CAP, The Apprenticeship Wage and Participation Gap).
- Policymakers should seek to expand apprenticeships into new industries, while working to raise the wages in those industries. For example, child care and hospitality apprenticeships are popular among women, yet both industries are plagued by persistently low wages. It is not enough to expand apprenticeships into new industries; wages in historically undervalued occupations dominated by women must be raised as well. (CAP, The Apprenticeship Wage and Participation Gap).
- Policymakers should also ensure that incarcerated apprentices are paid at least the federal minimum wage, which can help reduce recidivism and facilitate re-entry. (CAP, The Apprenticeship Wage and Participation Gap).
- Policymakers should focus on implementation and enforcement of the 2016 EEO regulations and resist efforts to weaken the labor standards governing apprenticeship programs. (CAP, The Apprenticeship Wage and Participation Gap).

Work-based learning for specific youth populations

Practices and Policies

Practices:

- Youth with justice system involvement: Two studies assessing the impact of employment-related programs on youth with justice involvement observed positive findings. In a random assignment study of the Avon Park Youth Academy and STREET Smart program (National Council on Crime and Delinquency 2009), the program improved employment and earnings. The Avon Park Youth Academy and STREET Smart program serves youth ages 16 to 18 who are transitioning out of a secure custody residential facility in Florida, and its vocational training component includes opportunities for work-based learning through on-the-job training. In a subgroup analysis of JOBSTART, a program providing basic skills education, occupational training, support services, and job placement assistance to youth who had dropped out of school, young males with prior justice system involvement experienced statistically significant gains in earnings in the fourth year after random assignment (Cave et al. 1993). A large-scale evaluation of the Reentry Opportunities Employment grant program is currently under way and will examine impacts on youth with involvement in the justice system (The Workforce Innovation and Opportunity Act Research Portfolio).
- Youth with prior or current foster care involvement: Although few studies have examined the labor market outcomes of youth with prior or current foster care involvement, two have found positive impacts. In an RCT of an intervention helping youth transition out of foster care, youth in the program earned an average of $611 more than youth who did not participate in the program (Valentine et al. 2015). Youth who participated in the program received counseling, referrals to other services, financial assistance, group social and learning activities and educational and vocational coordination. In a quasi-experimental

study of the Foster Youth Demonstration Project, which provided youth with job preparation and educational and supportive services, youth with foster care involvement who participated in services longer were more likely than those participating for fewer quarters to secure a paid job (Institute for Educational Leadership 2008) (The Workforce Innovation and Opportunity Act Research Portfolio).

- Youth experiencing homelessness: A study including two experiments found positive employment impacts of a social enterprise intervention and an Individual Placement and Support (IPS) program for homeless youth. An RCT comparing a social enterprise to the IPS program for homeless youth reported that 39% of youth who participated in a social enterprise program reported any paid employment, compared to 32% of youth in the IPS program over the 20-month study period. However, this difference was not statistically significant. (Ferguson 2018). The youth who participated in the social enterprise intervention attended vocational and small-business classes and received clinical or case-management services. Youth in the IPS program met individually with their employment specialist, a case manager and a clinician at least once weekly to discuss life goals such as employment (Ferguson 2018). In another study of youth receiving shelter services including temporary housing, skills training, and referral services, youth who received these services showed no significant improvement in employment status when compared to those receiving day treatment (Thompson et al. 2002) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Youth parents or expectant parents: An RCT of the Young Parents Demonstration (YPD) examined the provision of enhanced services to improve educational and employment outcomes for youth parents and those expecting a child. The core program components offered to all study participants typically included education, training and employment-focused services as well as supportive services. The enhancements offered to the treatment group included mentoring or guided employment, education, training and related supports. The study found positive earnings impacts for the first two rounds of grantees through the first two years after random assignment. However, overall, the enhanced services had no impact on employment and earnings (Trutko et al. 2018) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Youth disconnected from education or employment: The Performance Partnership Pilots provides services for disconnected youth, defined as individuals between ages 14 and 24 who are low income and either homeless, in foster care, involved in the juvenile justice system, unemployed or not enrolled in or at risk of dropping out of an educational institution. In a synthesis of the local evaluations of the first cohort of pilots, of the six types of interventions implemented, three demonstrated evidence of improving expected youth outcomes — case management services for out-of-school youth, combined case management and WIOA services for out-of-school youth, and a two-generation education and training program for pregnant and parenting youth. However, one of the three local evaluations examining case management for disconnected youth also found evidence of negative effects of participation in career preparation and subsidized employment (Maxwell and Yañez 2020) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Youth who have experienced trauma: Two models of trauma-informed approaches for youth have been rigorously evaluated: the Attachment, Self-regulation, and Competency (ARC) model and the Sanctuary Model. The ARC model focuses on improving three areas impacted when youth experience trauma — attachment, self-regulation and resiliency (Berk et al. 2018). For youth ages 13 to 19 in a residential environment, use of the ARC model reduced post-traumatic stress disorder and improved behavior (Hodgdon et al. 2013). The Sanctuary Model — initially developed for adults but more recently adapted to in-school youth and children — develops an understanding

of trauma, uses a framework for addressing disruption, and includes an implementation toolkit (Berk et al. 2018). In a residential setting, one combined experimental and quasi-experimental study found that youth in locations that had implemented the Sanctuary Model had greater self-control, reduced verbal aggression and used fewer negative coping strategies after six months (Rivard et al. 2005). In addition, trauma-informed approaches are also used for adults with barriers to employment in settings outside of WIOA, and this strategy could be applicable to some adult job seekers within WIOA programs (The Workforce Innovation and Opportunity Act Research Portfolio).

Expenditures on workforce development programs

Key source: E-W Framework

Indicators

Contributing indicators

- How many students at a college or university are taking internships? The National Survey of College Internships (NSCI) found that far fewer college students (just 21.5%) reported taking an internship than previously reported. Prior studies have estimated that 50%-60% of college students have taken an internship. NSCI's data from 12,130 students suggest that these estimates may be too high, though the effects of the COVID-19 pandemic should be considered (National Survey of College Internships).
- Are there differences in internship participation by race, gender, first-generation college student status, and so on? The National Survey of College Internships (NSCI) found that internship participation may vary by racial identity, first-generation status, and other attributes of students, disciplines and institutional characteristics (National Survey of College Internships).
- Which students are experiencing obstacles to internships, what are these obstacles and how can we change our programs to ensure equitable access to internships for all students? The National Survey of College Internships (NSCI) found an alarming number of non-interns (67.3% or 6,407 students) wanting to take an internship but not being able due to a variety of obstacles, thus revealing a considerable issue with equitable access. College and universities should pay more attention to adequately advertising internship positions, exploring how to reach busy and/or working students, and engaging employers in creating more internships or other more accessible forms of work-based learning (e.g., online internships, campus-based experiences, etc) (National Survey of College Internships).
- Length of internship program: The National Survey of College Internships (NSCI) found the average length of an internship to be 18.3 weeks, a considerable investment in student (and employer) time (National Survey of College Internships).
- Student satisfaction with internship: The National Survey of College Internships (NSCI) found students on average reported being very satisfied with their internship experiences, but 1 in 4 reported less than satisfactory experiences. The large number of students reporting high rates of satisfaction is good news for higher education, but the 25% of students with less than satisfactory experiences indicates that considerable work remains to ensure that all students have access to a high-quality experience (National Survey of College Internships).
- Quality of supervision and mentoring: The National Survey of College Internships (NSCI) found students rated their supervisors' support for their well-being (M=4.2 on a 1-5 scale) more highly than their task-specific mentoring (M=3.45). These results suggest that while supervisor support appears to be of high quality, colleges,

universities and employers could provide more training for supervisors on how to be effective mentors with respect to task performance (National Survey of College Internships).

- Are students experiencing racial, gender or other forms of discrimination during the internship experience? The National Survey of College Internships (NSCI) found that while the number of students reporting discrimination at the internship site on the basis of their race, gender, sexuality, disability status, and/or other personal attributes is relatively low (3.3%), the fact that 86 students reported such behaviors is cause for concern. Campuses should provide training and resources for students, academic advisors and internship supervisors regarding anti-discrimination policies in the workplace and what to do in the event that a student experiences inappropriate behavior or treatment (National Survey of College Internships).

System indicators

- The amount of funding dedicated to workforce development programs as a percentage of total educational funding in a state (Education to Workforce Framework).
- State investment in workforce preparation and development (that is, the amount states spent on education, training and recruitment of workers with programs concentrating on improving the skills base and job placement of a state and/or community's labor base) (C2ER, State Investment in Workforce Development on the Rise).
- Federal funding for workforce preparation and development (e.g., through U.S. Department of Labor programs) (C2ER, State Investment in Workforce Development on the Rise).
- Does the state provide workforce development funding through the following sources: (a) the department of labor and/or economic development; (b) the state education agency; (c) the state higher education office; (d) the community and/or technical college system; (e) other departments? (Education Commission of the States, Workforce Funding).

Practices and Policies

Practices

- Redesigning for equity in workforce development would ensure job quality for all workers, increase competitiveness and drive inclusionary growth (CAP, A Design for Workforce Equity).
- Apprenticeships benefit apprentices and employers alike. Apprentices learn on the job, obtain credentials, contribute to meaningful work and earn a salary. Employers have loyal and productive workers, higher retention rates and the opportunity to train apprentices according to their own standards and procedures (Urban Institute, Public Sector Apprenticeship).
- When governments hire apprentices, returns to the public sector are especially high. Apprentices hired from the local community reduce the need for other training programs. As with private employers, government agencies can use apprenticeships to fill job openings and those vacated by retiring employees, maintaining staffing and service continuity (Urban Institute, Public Sector Apprenticeship).
- Public sector apprenticeships can attract and expose young people to diverse career opportunities in government. Engaging and training young people for public sector careers can upgrade the quality and quantity of public services, thereby benefiting all residents (Urban Institute, Public Sector Apprenticeship).
- Finally, when public officials use apprenticeships for their own talent development, they can be more convincing in persuading private employers to do so as well (Urban Institute, Public Sector Apprenticeship).
- Examples of workforce development initiatives focusing on manufacturing, professional, scientific and technical services: (1) the American

Apprenticeship Initiative (AAI) aimed to increase registered apprenticeship in nontraditional occupations, such as manufacturing, healthcare and computer/IT and to populations typically underrepresented in apprenticeship including women and people of color; (2) Pledge to America's Workers sought commitments from companies to provide job training and apprenticeship opportunities. Several manufacturing companies were part of this initiative, pledging to expand workforce training in the sector; (3) Manufacturing USA is a network of 14 institutes dedicated to advancing manufacturing innovation, which also involves workforce development. These institutes focus on research and development in manufacturing technologies and creating training programs to develop skilled workers for advanced manufacturing jobs (C2ER, Powering Industry Growth Through Workforce Investment).

- Functions of a local workforce system: The programs, services and activities implemented by organizations in local workforce systems serve five major functions: (1) Providing employment services to help workers of all ages explore career interests, find jobs, and advance; (2) Providing education and training to prepare workers for careers by developing occupational and technical skills; basic academic skills, such as reading, writing and math; and career readiness skills, such as teamwork, critical thinking, professionalism, conflict resolution and communication; (3) Providing supportive services can include both personal or academic supports to help people be successful in education, training or work; (4) Supporting employers' human resources needs, including defining hiring needs and job requirements, advertising for available positions, recruiting and screening candidates, onboarding new employees and supporting and upskilling incumbent workers; (5) Improving job quality and access for job seekers and workers by working with employers to adopt "high road" strategies (better pay, predictable schedules, and other benefits) or advocating for changes, such as in local or state wage policies, hours and working conditions (Urban Institute, Guide to Learning about Local Workforce Systems).
- Organizations in local workforce systems perform various functions and take on varying roles, depending on their organizational type and mission. Organizations involved in local workforce systems can be grouped into the six categories: (1) Service providers offer education, training, employment and supportive services and include a range of organizations, such as community and technical colleges, high schools, American Job Centers, trade schools, unions and community organizations; (2) Government agencies oversee public workforce programs and funding; (3) Employers and industry and business groups hire and provide training to workers and may partner with local organizations to oversee, design and deliver programs; (4) Foundations and philanthropic organizations provide financial resources to workforce programs and organizations, primarily through grants. Corporations may also support workforce initiatives as part of corporate responsibility efforts; (5) Unions and advocacy organizations seek to change employer practices, working conditions and workforce policies; (6) Collaborative entities bring together partners in the workforce system to identify workforce needs; plan, develop and implement strategies to meet those needs; and raise funds to support these strategies (Urban Institute, Guide to Learning about Local Workforce Systems).
- The people who use the programs and services provided through local workforce systems fall into five general categories: (1) Unemployed workers are jobless, looking for work and available for work. Underemployed workers have part-time, temporary, intermittent or low-wage work that does not provide enough income to live stably; (2) Youth, typically defined as people ages 16 to 24, may be participating in high school vocational or career technical

education programs, attending high school equivalency or adult education classes, enrolled in postsecondary education and training, or receiving employment services; (3) Adults with low basic skills lack the math, reading, writing or English proficiency skills required to enter postsecondary education or secure a middle- or high-wage jobs; (4) People with personal challenges to work have circumstances that make it difficult to complete training or secure a job, such as a disability, criminal history, housing insecurity or lack of access to affordable child care; (5) Workers seeking career change or advancement may be experiencing job loss or insecurity, want to work in a more interesting field or desire to move up from entry-level work. (Urban Institute, Guide to Learning about Local Workforce Systems).

- Coordination and Systems Change: In the context of local workforce systems, systems change refers to strategies that focus on improving coordination, collaboration and alignment across actors, policies, and programs in the local workforce system toward specific objectives. Examples of shared objectives include improving accessibility to services for a target population to increase employment outcomes or meeting skilled labor gaps in a specific sector. Organizations within a local workforce system can undertake system change activities toward shared goals, including the following activities: promoting knowledge sharing; developing shared goals, strategies and plans; using scarce resources more efficiently and effectively. Coordinated approaches to improving employment and training outcomes and meeting stakeholder needs in local areas include sector strategies or partnerships that focus on local or regional needs of a specific sector, collaboration between training providers and employers, and career pathway strategies that coordinate. Collaborative entities create or implement coordinated approaches or systems change strategies (Urban Institute, Guide to Learning about Local Workforce Systems).
- Identifying and Leveraging Multiple Sources of Funding: Local workforce system programs and services rely on various funding sources from federal, state and local government, as well as funding from private sources. Local workforce development organizations and policymakers overseeing workforce funding streams use a variety of funding models and initiatives, including the following: (a) Blended and braided funding, where individual organizations leverage multiple public and private funding streams to provide a set of programs and services; (b) Collaborative funding models, which pool funding from various foundations and philanthropies to support programs and initiatives with similar models or goals; (c) Performance-based funding, which distributes funds based on participant outcomes (such as completion or earnings) rather than outputs (such as enrollment numbers); (d) Public-private funding, where activities or programs are funded by a partnership between employers or philanthropies and public entities; (e) Social impact bonds, which use private-sector investor funds for workforce programs to create improved outcomes and pass on part of the savings achieved to investors (Urban Institute, Guide to Learning about Local Workforce Systems).
- Many local workforce system organizations and programs collect, analyze and disseminate data to identify needs, inform policy making, measure program progress and improve programs. Strategies using data to inform and improve local workforce system activities include the following: (a) Data sharing of participant information between agencies and organizations to allow education, training, and employment programs to better meet participant needs and examine participant outcomes, such as educational attainment, job attainment, and wages; (b) Labor market information analysis to identify local area employment growth by sector and potential skills gaps in the local workforce; (c) Performance measurement to help education, training and employment programs identify successes and challenges and improve;

(d) Evaluation of programs to determine effectiveness or return on investment, leading to additional funding, program changes or program replication (Urban Institute, Guide to Learning about Local Workforce Systems).

- Integrated service delivery: Creating more closely integrated services across programs has been an important principle of Workforce Innovation and Opportunity Act (WIOA), as well as the goal of many recent initiatives aimed at generating efficiencies and reducing challenges in reaching self-sufficiency for individuals and families. Integration of services and programs can impact all areas of operations, including case management approaches, training, staffing, funding and administration. Additionally, integration aims to reduce siloing, or separation and isolation, of programs and services, thus supporting increased access and improved efficiencies (The Workforce Innovation and Opportunity Act Research Portfolio).
- Co-location, consolidating administrative structures and cross-training. The U.S. Government Accountability Office (GAO 2011) identified both co-location (that is, being located within the same building or facility) and consolidating administrative structures as ways to increase efficiency and improve coordination. At the agency level, 14 states consolidated core WIOA programs under a single agency, thus reducing or removing barriers to coordination. At the local level, the emphasis on co-location, as well as alignment and program coordination under WIOA, enabled partners to work together and streamline services (Dunham et al. 2020) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Shared data and data systems. The Employment and Training Administration encourages states to consider implementing integrated case management data systems across WIOA partner programs (U.S. Department of Labor 2020), and some research supports data-sharing policies to increase participants' access to different benefits (Adams and Spaulding 2018; Durham et al. 2019). Koller and Paprocki (2015) note the benefits of shared data systems between partners within American Job Centers (AJCs) include reducing burden related to data entry and increased ability to track services provided to customers across other programs (The Workforce Innovation and Opportunity Act Research Portfolio).
- Pooled funding and cost sharing. Under WIOA, AJC partners must contribute to infrastructure costs, whether or not they are co-located. As of 2018, this was not the practice in many AJCs, and the expectation for contributing toward infrastructure costs corresponded directly with co-location (Brown and Holcomb 2018) (The Workforce Innovation and Opportunity Act Research Portfolio).

Policies

- Public funding is made available for workforce development programs
- Public sector apprenticeships exist nationwide but remain a very small segment of the government workforce. One prominent example of public safety services using an apprenticeship program is the California firefighting apprenticeship program, which has been operating for more than 25 years and has employed more than 10,000 apprentices across 175 fire departments. In Boston, an emergency services apprenticeship program was started in 2018 to attract more diverse candidates and address staffing shortages for emergency medical technicians (EMTs) across the city. These programs provide employment on-ramps to careers, while ensuring residents receive consistent, high quality services from critical government agencies (Urban Institute, Public Sector Apprenticeship).
- Example of youth public sector apprenticeship in Kentucky (Automotive technician specialist). In 2018, Kentucky launched several pilot

apprenticeship programs as part of a broader strategy related to filling critical skill gaps in the commonwealth's talent pipeline. One program was designed to train automotive technician specialists working for the Transportation Cabinet. The program was created to cultivate the next generation to fill current and future automotive technician jobs across the state's 12 transportation districts. An equipment garage supervisor put his projected staffing concerns in stark terms when he stated, "In 3 to 5 years, 70% of people in this garage might be retired, and [the apprenticeship program] will be a good way to get good, qualified candidates [whose skills] are up to date." The program also helped apprentices rapidly gain the two years' work experience required for the National Institute for Automotive Service Excellence (ASE) certification exam, preparing apprentices for a career in both the public and private sectors (Urban Institute, Public Sector Apprenticeship).

- Example of youth public sector apprenticeship in Colorado (Teaching assistant). Colorado is facing general teacher shortages in rural areas, as well as increased statewide demand for specialists like early childhood educators, counselors, and ESL instructors. To meet such local needs, CareerWise Colorado established a paraprofessional youth apprenticeship program in 2019 and has since worked with the Cherry Creek, Denver, Estes Park and Thompson public school districts to employ high school students in the local elementary schools. Across these four districts every year, 20 to 30 youth apprentices work as teaching assistants with early childhood and elementary-age children. During their program, apprentices divide their time between finishing high school classes, working in elementary schools and taking college courses to further their teaching education. Overall, the program has been successful for school districts, apprentices, students and parents. School districts see apprenticeships as an obvious solution for their staffing requirements and goals to bring more diverse, local staff to the classroom. Apprentices also benefit from the opportunity to learn whether teaching is right for them. Students benefit by having educators and counselors who are as racially and ethnically diverse as their classes. The program's success has spurred additional school districts in Colorado and other states to consult CareerWise on using this model (Urban Institute, Public Sector Apprenticeship).
- Example of youth public sector apprenticeship in Maryland (Building maintenance technician). Prince George's County Public Schools (PGCPS), like many school systems in the US, has a talent shortage across a range of occupations beyond teaching, including core administrative and building maintenance roles. To meet PGCPS's talent needs and help young people find career opportunities and employment, the school district started a "school-to-work" apprenticeship model. Select students start an apprenticeship while in high school and transition into full employment in the school system after completing the program. The first program at PGCPS was launched in 2018 with a building maintenance apprenticeship program including 20 students in 11th grade. Despite the challenges for on-the-job learning amid COVID-19, all 20 students in the first cohort graduated and are continuing the final years of their apprenticeships with PGCPS or an industry partner of the school. Hiring for the program's second year paused because of COVID-19, but plans to hire another cohort of 11th graders in the 2021–22 academic school year are underway. PGCPS leaders hope this example will create interest among other school departments to start apprenticeship programs. As the program coordinator noted, "We have many departments like IT, food services, HR, transportation that could all potentially benefit from an apprenticeship program."
- To create a more equitable workforce, policymakers must boldly shift away from presumptions based on the skills narrative to

facilitate conditions in which employment risks and insecurities generated during economic change are shared equitably by everyone who has a stake in the economy (CAP, A Design for Workforce Equity).

- Workforce development thinking must shift so that the sole focus is no longer on upskilling but rather on creating a new system in which aggregating employer demand is determined by equity considerations. Supply-side job training interventions alone are insufficient to broadly manage changing employment effects and planning decisions when measured against factors such as stagnant wages, stalled compensation and increased affordability issues. In order to drive the pursuit of inclusive economic growth, public policy must systemically align multiple mismatches in the labor market (CAP, A Design for Workforce Equity).
- Example of increased state funding for workforce development programs: Minnesota's FY2020-21 biennial budget proposed more funding for Youth and Young Adult workforce development programs. Minnesota provided state funding for the Youthbuild program, Youth at Work Competitive Grants, and a Youth Program offer a construction career pathway for at-risk youth and young adults who have dropped out of school, youth with industry-recognized credentials and pre-apprenticeship training in residential construction; and provide summer and year-round employment and training services to low-income and at-risk youth, ages 14 to 24, through a partnership with the Local Workforce Development Boards and Youth Committees. However, the Department of Employment and Economic Development proposed a 6% decrease in workforce development for FY2020-21 (C2ER, State Investment in Workforce Development on the Rise).
- Example of increased state funding for workforce development programs: New Jersey has enhanced and refocused its investment in workforce development and apprenticeship programs over the past two years. There was a 32% increase in funding for workforce development programs in FY2019. The vast increase in funding is the result of additional support being put into the state's Manpower and Employment Services and the Work First New Jersey program. The focus of these funding increases being employment and training services, strengthening of workforce development programs in the state. FY2020 budget proposal continues that commitment to workforce initiatives (C2ER, State Investment in Workforce Development on the Rise).
- Example of increased state funding for workforce development programs: California has proposed an 11% increase in funding for workforce development programs in FY2020. The Governor's proposed budget has included increased investment for pre-apprenticeship and apprenticeship programs and the state's High Road Training Partnership program, a sector partnership initiative of the California Workforce Development Board (C2ER, State Investment in Workforce Development on the Rise).
- Legislation such as the Infrastructure Investment and Jobs Act in 2021 and the CHIPS and Science Act in 2022 have created training opportunities and encouraged workforce development in the manufacturing and PSTS sectors. These policies aim to strengthen and modernize the U.S. workforce by advancing research, expanding STEM education, and equipping workers with the skills needed for a competitive, innovation-driven economy. Both federal and state policymakers have emphasized developing the workforce for these industries. In fact, approximately 40% of all state business incentives directly targeting workforce preparation and development are either in the manufacturing or professional, scientific, and technical services (PSTS) industries (C2ER, Powering Industry Growth Through Workforce Investment).
- Some states are supporting growth by partnering with academic institutions to provide training and recruitment, such as the Virginia Talent Accelerator Program. Other states work with middle and high school students

to encourage career exploration and engage them with relevant work opportunities such as the Massachusetts high school Apprenticeship Challenge, Nebraska's Developing Youth Talent Initiative, and the New York Youth Jobs Program Tax Credit. By supporting workforce development, states hope to encourage growth within priority industries, like manufacturing. Below are some recent examples of how states are leveraging their workforce preparation and development programs to land major manufacturing projects (C2ER, Powering Industry Growth Through Workforce Investment).

- Georgia Quick Start helped the state land Hyundai's first dedicated electric vehicle facility in the U.S. in Bryan County, GA. Their workforce training program will provide customized workforce training free-of-charge. This incentive also helped Georgia secure a Kia training facility in 2008. The evolution of the program to meet modern workforce needs played a key role in helping Georgia land this state-of-the-art facility — a $7.59 billion investment that is projected to create over 8,000 direct jobs (C2ER, Powering Industry Growth Through Workforce Investment).
- Schneider Electric's plant expansion increases the company's energy storage capabilities to meet growing demand. The Missouri One Start program will provide customized recruitment assistance, along with resources to train and upskill new and existing employees. The company invested $73.6 million into the expansion project and received over $4 million in awards from the BUILD Program ($2,000,000), Missouri Works Program ($2,102,697) and Missouri One Start ($150,000). The project will create 241 additional jobs at the plant in Columbia, MO (C2ER, Powering Industry Growth Through Workforce Investment).
- Hyundai Steel Plant: This first-of-its-kind site marks Hyundai's inaugural North American steel facility to support automotive manufacturing. To support the workforce the Louisiana Community and Technical College System (LCTCS) will develop a new local workforce training center. Hyundai will also have access to LED FastStart's workforce recruitment and training services. The agreement leaves potential for $100 million in performance-based grant awards for infrastructure improvements. Hyundai's $5.8 billion investment in Donaldsonville, LA will create over 1,300 direct jobs (C2ER, Powering Industry Growth Through Workforce Investment).
- Ohio partnered with Anduril to create a 5 million square foot advanced defense manufacturing facility for autonomous systems, weapons, and other U.S. national defense products. The $1.5 billion endeavor in Pickaway County, OH represents the largest single job creation and new payroll project in the state's history. In addition to a $70 million award from the Ohio Future Fund, JobsOhio helped secure the project by offering their Job Creation Tax Credit and their Talent Acquisition Services program tools to Anduril. According to the State Business Incentives Database, the Job Creation Tax Credit provides a refundable and performance-based tax credit applied toward the company's commercial tax liability. JobsOhio's Talent Acquisition Services will identify talent challenges and build sustainable talent recruitment strategies for companies to help them acquire human capital (C2ER, Powering Industry Growth Through Workforce Investment).
- A common focus of workforce development programs is offering an incentive for employers to provide training by reimbursing or allowing a tax credit against the training costs. Both the Minnesota Automation Training Incentive Pilot Program and Arizona's Rapid Employment Job Training Grant offer reimbursement for training costs. Minnesota reimburses training costs for small businesses to train existing workers in new automation technology. Employers can apply for grants up to $25,000 to cover the cost of training workers who work full time and earn at least 120% of the federal poverty wage. As a direct response to COVID,

Arizona's program reimburses the cost of training for hires made after March 1, 2020. Virginia created the Worker Training Tax Credit to incentivize businesses to not only provide training but also collaborate with middle and high schools to provide manufacturing training or instruction. Companies can receive a 35% tax credit for training costs, up to $500 per worker and $1,000 if the worker's income is below the state median wage. For employers that provide training to middle and high school students, they are eligible for the 35% tax credit on direct training costs (C2ER, New Workforce Development Programs).

- In Massachusetts, the Advanced Analytics-Data Science Internship Program reimburses the cost of intern stipends for students with postsecondary degrees, Bachelor's and above, who intern with a research institution or small business. The reimbursement ranges from $20-$40/hour depending on the education level of the intern (C2ER, New Workforce Development Programs).
- North Carolina's Golden LEAF Opportunities for Work program provides grants up to $500,000 to help the state prepare for job growth, especially jobs that require postsecondary degrees. The program accomplishes this goal through re-engaging individuals in the workforce, providing skills training and postsecondary opportunities and addressing barriers to employment in rural and economically distressed communities. The program targets "disconnected" youth, people who are underemployed and those experiencing long term unemployment (C2ER, New Workforce Development Programs).

Successful career transition after high school *Key source: E-W Framework*

Indicators

Contributing indicators

- Percentage of high school graduates enlisted in the military, enrolled in an apprenticeship program, enrolled in noncredit career and technical education (CTE) courses, or employed and earning at least the median annual full-time earnings for high school graduates ($35,000 per year) before October 31 following graduation (Education to Workforce Framework).
- High school graduates create concrete postsecondary plans as part of a graduation requirement. For example, as part of Chicago Public Schools's "Learn.Plan.Succeed." initiative, students must submit proof of a postsecondary plan for one of the following pathways: (a) College acceptance letter; (b) Military acceptance/enlistment letter; (c) Acceptance at a job program (e.g., coding bootcamp); (d) Acceptance into a trades pre-apprenticeship/apprenticeship; (e) Acceptance into a "gap-year" program; (f) Current job/job offer letter; or (g) Other, a new category introduced in response to feedback from schools designed to capture other diverse pathways such as entrepreneurship, industry certification completion, continued education at a specialty school or continuation of high school (Chicago Public Schools).

Practices and Policies

Practices

- Post-employment counseling: Workforce Innovation & Opportunity Act (WIOA) programs, including programs supported by WIOA Youth, offer follow-up services that may include post-employment counseling. In instances where participants obtain employment, post-employment counseling may help support their transition to and ongoing success in their new position (The Workforce Innovation and Opportunity Act Research Portfolio).

- The Work Plus program, focused on TANF recipients as part of the Employment Retention and Advancement project, offered post-employment job supports and intensive case management to help participants find and retain employment. Although this program supported TANF recipients, the strategies it used are inherently workforce development strategies that could be applied to WIOA programs (The Workforce Innovation and Opportunity Act Research Portfolio).
- The WorkAdvance program provided training and employment services to low-income adults to improve employment outcomes and meet the needs of local employers. The program included five main elements: screening of potential participants before enrollment, work-readiness services (for example, career coaching, supportive services), occupational training, job development and placement and follow-up retention service coordinated with employers (The Workforce Innovation and Opportunity Act Research Portfolio).
- The Good Transitions program, focused on low-income, noncustodial parents, placed participants into subsidized employment while providing job coaching, job development and case management. After one month, participants were placed into a different position, with less coaching but continued case management and job development support. In a randomized controlled trial of this program, Good Transitions program participants had increased short- and long-term earnings, increased employment, increased education and training completion and decreased public benefit receipt compared to individuals in a control group who did not receive Good Transitions program services but could participate in other services from the Division of Child Support Services' Fatherhood Program (The Workforce Innovation and Opportunity Act Research Portfolio).
- The Individual Placement and Support (IPS) model, in addition to job search assistance and a range of other services, also includes post-employment support. IPS is an approach to supported employment, often applied in the vocational rehabilitation realm for individuals with significant challenges to employment, such as serious mental illness. IPS focuses on integrating vocational and treatment services, with the core principles focusing on competitive employment, systematic job development, rapid job search, integrated services, benefits planning, zero exclusion, time-limited supports and worker preferences (IPS Employment Center 2021). Receipt of IPS has generally been shown to result in higher rates of competitive employment, more days worked and greater earnings over the same period of time as compared to nonparticipants or those who received a limited range of services (The Workforce Innovation and Opportunity Act Research Portfolio).
- Workforce Development: In an interview conducted with state-level members of the National College Attainment Network, members in three states (Florida, Ohio, Tennessee) identified workforce development as a key state policy issue. Interviewees signaled that, in some cases, attention at the state level may have even shifted away from postsecondary access and attainment issues toward workforce and economic issues, with rapid credentialing and certification programs on the rise, alongside partnerships between industry and postsecondary institutions. Organizations highlighted tensions between state approaches to four-year degrees and certification programs and are curious about the role each can play in bridging postsecondary education and workforce needs. States are also examining the specific needs and roles of various student populations (such as adult learners and students from low-income backgrounds) in postsecondary attainment and workforce outcomes. (NCAN, Building Momentum at the State Level).

Postsecondary Preparation

Postsecondary preparation equips students to confidently pursue college, job training or workforce opportunities after high school. With support from well-trained advisors, students build strong, personalized plans. This preparation is key to long-term success and economic mobility.

4 **Are all students graduating from high school on time, ready to successfully transition into further education, training or employment?**

Why this matters

Ensuring all students graduate from high school on time and ready to transition into further education, training or employment is essential for long-term success and economic mobility. Research from the Alliance for Excellent Education finds that high school graduates who are college and career ready are more likely to complete postsecondary programs and secure employment with family-sustaining wages (Alliance, 2017). Additionally, the Georgetown Center on Education and the Workforce reports that nearly all new jobs created since the Great Recessi on have gone to individuals with at least some postsecondary education, underscoring the importance of readiness beyond high school (Carnevale et al., 2016). Without adequate preparation, students face higher risks of underemployment and lower lifetime earnings, limiting their potential and weakening the broader economy.

Summer melt, in which college-intending high school students are unable to enroll in the fall for any number of reasons, is a well-documented phenomenon in the college access space. Although summer melt is familiar to many community-based organizations working with aspiring college students, less prevalent are summer melt prevention programs operating from within K-12 districts and schools. The key lessons practitioners can learn from this brief include: Successful summer melt interventions require the buy-in of both district and school leadership and frontline

staff members; Students' postsecondary outcomes data are key for understanding an intervention's success, but working with these data may be unfamiliar for some practitioners, and prior planning to develop a data collection and analysis plan is important; The conditions that lead to summer melt will start before the summer, and the activities that will prevent it should take place year-round; Although some elements of summer melt interventions are near-universal, districts and schools should adapt their program to their specific context, criteria and culture. (NCAN, Schools Can Stop Summer Melt).

High school graduation

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of high school graduates who enroll in postsecondary education, training or employment within 6 months of graduation
- Students graduate from high school with a regular diploma within four, five and six years of entering high school (Education-to-Workforce).
- Percentage of students who graduate with a diploma in four years (on-time) (Education-to-Workforce).
- Percentage of 9th grade students who earn a B average or better. Freshmen who earn a B average or better have an 80% chance of finishing high school with at least a 3.0 GPA (CCSR).
- Percentage of 9th grade students who miss less than a week of school. Nearly 90% of freshmen who miss less than a week of school per semester graduate, regardless of their 8th grade test scores (CCSR).
- Percentage of students who are present for more than 90% of their enrolled days, excluding students enrolled for fewer than 90 days. The EW Framework selected an attendance rate of 90% as a minimum recommendation to align with the most commonly reported measure of chronic absenteeism, used by Attendance Works and the Civil Rights Data Collection (CRDC) (Education-to-Workforce).
- Students demonstrate satisfactory attendance by being present for 96% or more of enrolled days (Education-to-Workforce).
- Students who are "at risk" are identified as being present for 91 to 95% of enrolled days (Education-to-Workforce).
- Adjusted cohort graduation rate (the percentage of first-time 9th graders who graduate with a regular diploma within four, five and six years of entering high school, regardless of whether they transferred schools) (Education-to-Workforce).
- On-time graduation in four years is most commonly reported, as it is the time to graduation that most students should aim to achieve. As such, it is important to ensure equitable outcomes in four-year rates. Data systems should also collect information on whether students complete a high school equivalency credential (Education-to-Workforce).
- Educational attainment of population ages 25 to 34 in the United States (Annie E. Casey, Kids Count Data Center).
- Young adults ages 18 to 24 who are high school graduates, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).
- Young adults ages 18 to 24 who are high school graduates and enrolled in school, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).
- High school students not graduating on time, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).
- Young adults ages 18 to 24 who are enrolled in or have completed college, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).

- Young adults ages 18 to 24 not attending school, not working and no degree beyond high school (Annie E. Casey, Kids Count Data Center).
- Teens ages 16 to 19 not in school and not high school graduates, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).
- Teens ages 16 to 19 not attending school and not working, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).
- The percentage of an entering freshman high school class not graduating in four years, disaggregated by race and ethnicity (Annie E. Casey, Kids Count Data Center).
- Freshmen cohort graduation rates four years later. In terms of the educational pipeline, the most useful measures track a cohort of students over time to determine whether and how they progress through school. Greene and Winters (2005) and the Editorial Projects in Education (EPE) Research Center (2008) attempt to approximate the percentage of ninth graders who earn a regular diploma four years later (Bridget Terry Long, Dropout Prevention).
- According to Greene and Winters (2005), there are several reasons why GED recipients should not be included in the high school graduation rates. They point to research that has found that the returns to a GED are far less than that of a regular diploma (see Cameron and Heckman 1993; Murnane, Willett, and Boudett 1995) (Bridget Terry Long, Dropout Prevention).
- While freshmen graduation rates four years later give some sense of the students left behind without a degree, another way to measure the prevalence of dropping out of high school is to use direct estimates. Stillwell and Hoffman (2008) provide an event dropout rate, which is the proportion of students who drop out in a single year (Bridget Terry Long, Dropout Prevention).
- A third (and broader) way to measure high school degree attainment is to examine at one point in time the proportion of students who have not completed a high school degree and are not enrolled in school. The U.S. Department of Education tracks this information over time to produce a status dropout rate, which includes any sixteen- to twenty- four- year- old student without a high school credential (i.e., diploma or equivalent, such as GED) regardless of when they dropped out of school (Bridget Terry Long, Dropout Prevention).
- College- and career-ready (CCR) graduation rate. The number of students who graduated with a CCR diploma divided by the total number of graduates, which may include four-year and extended-year graduates. A CCR diploma is one that satisfies a state's content standards for English/language arts (ELA) and mathematics by twelfth-grade graduation, generally requiring students to complete, at minimum, four years of grade-level ELA and three years of math through Algebra II or Integrated Math III (Alliance for Excellent Education, Paper Thin).
- Percentage of students who meet college and career readiness benchmarks, such as ACT/SAT benchmarks, college and career readiness assessments, etc.) (AIR).

System indicators

- Four-, five- and six-year high school graduation rates/dropout rates. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share on track to graduate. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share overage/undercredited. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Adjusted Cohort Graduation Rate: The adjusted cohort graduation rate (ACGR) is the percentage of students who graduate in 4 years with a regular high school diploma divided by the number of students who form the adjusted cohort for the graduating class. From the beginning of 9th grade (or the earliest high school grade), students who

are entering that grade for the first time form a cohort that is "adjusted" by adding any students who subsequently transfer into the cohort and subtracting any students who subsequently transfer out, emigrate to another country (National Center for Education Statistics).

- Averaged Freshman Graduation Rate: The ACGR is different from the averaged freshman graduation rate (AFGR). The averaged freshman graduation rate (AFGR) is an estimate of the percentage of public high school students who graduate on time (i.e., 4 years after starting 9th grade) with a regular diploma. The rate uses aggregate student enrollment data to estimate the size of an incoming freshman class and aggregate counts of the number of diplomas awarded 4 years later. The AFGR estimate is not as accurate as the ACGR, but the AFGR can be estimated annually as far back as the 1960s (National Center for Education Statistics).
- Event Dropout Rate: The event dropout rate is the percentage of 15- to 24-year-olds in grades 10 through 12 who leave high school between the beginning of one school year and the beginning of the next without earning a high school diploma or an alternative credential such as a GED. The event dropout rate provides information about the rate at which U.S. high school students are leaving school without receiving a high school credential. The measure can be used to study student experiences in the U.S. secondary school system in a given year. The event dropout rates presented in this indicator are based on data from the Census Bureau's Current Population Survey (CPS) (National Center for Education Statistics).
- Status Dropout Rate: The status dropout rate is the number of 16- to 24-year-olds who are not enrolled in school and have not earned a high school diploma or an alternative credential, such as a GED, as a percentage of the total number of 16- to 24-year-olds in the population. In this indicator, status dropout rates are estimated using both the American Community Survey (ACS) and the Current Population Survey (CPS) (National Center for Education Statistics.)
- Status Completion Rate: Data from the Current Population Survey (CPS) can be used to calculate the status completion rate, the percentage of 18- to 24-year-olds not enrolled in high school or a lower education level who hold a high school diploma or an alternative credential, such as a GED. This rate includes all civilian, noninstitutionalized individuals 18 to 24 years old who have completed high school, including individuals who completed their education outside of the United States. While the Adjusted Cohort Graduation Rate and the Averaged Freshman Graduation Rate focus on a particular cohort of students in the U.S. secondary school system who graduated with a high school diploma, the status completion rate, presented in this indicator, describes the educational attainment of individuals in a given age range. Moreover, the status completion rate counts both high school diploma recipients and alternative credential recipients as high school completers (National Center for Education Statistics).
- State- and district-level high school graduation rates over time, disaggregated by gender, race/ethnicity and income level (Civic Enterprises, Building a Grad Nation).
- Unemployment rates and earnings by educational attainment (i.e., Less than a high school diploma, high school diploma only, Some college but no degree, Associate's degree, Bachelor's degree, etc.) (Bureau of Labor Statistics).
- Four-, five- and six-year high school graduation rates/dropout rates (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- College- and career-ready (CCR) graduation rate. The number of students who graduated with a CCR diploma divided by the total number

of graduates in the Class of 2014, which may include four-year and extended-year graduates (Alliance for Excellent Education, Paper Thin).

- College- and career-ready (CCR) gap. The gap in attainment of a CCR diploma between (1) white students and students of color, (2) students from low-income families and students without this designation, (3) students with disabilities and those without this designation, and (4) English language learners and those without this designation (Alliance for Excellent Education, Paper Thin).

Practices and Policies

Practices

- The American Graduate initiative, which was made possible by the Corporation for Public Broadcasting (CPB), is public media's long-term commitment to improving youth outcomes through education and career readiness. Public media is uniquely positioned to serve as content creators, trusted communicators, conveners and community connectors. Since 2011, national producers and local stations have engaged with more than 1,700 partners, including the GradNation campaign, to create public understanding of the challenges students, especially those in high poverty communities, face on the path to a high school diploma (Civic Enterprises, Building a Grad Nation).
- Systemic Approach: This strategy for dropout prevention calls for a systemic approach and process for ongoing and continuous improvement across all grade levels and among all stakeholders, through a shared and widely communicated vision and focus, tightly focused goals and objectives, selection of targeted research-based strategies and interventions, ongoing monitoring and feedback and data-based decision making. It also requires the alignment of school policies, procedures, practices and organizational structures and continuous monitoring of effectiveness (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- School-Community Collaboration: This strategy for dropout prevention focuses on the power of an engaged and responsive community where everyone in the community is accountable for the quality of education, resulting in a caring and collaborative environment where youth can thrive and achieve. Critical elements of this type of collaboration rely on effective, ongoing, and multidimensional communication so that dropout prevention is a communitywide and ongoing effort (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Early Childhood Education: Birth-to-five interventions demonstrate that providing a child additional enrichment can enhance brain development. The most effective way to reduce the number of children who will ultimately drop out is to provide the best possible classroom instruction from the beginning of school through the primary grades (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Early Literacy Development: Early literacy interventions to help low-achieving students improve their reading and writing skills establish the necessary foundation for effective learning in all subjects. Literacy development focus should continue P-12 (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Service-Learning: Service-learning connects meaningful community service experiences with academic learning. This teaching/learning method promotes personal and social growth, career development and civic responsibility and can be a powerful vehicle for effective school reform at all grade levels (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Alternative Schooling: Alternative or non-traditional schooling and delivery model options (e.g., alternative times and environments, blended learning, virtual learning, competency-based

credit opportunities) provide alternative avenues to credit earning and graduation, with programs paying special attention to the student's individual and social needs, career goals and academic requirements for obtaining a high school diploma and transitioning successfully to life beyond graduation (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).

- Afterschool/Out-of-School Opportunities: Many schools provide afterschool, before-school and/or summer academic/enhancement/enrichment opportunities (e.g., tutoring, credit recovery, acceleration, homework support, etc.) that provide students with opportunities for assistance and recovery as well as high-interest options for discovery and learning. These opportunities often decrease information loss and can inspire interest in arenas otherwise inaccessible. Such experiences are especially important for at-risk students because out-of-school "gap time" is filled with constructive and engaging activities and/or needed academic support (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Individualized Instruction: Learning experiences can be individualized, differentiated, or personalized In an environment that is fully personalized, the learning objectives and content as well as the method and pace may all vary so personalization encompasses differentiation and individualization (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Quality CTE programs and related career pathways and guidance programs with P-20W orientation are essential for all students. Youth need workplace skills as well as awareness and focus to increase not only the likelihood that they will be prepared for their careers, but also that school will be relevant to what is next (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Leverage higher education and workforce leaders in the design of high school graduation requirements (Education Strategy Group).
- Prioritize both flexibility and consistent rigor: States should maintain a streamlined set of diploma options that uphold a consistent standard of rigor, ensuring all pathways adequately prepare students for a range of high-value opportunities after high school — from college to apprenticeships to good jobs with living wages (Education Strategy Group).
- Include measures of college and career readiness: States should consider a robust set of measures that indicate students' readiness for continued education and training beyond high school, such as: earning early postsecondary credit (Advanced Placement, International Baccalaureate, dual credit); completing a CTE pathway; earning an industry recognized credential; completing work-based learning, including youth apprenticeship; demonstrating leadership on co/extra-curricular activities; demonstrating competency in core skills such as communication and collaboration; and/or completing community service hours (Education Strategy Group).
- Create and use data to monitor and continuously improve: Develop and implement a data strategy for understanding how different student groups and geographies are meeting the graduation requirements, and report that disaggregated data publicly on an annual basis (Education Strategy Group).
- Expand what students need to know and be able to do to graduate. While traditional graduation requirements are primarily grounded in content-defined course or testing requirements, competency-based education goes further. Alongside rigorous academic content, competency-based education asks students to demonstrate mastery of durable skills crucial to postsecondary and workforce readiness (KnowledgeWorks, Four Key Insights into Competency-based Graduation Requirements).

- Ground advancement in mastery, not seat time. Competency-based education allows students to move at a pace that makes sense for them while making sure they have the support they need to be successful. This moves credit accumulation away from the tradition of the time-based Carnegie Unit and centers it instead on what students know. Almost all the states that we reviewed give schools and/or districts wide-ranging latitude to award credits based on mastery, with some notably going further than others (KnowledgeWorks, Four Key Insights into Competency-based Graduation Requirements).
- Rethink where, when and how graduation requirements can be met. Competency-based education moves beyond the time and location constraints imposed by the Carnegie Unit and asks students to demonstrate mastery, regardless of the time, place or method that they may use for doing so. Many states have introduced policy flexibilities that codify this level of student choice (KnowledgeWorks, Four Key Insights into Competency-based Graduation Requirements).
- Balance local control with reasonable state guardrails. Competency-based education moves beyond a one-size-fits-all model and seeks to personalize education for all students. While nearly every state dictates some level of baseline graduation requirements, many of the states that we reviewed balance this with considerable local flexibility in determining what students know and how they'll demonstrate it in relation to graduation requirements (KnowledgeWorks, Four Key Insights into Competency-based Graduation Requirements).
- Align high school graduation requirements to requirements for admission to state public university system (Jimenez and Sargrad, Are high school Diplomas Really a Ticket to College and Work?)
- Align high school graduation requirements to college and career readiness benchmarks and indicators of a "well-rounded" education that includes coursework and other educational experiences (Jimenez and Sargrad, Are high school Diplomas Really a Ticket to College and Work?).

Policies

- Mandating FAFSA completion (with opt-out) to promote access (e.g., Louisiana, Texas) (NCAN).
- The Adjusted Cohort Graduation Rate (ACGR) is considered to be the "gold standard" of graduation rate metrics; there are still ways it can be improved to guarantee the best data is available. There is still variability in what is considered a "regular" diploma, how transfer students are taken into account and how certain subgroups (e.g., students with disabilities, English learners, low-income students) are identified within the cohort. These and other issues challenge our ability to compare graduation rates across states, but more troubling, have created loopholes for states in calculating their rates (Civic Enterprises, Building a Grad Nation).
- Promote policies and practices that reduce harmful disparities. It is evident that Black, Latine and low-income students are less likely to be on track to graduate on time and enroll in postsecondary. Greater investments need to be made in these students and their schools starting in early education, and harmful, reactive disciplinary practices – particularly out-of-school suspensions, expulsions and law enforcement referrals – should be replaced with proactive practices and policies that keep students in school and attempt to address their underlying issues (Civic Enterprises, Building a Grad Nation).
- States should address inequities between high- and low-poverty school districts by establishing weighted funding formulas that provide more state funding to schools serving students with the greatest needs. States and districts should also work together to determine where those dollars can have the greatest impact and follow the evidence of what works, especially as they begin to develop comprehensive support and improvement plans for their lowest-performing schools. (Civic Enterprises, Building a Grad Nation).
- Align diplomas with college and career ready standards. Two recent reports on the quality

of high school diplomas found mismatches between high school graduation requirements and state college admissions criteria, as well as the number and types of students earning a college and career ready diploma in the few states that offer one (Almond, 2017; Jimenez & Sargrad, 2018). The misalignment between what students need to graduate high school and what they need to be prepared for postsecondary hurts students, many of whom end up tracked into remediation courses (Civic Enterprises, Building a Grad Nation).

- State leaders should establish diploma requirements aligned with state college and university admissions criteria, and schools and districts should ensure more students, especially those that are at the greatest disadvantage, earn a college and career ready diploma. Making a well-aligned college and career ready diploma the default diploma option can help ensure more students are on track to graduate prepared for postsecondary or career pathways (Civic Enterprises, Building a Grad Nation).
- Support schools and districts with comprehensive support and improvement plans. Districts with identified low-performing high schools must develop support and improvement plans. These plans must include evidence-based strategies and be approved and monitored by the state (Civic Enterprises, Building a Grad Nation).
- States, with the help of researchers, should curate lists of evidence-based strategies and programs to assist districts in the development of these plans and connect schools and districts to organizations and networks that can provide necessary and individualized technical assistance. School improvement will not happen without a strategic, sustainable approach and schools, districts, and the communities they serve will need help determining the best course of action and implementing their plans (Civic Enterprises, Building a Grad Nation).
- Avoid and eliminate practices that lower the bar for students. Over the past decade, there has been a marked increase in the use of credit recovery courses and alternative programs to move off-track students toward their diploma. While some of these courses and programs may be useful for a small subset of students who have mitigating circumstances, many of them fail to provide a rigorous education and prepare students for life beyond high school (Civic Enterprises, Building a Grad Nation).
- States, especially those with large numbers of credit recovery schools, should examine their quality and determine whether they are helping young people or simply offering meaningless credentials. And where these programs are having success, researchers and education leaders should do more to learn what works in engaging and graduating students who often face some of the greatest challenges (Civic Enterprises, Building a Grad Nation).
- Create state specific high school graduation plans. States should develop "Path to 90% On-Time high school Graduation for All Plans" that analyze which districts, schools and students within their state will need additional supports and/or guidance on implementing customized evidence-based approaches to enable all students to graduate, on-time, prepared for postsecondary success (Civic Enterprises, Building a Grad Nation).
- Strengthen the transition from high school to postsecondary and careers. K-12 education leaders can ease the transition from high school to postsecondary and careers by creating alignment between high school and college entry requirements, helping students understand their postsecondary options and the application and financial aid process, and providing greater access to early college, career academies and CTE coursework pathways (Civic Enterprises, Building a Grad Nation).
- Postsecondary institutions should do more to support students, particularly first generation and

low-income students, both before they step onto campus and once they are there. This can include working with high schools to offer remediation courses prior to high school graduation, eliminating test score-based admission requirements, developing more structured and strategic advising and engagement opportunities for students during the summer gap and school year, particularly in the critical freshman year, and ensuring students have access to tutoring and other academic support. And as more low-income students enter postsecondary, it is important that these institutions recognize their needs and understand that financial aid packages often are not enough to cover basic expenses like food and housing (Civic Enterprises, Building a Grad Nation).

- Employers can help strengthen the transition between education and the workplace. They can increase engagement with schools by providing internships and job shadowing to ground learning in real experiences. Employers can also work with high schools and postsecondary institutions to create a more innovative last semester of high school where students can have the opportunity to have more practical, hands-on experiences (Civic Enterprises, Building a Grad Nation).
- State-level compulsory school age requirements. In the report The Silent Epidemic, researchers observe that no state has a legal dropout age below 16, and that almost nobody drops out of school before entering high school. States set minimum and maximum compulsory age requirements to be in school. While no state has a legal dropout age below 16, the majority of states permit a student to drop out of high school when they turn 16. Typically in 10th grade, a 16-year-old student has new found authority under law to make a choice. The report's researchers question the soundness of this policy, particularly since the U.S. guarantees, and provides substantial resources for, a public education through 12th grade. They propose that raising maximum compulsory school age requirements – specifically raising the legal dropout age to 18 – would, when coupled with well-trained staffs, more manageable caseloads, working partnerships with other government agencies to support parents and guardians who struggle to keep their children in school and efforts to address the issues that caused students to leave school, would have a significant effect on reducing the dropout rate (Civic Enterprises, The Silent Epidemic).
- Accurate data at the state and federal levels. Schools and communities cannot adequately address the dropout problem without an accurate account of it. States need to do further work to make dropout rates more accurate, tracking students within states and across state lines. And more work needs to be done to build the data systems that will allow states to collect and publish graduation and dropout rates and to monitor progress state by state over time (Civic Enterprises, The Silent Epidemic).
- States ensure alignment between high school diploma requirements and state college admission standards. A recent report by the Center for American Progress (CAP) compared high school graduation requirements for each state's standard diploma to admission requirements for that state's public university system, and to measures of quality. According to CAP's analysis, in nearly every state for at least one subject, there is a preparation gap between the courses required to receive a standard diploma and the courses required for admission into the state's public four-year university system. Only two states require a 15-credit college-ready curriculum, just one state requires students to take three courses in a career pathway and four states have aligned their high school diploma requirements with the requirements to be eligible for admission to the state public university system (Civic Enterprises, Building a Grad Nation).
- Align state's diploma with college and career readiness standards (Education Strategy Group).

- In eight states (Florida, Louisiana, Massachusetts, Ohio, New Jersey, Texas, Virginia and Wyoming), a high school graduation test is required for students to receive a diploma. Four states (Tennessee, Nevada, Pennsylvania and Georgia) have replaced high school graduation tests with end-of-course exams that factor into a student's course grades (Education Strategy Group).
- Several states incorporate experiences aimed at better preparing students for higher education or the workforce into their graduation requirements or "diploma pathways." These experiences may include partaking in opportunities such as dual enrollment, industry credential programs, financial literacy courses or career preparation courses (Education Strategy Group).
- Some states, like Texas, Illinois, Alabama, California and New Hampshire, require or provide the option for students to complete financial aid applications, such as the FAFSA, to facilitate access to higher education (Education Strategy Group).
- A select few regions, like Colorado, Kentucky, Rhode Island and the District of Columbia, are mandating the development of individualized learning plans tailored to students' academic and career goals, alongside requiring transition-related tasks such as resume preparation or career exploration activities (Education Strategy Group).
- In 2019, Washington state eliminated the state assessment mandate for graduation, and opted to provide a range of graduation pathway options to assess and better prepare students for college and career. These pathways include meeting graduation scores in Smarter Balanced Assessments (SBA), earning credits through dual enrollment programs, achieving certain scores on AP/IB/Cambridge exams, meeting SAT/ACT graduation scores, completing transition courses, exploring performance-based options, combining multiple pathways, achieving standard on the ASVAB or completing a sequence of Career and Technical Education (CTE) courses (Education Strategy Group).
- Idaho students must complete a senior project to earn their diploma, demonstrating their ability to analyze, synthesize and communicate information effectively. It includes research, thesis development using experiential or integrated project-based learning and project presentation. Additional requirements may vary by district. Completion of a postsecondary certificate/degree or participation in an approved pre-internship/internship can also meet this requirement (Education Strategy Group).
- Policymakers should align their state's diploma with college and career readiness expectations: The high school diploma should provide a more robust signal of readiness than completion of courses alone. It should represent the state's vision for redesigning the high school experience, with the full set of college and career experiences (and intended competencies) included. While the specific demonstrations may evolve over time, the fundamental alignment must remain constant. This approach ensures the diploma continues to signal readiness, adapting to the needs of today's economy without losing its core purpose (Education Strategy Group, Rethinking high school Graduation Requirements).
- Leverage higher education and workforce leaders in the design: It's not enough for K-12 leaders to design high school graduation requirements in the hope that the requirements will set students up to be ready for success in college and career; higher education and workforce leaders need to be deeply engaged in the development to ensure alignment and buy-in (Education Strategy Group, Rethinking high school Graduation Requirements).
- Prioritize both flexibility and consistent rigor: States should maintain a streamlined set of diploma options that uphold a consistent standard of rigor, ensuring all pathways adequately prepare students for a range of high-value opportunities after high school — from college to apprenticeships to good jobs

with living wages. And students should have a variety of ways to demonstrate readiness that is inclusive of, but not solely based on, course completion and/or assessment benchmarks. States can integrate experiential learning opportunities, including work-based learning, that help demonstrate mastery of key competencies (e.g., communications, teamwork) into diploma options, providing authentic opportunity to both demonstrate and validate readiness in contexts that will engage students (Education Strategy Group, Rethinking high school Graduation Requirements).

- Include measures of college and career readiness: States should consider a robust set of measures that indicate students' readiness for continued education and training beyond high school, such as: earning early postsecondary credit (Advanced Placement, International Baccalaureate, dual credit); completing a CTE pathway; earning an industry-recognized credential; completing work-based learning, including youth apprenticeship; demonstrating leadership on co/extra-curricular activities; demonstrating competency in core skills such as communication and collaboration; and/or completing community service hours (Education Strategy Group, Rethinking high school Graduation Requirements).
- Create and use data to monitor and continuously improve: Develop and implement a data strategy for understanding how different student groups and geographies are meeting the graduation requirements, and report that disaggregated data publicly on an annual basis (Education Strategy Group, Rethinking high school Graduation Requirements).
- State policymakers should move from traditional high school graduation requirements which emphasize mastery of academic content standards and high school diploma attainment college and career readiness standards which prioritize both the mastery of academic content and experiential learning to support college and career readiness (Education Strategy Group, Rethinking high school Graduation Requirements).
- The Education Commission of the States provides a national comparison of state policies addressing graduation requirements, including pathways, diploma types and endorsements, course and assessment requirements, as well as non-course requirements and flexibilities for students and schools. This study found: (a) At least 21 states have identified multiple diploma options or pathways to graduation in state policy; (b) At least 46 states and the District of Columbia identify minimum credit requirements to earn a standard diploma; (c) At least 44 states and the District of Columbia permit students to substitute specific courses, assessments or other experiences for existing credit requirements; (d) At least 34 states require students to complete specific assessments as a graduation requirement (Education Commission of the States, 50-State Comparison).
- State high school graduation requirements should align with their CCR standards. The misalignment of high school graduation requirements and CCR standards diminishes the value of the high school diploma and sends the message that all students are not expected to meet the rigor required with the CCR standards (Alliance for Excellent Education, Paper Thin).
- States with CCR diplomas should make the CCR diploma the default diploma for all students. As seen in the cases of Arkansas, Indiana, and Texas, when states automatically place students in a CCR diploma pathway — coupled with the necessary support — traditionally underserved students perform better and the gaps between student subgroups shrink (Alliance for Excellent Education, Paper Thin).
- All states with multiple pathways should track and publicly report diploma pathway data disaggregated by diploma type and by student subgroup. Moreover, states should track this data during and through completion of postsecondary education, as Indiana does, and report the data in state and local report cards under ESSA. This will enable parents and

the public to see which pathways best prepare students for postsecondary education (Alliance for Excellent Education, Paper Thin).

- States also should track and publicly report in the aggregate and disaggregated by student subgroup data pertaining to students graduating from high school with waiver diplomas (Alliance for Excellent Education, Paper Thin).
- School districts should track and publicly report diploma pathway data disaggregated by diploma type and student subgroup, both districtwide and by school (Alliance for Excellent Education, Paper Thin).
- School districts and individual secondary schools (including middle and high schools) should educate parents and students about the long-term postsecondary outcomes of students who select less rigorous diploma pathways so that parents clearly understand the likely outcomes of all possible diploma options (Alliance for Excellent Education, Paper Thin).
- For accountability requirements under ESSA, states should consider using the percentage of students enrolled in postsecondary education without the need for remediation and the percentage of students graduating with a CCR diploma as indicators of school quality or student success. This action, coupled with this report's recommendation for disaggregating diploma pathways data during and through completion of postsecondary education, would provide meaningful data for parents and communities while ensuring the data is acted upon as part of the state's accountability system (Alliance for Excellent Education, Paper Thin).
- Ensure clear alignment of the requirements for high school graduation with the admissions requirements for the state public university system. This will require the collaboration and coordination of the high school and state college systems in the areas of course type, amount, and curricula. One subject area that needs careful consideration is science, since misalignment can occur because public universities require laboratory science and providing this type of science may be particularly challenging for under-resourced school districts.
- Require completion of the 15-credit college-ready coursework required by most public university systems to receive a standard high school diploma. Research shows that non college-goers have better life outcomes if they take a rigorous high school course load regardless of college enrollment. This includes all of the following courses, or demonstrations of mastery of their equivalents: three years of math up to Algebra II; four years of English composition; three years each of social studies and science, including biology, chemistry, physics, with laboratory experience; and two years of the same foreign language. Any advanced or honors diplomas offered by states should exceed these expectations and could align with requirements for math and science college majors.
- Offer an additional career-readiness diploma for students that choose not to attend a four-year university. This diploma should require at least three CTE courses in the same field in addition to the 15-credit college-ready coursework. States should make these courses available to all students and ensure that they are in in-demand fields within the local labor market that lead to a well-paying job.
- Publish the graduation rates disaggregated by student group and diploma type, for example, the race, ethnicity, income, and disability status of students who received a standard high school diploma and other diploma options. Also, states report the disaggregated postsecondary outcomes for each diploma type, including course-taking patterns, credit accumulation, and college graduation rates.
- Ensure that all districts have the resources and educator workforce to offer the courses and preparation needed for students to meet the requirements for both standard and career readiness-diplomas, especially in math, science,

and foreign language. This could include using technology solutions to enhance course access for students.

- Develop and maintain systems to monitor districts on appropriate methods to collect and analyze graduation requirement completion. Such systems would help to ensure the integrity and accuracy of the data (Center for American Progress, Are high school Diplomas Really a Ticket to College and Work?)

Grade point average

Key source: E-W Framework

Indicators

Contributing indicators

- Failure rates in core courses to identify students who might be at risk (Promise Partnership Utah).
- Grade 9 students are prepared to transition to high school and are on track to graduate on time. percentage of students in grade 9 with a GPA of 2.5 or higher, no Ds or Fs in English language arts or math, attendance of 96% or higher, and no in- or out-of-school suspensions or expulsions (Education-to-Workforce).
- Percentage of students in grades 6–8 with a GPA of 3.0 or higher (Education-to-Workforce).
- Percentage of students in grades 9–12 with a GPA of 3.0 or higher (Education-to-Workforce).
- Percentage of students in grade 8 who meet grade-level standards in reading/English language arts and math as measured by state standardized tests (Education-to-Workforce).
- High school students earn course grades necessary to gain admission to college (Education-to-Workforce).
- Children ages 6 to 17 who repeated one or more grades since starting kindergarten. (Kids Count).
- Proficient reading by third grade. Results of a longitudinal study of nearly 4,000 students find that those who don't read proficiently by third grade are four times more likely to leave school without a diploma than proficient readers. For the worst readers, those who couldn't master even the basic skills by third grade, the rate is nearly six times greater (Annie E. Casey, Double Jeopardy).
- Student grades and c ourse failures are best predicted by earlier grades and attendance. High school test scores are strongly predicted by earlier test scores. Background characteristics, study habits and grit are not predictive of high school performance, once students' middle grade GPAs, attendance and test scores are taken into account. Background characteristics (e.g., race, gender, neighborhood poverty, free lunch eligibility, being old-for-grade and special education status) are all related to high school grades and test scores, but they do not tell us any more about who will pass, get good grades, or score well on tests in high school, once we take into account students' eighth-grade GPAs, attendance and test scores. Students' misconduct and suspension records in middle school are also not predictive of high school performance, once we take into account their attendance, grades and test scores. Likewise, students' reports of their study habits in eighth grade, and their responses on a grit scale measuring perseverance in the middle grades, are not predictive of their performance in high school beyond their current grades and attendance (UChicago CCSR, Looking Forward to high school and College).
- Middle school test scores are much weaker indicators of high school grades than middle school grades and attendance. Many high school interventions are based on test score proficiency — meeting standards on tests, or reading at grade level. This is the reasoning behind programs that offer support based on test scores, such as double dose coursing or

grade promotion standards in middle school that delay students' entry into ninth grade based on test scores. However, while middle grade test scores are moderately related to passing classes and getting high grades in high school, most of the relationship between test scores and later performance seems to work through students' grades. That is, students with strong test scores are more likely to get good grades than students with weak test scores, but it is the grades that matter for later outcomes. Grades are based on a number of factors in addition to tested skills, including attendance, assignment completion, and quality of work over the course of an entire semester. Once we account for students' GPAs and attendance in the middle grades, their test scores do not provide much additional information about their likelihood of passing their classes in high school, and they only improve the prediction of getting high grades (As and Bs) in high school among students who also have high grades in middle school (UChicago CCSR, Looking Forward to high school and College).

- Students need at least a 3.0 GPA in the middle grades to be college-bound; a 3.5 GPA gives them at least a 50% chance. Prior research on high school predictors of college graduation shows that, by far, the most important predictor of college graduation is students' high school GPA. Only students who graduate from high school with at least a B average have a moderate chance of earning a college degree. Parallel to this finding about college, only those students who leave eighth grade with GPAs of at least 3.0 have a moderate chance of earning a 3.0 GPA in high school. Students who plan to go to college need to get the message that college requires very strong levels of effort and engagement in both the middle grades and in high school (UChicago CCSR, Looking Forward to high school and College).
- Eighth-grade GPA combined with attendance provides a better prediction of who will be on-track at the end of ninth grade than either indicator alone; adding other indicators only marginally improves the prediction (UChicago CCSR, Looking Forward to high school and College).
- Eighth-grade core GPA is also the best predictor of earning high grades, followed by test scores and attendance. The best indicators of students' readiness to excel in high school classes are similar to those predicting the likelihood that students will pass their high school classes (UChicago CCSR, Looking Forward to high school and College).
- Prior research shows passing classes and earning high grades in high school are essential for high school and college graduation, while test scores matter for college access. There is often a perception that students' performance on tests is what matters for high school and college graduation. While there are innumerable studies showing significant relationships between test scores and educational attainment, grades are more strongly and consistently found to be related to educational attainment than test scores (UChicago CCSR, Looking Forward to high school and College).
- High grades in high school are essential for college graduation. While passing courses is critical for graduating from high school, it is not enough to be ready for college. Students who are likely to succeed in college are not merely passing courses; they are working hard and earning high grades. Research in Chicago, and across the country, has found that students' high school grades are, by far, the most important predictor of getting into college and eventually graduating — more important than ACT or SAT scores or high school coursework (UChicago CCSR, Looking Forward to high school and College).
- In California, Kurlaender, Reardon and Jackson (2008) examined the relationships between seventh-grade achievement indicators and high school graduation. They found that, among indicators studied, course failures in middle school were the strongest predictors of eventually not graduating among those they

studied. Test scores, retention in the elementary and middle grades, and the timing of when students took algebra were similarly related to graduation — but not as strongly as course failures (UChicago CCSR, Looking Forward to high school and College).

- Eighth-grade students with less than 80% attendance or GPAs less than 1.0 are at extremely high risk of being off-track in ninth grade. These are students with extremely low grades and attendance in the middle grades. Eighth-grade students with C/D averages and chronic absence in middle school are at high risk of being off-track in ninth grade. These students are more likely to be off-track than on-track in high school; they have a 50 to 75% likelihood of being off-track (UChicago CCSR, Looking Forward to high school and College).
- high school GPA as an indicator of Academic Preparation: Considered one of the best predictors of college entrance, persistence, and completion through correlation and regression analysis. Captures academic performance (cognitive) and personal attributes (noncognitive), such as motivation and perseverance. However, calculating the measure requires a GPA threshold to define "college-ready," and though there is a linear relationship between high school GPA and college outcomes, there are no clear GPA cutoffs to indicate readiness. (An analysis of Beginning Postsecondary Students (BPS) data finds that more than 50% of entering postsecondary students with a high school GPA of 3.0 or above earn a credential. However, this cutoff varies by credential type, making it difficult to set one standard. Among associate-seeking students, the high school GPA threshold for reaching this 50% attainment rate is higher (3.5), while it is lower for bachelor's-seeking students (2.5). Some studies, such as Geiser & Santelices (2007) and Roderick, Nagota, & Coca (2009) show that a threshold of 3.0 is more predictive for student outcomes than other thresholds, but variability by credential level steers the IHEP framework away from setting a specific standard. (IHEP, Toward Convergence).
- The University of Chicago Consortium of School Research found that freshman GPA is a statistically valid indicator and predictor of future student academic success. It is strongly predictive of eleventh-grade GPA, which plays a big role in college admission. Freshman GPA also predicts high school graduation, college enrollment and one-year college retention, and in fact, is a much better predictor of these important milestones than test scores. It is a strong "leading indicator" of subsequent positive outcomes, suggesting that students who have strong freshman grades are likely to do well academically in the future. This evidence also supports a focus on students who are struggling in ninth grade, who may need additional help to overcome a poor freshman year and improve the likelihood of better academic outcomes in the future. (UChicago Consortium, The Predictive Power of Ninth-Grade GPA).
- The percentage of students who have achieved at least a 3.0 GPA at the end of their 9th-grade year. To build a strong foundation for postsecondary success, it is essential that students start high school on the right foot. Numerous studies have shown that GPA is a better predictor of postsecondary success and less discriminatory than standardized test scores.16 And 9th-grade GPA, in particular, has been found to be predictive of 11th-grade GPA, postsecondary enrollment, and first-year retention. High schools may use GPA to qualify students for advanced coursework (such as Advanced Placement, International Baccalaureate and dual enrollment), and colleges consider GPA when making admissions, scholarship, and course placement decisions. Given these wide ranging implications, the significance of achieving a strong high school GPA is paramount. (EdStrategy, From Tails to Heads).

- Average course academic grades. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Average performance on portfolio-alternative assessments. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

System indicators

- Share of students on track to graduate (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share of students who are over/undercredited (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Student academic proficiency measured by standardized assessments in math and literacy (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Student academic growth measured by standardized assessments in math and literacy and average course academic grades (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Average science performance (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Average performance on portfolio-alternative assessments (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

Practices and Policies

Practices

- In recent years, districts and charter networks across the country have recognized the importance of ensuring that students start their high school careers on the right foot and, in response, have designed and implemented programs targe ted specifically towards 9th graders. For example, as part of the To & Through Project, Chicago Public Schools (CPS) partnered with the University of Chicago to conduct rigorous research on the factors that impact college success for the district's students. They found that students who were "on track" during their freshman year (defined as earning at least five course credits and failing no more than one semester of a core course) were three times more likely to graduate from high school than their offtrack peers, and 9th-grade GPA was nearly twice as predictive of high school graduation as standardized test scores. Leveraging these findings, CPS developed a rapid reporting system to alert schools of 9th-grade students with low grades, and some schools appointed "on-track coaches" to intervene with tutoring programs, peer mentors, and after-school help sessions. CPS also hosts a month-long "Freshman Connection" for students who may be at risk of not graduating. The program features half-day lessons on topics such as organization and goal-setting, as well as academic instruction in English language arts and mathematics. As a result, freshman on-track rates have increased from 65% in 2008–2009 to 89% in 2017–2018. (EdStrategy, From Tails to Heads).
- Uncommon Schools, a charter network in New York and New Jersey, developed a program called "Target 3.0," a mandatory class to boost the grade point averages of all students with a GPA below a 2.5. Uncommon developed the program after analyzing their data and recognizing that "getting above a 3.0 GPA was very significantly correlated with future college success." With 54% of their alumni earning a bachelor's degree within six years, Uncommon predicts that they will close the college graduation gap between low- and high-income students within the next four years, with the goal of 70% of students attaining a postsecondary degree within the next six years.
- Intervention in middle school: For students with 80% or lower attendance in the middle grades or a GPA of less than 1.0 in the middle grades, interventions are strongly warranted while they are in middle school. These students are extremely likely to drop out of school, with a risk greater than 75%, unless they experience a

substantial change in the way in which they are engaging with school. Students earning a mix of Cs and Ds or below, or who attend less than 90% of the time in middle school, have less than a 50% chance of being on-track when they get to high school. Moderate interventions might be sufficient to get them to succeed in high school (UChicago CCSR, Looking Forward to high school and College).

- High school transition: In the summer before ninth grade, high schools can use students' grades and attendance from middle school to identify students for whom it is most critical to establish trusting relationships. Students with eighth-grade attendance less than 90% or a GPA of less than 2.0 in eighth grade are very likely to need support during the ninth-grade year. Schools could reach out to these students and their parents to establish positive connections before problems occur (UChicago CCSR, Looking Forward to high school and College).
- Maintaining high expectations: Students need to know that college readiness means at least B-level work, starting at least in the middle grades. If students do not have at least a B average in the middle grades, they are extremely unlikely to end high school with at least a B average. Students with lower than a 3.0 high school GPA have a slim chance of graduating from college, and they will be ineligible to attend many colleges or receive most scholarships. Middle schools can reach out to families of students who are not making high grades to let them know that they are not on-track to be ready for college (UChicago CCSR, Looking Forward to high school and College).
- School-family communication: Schools can make sure that teachers are keeping up with their grading in the parent portal and have clear grading policies, so that students and parents always know where their grades stand and can notice if they slip. For some students, this knowledge may be enough to motivate higher work effort. For others, it may take support from teachers, mentors, or support staff to reach out, determine why students' grades are low, and then develop strategies to support their particular needs (UChicago CCSR, Looking Forward to high school and College).
- Class structure: The ways that teachers structure their classes can influence whether students put in strong or weak work effort. Teaching is a complex task. Teachers need to design methods for engaging students around challenging academic work, even though students enter their class with different skill levels, different histories of success, and their own issues and priorities. The ways in which teachers implement their lessons have implications for the degree to which their students put in effort. Clear grading standards and constant feedback can provide motivation to keep up with work (UChicago CCSR, Looking Forward to high school and College).
- Student mindsets: Teachers can modify their instruction and their interactions with students to encourage positive mindsets about the work. When a student is not putting in effort, a teacher or other adult could find out why they are putting in little effort — what it is about the class or about students' own experiences and skills that is preventing strong performance. Teachers also can design courses so that they intentionally develop students' learning strategies, such as metacognitive skills and study habits, as part of teaching their course subject. Explicitly teaching strategies to do better in class can pay off with better success on tests and assignments in that class and in future work (UChicago CCSR, Looking Forward to high school and College).
- Consistent attendance: Attendance is critical, at least as important as test performance. It may seem like a low bar — get students to come to school every day. Efforts aimed at 100% attendance could actually have substantial pay-off in students' eventual success in college and careers, but problems with attendance are often

dismissed as being of low importance compared to progress on tests. Figuring out how to get to school when other factors may interfere — from family sickness and transportation issues, to the pull of more interesting activities — is not of secondary importance to improving test scores (UChicago CCSR, Looking Forward to high school and College).

- Prioritize learning growth over benchmark scores: Schools and the public are concerned about meeting ACT benchmarks, but reaching benchmark scores is less important for college readiness than maximizing learning growth and getting good grades. Students need classroom environments that encourage them to put in strong effort, earn high grades and show high rates of learning growth. If students are coming into high school with strong middle school records and not performing well, high schools need to find out why (UChicago CCSR, Looking Forward to high school and College).
- Research has shown that students learn more when they are in orderly environments with high expectations. Schools can achieve this in multiple ways. For academically strong students, they can run honors classes, IB programs, and advanced classes. Or they can put sufficient support staff in place in mixed-ability classes so that expectations are high for all students, and so that teachers are able to provide differentiated instruction in an orderly environment. They can make sure that students with low achievement have sufficient support, time for learning and student centered pedagogy to enable them to be engaged and successful in challenging classes. Students tend to put in more effort and earn higher grades when teachers are attuned to their academic needs and provide support as soon as they start to struggle (UChicago CCSR, Looking Forward to high school and College).
- Early Warning Monitoring Systems: Monitoring systems could help students get the right level and kinds of support to keep them on-track for high school and college graduation. High schools in Chicago have made extraordinary progress over the last five years in improving student performance in the ninth grade by using early warning indicators to support student performance in their classes. Ninth grade on-track rates have increased from around 59% to close to 85% in just a few years. In many high schools, educators have designed systems for reaching out to ninth-grade students whose absences are high or grades are low to find out why they are struggling and figure out ways to help them perform better (UChicago CCSR, Looking Forward to high school and College).

Policies

- Require districts to monitor and publicly report 9th-grade on-track rates (CCSR).
- Nine states currently use the accumulation of credits as the key ninth grade "on-track" indicator in their state accountability system; six of these states also implement a statewide early warning system (EWS) to monitor dropout indicators as early as sixth grade (Tennessee Department of Education).
- Monitoring for "on-track" status typically occurs during ninth grade; however, within EWS/EWIMS, states often begin tracking students in middle school (grades 6-8) as early tracking and identification provides the most opportunity for intervention (Tennessee Department of Education).
- Incentivize GPA thresholds for scholarships or early college access
- Align course grading systems with competency standards (Getting Smart).
- Use GPA-based flags in statewide early warning data systems (National Forum on Education Statistics).

Indicators

Contributing indicators

- Student academic proficiency measured by standardized assessments in math and literacy (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

System indicators

- The Institute for Higher Education Policies Toward Convergence framework recommends that higher education institutions minimally identify students as "college ready" or "not college ready" in math and in English according to their own criteria until further research develops more robust measures of academic preparation that are comparable across colleges . Often-used proxies for academic preparation include standardized test scores, high school GPA, placement or enrollment in remedial education, and multiple measures frameworks that incorporate several metrics. If college-ready assessments like the Partnership for Assessment of Readiness for College and Careers (PARCC) or Smarter Balanced gain widespread use, this recommendation should be revisited to determine whether performance on these exams could serve as an adequate measure of college-readiness (IHEP, Toward Convergence).
- High school Curriculum Rigor as an indicator of Academic Preparation: Considered the best predictor of college success based on quantitative analysis by the Department of Education. However, this measure can be time and labor intensive to quantify, because measuring high school rigor requires transcript analysis. Measurement would be difficult to operationalize at scale because of the labor required to implement (IHEP, Toward Convergence).
- Remedial Coursework as an indicator of Academic Preparation: Used by many initiatives, states, and institutions to signal college readiness. Not all institutions offer remediation, and many are shifting away from stand-alone courses toward co-requisite remediation models that may be more difficult to track. However, remedial placement policies vary widely across states and institutions, as there are no shared standards. The predictive value of taking remedial courses on completion varies substantially across credential types (IHEP, Toward Convergence).

Practices and Policies

Practices

- Using multiple measures (e.g., GPA + coursework + assessments) for placement and support. Standardized proficiency scores can reflect opportunity gaps as much as achievement gaps. Districts should pair proficiency data with GPA, attendance and growth to design holistic interventions (Columbia University Teachers College).
- Providing embedded supports in core classes rather than stand-alone remediation (RAND).
- Creating math labs or literacy workshops for students close to proficiency (Institute of Education Sciences).

Policies

- Measures of academic preparation are crucial for institutions to understand whether incoming students are ready for a college environment; they highly correlate with students' college outcomes without intervention. Colleges and universities can use these data to develop and target services to best reach underprepared students and create pathways for their college success. In addition, academic preparation data allow institutions to measure the efficacy of interventions that aim to

help students become college-ready after entry (IHEP, Toward Convergence).

- Policymakers can use academic preparation at the state level to develop coherent and consistent policies to signal clearly to students and schools how they should prepare for college in terms of high school curriculum and remedial education in college (IHEP, Toward Convergence).

Senior summer on track

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of college-intending seniors who complete FAFSA by June 30 (Higher Ed Dive).
- Percentage of college-intending seniors who submit final transcripts to their postsecondary institution
- Percentage of students who attend senior transition meetings or summer bridge programming (SCORE).
- Percentage of students who respond to summer outreach efforts (e.g., text reminders, calls) (Journal of Economic Behavior and Organization).
- Percentage of seniors matched to a postsecondary mentor or advisor (NCAN).
- For schools to target support to college-intending students at risk for summer melt, school staff need relevant information about their students' attendance rates, FAFSA completion, course progress, and college intentions so that they can monitor these measures throughout the college going process and support students as needed (Leaks in the College Access Pipeline).
- Students with moderate or high rates of absenteeism during high school are considerably more likely to melt than otherwise similar peers, regardless of whether they plan to attend a 2- or 4-year college. These results imply that it could be beneficial for college counseling staff to collaborate more with the school staff responsible for student attendance to understand why students have been absent and help reduce barriers to their attendance in high school (Leaks in the College Access Pipeline).
- Certainty about student's intended college. A study by Carrie Miller and Meredith Phillips found that students who expressed certainty about the college they planned to attend were less likely to experience summer melt. Two-year college-intending students who reported on the senior exit survey that they were very certain they would attend their planned college were seven percentage points less likely to melt than otherwise similar students who reported being somewhat certain or not certain. Four-year college-intending students who were very certain they would attend their planned college were five percentage points less likely to melt to no college and seven percentage points less likely to melt to a 2-year college (Leaks in the College Access Pipeline).

System indicators

- Percentage of college-intending seniors who enroll in a postsecondary institution in the fall (tracked via NSC data)
- Percentage of seniors who experience "summer melt," disaggregated by subgroup (race, income, first-gen status) (Institute of Education Statistics).
- Percentage of districts or schools with formal summer melt prevention programs
- Percentage of LEAs receiving data from postsecondary institutions on student enrollment
- Information from the colleges and universities themselves, or from state data systems that have compiled that information, is essential for accurately estimating the extent of summer melt (Leaks in the College Access Pipeline).

Practices and Policies

Practices

- The National College Attainment Network (NCAN) compiled a number of resources related to key topics around improving students' postsecondary outcomes. This evolving list of resources focuses on best practices and case studies related to reducing the effect of summer melt and ensuring that students who intend to matriculate actually do so (NCAN, Summer Melt Resources).
- NCAN Summer Melt Toolkit: This resource from NCAN is a good introduction to the concept of summer melt. It includes background information, different approaches to combating summer melt (virtual and non-virtual), and steps various stakeholders can take (NCAN, Summer Melt Resources).
- Sample Summer Melt Text Messages: You don't need to start from scratch on crafting a summer melt text messaging campaign. NCAN used these messages during a campaign with Signal Vine during a previous summer melt prevention effort (NCAN, Summer Melt Resources).
- NCAN has developed two units that focus on college retention/success. In these units summer transition workshops, using social media, and summer bridge programs are highlighted as ways to prevent summer melt (NCAN, Summer Melt Resources).
- Understanding and managing the college application process
- Special attention must be paid to structuring the college search and application process during junior and senior years; early awareness can only take you so far (Roderick, M. From high school to the Future).
- High schools must work to create strong college-going cultures. The task for high schools educators is more than convincing students and their parents that they should go to college; their task is to provide the relationships and supports that students need to understand the importance of college choice and the expert guidance on how to engage in that process (Roderick, M. From high school to the Future).
- Rising college costs may be a significant barrier, but lack of knowledge of real college costs and effective participation in FAFSA should not be (From high school to the Future: Potholes on the Road to College).
- Automated and personalized text messaging campaigns remind college-intending students of required pre-matriculation tasks and can connect them to counselor-based support. In one study reviewed, this intervention substantially increased college enrollment among students who had less academic-year access to quality college counseling or information (Summer Nudging: Can Personalized Text Messages and Peer Mentor Outreach Increase College-Going Along Low-Income high school Graduates?).
- The overarching goal of the College and Career Action Network (CACAN) is to increase college enrollment, with an emphasis on closing the existing gap between economically disadvantaged and non-economically disadvantaged students. The pilot of the summer melt prevention program accomplished that. Students who participated in the program were 1.4 times more likely to go to college the fall after high school graduation when compared to the matched comparison group and 3.4 times more likely to go when compared to students who disengaged from the program (Wendy Tackett et al., Lessons Learned from a Summer Melt Prevention Program).
- Virtually Advising Students: CollegePoint has advised over 67,000 high-achieving, lower-income students across the country. CollegePoint advisors help students navigate the college admissions and financial aid process and apply to and attend leading colleges and universities. CollegePoint provides support and guidance on the college and financial aid process by: (a) Matching trained advisors from Matriculate with high-achieving, lower-income

first generation college students; (b) Having advisors use virtual interaction tools such as text, video conferencing, and document sharing to connect with students where they are and help them navigate the complex college admissions process; (c) Offering free, high-quality online content on the college and financial aid process from Khan Academy and our partner organizations (CollegePoint).

- KIPP Forward supports students to choose and prepare for the educational and career path that fits their goals and sense of purpose. Once on their way, KIPP Forward teams help alumni keep moving forward while pursuing their dreams. In collaboration with the nearly 400 KIPP Forward counselors across the country, KIPP provides high school students with: (a) Quality curriculum and college selection support in high school; (b) Guidance during the transition from high school to college; and (c) Access to partners that support students on their college and career journey (KIPP Forward).
- Bottom Line: Provides personalized advising to first-generation students during the summer before college starts, focused on final steps and mental/emotional preparation. Bottom Line's college advising programs are designed for first-generation students and the professionals who serve them on their journeys to get into college, graduate, and go far in life. For over two decades, Bottom Line has provided consistent, one-on-one support to help students navigate the challenges of accessing and succeeding in college. Through its Access Program, Bottom Line's Advisors work closely with high school students to build lists of best-fit, affordable colleges. Once students enroll at one of its 53 Target Colleges, College Success Advisors continue supporting them for up to six years, ensuring they persist to graduation and successfully launch their careers. (Bottom Line).
- National Student Clearinghouse's Postsecondary Data Partnership (PDP) is a nationwide effort to help colleges and universities gain a fuller picture of student progress and outcomes, meet various reporting requirements, and identify where to focus their resources. Data provided by participating PDP institutions captures rich information on learners and combines it with financial aid information so colleges and universities can examine early momentum metrics, such as credit accumulation and course completion, and explore the data using multiple dimensions, such as gender, race/ethnicity, enrollment intensity, college placement level, and more (National Student Clearinghouse, Postsecondary Data Partnership).
- Studies suggest that both high-touch interventions that provide college counseling services over the summer months and low-touch interventions that provide information and reminders via text messages can reduce melt for some students (Leaks in the College Access Pipeline).
- Identifying students who have not completed the FAFSA and connecting them with school or community-based resources to assist them with the process may increase their chances of successfully enrolling in college (see, e.g., Bettinger et al., 2012). Recent state policies mandating FAFSA completion, in California and elsewhere, may help reduce summer melt (Deneault, 2023), especially if those policies are designed to encourage early FAFSA completion (Leaks in the College Access Pipeline).
- High schools may need to target some supports differently to 2- and 4-year college-intending students. Two-year college-intending students who have not registered at a 2-year college prior to high school graduation are substantially more likely to melt than otherwise similar peers. Ensuring that students successfully register prior to high school graduation, perhaps through collaborations with local community colleges, may increase the likelihood that they successfully enroll. Helping students become familiar with 2-year colleges through concurrent enrollment programs may reduce the likelihood that students experience melt (Leaks in the College Access Pipeline).

Policies

- Require districts to track and report on summer melt by subgroup (Leaks in the College Access Pipeline: Examining Summer Melt in a Large Urban School District).
- Encourage postsecondary institutions to share enrollment data with high schools: Educational institutions across the country rely on sharing data, often sharing student information with those outside the school or district in order to improve classroom instruction, to measure student outcomes, and facilitate implementation of educational applications to evaluate the effectiveness of educational programs. While the general rule under FERPA is that personally identifiable information from education records cannot be disclosed without written consent, FERPA includes exceptions that permit data sharing under certain conditions with agencies, vendors, or individuals to conduct studies, audit or evaluate programs, enforce or comply with related Federal legal requirements, or in the case of a response to health or safety emergencies. (Protecting Student Privacy).
- Fund peer mentoring or summer outreach positions. A new wave of research is highlighting the effectiveness of near-peer mentoring relationships in which older youth and young adults offer their support to those coming up behind them. These peer mentoring relationships are especially helpful around educational transitions — such as into high school or for college access and persistence — and effective entry onto a career path. These relationships have also proven to be impactful for the young people serving in the mentoring role as well, such as in boosting their leadership and communication skills (Mentor).

Assessments

Indicators

Contributing indicators

- Percentage of students "on grade level" in reading and math by end of 9th grade
- Percentage of students scoring at college-ready levels on interim/benchmark assessments
- Percentage of students flagged as off-track for college readiness based on GPA, coursework or assessment
- Percentage of students in grade 8 who meet grade-level standards in reading/English language arts and math as measured by state standardized tests (Education-to-Workforce).
- High school students earn course grades necessary to gain admission to college (Education-to-Workforce).
- Students need at least a 3.0 GPA in the middle grades to be college-bound; a 3.5 GPA gives them at least a 50% chance. Prior research on high school predictors of college graduation shows that, by far, the most important predictor of college graduation is students' high school GPA. Only students who graduate from high school with at least a B average have a moderate chance of earning a college degree. Parallel to this finding about college, only those students who leave eighth grade with GPAs of at least 3.0 have a moderate chance of earning a 3.0 GPA in high school. Students who plan to go to college need to get the message that college requires very strong levels of effort and engagement in both the middle grades and in high school (UChicago CCSR, Looking Forward to high school and College).

- High grades in high school are essential for college graduation. While passing courses is critical for graduating from high school, it is not enough to be ready for college. Students who are likely to succeed in college are not merely passing courses; they are working hard and earning high grades. Research in Chicago, and across the country, has found that students' high school grades are, by far, the most important predictor of getting into college and eventually graduating — more important than ACT or SAT scores or high school coursework (UChicago CCSR, Looking Forward to high school and College).
- H igh school GPA as an indicator of Academic Preparation: Considered one of the best predictors of college entrance, persistence and completion through correlation and regression analysis. Captures academic performance (cognitive) and personal attributes (noncognitive), such as motivation and perseverance. However, calculating the measure requires a GPA threshold to define "college-ready," and though there is a linear relationship between high school GPA and college outcomes, there are no clear GPA cutoffs to indicate readiness. (An analysis of Beginning Postsecondary Students (BPS) data finds that more than 50% of entering postsecondary students with a high school GPA of 3.0 or above earn a credential. However, this cutoff varies by credential type, making it difficult to set one standard. Among associate-seeking students, the high school GPA threshold for reaching this 50% attainment rate is higher (3.5), while it is lower for bachelor's-seeking students (2.5). Some studies, such as Geiser & Santelices (2007) and Roderick, Nagota, & Coca (2009) show that a threshold of 3.0 is more predictive for student outcomes than other thresholds, but variability by credential level steers the IHEP framework away from setting a specific standard. (IHEP, Toward Convergence).

System indicators

- Percentage of schools using multiple measures (GPA, coursework, assessment) for placement. Studies have found that alternative measures such as high school GPA are significantly better predictors of which students will succeed in college-level courses. Combining high school GPA with other measures including state graduation tests, writing assessments, and noncognitive assessments yields more predictive power, according to the studies (Community College Research Center).
- Percentage of students placed in co-requisite support rather than stand-alone remediation in 11th–12th grade
- Percentage of students deemed "college ready" by state or district assessment thresholds
- Public reporting of college readiness metrics by subgroup (race, gender, income, etc.)

Practices and Policies

Practices

- Utilize assessment measures throughout high school so that students are aware of how prepared they are for college and assist them in overcoming deficiencies as they are identified (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Identify existing assessments, standards, and data available to provide an estimate of college readiness. Assessments can play a key role in alerting students, parents and teachers about whether students are "on track" for college matriculation when they graduate from high school (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Utilize performance data to identify and inform students about their academic proficiency and college readiness. The information schools collect on academic performance and college readiness should be used to identify students who are falling behind and to inform all students

of their progress in becoming college ready. This applies to both the courses students need to be qualified for college entry and the skills they acquire in those courses to avoid remediation once they matriculate. The use of performance data should occur as early as 9th grade to ensure that students can take the necessary steps to get back on track (What Works Clearinghouse, Helping Students Navigate the Path to College).

- Identify students with college expectations who are performing below grade level and who are not on a college-ready track. Schools should identify students who are not meeting grade level standards and who are not on track for college but have college aspirations. Although state assessments can be used to identify students performing below grade level, course grades, grade point average (GPA), course completion and college-readiness assessments can be used to identify students who are not on track for college. For example, a school can flag students who are performing below a certain GPA or students who have not completed courses on the college preparatory track. high schools should obtain and use middle school transcripts of their incoming students to support course placement and flag entering 9th graders with academic deficiencies before those students step foot on campus (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Inform all students about their performance and its implications for accessing college. Discussions with students should be held at least annually about the progress they are making and the hurdles they need to overcome in becoming college ready. 58 Students and families should receive the results of the data collected by the school, possibly in the form of a data report or a letter.For example, a data report might include information on course grades, college-readiness assessment results and high school course completion. Students identified as below grade level or not on track for college should have an individual meeting with someone at the school to discuss the results and their implications for accessing college. Students who are not making progress toward completing graduation or college preparatory requirements should be notified of possible interventions that can help them get back on track (e.g., summer school, remediation programs). (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Create an individualized plan for students who are not on track. Students who are not on track to complete a typical academic course sequence often have trouble catching up and meeting college readiness objectives. The earlier in high school a student can catch up to a standard course sequence, the greater the likelihood of meeting college entrance requirements at the time of high school graduation. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Schools and districts can use whole assessments or a subset of items from existing college or community college placement exams as a diagnostic measure. Although many placement exams are school specific, some common assessments can be adopted by a high school (e.g., COMPASS and ACCUPLACER, an assessment developed by the College Board and used to help determine course selection for students). (What Works Clearinghouse, Helping Students Navigate the Path to College).
- High schools can have students take one of the college admissions exams designed for students in early high school grades (e.g., PSAT, EXPLORE, PLAN). These assessments can gauge early academic preparation in math and reading as well as reasoning and critical thinking. Later in high school, states can have all students take the college admission exams (e.g., SAT, ACT) to gauge their college readiness. (What Works Clearinghouse, Helping Students Navigate the Path to College).

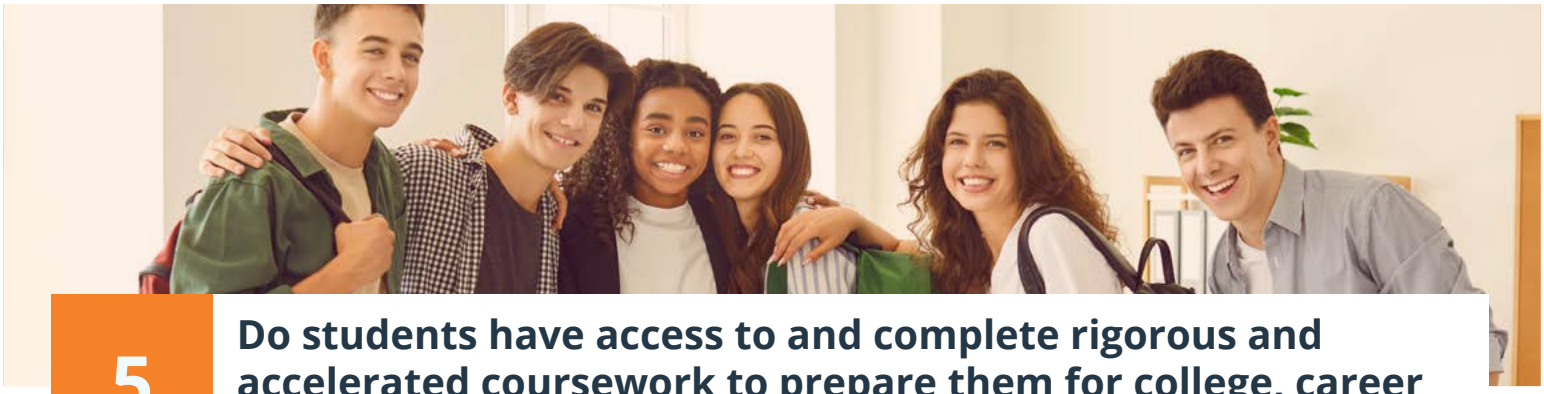
- Schools in states that already conduct a college or career assessment should take advantage of these assessments and use them as an indicator of college preparedness. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- In districts, schools can use existing local benchmark assessments on a regular basis to measure students' progress against standards tied to academic proficiency. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Colleges have traditionally placed students into developmental courses based on their performance on standardized tests. But research shows these placement tests are poor predictors of students' success in college-level classes and as many as one-in-three test takers are placed incorrectly. Most of the misplaced students are assigned to developmental courses that are below their ability and whose credits do not count toward a degree. As a result, these students encounter an unnecessary hurdle on their path to graduation and their progress is potentially blocked altogether. Meanwhile, studies have found that alternative measures such as high school GPA are significantly better predictors of which students will succeed in college-level courses. Combining high school GPA with other measures including state graduation tests, writing assessments, and noncognitive assessments yields more predictive power, according to the studies. This approach, often called multiple measures placement, is gaining traction at colleges across the country, and more than half of community colleges use measures other than standardized tests to assess academic readiness (Community College Research Center).
- Multiple measures placement systems can be used to decide if a student belongs in developmental or college-level courses, what level of developmental course is appropriate and what types of additional support students might need. Colleges that want to implement multiple measures placement systems have various types to choose from, starting with simple waiver systems and progressing in complexity to placement algorithms that weight each measure by its predictive power. In waiver systems, students are exempt from placement tests if they demonstrate college readiness through their high school GPA or SAT, ACT or other test scores. Colleges using decision rules define a series of steps for evaluating information on students to decide where to place them. The rules may differ depending on how many years a student has been out of high school, the student's intended major or other factors. Decision rules that apply only to students testing within a particular score range on traditional placement tests are called decision bands. With placement formulas or algorithms, colleges weight a set of data points, combine them in a formula that produces a prediction of a student's likelihood of success in a course and set a cutoff score for college readiness (Community College Research Center).

Policies

- Mandate diagnostic assessments in 9th grade to determine placement in core courses. In Fall 2001, the Kentucky Council on Post-secondary Education mandated placement assessment completion before admission into any state college. The purpose of this mandate was to better ensure student success in college through appropriate placement in basic academic skills courses (reading, writing, and mathematics) (Madisonville Community College).
- The San Gabriel Unified School District (SUSD) utilizes a Mathematics Placement Policy to ensure students are placed in the appropriate math courses based on their abilities and performance. This policy, often referred to as SB 359, is part of the California Mathematics Placement Act of 2015, which mandates that districts use a fair, objective, and transparent process for placing students in math courses (San Gabriel Unified School District).

- Public reporting of college readiness by demographic subgroup: States set an equitable, statewide public goal for increasing the participation and success of traditionally underserved student groups in college in high school programs, with clear, disaggregated public reporting and accountability for progress toward the goal. Setting equity goals for college in high school programs is a foundational strategy for ensuring that policy is developed with the intent of closing access and attainment gaps. Equity goals can help a state concentrate efforts on strategies that will ensure that participation in college in high school programs matches the demographic, economic and geographic makeup of the state's high school student population. Setting statewide equity goals is an essential step in the process for states to center the conversation on increasing access and improving outcomes for various student subgroups, including but not limited to low-income students, students of color, rural students, students with disabilities and other student groups that are underrepresented in higher education (College in high school).
- Data collection, reporting, and accountability. Policy cannot be deployed to address equity gaps until those gaps are properly understood and tracked. Disaggregated data regarding access and completion of college in high school programs is critical for equity goals to be meaningful and for specific policy solutions to be targeted towards student populations in need. Under ESSA, high schools must report annual data on students taking accelerated coursework to earn postsecondary credit, disaggregated by the ESSA-identified student subgroups. Three states should go further than what ESSA requires in order to build data, reporting and accountability systems that fully track and disaggregate data related to college in high school programs at the school level, include information on low-income student participation and outcomes and make that information transparent and understandable to students, families, educators and communities (College in high school).
- Provide state funding for ACT/SAT access for all juniors. For example, Ohio state law requires that schools provide the administration of a national college and career readiness assessment used for college admission (ACT or SAT) each spring to grade 11 students. To ensure that every student can participate in the state-funded administration of the ACT or SAT, districts and schools should prepare to test all students. This includes registering all eligible students and requesting accommodations that may be required for each student (Ohio Department of Education and Workforce).
- In a dozen states, the ACT or SAT is now given in school, for free, on a school day during school hours. In most cases, the ACT or SAT replaces the standardized test that students would otherwise take in high school, so there is no additional time spent testing. Sitting for the test is also required, which means that students can't opt out because of low expectations – whether theirs or those of the adults around them. In Michigan, in 2007, the ACT became part of the test required of juniors in the public schools. As a result of this shift in policy, the share of Michigan's high school students taking a college entrance exam rose from 54 % to nearly 99%. The growth was even sharper among low-income students, of whom only 35% were previously taking the test (Brookings, ACT/SAT for all).
- There can be a tradeoff between the placement accuracy of a multiple measures system and the level of effort required to implement and use it. For instance, placement algorithms may be more precise than decision rules; but to create them, a college's historical data must be gathered, analyzed, and interpreted. Implementing complex multiple measures placement systems is more feasible if colleges and states already have strong institutional research capacity (Community College Research Center).

- Colleges need systems to gather and process the data used in multiple measures placement. High school transcripts are often the core of multiple measures placement systems, but few community colleges collect transcripts automatically. Colleges and local school systems need to establish methods to collect transcripts and integrate the data into college information systems so they are available for use in placement decisions. Some colleges allow students to self-report their high school GPA (Community College Research Center).
- The function of multiple measures placement may depend on what other developmental and college completion reforms colleges are already engaging in, such as corequisite remediation and math pathways. In colleges where corequisite reforms have already enabled the majority of students to take college-level courses by coupling them with extra supports, the role of multiple measures may be to determine which students need those supports. In colleges that offer different math pathways for students depending on their major, placement systems may also need to gauge students' readiness for several possible math options (Community College Research Center).
- A new placement system will be most successful when buy-in is secured from faculty, staff and administrators. Changing placement systems often raises concerns about whether underprepared students will be allowed into college-level courses or whether new placement measures are valid. To alleviate concerns, faculty should be informed about the research on multiple measures placement and included in decisions about placement measures and cut scores. Non-academic departments — including admissions, advising, testing, information technology and the registrar — will also be affected by changes to the placement system and should be included in planning (Community College Research Center).
- To ensure a new placement system is working as intended, states and colleges will need to monitor its effects by comparing developmental and college-level placement, enrollment and pass rates under the old and new systems. In addition to looking at the reform's overall effects, it is also important to examine its effects on different student groups to make sure all are benefiting — and if they are not, to look into the data to find out why (Community College Research Center).
- States and systems need to allocate resources to collect and analyze data, update information systems, prepare for enrollment shifts, prepare new individual placement reports and train advisors to explain results to students. The average one-year cost to a college to introduce decision rules in Minnesota was nearly $49,000; in Wisconsin, it was about $64,000. Ongoing costs are expected to be lower. Implementing multiple measures placement algorithms in New York cost about $121,000 per college on average in the first semester and less than half that in subsequent fall semesters. The main costs were for information technology staff time to create the data infrastructure, program staff to implement the new system and senior and administrative staff to manage the transition. There were also overhead and materials costs (Community College Research Center).



5 Do students have access to and complete rigorous and accelerated coursework to prepare them for college, career and life success?

Why this matters

Access to and completion of rigorous and accelerated coursework — such as Advanced Placement (AP), International Baccalaureate (IB), dual enrollment and honors classes — are critical predictors of college readiness and long-term success. Research from the U.S. Department of Education shows that students who take advanced coursework are more likely to enroll in college, avoid remedial classes and persist to a degree (U.S. DOE, 2016). However, access remains uneven, particularly for students of color, low-income students and those in under-resourced schools. Expanding equitable access to these opportunities is essential to closing opportunity gaps and ensuring all students are prepared for the demands of college, career and civic life.

Acknowledging that college is not the best-fit path for all students, access to career and technical education (CTE) pathways that match workforce demands is becoming more critical than ever for young people and the broader labor market. As industries rapidly evolve and the need for skilled workers in fields like healthcare, technology and advanced manufacturing intensifies, CTE programs offer students targeted, practical training that aligns directly with these in-demand careers. By providing hands-on experience and industry-recognized certifications, CTE equips students with the exact skills that employers are seeking, helping to ensure they are ready for the workforce upon graduation. This access not only opens doors to well-paying jobs but also strengthens the economy by filling critical skill gaps in industries that drive growth. As workforce demands continue to shift, CTE is emerging as a vital pathway for young people, ensuring they are prepared for success in an ever-changing job market.

College preparatory coursework access and completion

Key source: E-W Framework

Indicators

Contributing indicators

- Rate of completion of a college-track curriculum (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Share of students enrolling in advanced coursework (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Average performance on advanced coursework exams (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

- The College Board found that students who met the SAT College and Career Readiness Benchmark score of 1550 were more likely to have completed a core curriculum, which is defined as four or more years of English, three or more years of mathematics, three or more years of natural science, and three or more years of social science and history. However, of the students who completed a core curriculum (75%), only 49% met the SAT Benchmark, indicating a need for more rigorous core courses (College Board, SAT Report on College and Career Readiness).
- Data show that students who successfully earn AP credit in high school outperform their non-AP peers both in their Scholastic Aptitude Tests (SATs) and their grade point averages in their first semesters of college (All 4 Ed).
- The percentage of students who pass AP exams (Center for American Progress).
- High school students meet typical coursework requirements for admission to a four-year college. A high school education should ensure that students are eligible to pursue their chosen pathway after graduation. In many states, however, the requirements for a high school diploma fall short of the admissions criteria at many four-year colleges and universities (Education-to-Workforce).
- Percentage of high school graduates who successfully complete the coursework required for admission to a four-year college or university, which includes: four years of English classes, four years of math classes (including at least four of the following: pre-algebra, algebra, geometry, Algebra II or trigonometry, precalculus, calculus, statistics, quantitative reasoning and data science), three years of laboratory science (including biology, chemistry and physics), two years of social sciences, two years of foreign language, one year of visual or performing arts (Education-to-Workforce).
- Monitor the percentage of students who complete at least two courses in a single CTE program of study, as defined under Perkins V (Florida Department of Education).
- Track the proportion of CTE concentrators who earn recognized postsecondary credentials before graduation (Department of Education).
- Assess the number of students earning postsecondary credits through dual or concurrent enrollment in CTE-related courses (Department of Education).
- Measure student involvement in internships, apprenticeships or cooperative education experiences aligned with their CTE programs (Department of Education).
- Evaluate additional factors such as the alignment of CTE programs with labor market demands, integration of academic and technical skills and the inclusion of career counseling services (Department of Education).

System indicators

- Share of students enrolling in advanced coursework (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Average performance on advanced coursework exams (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- High school course-taking and sequencing has been found to be a leading predictor of postsecondary success (Balfanz et al., 2016), yet statistics from the Civil Rights Data Collection shows that many high schools do not offer high-level courses that help students succeed at the next level. (Civic Enterprises, Building a Grad Nation).

Practices and Policies

Practices

- Offer courses and curricula that prepare students for college-level work, and ensure that students understand what constitutes a college-ready curriculum by 9th grade. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Implement a curriculum that prepares all students for college and includes opportunities

for college-level work for advanced students. This includes providing courses that are required for entry into a two- or four-year college and providing rigorous academic coursework that prepares students for the demands of college. Recommended courses include four years of English, at least three years of mathematics, two to three years of science and social studies, and one to two years of a foreign language. The What Works Clearinghouse panel recommends that at a minimum, all students should pass Algebra I by the end of their 9th-grade year. (What Works Clearinghouse, Helping Students Navigate the Path to College).

- Ensure that students understand what constitutes a college-ready curriculum. There is substantial evidence that students do not understand the curricular requirements for college entry and success, even those for community colleges. High schools should clearly communicate with students and families to ensure that they understand the courses needed for college (and that students are on track to complete them). (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Develop a four-year course trajectory with each 9th grader that leads to fulfilling a college-ready curriculum. Beginning in 9th grade, high school counselors should work individually with each student to ensure that he or she has a plan to complete the courses during high school. This could be structured as an individualized education, learning, or graduation plan that guides a student's curricular choices throughout high school (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Dual and concurrent enrollment programs allow students to earn high school and college credit from a single course. The structure of such programs can vary widely from location to location and even from course to course. For some, their high school teachers receive special training and can offer their courses in their classrooms. Others take courses via online synchronous or asynchronous classes. Some attend their college-level classes on a college campus. Regardless, participants earn college credit, and many leave high school with both a high school diploma and an associate degree (All 4 Ed).
- Like dual and concurrent enrollment programs, Early College high schools allow students to receive both a high school diploma and up to two years worth of college credit, which for some means an associate degree. Moreover, many participants in Early College high schools begin in the ninth grade to complete the traditional six years of study in four and take fewer high school-level classes to accommodate this (All 4 Ed).
- Pathways in Technology Early College (P-TECH) high schools are a specific type of early college high school where students earn an industry-recognized credential alongside their high school diploma (All 4 Ed).
- With the knowledge that students who met the SAT College and Career Readiness Benchmark were also more likely to have taken honors or AP courses, the College Board is working with its partners to expand access to AP for students across the country. The College Board is also working to find ways to expand access to the PSAT/NMSQT, one of the strongest predictors of AP success. This will help to identify even more students with the potential to succeed in an AP course (College Board, SAT Report on College and Career Readiness).
- Universal advising guide to equip counselors and other caring adults with aligned messages and counseling resources (Education Strategy Group).
- Conduct regular labor market analyses in collaboration with workforce boards and industry partners to determine which career pathways to offer. Update course offerings every few years to stay aligned with economic shifts (Without Limits).
- Partner with community colleges and industry certification bodies to embed dual enrollment

and credentialing opportunities into CTE pathways. Ensure that credits and certifications are portable and recognized by employers and postsecondary institutions (MDRC).

Policies

- Grant programs that cover the costs of dual enrollment courses, including registration fees, books and more. For many undocumented students, the courses are completely inaccessible without this support (All 4 Ed).
- Advanced Coursework Equity Act: This bill authorizes $800 million to expand access to advanced coursework (All 4 Ed).
- Hispanic Education Resources and Empowerment (HERE) Act: Authorizes grants to partnerships between Hispanic-serving institutions of higher education and school districts serving large populations of Hispanic students to increase college preparation and degree attainment (All 4 Ed).
- Jumpstart on College Act: This would expand dual enrollment and early college programs and empower high school juniors and seniors to take college courses and earn college credit. This bicameral legislation would make college more affordable by reducing the number of courses needed at a two- or four-year institution where students would pay per credit hour (All 4 Ed).
- Making Education Affordable and Accessible Act: This would help increase high school and college graduation rates by expanding existing grants to include dual and concurrent enrollment programs. This bipartisan legislation supports various paths to college credit and gives more young people the skill to compete in tomorrow's job market (All 4 Ed).

Title IV, Part A of the Every Student Succeeds Act (ESSA): Known as the Student Support and Academic Enrichment Grants, this section of ESSA provides flexible funds that districts can use for various purposes, including increasing access to advanced coursework. These grants aim to improve students' academic achievement by increasing the capacity of schools to provide all students with access to a well-rounded education and improve school conditions for student learning (All 4 Ed).

Early college coursework completion

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of high school students who enroll in and pass at least one early college course (AP, IB, or dual credit) (Education-to-Workforce).
- Percentage of students enrolled in early college coursework who earn credit-bearing scores on end-of-course tests (for example, a score of 3 or higher on AP tests or 5 or higher on IB tests) or earn postsecondary credit within their dual enrollment courses (Education-to-Workforce).
- Rate of completion of college-level courses/credits in high school (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- The percentage of students who have shown potential to be successful in advanced coursework who have successfully completed at least one course. Participation in early postsecondary opportunities — Advanced Placement (AP), International Baccalaureate (IB), and dual enrollment — has been shown to increase high school graduation, postsecondary enrollment and college persistence rates. Yet, significant gaps in access exist for low-income students and students of color. White students are twice as likely to participate in dual enrollment courses than their Black and Latine peers. These gaps exist despite the fact that the country has improved tools to identify students who can succeed in advanced coursework.

For instance, "AP Potential," developed by the College Board, identifies students who are predicted to have a greater than 60% chance of earning a passing score on a particular AP exam based on their performance on the PSAT or SAT. Similar metrics can be developed using state assessment data and/or course grades for projecting potential for success with dual enrollment, industry-recognized credentials, IB

or other options that enable a student to earn early postsecondary credit while in high school. For instance, Equal Opportunity Schools has found success in using non-test-based methods for predicting advanced course potential, especially among students of color (EdStrategy, From Tails to Heads).

- High school students successfully complete early college coursework (Advanced Placement [AP], International Baccalaureate [IB] or dual credit). There is growing evidence that participation in accelerated postsecondary pathways (such as early college high schools and dual enrollment) has a positive impact on students' high school graduation and postsecondary enrollment and completion (Education-to-Workforce).

System indicators

- Number of AP, IB, and dual enrollment courses offered, overall and by subject (Education-to-Workforce).
- Percentage of students in an early college course who take the relevant end-of-course test needed to earn credit (for example, AP or IB test), overall and by subject (Education-to-Workforce).
- Student subgroup representation in AP courses. Black and Hispanic students disproportionately are underrepresented in rigorous course programs, depriving them of the opportunity to build strong academic transcripts required at elite universities and of the preparation needed to succeed in college. In 2016, Black students were 15.3% of all students in public schools, but just 7.3% of all students who took at least one AP exam. In that same year, Hispanic students comprised 26.4% of public school students but just 22.4% of AP test-takers (Civic Enterprises, Building a Grad Nation).
- AP courses are not the only rigorous classes to which Black and Hispanic have limited access. According to data from the U.S. Department of Education's Civil Rights Data Collection, Black and Hispanic students represent 42% of student enrollment in schools offering gifted and talented education programs (GATE), yet just 28% of students enrolled in such programs (U.S. Department of Education, 2016) (Civic Enterprises, Building a Grad Nation).
- Rate of completion of college-level courses/credits in high school. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

Practices and Policies

Practices

- The What Works Clearinghouse panel recommends that schools enhance their college-ready curriculum with opportunities for prepared students to take college or college-level courses. This includes dual enrollment arrangements that allow students to take college courses for high school and college credit; AP courses; and the International Baccalaureate (IB) program, which also can prepare students for the academic demands of college and facilitate some students' admission to more selective schools. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- The College Board found that students who met the SAT College and Career Readiness Benchmark score of 1550 were more likely to have taken honors or AP courses, more likely to have taken higher-level mathematics courses (e.g., precalculus, calculus and trigonometry), and more likely to be in the top 10% of their high school graduating class than their peers who did not meet the SAT Benchmark (College Board, SAT Report on College and Career Readiness).

- San Antonio ISD uses College Board's AP Potential data to identify students' likelihood of success in each AP course, grouping them into 10-point probability bands. Counselors use the data to target outreach and guide course enrollment, while schools adjust offerings based on student potential — adding high-interest courses like AP Computer Science Principles and replacing low-enrollment ones like AP Physics with dual enrollment. Schools also receive an "AP enrollment report card" to track and improve alignment between student potential and actual enrollment (EdStrategy, From Tails to Heads).
- The Connecticut State Department of Education (CSDE) launched an AP activation campaign to boost enrollment in advanced coursework. Each year, the Commissioner sends letters to 10th and 11th graders identified with AP Potential. Since the campaign began, AP participation and performance have significantly increased — overall enrollment rose 64% over a decade, with Hispanic student participation increasing over 231%. AP success, defined as a score of 3 or higher, is part of the state's accountability system, encouraging schools to prioritize access. CSDE also established a statewide AP credit policy ensuring students earn college credit for passing scores, supported by a data-sharing agreement that automates score reporting to public colleges (EdStrategy, From Tails to Heads).
- To expand access to advanced coursework, Washington became the first state to adopt an automatic enrollment policy — Academic Acceleration — which places students who meet state exam standards into more rigorous math, ELA or science classes. The policy aims to increase equity, particularly for historically underrepresented students (EdStrategy, From Tails to Heads).
- Early College high schools: Use targeted outreach and admissions strategies to prioritize access for historically marginalized groups. Avoid selective admissions criteria like prior academic achievement or test scores, and instead focus on potential and interest (AIR).
- Early College high schools: Build integrated support systems — including dedicated counselors, success coaches and access to college advisors — to help students persist in dual enrollment courses and plan for postsecondary success (Community College Research Center, Columbia University).
- AP Leadership Team – Establish a committee of teachers and administrators to examine data, create and model an access-centered vision, and maintain a general continuity in policy and programming for the school's AP classes (College Board, Broadening Access to Advanced Placement).
- AP Listening Session – Collect input from students on ways to improve the AP program and barriers to participation (College Board, Broadening Access to Advanced Placement).
- AP Ambassadors – Set up a program for students to take a leadership role in recruiting their peers for AP classes (College Board, Broadening Access to Advanced Placement).
- AP Boot Camp – Offer an event to build community, leadership capacity, and study skills in students enrolled in AP classes (College Board, Broadening Access to Advanced Placement).
- AP Information Event – Share information about AP with students and families, focused on AP course offerings and potential alignment with students' educational and career goals (College Board, Broadening Access to Advanced Placement).
- AP Prep Sessions – Host review sessions by experienced AP readers or other successful AP teachers to support students as they prepare for AP Exams (College Board, Broadening Access to Advanced Placement).
- AP Course Availability and Sequencing – Intentionally add AP courses that serve as a gateway for expanding access to rigorous coursework (College Board, Broadening Access to Advanced Placement).

- San Antonio Independent School District (SAISD) leveraged the data in the College Board's AP Potential report to generate a series of customized reports that list the potential to succeed for every student at every high school campus for every AP course offered by the College Board. Rather than simply using the binary definition of AP Potential — either a student has potential or does not — SAISD went further by grouping students into 10-percentage-point bands, starting at having a zero to 10% chance of passing the AP exam in a given course prior to enrolling to having a 90 to 100% chance. The school-level report lists the potential for all incoming students to help guide their advising practices around enrollment in advanced coursework, with school counselors targeting outreach to students who were identified with potential (EdStrategy, From Tails to Heads).
- At the state level, the Connecticut State Department of Education (CSDE) has launched an AP activation campaign to encourage students identified with potential to enroll in advanced coursework. Each year, the Commissioner sends a signed letter directly to every 10th and 11th grade student identified with AP Potential. Since starting the campaign, the state has seen an increase in the number of students enrolling in AP coursework, as well as in taking and passing AP exams (EdStrategy, From Tails to Heads).
- To break down historic access barriers, Washington became the first state in the nation to adopt an automatic enrollment policy for advanced mathematics, English language arts, and science classes in all high schools. The policy, known as Academic Acceleration, automatically places students who meet standards on state-level exams in the next more rigorous course in the corresponding content area. While intended to increase access to advanced coursework for all students, the policy is particularly aimed to support students who have been historically underrepresented (EdStrategy, From Tails to Heads).

Policies

- Create data-sharing infrastructure between K-12, higher education and workforce systems to monitor and support student transitions, similar to Economic Mobility Systems.
- high schools can partner with local postsecondary institutions to offer dual enrollment courses that allow high school students to earn postsecondary credits with both academic and career and technical concentrations. During the 2010-11 school year, 82% of high schools reported students enrolled in dual credit courses with an academic or CTE focus, while 53% of all postsecondary institutions reported high school students took courses for college credit within or outside of dual enrollment programs. (Civic Enterprises, Building a Grad Nation).
- The Texas Education Agency (TEA) defines dual credit as a system where eligible high school students enroll in college courses and receive both high school and college credit. These courses can be taught on high school campuses by approved instructors or on college campuses. The Texas Higher Education Coordinating Board (THECB) assigns service areas to public colleges, facilitating partnerships between high schools and colleges to offer dual credit opportunities (Texas Education Agency).
- Houston ISD has implemented initiatives to increase student participation in advanced academic programs, including AP, IB, and dual enrollment courses. Notably, the district expanded the number of high schools offering the University of Texas's OnRamps dual enrollment courses from 15 to 33, resulting in a significant increase in student enrollment and college credit attainment. These efforts aim to enhance college readiness and provide equitable access to advanced coursework (Houston Chronicle).

Indicators

Contributing indicators

- Differences in the participation rates for students from key demographic subgroups in rigorous courses and programs relative to those students' representation in their school population as a whole, including opportunities, such as the following: Gifted and talented programs; Algebra I in middle school; Higher-level math courses in high school (that is, Algebra II, calculus); Early college courses (AP, International Baccalaureate [IB], and dual enrollment) (Education-to-Workforce).
- High school GPA and other high-school-based criteria have been shown to be more predictive of college readiness than standardized test scores. However, immigrant, international, and older students may be excluded from reformed placement systems if they lack the applicable measures. Institutions have developed creative solutions for at least some of these students through the use of student-reported data in place of official high school transcript data. (CAPR, Bringing Equity into College Placement Reforms).
- For the equitable placement of English learners, institutions should ensure that placement systems distinguish between proficiency in academic English and other knowledge and skills that students may possess. This may include looking in depth at a student's ba ckground to better understand what academic content they have learned in other languages. Research into effective design and practice for this differentiation is ongoing.
- The "AP credit funnel," that is, the level of AP course availability for a high school student; the likelihood of a student's enrollment in an AP course; the likelihood of a student taking an AP test; and the likelihood of a student earning a passing score on an AP exam. All data disaggregated by student demographic (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).

System indicators

- School actions to provide access to advanced course work: (a) Schools offering access to AP coursework; (b) Student identification and course enrollment; (c) Engagement and exam funding; (d) Teacher and student supports (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- Share of students enrolling in advanced coursework (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Average performance on advanced coursework exams (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

Practices and Policies

Practices

- In 2010, the Wake County Public Schools began assigning middle school students to accelerated math and eighth-grade algebra based on a defined prior achievement metric. Such a measure would identify students who might be overlooked for the recommendation to take accelerated-level courses as a result of variation in course-grading practices and subjective beliefs about which students are capable of success in these courses. This policy reduced the relationship between course assignment and student characteristics such as income and race/ethnicity, while increasing its relationship to academic skill. The policy increased the share of students on track for algebra by eighth grade. Students placed in accelerated math were exposed to higher-skilled peers but larger classes (Dougherty, S. et al. Middle School Math Acceleration and Equitable Access to Eighth-Grade Algebra).

- Implementing universal screening for gifted programs has been shown to increase representation of underrepresented students. For instance, Denver Public Schools' shift to universal screening led to a doubling of Latino student representation in gifted programs (EdTrust).
- Institutions can adopt an asset-based orientation to student performance. In seeking to identify and remediate academic weaknesses among students, traditional developmental education tends to restrict or at least delay access to college-level coursework, often for multiple semesters. An asset-based orientation to student performance, in contrast, focuses on what students can do and on identifying and leveraging students' strengths to promote their success. The implementation of corequisite remediation is an example of leveraging students' strengths to promote their success. Corequisite remediation allows students who may have traditionally been placed into prerequisite developmental education to enroll instead in a credit-bearing gateway course along with a developmental support course or other supplemental instruction. Importantly, co-requisite support for students needs to be accompanied by equity-focused professional learning on the part of faculty and staff to better leverage students' strengths (CAPR, Bringing Equity into College Placement Reforms).
- Institutions can design placement systems to be mindful of specific student populations. To meet the needs of a diverse range of students, colleges will have to continue to experiment with different strategies to incorporate nontraditional measures into placement systems (CAPR, Bringing Equity into College Placement Reforms).
- Institution-wide training on equity-focused practices can be offered to faculty, advisors, and staff. Advisors, testing staff and faculty can greatly influence the courses into which students place and how they are taught, especially under reformed placement systems that allow new students to choose what courses they would like to take based on their own self-appraisal, other assessment information and guidance from college personnel. It is critical that college personnel receive ongoing training that encourages self-reflection on their own implicit biases, knowledge, practices and assumptions. This training should also impart an institution-wide awareness of language demands that the institution places on English learners and assumptions or biases about them (CAPR, Bringing Equity into College Placement Reforms).
- An example from Cuyamaca College shows how professional learning opportunities can provide college staff with equity-minded approaches to placement and pedagogical practices. The college offers an Equity-Minded Teaching and Learning Institute as a yearly cohort-based professional development activity in which faculty analyze their classroom data, disaggregated by race and ethnicity, and then make changes to their curriculum and teaching practices using an equity-minded teaching framework. Resources available more broadly include professional development opportunities offered by the Office of Community College Research and Leadership (OCCRL), such as its Advancing Racial Justice and Equitable Outcomes in Community Colleges Institutes, which are open to community college faculty, student-affairs professionals, and academic-affairs administrators nationwide. Training opportunities such as these provide a clear understanding of educational equity and culturally responsive practices (CAPR, Bringing Equity into College Placement Reforms).

Policies

- The federal government should resume collecting disaggregated school-level data on advanced coursework in the Civil Rights Data Collection (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).

- States should include detailed disaggregated data on advanced coursework on school report cards (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- Policies that automatically enroll students who meet proficiency benchmarks into advanced courses have been effective. Federal Way Public Schools in Washington implemented such a policy, resulting in increased enrollment of Black and Latine students in advanced coursework (Center for American Progress).
- States should develop and invest in partnership organizations that can support schools to expand offerings, provide professional development to teachers, and help students prepare for and succeed in advanced courses, not just AP courses (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- States and districts should leverage available federal funding, including Title I, Title II, Title III and Title IV of the Every Student Succeeds Act (ESSA) and funding from the American Rescue Plan Act, to expand and improve advanced coursework offerings (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- States and districts should work to vertically align standards critical for student success at the high school level with earlier grades to prepare students for advanced coursework.
- Districts should invest in ongoing collaboration between elementary, middle and high school staff to continually improve alignment and coordination of instructional concepts and vocabulary (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- States and school districts can expand access to advanced coursework by: (a) Making investments in statewide partnerships focused on equitably expanding advanced coursework; (b) Working to optimize schoolwide master schedules to reduce conflicts and open up more slots for students in advanced coursework; (c) Remaining open to leveraging technology to expand offerings, which could entail virtual offerings across schools within a district, in regional partnerships, or through high-quality state virtual schools (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- States and districts should analyze data to reduce opportunities for bias in systems used to identify students for advanced courses from elementary through high school (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- States and districts should implement automatic enrollment or academic acceleration policies that automatically place students with demonstrated proficiency in the subsequent highest available course (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- Districts should recruit and mentor students early in their high school careers to prepare them for enrollment and success in advanced coursework (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- States and districts should invest to eliminate subscription or examination fees for advanced coursework (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- Districts should initiate regular conversations with families in their home languages about advanced coursework registration timelines, program availability and cost reductions (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- State-level partnerships and districts should invest in professional development and communities of practice for advanced coursework instructors (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).

- State-level partnerships and districts should create supplemental opportunities for advanced coursework students to connect with and learn from peers and experts (Center for American Progress, Closing Advanced Coursework Equity Gaps for All Students).
- California laws (AB 705 and AB 1705) require community colleges to use high school coursework and GPA for placement decisions, aiming to reduce reliance on standardized tests and increase access to transfer-level courses for all students (The Campaign for College Opportunity).
- Illinois mandates the use of multiple assessment tools and universal screening to identify students for accelerated programs, along with professional development for educators to support diverse learners (Illinois General Assembly).

Access to quality, culturally responsive curriculum

Key source: E-W Framework

Indicators

Contributing indicators

- Schools and instructors use a standards-aligned core course curriculum that meets quality standards (as defined by EdReports) and is culturally relevant, centering the lived experiences and heritage of students' ethnic or racial backgrounds (Education-to-Workforce Framework).
- The percentage of students who pass AP exams (Center for American Progress).
- Schools and instructors use a standards-aligned core course curriculum that meets quality standards (as defined by EdReports) and is culturally relevant, centering the lived experiences and heritage of students' ethnic or racial backgrounds (Education-to-Workforce Framework).
- The Tier 1 curriculum, assessments, and instructional resources in use are closely aligned (Instruction Partners).
- When and if appropriate, additional culturally and/or linguistically relevant materials are used alongside curricular materials to support students in making personal connections (Instruction Partners).

System indicators

- Schools and instructors use a standards-aligned core course curriculum that meets quality standards (as defined by EdReports) and is culturally relevant, centering the lived experiences and heritage of students' ethnic or racial backgrounds (Education-to-Workforce Framework).
- The Tier 1 curriculum, assessments, and instructional resources in use are closely aligned (Instruction Partners).
- The school/system uses quality data and assessment resources consistently, cohesively, and strategically to drive instructional decision making for all students (Instruction Partners).

Practices and Policies

Practices

- When and if appropriate, additional culturally and/or linguistically relevant materials are used alongside curricular materials to support students in making personal connections (Instruction Partners).
- Tiered intervention programs in use are structured and systematic; they amplify and accelerate learning from Tier 1 materials (Instruction Partners).

- Curriculum-embedded assessments and materials are used seamlessly to design whole- and small-group learning experiences that move every student toward reading proficiency (Instruction Partners).
- The school/system uses quality data and assessment resources consistently, cohesively, and strategically to drive instructional decision making for all students (Instruction Partners).
- Capstone Courses and Projects: Whether they're called "senior capstones" or some other name, these culminating experiences require students nearing the end of their college years to create a project of some sort that integrates and applies what they've learned. The project might be a research paper, a performance, a portfolio of "best work," or an exhibit of artwork. Capstones are offered both in departmental programs and, increasingly, in general education as well (AAC&U, High-Impact Practices).
- Collaborative Assignments and Projects: Collaborative learning combines two key goals: learning to work and solve problems in the company of others and sharpening one's own understanding by listening seriously to the insights of others, especially those with different backgrounds and life experiences. Approaches range from study groups within a course, to team-based assignments and writing, to cooperative projects and research (AAC&U, High-Impact Practices).
- Common Intellectual Experiences: The older idea of a "core" curriculum has evolved into a variety of modern forms, such as a set of required common courses or a vertically organized general education program that includes advanced integrative studies and/or required participation in a learning community. These programs often combine broad themes — e.g., technology and society, global interdependence — with a variety of curricular and cocurricular options for students (AAC&U, High-Impact Practices).
- Diversity/Global Learning: Many colleges and universities now emphasize courses and programs that help students explore cultures, life experiences and worldviews different from their own. These studies — which may address US diversity, world cultures, or both — often explore "difficult differences" such as racial, ethnic and gender inequality, or continuing struggles around the globe for human rights, freedom and power. Frequently, intercultural studies are augmented by experiential learning in the community and/or by study abroad (AAC&U, High-Impact Practices).
- ePortfolios: ePortfolios can be implemented in a variety of ways for teaching and learning, programmatic assessment, and career development. ePortfolios enable students to electronically collect their work over time, reflect upon their personal and academic growth, and then share selected items with others, including professors, advisors and potential employers. Because collection over time is a key element of the ePortfolio process, employing ePortfolios in collaboration with other high-impact practices provides opportunities for students to make connections between various educational experiences (AAC&U, High-Impact Practices).
- First-Year Seminars and Experiences: Many institutions now build into the curriculum first-year seminars or other programs that bring small groups of students together with faculty or staff on a regular basis. The highest-quality first-year experiences place a strong emphasis on critical inquiry, frequent writing, information literacy, collaborative learning and other skills that develop students' intellectual and practical competencies. First-year seminars can also involve students with cutting-edge questions in scholarship and with faculty members' own research (AAC&U, High-Impact Practices).
- Internships: Internships are an increasingly common form of experiential learning. The idea

is to provide students with direct experience in a work setting — usually related to their career interests — and to give them the benefit of supervision and coaching from professionals in the field. If the internship is taken for course credit, students complete a project or paper that is approved by a faculty member (AAC&U, High-Impact Practices).

- Learning Communities: The key goals for learning communities are to encourage integration of learning across courses and to involve students with "big questions" that matter beyond the classroom. Students take two or more linked courses as a group and work closely with one another and with their professors. Many learning communities explore a common topic and/or common readings through the lenses of different disciplines. Some deliberately link "liberal arts" and "professional courses"; others feature service learning (AAC&U, High-Impact Practices).
- Service Learning, Community-Based Learning: In these programs, field-based "experiential learning" with community partners is an instructional strategy — and often a required part of the course. The idea is to give students direct experience with issues they are studying in the curriculum and with ongoing efforts to analyze and solve problems in the community. A key element in these programs is the opportunity students have to both apply what they are learning in real-world settings and reflect in a classroom setting on their service experiences. These programs model the idea that giving something back to the community is an important college outcome and that working with community partners is good preparation for citizenship, work and life (AAC&U, High-Impact Practices).
- Undergraduate Research: Many colleges and universities are now providing research experiences for students in all disciplines. Undergraduate research, however, has been most prominently used in science disciplines. With strong support from the National Science Foundation and the research community, scientists are reshaping their courses to connect key concepts and questions with students' early and active involvement in systematic investigation and research. The goal is to involve students with actively contested questions, empirical observation, cutting-edge technologies and the sense of excitement that comes from working to answer important questions (AAC&U, High-Impact Practices).
- Writing-Intensive Courses: These courses emphasize writing at all levels of instruction and across the curriculum, including final-year projects. Students are encouraged to produce and revise various forms of writing for different audiences in different disciplines. The effectiveness of this repeated practice "across the curriculum" has led to parallel efforts in such areas as quantitative reasoning, oral communication, information literacy, and, on some campuses, ethical inquiry (AAC&U, High-Impact Practices).

Policies

- Legislators promote the selection and periodic review of high-quality curriculum. High-quality curriculum not only provides a clear framework for teachers, but also ensures coherence across grades and schools. It is essential that legislators promote the selection and periodic review of evidence-based instructional materials and resources in districts. This will help determine if they meet students' needs or if additional materials and supports are necessary. Don't remove resources, even flawed ones, without providing educators with effective alternatives first. (Model state: Delaware) (Shanker Institute).

6 Does the LEA or school provide intensive, individualized support to students who have fallen off track?

Why this matters

Taking key steps in and after high school — such as completing the FAFSA, applying to college or training programs, and making informed career choices — is essential for students' long-term success, and school counseling plays a critical role in this process. Research from the National Association for College Admission Counseling (NACAC) and the College Board shows that students who receive timely and personalized guidance are significantly more likely to complete applications, secure financial aid and enroll in postsecondary education (NACAC, 2019). Yet, high student-to-counselor ratios and inequitable access to college advising often leave many students, especially those from underserved backgrounds, without the support they need to make successful transitions. Strengthening counseling systems is vital to ensuring all students make informed, attainable and ambitious postsecondary plans.

SAT/ACT participation and performance *Key source: E-W Framework*

Indicators

Contributing indicators

- The SAT Benchmark score of 1550 is associated with a 65% probability of obtaining a first-year GPA of B- or higher, which in turn is associated with a high likelihood of college success. Studies show that students who meet the SAT College and Career Readiness Benchmark are more likely to enroll in a four-year college, more likely to earn a higher first-year GPA, and more likely to persist beyond the first year of college and complete their degree. For instance, among students who met the SAT College and Career Readiness Benchmark, 78% enrolled in a four-year college or university, compared to only 46% of those who did not meet the SAT Benchmark (College Board, SAT Report on College and Career Readiness).
- The ACT College Readiness Benchmarks are the minimum ACT® college readiness assessment scores required for students to have a high probability of success in credit-bearing college courses — English Composition, social sciences courses, College Algebra, or Biology. The ACT Test Benchmarks are as follows: English (18); Reading (22); Mathematics (22); Biology (23). Students who meet a Benchmark on the ACT or ACT Compass have approximately a 50% chance of earning a B or better and approximately a 75% chance of earning a C or better in the corresponding college course or courses (ACT Research and Policy).

- High test scores help students get access to college. When colleges make entrance decisions, they usually rely on both students' grades and their scores on college entrance exams (the ACT and SAT). For this reason, higher scores on the college entrance exams help students gain access to more selective colleges and programs. High test scores also can help students obtain scholarships (UChicago CCSR, Looking Forward to high school and College).

System indicators

- Percentage of grade 11–12 students who take the SAT/ACT (Education to Workforce Framework)
- Percentage of grade 11–12 students who earn a "college-ready" score, based on the benchmarks set by the SAT and ACT (Education to Workforce Framework)
- Average college admission test scores at an institution (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- College Entrance Exam Scores as an indicator of Academic Preparation: Used by many institutions during the admission process to determine college readiness Both SAT and ACT scores are predictive of first-year GPA and student outcomes, such as retention and completion, in college (For example, scoring a 1550 out of 2400 or above on the SAT is associated with a 65% probability of earning at least a B- average in the first year of college. For the ACT exam, scoring 22 or above is correlated with a 75% chance of earning a C or better in collegiate English and math courses). However, many students at open-access institutions, such as community colleges and for-profit schools, do not take these tests (IHEP, Toward Convergence).

Practices and Policies

Practices

- Universal testing mandates: Evidence suggests that standardized tests like the SAT and ACT can be a useful and cost-effective approach for identifying high-achieving students from marginalized backgrounds for the purposes of college access and outreach initiatives. There is evidence that universal testing mandates requiring all students to take the ACT or SAT raise college enrollment rates among students from low-income households (Education-to-Workforce).
- Free college admission exams: One way states are attempting to increase postsecondary access to students is to provide college enrollment exams for free. To date [i.e., as of 2018], 26 states have made either the ACT or SAT a requirement for 11th graders and have administered the exams to students free of cost. Using data from Lumina Foundation's A Stronger Nation report shows states that require a college admission test have slightly smaller subgroup gaps between white and Black students (13.6 vs. 14.5 percentage points), as well as white and Hispanic students (21.1 percentage points vs. 22.6 percentage points). Increasingly, high schools are joining the movement to provide free college admission testing and some have devoted school hours to SAT test-taking or provided vouchers to cover the cost of ACT exams (Civic Enterprises, Building a Grad Nation).
- Expanding access through fee waivers and SAT School Day: Since 1970, the College Board has provided SAT fee waivers to low-income students for whom exam fees would present an undue burden in the college-going process. More students than ever are using SAT fee waivers (College Board, SAT Report on College and Career Readiness).
- First offered in the spring of 2010, SAT School Day helps states and districts foster a college-going culture and increases access to college. Enabling students to take the SAT for free during the school day ensures that promising students who might otherwise face barriers to standard Saturday testing — such as part-time jobs or family responsibilities — do not miss

out on a chance at the college-going process (College Board, SAT Report on College and Career Readiness).

Policies

- Several U.S. states have policies or funding mechanisms in place that cover the cost of SAT or ACT exams for high school students, often as part of a college access or accountability strategy, including Colorado, Illinois, Michigan, Ohio, Texas, Kentucky, Tennessee and North Carolina.
- Universal SAT/ACT testing produces small, discernible increases in college attendance, especially at four-year colleges. And it's cheap: states have to run a high school test anyway, plus parents pay for the college entrance exams if the school system does not. Joshua Hyman, an assistant professor at University of Connecticut, calculates that a universal testing program is one of the least costly ways to increase college attendance rates (Brookings, ACT/SAT for all).

FAFSA completion

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of grade 12 students who complete the FAFSA by June 30 (Education-to-Workforce).
- Rates of FAFSA completion. Students who report completing a FAFSA are more likely to enroll in college, enroll in a four-year rather than a two-year college, and enroll full time rather than part time compared to students who do not complete an application (Education-to-Workforce).
- Rates of FAFSA completion for low-income students: Students from low-income households who complete a FAFSA are 127% more likely to enroll in college in the fall after graduating high school than their peers who do not. One study found that, among students who applied and were admitted to college, there was a 29 % difference in enrollment — 84% of students who were admitted and completed the FAFSA enrolled in a four-year college, compared with 55 % enrollment by students who were admitted but did not complete the FAFSA (Education-to-Workforce).
- Student reasons for not completing a FAFSA. (e.g., among fall 2009 ninth-graders who graduated from high school and reported, or their parents reported, not completing a FAFSA, 33% thought they or their family could afford school or college without financial aid; 32% thought they or their family may be ineligible or may not qualify for financial aid; 28% did not want to take on debt; and 23% did not have enough information about how to complete a FAFSA) (Stats in Brief, Why didn't students complete a FAFSA).
- The percentage of eligible high school seniors who complete the FAFSA by June 30. The Free Application for Federal Student Aid (FAFSA) eases the burden of college affordability by providing access to federal — and in some cases, state and institutional — financial aid. Completing the FAFSA significantly increases the odds that a student will enroll in a postsecondary institution directly after high school, with 90% of students who complete the FAFSA seamlessly enrolling, compared to just 55% of non-completers. Students who complete the FAFSA are also more likely to persist in their college coursework and obtain a degree. To increase FAFSA completion, one of the highest-leverage strategies is to provide high school principals and counselors with access to student-level data that they can use to target support to the students who need it most. To further tailor support, we also encourage tracking additional, more nuanced FAFSA data, such as flagging students who have started, but not submitted the application, as well as students who have submitted, but

not completed the form. According to data from the National College Attainment Network (NCAN), more than 66,000 fewer students have completed the FAFSA by the end of May 2020 compared to the same time in 2019. Nationally, this equates to over a 3-percentage point decrease. With many families facing financial hardship, it is more important than ever to ensure students complete the FAFSA. (EdStrategy, From Tails to Heads).

- % of students completing a FAFSA. A study of the 2009 high school Longitudinal Study conducted by the National College Attainment Network found that students from the lowest socioeconomic quintile who completed a FAFSA were 127% more likely to be enrolled in the fall following high school graduation than their counterparts without a FAFSA completion. Among high school graduates from the class of 2013, 37.4% of students from the lowest SES quintile who did not complete a FAFSA had a postsecondary enrollment in November 2013, compared to 83.8% of students from the highest quintile who did not complete a FAFSA. Contrast these figures with students who did complete the FAFSA: 85% of students from the lowest quintile who completed a FAFSA had a postsecondary enrollment in November 2013, compared to 97.8% of students from the highest quintile who completed a FAFSA. The findings show that FAFSA completion associates with a narrowing of the postsecondary enrollment gap based on socioeconomic status by about 34 percentage points. (NCAN, Survey Data Strengthen Association Between FAFSA Completion and Enrollment).
- Reasons why students do not complete a FAFSA. In a study by the National Center for Education Statistics, parents or students reported the following reasons for not completing a FAFSA: (a) they could afford school or college without financial aid (33% of respondents who reported not completing a FAFSA); (b) they thought they would be ineligible or may not qualify (32%); (c) they did not want to take on debt (28%); (d) they did not have enough information about how to complete a FAFSA (23%); (e) they had no plans to continue education after high school (22%); (f) they did not know you could complete a FAFSA (15%); they thought the FAFSA forms were too much work or too time-consuming (9%). (NCES Stats in Brief, Why Didn't Students Complete a FAFSA?).
- Percentage of Prior Graduates Who Completed the FAFSA:The percentage of 2004 graduates, the prior cohort, in the school who reported on the 2004 CPS Senior Exit Questionnaire that they had completed the FAFSA. (Roderick, M. From high school to the Future).
- Completed the FAFSA: Student reported on the 2005 CPS Senior Exit Questionnaire completing the FAFSA. (Roderick, M. From high school to the Future).

Practices and Policies

Practices

- Student Leadership Network's CollegeBound Initiative (CBI) places full-time directors of college counseling in high-need public schools. One of the program's objectives is to support students in completing financial aid applications by providing comprehensive financial aid counseling, helping complete the FAFSA application, and conducting one-on-one meetings with families (Student Leadership Network).
- Increase families' financial awareness, and help students apply for financial aid. Financial aid plays an important role in making college affordable and improving access to college, especially for first-generation students and students from low-income families. However, these students and their families often have limited knowledge of financial aid opportunities and may overestimate the cost of college. high schools can ensure that students take the necessary steps to obtain financial aid by educating students and their parents early

in high school about college affordability and the availability of financial aid and by helping them identify potential sources of aid. Students benefit from hands-on assistance in meeting financial aid deadlines and completing application forms (What Works Clearinghouse, Helping Students Navigate the Path to College).

- Organize workshops for parents and students to inform them prior to 12th grade about college affordability, scholarship and aid sources, and financial aid processes. high schools should inform students and parents about financial aid and the cost of college early in high school. The What Works Clearinghouse panel recommends that high schools organize separate workshops to inform parents and students about financial aid. The workshops should address misconceptions about college costs and build awareness of financial aid (What Works Clearinghouse, Helping Students Navigate the Path to College).
- The What Works Clearinghouse panel recommends holding an initial workshop on college affordability in 9th or 10th grade, ensuring that students and parents understand the cost of college and the aid available to make it affordable. A workshop on scholarship and aid sources should occur in 10th grade so that students and parents can begin to think about the sources of different forms of aid. Although students complete the FAFSA in their senior year, information about the financial aid application process should be covered in the junior year to prepare students for the process (What Works Clearinghouse, Helping Students Navigate the Path to College).
- College affordability. Students who think that college is too expensive or who lack information about the availability of aid may not take the necessary steps early in high school to prepare for college. The What Works Clearinghouse panel recommends that high schools provide information about college affordability — both the cost of college and ways to cover the cost — starting in 9th grade. Schools can create a worksheet that displays potential costs for college next to potential sources of financial aid to demonstrate the realistic cost to families. Students should receive information on the typical tuition cost for two- and four-year colleges, differences between public and private institutions and tuition estimates for local and regional colleges (What Works Clearinghouse, Helping Students Navigate the Path to College).
- High schools can provide a worksheet that has a side-by-side comparison of the cost of these schools and should help students and parents distinguish the different types of college costs, including tuition, fees, room and board, and books and supplies. Students need to understand the types of financial aid available to cover these costs, including grants, loans, scholarships, tax credits, and work-study programs. Descriptions of financial aid, loan obligations, and grants can be confusing for individuals who may have limited interactions with banks and lending agencies; accordingly, conversations should be developed in a manner that is understandable to the student and his or her family. The workshops should encourage students and parents to estimate their financial aid eligibility using a tool to forecast eligibility based on FAFSA (e.g., FAFSA4caster, www.fafsa4caster.ed.gov). (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Scholarship and aid sources. One workshop should assist students in navigating the vast array of financial aid sources to identify relevant opportunities. A list of available federal and state grants and their eligibility requirements can help students determine likely sources of aid. During the workshop, high schools also can provide a list of local and regional sources of scholarships available for students, as well as websites on which they can search more broadly for scholarships (e.g., www.fastweb.com, www.latinocollegedollars.org). Although high school advisors often maintain information on scholarship opportunities, students may not access this information unless they regularly

visit a school's advising office. High schools can disseminate scholarship information during the workshop and follow up with updated or additional information on the school's website or in its monthly newsletter. Schools can designate a staff member to collect and update financial aid, scholarship, and grant opportunities for students (What Works Clearinghouse, Helping Students Navigate the Path to College).

- Financial aid application process. high schools should hold workshops to inform students and parents about the financial aid application process, including details about the process for submitting the FAFSA. Students should understand the information that is needed to complete the FAFSA and should know about the online and hardcopy versions of the application. High schools should explain that the FAFSA plays a role in determining eligibility for federal loans and grants as well as state grants, scholarships, and other forms of aid. Informing students about key concepts, such as the estimated family contribution (EFC), can help students understand the meaning of their financial aid materials. Students should understand the steps in the process that occur after submitting the FAFSA, including receipt of the student aid report and a financial aid package (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Workshops on financial aid should be held for parents as well as for students. high schools should develop a plan for engaging parents and encouraging them to become invested in the financial aid and college application processes. For example, a parent institute that includes sessions on financial aid and other aspects of the college entry process could be held throughout the school year. Inviting parents to informal social gatherings at the school, such as picnics or family dinners, can encourage parent involvement as well. Offering child care at these events can make it easier for parents to attend and participate. The workshops for parents should discuss how they can help students complete the financial aid process and encourage them to assist students in meeting key deadlines. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Help students and parents complete financial aid forms prior to eligibility deadlines. In addition to workshops providing information about financial aid, high schools should hold workshops to assist high school seniors and their parents in completing the FAFSA form, to answer student questions, and to explain the information requested on the form. The workshops should include volunteers who are knowledgeable on the FAFSA and can provide one-on-one help in completing the application form. High schools should reach out to financial aid officers from local colleges who can train teachers or volunteers on the FAFSA and who can assist individual students during the workshop. Students should be notified of the information needed to fill out the FAFSA, such as income information from parents' tax forms, before the session. High schools can coordinate with the school library or computer lab so that students can complete the FAFSA on the Internet. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Even though high schools can reach a broad group of students through line-by-line assistance at a workshop, students may have complex questions specific to their financial situation or may be uncomfortable raising questions at a group meeting. Therefore, high schools should provide individual assistance or counseling following a workshop to further assist students in completing the FAFSA or other aid applications. For high schools that provide mentoring services, mentors can provide one-on-one assistance if they are knowledgeable about financial aid or if they receive training. Individual financial aid counseling also can be helpful for answering questions about the Student Aid Profile, award letter, or financial aid decisions that are made after a student submits the FAFSA. (What Works Clearinghouse, Helping Students Navigate the Path to College).

- The role of FAFSA Verification in exacerbating summer melt: A 2020 study from Rice University found that one-third of Houston Independent School District college-intending students were flagged for FAFSA verification (i.e., a process requiring a student to submit additional documents such as tax transcripts and W-2 forms so the financial aid office at their college can see that the information on these documents matches the student's FAFSA application) and that racial and ethnic minorities were especially at risk of verification. The study also found that students flagged for FAFSA verification were five percentage points more likely to delay their college enrollment than students who were not flagged for verification. Overall, results suggested reducing FAFSA verification and/or providing support to students and families managing the process might be a way to improve college enrollment rates and reduce summer melt. (Holzman, B., & Hanson, V. S., Summer melt and free application for federal student aid verification.)
- Counselors set up systems for success. This includes: (a) Create a FAFSA completion tracker for the students on your caseload; (b) Identify local resources to support families in the financial aid process, such as free local tax prep resources; (c) Train your team (and yourself!) in FAFSA completion and financial aid processes in your state. If your student population includes students without documentation or with DACA, research alternative financial aid support. (KIPP, Supporting Students to Find Their Match).
- Counselors support juniors to complete FAFSA4Caster. This includes: (a) Host a workshop (or workshops) during junior year to introduce key concepts like the cost of college, financial aid options and documents needed to complete financial aid. Consider collecting tax documents at this time to prepare to support your students for FAFSA completion senior year; (b) Create and deliver checklists for juniors to gather the information they'll need to complete FAFSA4Caster; (c) Support juniors to complete FAFSA4Caster, either on their own, in workshops or in one-on-ones; (d) Once FAFSA4Caster is complete, schedule time with each junior on your caseload to review their EFC and cross-examine their wish list. Make adjustments, as necessary, to ensure there are financial fits; (e) Where needed, connect families with local resources for tax completion. (KIPP, Supporting Students to Find Their Match).
- During students' senior year, counselors help students and families complete FAFSA and the financial aid process. This includes: (a) As a college counseling team, meet regularly to review progress-to-date on FAFSA submission to identify needs and triage support; (b) Host a workshop, office hours or one-on-ones to help students and families complete FAFSA; (c) Help students identify and complete the necessary financial aid steps for the colleges on their wish lists. Some colleges may require additional forms; (d) If students are applying to private colleges, support them to complete the CSS Profile (KIPP, Supporting Students to Find Their Match).
- Counselors review and evaluate student aid offers as they arrive. This includes: (a) Remind students to submit offer letters for analysis; (b) Support students to review and compare letters, identifying the total anticipated out-of-pocket cost of college and anticipated loan payments after college; (c) If necessary, support students and families to appeal financial aid offers. (KIPP, Supporting Students to Find Their Match).
- According to KIPP's Financial Aid Checklist, before the end of junior year students should: (a) Create their FSA ID which they'll need to complete FAFSA. (Visit: fsaid.ed.gov); (b) Complete the FAFSA4Caster to get an early estimate of their potential financial aid. (Visit: fafsa.ed.gov/spa/fafsa4c); (c) As they build their college wish list, review every option to determine if it's a "financial fit," ensuring to include options that are more affordable on their list; (d) Begin gathering the documents they'll need to submit FAFSA in the fall: Social Security number (if applicable); Family taxes and earnings from previous year; Information

on investment, checking and savings accounts; (e) Begin researching scholarships. Create a simple tracker with scholarship names, links, requirements and submission dates (KIPP, Supporting Students to Find Their Match).

- According to KIPP's Financial Aid Checklist, in October and November of Senior Year, students should: (a) Work with their family to submit FAFSA. They can use the IRS Data Retrieval Tool to populate with tax information. (Visit: fafsa.ed.gov); (b) Review their Student Aid Report (arrives a few days after FAFSA submission) to ensure all the information is accurate; (c) Continue researching potential scholarships; (d) Apply for scholarships as deadlines approach; (e) Review the financial aid requirements for every college they plan to apply to. Make plans to submit any additional financial aid forms on time. (KIPP, Supporting Students to Find Their Match).
- According to KIPP's Financial Aid Checklist, in January and February of Senior Year, students should: (a) complete FAFSA verification, if required; and (b) Check in with colleges to ensure they have all the information they need for financial aid (KIPP, Supporting Students to Find Their Match).
- According to KIPP's Financial Aid Checklist, from March through May of Senior Year, students should: (a) Submit financial aid offers to their counselor so they can review together; (b) If needed, work with their counselor to submit financial aid offer appeals; (c) Analyze each award letter to better understand their out-of-pocket cost and future loan payments; (d) Prepare to submit a deposit to their selected college by May 1 (KIPP, Supporting Students to Find Their Match).
- Louisiana has consistently been one of the leading states for FAFSA completion rates for the past several years. In addition to requiring students to complete the FAFSA to graduate from high school, the state maintains a statewide data system that includes student-level FAFSA completion data. The Louisiana Office of Student Financial Assistance (LOSFA), which manages the data, shares reports to schools on a weekly basis. Louisiana also includes FAFSA submission data on its School Finder information platform to provide parents and community members with meaningful data on students' postsecondary preparation (EdStrategy, From Tails to Heads).
- The Michigan College Access Network (MCAN) manages a statewide, public-facing FAFSA tracker that enables individuals to view FAFSA completion data by school, enrollment, region, and county and compares current completion rates to the previous year. Schools and districts can use this tracker to monitor their progress relative to their peers across the state. To spur competition, the tracker also features a leaderboard of the top schools in the state by both overall completion rate and growth from the previous year. This competition is further supported by the College Cash Campaign, which provides incentives to schools for meeting certain benchmarks (EdStrategy, From Tails to Heads).
- Vancouver Public Schools (VPS), located in Washington, shares student-level data through an online portal. Managed by the Washington Student Achievement Council (WSAC), the state's higher education coordinating board, the portal allows all high school counselors and principals to have real-time data on students who have not only completed the FAFSA, but also who have missing information or errors on their application, or who have started, but not completed the form. VPS conducts trainings with school staff on how to analyze and leverage this data to focus the support they provide to students and families (EdStrategy, From Tails to Heads).

Policies

- Simplify the FAFSA: The Free Application for Federal Student Aid (FAFSA) effectively serves as the gateway to higher education for millions of students each academic year. However, the complex and extensive nature of the FAFSA has resulted in the significant underutilization of federal aid. The implementation of the

FUTURE Act and the FAFSA Simplification Act will eliminate unnecessary FAFSA questions and help create early awareness of financial aid options among younger students. FSA should continue working to decrease the burden caused by the audit-like verification process. (National College Attainment Network, Fix FAFSA)

- Universal FAFSA Completion with Supports: Data show FAFSA completion increases the likelihood of enrollment and persistence in higher education. States should require FAFSA completion for high school graduation, with a robust opt-out option for students with special circumstances. And counselors, advisers, and students should be provided with the support needed to meet the requirement. (National College Attainment Network, Universal FAFSA Completion with Supports).
- Student-level FAFSA Data Sharing: Through agreements with Federal Student Aid, states can access student-level data on FAFSA submissions, completions, and more. Nearly every state has signed an agreement to receive this data, and these agreements also permit states to pass this data along to districts, schools, and other approved organizations. Having access to student-level FAFSA completion data can help districts, schools, and community organizations: Drive FAFSA completion campaigns; Change postsecondary advising practices; IncreFAFSAase FAFSA completion rates; Better connect students with the financial aid that would make their postsecondary pathways more affordable (NCAN, FAFSA Data Sharing).
- High school educators and college access counselors hold information sessions to help students and families understand the process and timeline for FAFSA submission this year (U.S. Department of Education, Better FAFSA Toolkit).
- High school educators and college access counselors support students as they create a StudentAid.gov account by giving time to do it with trained school personnel or volunteers (U.S. Department of Education, Better FAFSA Toolkit).
- High school educators and college access counselors set FAFSA completion goals for your or key partners' high schools and use available data to know your school's current submission rate (U.S. Department of Education, Better FAFSA Toolkit).
- High school educators and college access counselors train teachers, support staff and volunteers on how to fill out the FAFSA (U.S. Department of Education, Better FAFSA Toolkit).
- High school educators and college access counselors visit ed.gov/Better-FAFSA to access resources like the Financial Aid Toolkit for counselors and the roadmap for counselors and advocates (U.S. Department of Education, Better FAFSA Toolkit).
- High school educators and college access counselors Develop a roadmap for their school and community support providers (U.S. Department of Education, Better FAFSA Toolkit).

Selection of a well-matched postsecondary institution, CTE training program, or career path directly after high school

Key source: E-W Framework

Indicators

Contributing indicators

- High school graduates select the best "match" college among the institutions to which they were admitted, based on the institutional graduation rate of similar students. Nationwide, 50% of students from low-income families attend a less selective college than those to which they have access, even though attending a more selective college can lead to higher graduation rates and future income (Education-to-Workforce).

- Percentage of high school seniors who select a college within 10 percentage points of the best matched postsecondary institution to which they were admitted, based on the institution's graduation rate for similar students by race, ethnicity, or income status (as measured by Pell Grant receipt) (Education-to-Workforce).
- The percentage of high school seniors who are admitted to at least one "match" postsecondary institution. Where a student attends college matters. Research shows that students from low-income families are more likely to attend less selective universities than their academic credentials would otherwise allow, known as "undermatching." Students who are undermatched are significantly less likely to complete their postsecondary degree given that these institutions often offer less financial aid and support services. As such, many districts and charter networks have started to set goals around the percentage of students admitted to at least one "match" school and have aligned their advising supports to guide students toward the schools where they are likely to be the most successful as early as 9th grade. With students indicating that, in light of the pandemic, they are considering attending a community college, an institution that is more affordable or closer to home, or deferring their college plans altogether, it is essential that students are guided to the institutions where they are most likely to be successful (EdStrategy, From Tails to Heads).
- Percentage of students affected by student-college "academic undermatch," which occurs when a student's academic credentials permit them access to a college or university that is more selective than the postsecondary alternative they actually choose. Using a nationally representative dataset, we find that 41% of students undermatch in their postsecondary choice. We also find that academic undermatch affects students with a range of academic credentials, but is more common among those students from low socioeconomic status families, who live in rural areas, and whose parents have no college degree. Finally, we show that between the 1992 and 2004 high school senior cohorts, academic undermatch has decreased by nearly 20%. The decrease is partially due to students being more likely to apply to a matched college (Smith, J. et al., The full extent of student-college academic undermatch).
- Percentage of low-income, high-achieving students applying to a well-matched college. A Brookings study shows that the vast majority of low-income high achievers do not apply to any selective college. This is despite the fact that selective institutions typically cost them less, owing to generous financial aid, than the two-year and nonselective four-year institutions to which they actually apply. Moreover, low-income high achievers have no reason to believe they will fail at selective institutions since those who do apply are admitted and graduate at high rates. The study demonstrates that low-income high achievers' application behavior differs greatly from that of their high-income counterparts with similar achievement. The latter generally follow experts' advice to apply to several "peer," a few "reach," and a couple of "safety" colleges. By contrast, low-income high-achieving students who do not apply to selective colleges often come from districts too small to support selective public high schools, are not in a critical mass of fellow high achievers, and are unlikely to encounter a teacher who attended a selective college (Hoxby, C. and Avery, C., The Missing "One-Offs": The Hidden Supply of High-Achieving, Low-Income Students).
- College match of high school graduates. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

System indicators

- Participated in Activity at School: Student reports on the 2005 CCSR Senior Survey at least weekly participation in school clubs or after-school activities (like student council, ethnic/cultural clubs, newspaper, drama, or After School Matters). (Roderick, M. From high school to the Future).

- Applied to Three to Five Schools/Applied to Six or More Schools: Student reports on the 2005 CPS Senior Exit Questionnaire of the number of applications completed. (Roderick, M. From high school to the Future).
- Attended a College Fair: Student reported on the 2005 CCSR Senior Survey attending a college fair while in high school. (Roderick, M. From high school to the Future).
- Used a College Guidebook: Student reported on the 2005 CCSR Senior Survey using college guidebooks (online or print) while in high school. (Roderick, M. From high school to the Future).
- Took the PSAT: Student reported on the 2005 CCSR Senior Survey taking the PSAT/NMSQT (the preSAT) while in high school. (Roderick, M. From high school to the Future).
- Followed the Steps Up to Being Accepted into a Four-Year School: Student reported on the 2005 CCSR Senior Survey and the 2005 CPS Senior Exit Questionnaire following the steps to college enrollment up to being accepted into a four-year college (aspired to a four-year degree, planned to attend a four-year college, applied to a four-year college, and was accepted into a four-year college) (Roderick, M. From high school to the Future).

Practices and Policies

Practices

- By combining internal data on their students' academic performance with postsecondary outcomes data from the National Student Clearinghouse (NSC), districts and charter networks can set their own benchmarks for identifying match institutions for their students (EdStrategy, From Tails to Heads).
- As part of the To & Through Advising Challenge, the Partnership for Los Angeles Schools (PLAS) harnessed data from the National Student Clearinghouse (NSC) to create counselor resources for improving postsecondary fit and match. PLAS was formed as a collaboration between Los Angeles Unified School District (LAUSD), the city of Los Angeles, and other public and private partners, and they manage 18 of the "most historically underserved schools" in the city. They used the NSC data to develop criteria for the "best fit" schools that had a track record of successfully supporting LAUSD students. Schools with an average admitted student GPA above 3.5 with a 75% or higher minority graduation rate, or schools with an average admitted student GPA below 3.5 and a 55% or better minority graduation rate. PLAS created individual data sheets for each of the "best fit" schools to share with counselors, teachers, parents, and students (EdStrategy, From Tails to Heads).
- The KIPP charter network has developed a College Match Framework that breaks down the key practices — and aligned performance indicators that schools can use to measure progress — that students and counselors should take throughout the college application and selection process. Students explore their "passion, purpose, and plan" to identify their priorities. They then build a "SMART Wish List," with students encouraged to apply to at least six institutions, including a balance of schools they are "likely" to be accepted to, schools that are "targets," and schools that are "reaches" based on their academic performance. Counselors have access to a dashboard that tracks student progress in meeting each of these goals. Schools continue to monitor students as they apply for financial aid, select an institution to attend, and complete the critical steps to enroll and transition in the fall. By following this approach, KIPP has found that students at all levels of performance are more likely to matriculate to colleges with historically strong graduation rates for Black and Latine students than their peers who apply to fewer schools. (EdStrategy, From Tails to Heads).
- Achieve Atlanta has partnered with Atlanta Public Schools (APS) to develop a Match and Fit List Builder, which supports students with creating a balanced college list, including at least two

each of "target," "reach," and "likely" schools. The tool uses data provided by the district, including GPA and the highest score on the ACT or SAT. To provide students with information about the potential cost of the colleges on their list, the tool also asks students to provide their household income. (EdStrategy, From Tails to Heads).

- Chicago Public Schools (CPS) has partnered with the University of Chicago Consortium to develop a College Match Grid that categorizes institutions to apply to based on a student's GPA and SAT or ACT score: two-year colleges, "less selective" four-year colleges, "somewhat selective" four-year colleges, "selective" four-year colleges, and "very selective" four-year colleges. For example, while a student scoring below 940 on the SAT or 18 on the ACT and with less than a 2.0 GPA might want to consider a two-year college, a student with a 3.0 GPA and the same test scores might look at "selective" colleges. The grid is paired with a "College Selectivity List" of institutions for each of those categories (EdStrategy, From Tails to Heads).
- Student Leadership Network's CollegeBound Initiative (CBI) places full-time directors of college counseling in high-need public schools. One of the program's objectives is to increase student awareness of college and career options by coordinating college trips and fairs, facilitating college awareness lessons and workshops, and connecting students to alumni enrolled in college (Student Leadership Network).
- Since 2013, the Colorado Department of Higher Education has been working to develop earnings outcomes tools accessible to Colorado students and families. This interactive tool depicts annual median earnings for Colorado graduates one, five and 10 years following the completion of a credential. Students and families can use this tool to search for median earnings based on institution of higher education, degree level, and program of study (Colorado Department of Higher Education, Postsecondary Degree Earnings Outcome Tools).
- Counselors conduct 1–on–1 meetings throughout students' junior & senior years on topics relevant to their place in the college process (Knowledge is Power Program, College match strategies framework).
- Counselors build Family Investment by engaging families early and throughout the college process. Hold family nights about college matching in junior and senior year Plan family meetings on critical match topics including wish lists, matriculation decisions, and financial aid decisions. (Knowledge is Power Program, College match strategies framework).
- Counselors use data tools to build SMART wish lists, track progress to Match goals, and analyze wish lists and financial aid awards. Data tools include: KIPP Student Match Tool, KIPP Counselor Match Tool, KIPP Alumni Database, KIPP Strong Transition Dashboard, Under-matching and ECC tracker, uAspire Award Analyzer, and Department of Ed College Scorecard. (Knowledge is Power Program, College match strategies framework).
- Rigorous progress monitoring: Rigorous and realistic bottoms up goals; Weekly tracking of metrics using Counselor Match Tool; Regular email communication to communicate progress to goals; Monthly Match Meetings (Knowledge is Power Program, College match strategies framework).
- Leadership alignment: All students take ACT 2–3x, with first test in April of junior year; Curriculum and academic policies oriented towards college and career readiness; Shared goals and accountability; All KIPP HS's have 11th/12th Seminar (ideal — 9th–12th); Dir. of College Counseling and/or KTC Director on HS Leadership team; Resources for fee waivers, college trips, and PD. (Knowledge is Power Program, College match strategies framework).
- Whole school engagement: School and dept PD aligned to college match process; School-wide Match campaigns; Regular teacher-counselor communication and updates. (Knowledge is Power Program, College match strategies framework).

- Counselor competency and development: Align JD, performance review, and PD to Match Strategies Framework; Regional PD days; Attendance at national KIPP Through College webinars and in person retreats; Visits to regional colleges and counselor fly-ins; Professional memberships and conferences (NACAC, NCAN, etc.). (Knowledge is Power Program, College match strategies framework).
- Students prepare for college match: (1) Get an early start; (2) Explore your Passion, Purpose, and Plan, and priorities for college fit; (3) Prepare for the cost of college: submit parent taxes, request tax verification documents, and get preliminary EFC; (4) Know your Numbers (academic and financial). (Knowledge is Power Program, College match strategies framework).
- Students build a SMART college wish list. At KIPP, most students make a list of 9 schools with at least 6 being likely-plus, target and reach. These goals may differ based on academic profile. Students check their list according to the following aspects of fit: (a) Career alignment: Does my options have my anticipated major(s) or a path to my desired career?; (b) Financial Fit: Do I have options that I am confident will provide me sufficient financial aid?; (c) Academic fit: Do I have options that are strong fits for my academic profile? Do I have a balanced list of likely-plus, target, and reach schools? (d) Success fit: Do my options have strong graduation rates and supports to ensure I complete? (e) Personal fit: Do my options reflect my desired postsecondary experience and community: (f) Family fit: Are my parents supportive of my options? KIPP recommends all juniors complete a draft wish list by the end of their junior year, about May 31st. Seniors should refine their wish list by September 30th so on October 1 they can move into financial aid and postsecondary applications. (KIPP, Supporting Students to Find Their Match).
- Counselors support students to draft, refine and finalize a Smart Wish List. This includes: (a) Outline recommended college and career options for students by academic profile. Use graduation and admissions data - as well as feedback from students - to determine which colleges support students well, and recommend these options to students to explore at the start of the process; (b) Introduce students to their wish list search tool and make sure the counselor has access; (c) Support students in using financial aid, career, college priority and fit factors to draft wish lists; (d) Review first draft of wish lists for quality fit factors; meet with students/or families to provide feedback; (e) Support students in refining Smart Wish List using: ACT/SAT scores, GPA, college priorities, career interests and Expected Financial Contribution. Vet for balance across college options; (f) Ensure students share wish lists with parents for feedback and complete a Wish List Defense Project to share with peers and teachers; (g) Ensure every junior finalizes an initial Smart Wish List that meets key criteria. (Recommended by May 31). (KIPP, Supporting Students to Find Their Match).
- Counselors support ACT and SAT registration and completion. This includes: (a) Connect students to ACT and SAT prep resources. (For example, the free online ACT Academy.); (b) Support ACT/SAT registration and hold ACT/SAT support events (Pre-breakfast, pep rally); (c) Support students in taking the ACT and/or SAT at least two times. (Research shows students do best taking the tests three times) (KIPP, Supporting Students to Find Their Match).
- Counselors ensure every student completes the FAFSAForecaster and collects critical financial aid documents. This includes: (a) Hold family meeting to complete FAFSA4caster and review draft wish list; (b) Use FAFSA4caster results (anticipated Expected Family Contribution) to refine wish lists for financial fit; (c) Collect student documents needed to complete FAFSA in a safe storage area to use for financial aid submission in fall of senior year (KIPP, Supporting Students to Find Their Match).

- Counselors help students draft and prepare for personal statements. This includes: (a) Determine when students will complete personal statements (e.g., in English class, at a writing retreat, independently w/ support of faculty/advisors); (b) Establish an online storage space for personal statement drafts; (c) Ensure students have plans to solicit and incorporate feedback from teachers and peers; (d) Verify that student drafts are completed by recommended date. (KIPP, Supporting Students to Find Their Match).
- Counselors help students identify and prep potential recommenders. This includes: (a) Ensure students complete an online "Brag Sheet" and send to recommenders; (b) Hold training for teachers to learn about best practices for letters of recommendation; (c) Determine where letters will be stored (KIPP, Supporting Students to Find Their Match).
- Counselors ensure students make plans to explore the colleges on their wish lists. This includes: (a) Run student college trips. We recommend organizing trips by academic segment. (Note: these can occur in spring or summer.); (b) For Early Decision applicants, ensure students apply to school's summer programs and/or diversity fly-ins (if available and no or low cost) (KIPP, Supporting Students to Find Their Match).
- According to KIPP's College Search Checklist, before the end of junior year students should: (a) Take a career assessment; (b) Start exploring and having conversations with others about what careers you might be interested in. Research what might be required; (c) Craft and revise a "Smart Wish List" of colleges and postsecondary options you want to pursue and share that list with your family; (d) Take the ACT, SAT or other standardized tests at least once; (e) Complete FAFSAForecaster and collect financial aid documents. Share tax documents with your college counselors; (f) Draft a personal statement and collect feedback from friends, teachers or other adults you trust; (g) Create a "Brag Sheet" and give to potential recommenders; (h) Make plans to visit or virtually explore the colleges and programs on your wish list. This might include attending summer programs; (i) Talk to your counselor about whether or not "Early Decision" or "Early Action" is the right choice for you (KIPP, Supporting Students to Find Their Match).
- According to KIPP's College Search Checklist, by September 30 of Senior year students should: (a) Refine and finalize your "Smart Wish List and share it with your family; (b) Take the ACT, SAT or other standardized tests. (It's recommended that you take them two or three times.); (c) If applying Early Action or Early Decisions, visit the college and complete your application on time. (Likely by 11/1); (d) Once your wish list is finalized, make a list of all the materials you'll need to complete your applications. If students had not finished the following steps in their junior year, they should finish them immediately: (a) Complete FAFSAForecaster and collect financial aid documents. Share tax documents with your college counselors; (b) Draft a personal statement and get feedback and advice from friends, teachers and other adults you trust; (c) Create a "Brag Sheet" and give to potential recommenders; (d) Make plans to visit or virtually explore the colleges and programs on your wish list, potentially applying for and attending summer programs (KIPP, Supporting Students to Find Their Match).
- According to KIPP's College Search Checklist, in August and September of Senior year students should: (a) Revisit your wish list and research when applications will be due and what's required; (b) Create a work plan for your application process. For each application, note the due date, application link, what's required and create a place to track completion of each application element; (c) Identify who can be on your application "team" to draft recommendations. Send them a "brag sheet," along with a deadline to complete. (Set this deadline a few weeks before you plan to submit.); (d) Revisit your personal statements,

seeking feedback from teachers, family and peers. Update and adjust where necessary; (e) Talk to your counselor about requesting "fee waivers" to avoid paying the cost of application fees. Capture requirements in your application work plan (KIPP, Supporting Students to Find Their Match).

- According to KIPP's College Search Checklist, in October and November of Senior year students should: (a) Submit necessary fee waivers; (b) Send reminders to recommendation writers, emphasizing when you plan to submit your applications; (c) Schedule time with your college counselor to review applications before final submission; (d) Submit all applications; (e) Confirm that colleges received all your application materials (KIPP, Supporting Students to Find Their Match).

College applications

Key source: E-W Framework

Indicators

Contributing indicators

- Grade 12 students submit a well-balanced portfolio of at least three college applications. Research shows that students who apply to at least two colleges are more than 40 % more likely to enroll in a four-year college than those who apply to only one (Education-to-Workforce).
- There are disparities by race, ethnicity, and income in the rates at which students apply to college. One study found, for instance, that students from low-income households were less likely to apply to college and less likely to apply to multiple colleges than their peers. As another example, among Chicago Public School (CPS) students who aimed to achieve a four-year degree, Black and Latino students were least likely to apply to and enroll in college (Education-to-Workforce).
- The percentage of eligible high school seniors who submitted at least two college applications. According to research from the College Board, increasing the number of applications from one to two can increase a student's probability of enrolling at a postsecondary institution by 40 %, and 89 % of students submitting at least two applications are accepted by at least one four-year institution (EdStrategy, From Tails to Heads).
- While submitting two applications is a foundational goal, schools and districts should consider setting more ambitious targets. One Goal, a program that partners with districts in six cities across the country to improve high school graduation, encourages students to apply to at least seven best-fit colleges (EdStrategy, From Tails to Heads).
- As part of their College Match Framework, the KIPP charter network tracks the percentage of students who apply to at least six institutions (EdStrategy, From Tails to Heads).
- Percentage of Prior Graduates Attending a Four-Year College: The percentage of 2004 graduates, the prior cohort, who enrolled in a four-year college after high school based on NSC data. (Roderick, M. From high school to the Future).
- Percentage of Prior Graduates Who Applied to Three or More Schools: The percentage of 2004 graduates in the school who reported on the 2004 CPS Senior Exit Questionnaire that they had applied to three or more schools. (Roderick, M. From high school to the Future).

System indicators

- Teachers' Assessment of the College Climate in their School: Teacher reports from the 2005 CCSR teacher survey of the overall expectations and press for college in the school environment. Teachers were asked the extent to which they

would agree (strongly disagree to strongly agree) that: (1) teachers (in this high school) expect most students to go college; (2) teachers help students plan for college outside of class time; (3) the curriculum is focused on helping students get ready for college; (3) teachers feel that it is a part of their job to prepare students to succeed in college; and (4) many of our students are planning to go to college. The measure is constructed using Rasch rating scale analysis and represents the average of teacher reports in the high school (Roderick, M. From high school to the Future).

Practices and Policies

Practices

- Student Leadership Network's CollegeBound Initiative (CBI) places full-time directors of college counseling in high-need public schools. One of the program's goals is to support students in completing college applications assisting students with registering/preparing for the PSAT and SAT exams; providing one-on-one assistance with college selection; helping students hone their interview skills; assisting seniors in writing essays, recommendation letters, and resumes; and offering parent education and outreach (Student Leadership Network).
- A College Board Advocacy & Policy Center study found that increasing the number of college applications from one to two can increase a student's probability of enrolling at a four-year college by 40%, and increasing the number of applications from two to three can increase a student's probability of enrollment by 10%. (Smith, J. Can applying to more colleges increase enrollment rates?)
- Counselors set up systems to guide the work ahead. This includes: (a) Create a system to track student applications and submission status; (b) Identify which students might apply Early Action or Early Decision and adjust your own support and deadlines accordingly; (c) Identify and distribute instructions to students who may be eligible for fee waivers; (d) Train high school staff on supporting strong applications, including their role in writing recommendations and reviewing personal statements; (e) Connect with key high school staff to support the work, including English teachers to support personal statements and special education teachers who can support the application process; (f) Offer students a template for tracking their own work, including critical components of each application to submit; (g) Schedule key opportunities to engage students and families, including workshops and one-on-one conversations (KIPP, Supporting Students to Find Their Match).
- Counselors introduce students and families to the application process. This includes: (a) Host a summer or fall workshop to introduce key postsecondary vocabulary, the process ahead and strategies for personal statement and recommendation completion; (b) Share resources with families like vocabulary worksheets and questions to ask so they can be active partners in the application process; (c) Prepare and distribute application support materials for students, including application work plans, resources for recommendations and strategies for personal statements; (d Continue identifying and distributing instructions to students who may be eligible for fee waivers; (e) For students applying to test-optional schools, create recommendations for how to build quality applications without test scores. (For example, creating guidance for and reviewing writing samples.); (f) Track the status of student applications in progress (KIPP, Supporting Students to Find Their Match).
- Counselors support students and families to complete quality applications. This includes: (a) Continue to track application statuses, leaning in to provide support for students who may be falling behind; (b) Enlist high school staff to offer regular reminders and support for personal statements and recommendations; (c) Host regular check ins with students to check in on

applications. Provide feedback on personal statements and application artifacts like writing samples; (d) Host application work sessions. This might happen in a college and career seminar class, advisory, or other academic class or it could happen after school. (KIPP, Supporting Students to Find Their Match).

- For students considering CTE and military options: The process of applying to CTE options and preparing for military enlistment requires research, preparation and organization. For CTE programs, the application length, timeline and requirements will vary by organization (ie, community college or standalone program housed in a nonprofit). We recommend applying the same principles that a student might apply to the college application process: research application requirements and timelines; create an application plan; and work with students, counselors, teachers and families to complete applications. For students considering military options, we recommend students research different military careers and corresponding requirements, including scores on the ASVAB test, and develop a preparation plan (KIPP, Supporting Students to Find Their Match).
- As part of the Bill & Melinda Gates Foundation's To & Through Advising Challenge, Minneapolis Public Schools (MPS) and Achieve Mpls have partnered to help close the city's postsecondary enrollment gaps. They aim to grow the number of students who apply to two or more postsecondary programs to increase the likelihood of student enrollment. All seniors are expected to complete a graduation plan that captures preferences for enrollment, military enlistment, and employment. Regardless of their preferences, all students receive information on multiple postsecondary pathways, and Achieve Mpls staff run Career and College Centers (CCCs) in eleven MPS schools and five St. Paul Public Schools, where they provide one-on-one advising and support to students to help them map their plan for the future, identify "match" institutions, and complete college and financial aid applications (EdStrategy, From Tails to Heads).
- Idaho sends every eligible high school senior a letter notifying them that they've already been accepted to some or all of the state's public colleges and universities — no application required. The program led to a 6–15% increase in enrollment at Idaho public colleges, particularly for low-income and rural students (Education Commission of the States).

Policies

- Policymakers and higher education practitioners can increase college enrollment among traditionally underrepresented students by encouraging students to submit more applications and by developing approaches to assist these students in the application process. A relatively simple "small-scale" approach to encouraging the submission of more college applications is to provide information on the college application process well in advance of application deadlines. That is, getting students to apply to more colleges may involve informing guidance counselors, parents, college counselors or the students themselves about the benefits of numerous applications. This small "nudge" to apply to more colleges can yield powerful results (Smith, J. Can applying to more colleges increase enrollment rates?)
- Application fee waivers: Another potential "large-scale" initiative involves incentivizing students to submit more applications through financial incentives for low-income students, such as fee waivers. In many instances, low-income students receive application fee waivers, and modest compensation for application completion might provide the thrust necessary for students contemplating the submission of additional applications (Smith, J. Can applying to more colleges increase enrollment rates?)
- Initiatives that provide students with direct assistance in completing applications are likely

to stimulate college enrollment. This type of policy is already under way in North Carolina with College Application Week in which students, especially first-generation students and students with no pre-existing intentions to apply to college, receive help with their applications (Smith, J. Can applying to more colleges increase enrollment rates?)

- At the District of Columbia Public Schools (DCPS), high school principals are assessed for the percentage of college-bound seniors who have submitted at least one college application. To support school leaders in tracking their students' progress towards this goal, the district has created a dashboard that includes both aggregate and student-level data for key college and career readiness measures, including college application and FAFSA completion. School leaders, counselors, career and technical education teams, and college and career coordinators all have access to the dashboard, enabling them to target support to individual students. In recent years, DCPS has also integrated the concept of "smart college choice," which identifies higher education institutions that meet scaled benchmarks for graduation rates based on a student's GPA and SAT score. For most institutions, DCPS uses graduation rates for Pell Grant eligible students. For institutions that have had at least 20 DCPS graduates attend across two cohorts, the district calculates a specific DCPS graduation rate. The aforementioned dashboard tracks students who have both applied to and been accepted to a "smart college choice." (EdStrategy, From Tails to Heads).
- The Idaho State Board of Education instituted a direct admissions program that sends a letter offering admission to all eight of the state's public postsecondary institutions for any high school student who meets set benchmarks for GPA and SAT or ACT scores. In the four years the policy has been implemented, the state has reduced the gap in seamless enrollment for low income students, and students of color who received the letter enrolled in college at higher rates than White students who received a similar letter. (EdStrategy, From Tails to Heads).
- The *Postsecondary and Workforce Readiness Act*, this initiative rewards high school students who complete a set of experiences — academic coursework, career exploration, and postsecondary planning — with a "college and career endorsement" on their diplomas. Some public institutions offer preferential admissions or placement for students with endorsements (Postsecondary Workforce and Readiness Act - Illinois).

Access to college and career advising

Key source: E-W Framework

Indicators

Contributing indicators

- Students believe they will graduate with the skills and knowledge to be successful in the job market and in the workplace (Strada-Gallup, Crisis of Confidence).
- Students believe their major will lead to a good job (Strada-Gallup, Crisis of Confidence).
- Students speak often with faculty or staff about their career options (Strada-Gallup, Crisis of Confidence).
- Students have at least one university official initiate a conversation with them about their career options (Strada-Gallup, Crisis of Confidence).
- Students believe their school is committed to helping their students find a rewarding career (Strada-Gallup, Crisis of Confidence).

System indicators

- The American School Counselor Association (ASCA) recommends a student-to-counselor ratio of 250:1. Schools meeting or bettering this 250:1 benchmark often report higher rates of college counseling engagement, FAFSA completion, applications submitted, and ultimately, enrollment (ASCA).
- An additional high school counselor is predicted to induce a 10 percentage point increase in four-year college enrollment (Hurwitz and Howell, 2013).
- Percentage of Graduates Who Found their Counselor Very Helpful: The percentage of graduates in the school who reported on the 2005 CCSR senior survey that the counselor has been very helpful in helping them plan what to do after high school. (Roderick, M. From high school to the Future).
- Counselor Press for Academic Achievement: The average of graduates' reports on the 2005 CCSR senior survey of the extent to which counselors in their school: (1) helped select courses needed for work or admission to college; (2) encouraged taking AP/honors courses; (3) encouraged continuing education after high school; and (4) talked about colleges/schools that were suited to the student's interests and abilities. The measure is constructed using Rasch rating scale analysis. The student-level version of this variable is also used in some analyses. (Roderick, M. From high school to the Future).
- Teacher/Counselor Structured Support: The average of graduates' reports on the 2005 CCSR senior survey of the extent to which teachers or counselors helped students with the college search and application process. Students were asked the extent to which teachers or counselors: (1) encourage students to apply to several different schools; (2) talk to students about what college would be like; (3) help students fill out applications for colleges or vocational/technical schools; (4) help students find scholarships to apply for; (5) help students decide which school to attend; (6) help students plan how to pay for tuition and other expenses; and (7) help students with college application essays or personal statements. The measure is constructed using Rasch rating scale analysis. The student-level version of this variable is also used in some analyses. (Roderick, M. From high school to the Future).

Practices and Policies

Practices

- Engage and assist students in completing critical steps for college entry. Low-income and first-generation students often face challenges in completing the steps to college entry, such as taking college admissions tests, searching for colleges, submitting college applications, and selecting a college. Students may not be aware of these steps, may lack information on how to complete them, and may not receive sufficient support and advice from those around them (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Ensure students prepare for, and take, the appropriate college entrance or admissions exam early. College entrance exams, both the practice exams and actual exams, represent a potential barrier for students interested in a four-year college. However, students may not know about the exams or may not know how to prepare for them, and they may not follow through in scheduling or taking the exams. High schools should make sure that students interested in attending a four-year institution prepare for and take the practice exams by 11th grade, and the actual exam before 12th grade. Students who wait until their senior year to take the actual exam could miss a college application deadline or not have an opportunity to retake the test (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Assist students in their college search. Students should receive assistance in finding a postsecondary program that matches their qualifications, interests, and goals. Schools

should set up one-on-one meetings with students to discuss the types of schools that are a good fit for them to consider and submit applications. School staff should help students coordinate their career interests and future plans, encouraging students to consider factors such as: Geography/location; Tuition cost; Financial aid; School size; Admission requirements; Retention rates; Demographics; Available majors. (What Works Clearinghouse, Helping Students Navigate the Path to College).

- High schools should organize trips for students to visit college campuses. These visits can introduce students to college and the college environment, inform students about the college application and selection process, and help them consider different college options. These trips should be more than a campus tour — students should have a chance to explore campus resources, observe campus life, and interact with college students. For example, students can shadow college students, possibly alumni from their high school, throughout their day, attending classes, eating lunch and walking around campus together. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Assist students in completing college applications. By providing one-on-one assistance with college applications, schools can ensure that students submit applications that are complete, on time, and of sufficient quality. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Schools should provide students who plan to attend a four-year college with hands-on assistance in completing their college applications. High schools should work with students to ensure that their applications are complete, submitted by deadlines, and (if applicable) of sufficient quality for acceptance. Because each student's needs and interests are unique, the What Works Clearinghouse panel recommends that, to the extent possible, school staff provide assistance to students one-on-one or during small workshops or classes designed to assist students with completing college applications, writing application essays, or reminding them about application deadlines. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- The What Works Clearinghouse panel suggests that schools develop mechanisms for clearly communicating timelines for application milestones that occur over the course of the year. Schools can provide a handout that lists the key dates that students need to consider for the application process in their junior and senior years. The components of a timeline could include college entrance exams, college applications, the Free Application for Federal Student Aid (FAFSA) and state financial aid forms, admission acceptances, and financial aid and housing acceptances. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- In later high school years, students still need one-on-one attention — from a counselor, a teacher, an administrator, or program staff — to facilitate and encourage rigorous course taking. A high school might schedule drop-in hours for students to receive academic advising and assistance with selecting courses from a teacher, counselor, or other staff person. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Schools and districts also should provide continuing professional development or counseling for counselors, registrars, teachers, and other staff on college prep course requirements, so that they can serve as an informative resource for students. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Get Your Data; Know Your Data: The National Student Clearinghouse Research Center's StudentTracker service is both widely available and relatively affordable ($595 per high school

per year at the time of this writing). Despite this, too few districts and schools are subscribing to the service and accessing the postsecondary outcomes data of up to eight graduating classes of high school students. Districts and schools should be accessing this data to understand what happens to their students after high school graduation. Those postsecondary outcomes are important for understanding how well students are being prepared to make their next steps following high school graduation. Data from the NSC can make those efforts much easier. Even if districts and schools only make use of the preconstructed charts and never dive into the granular-detail data, they will still be getting access to valuable insights that are not easily accessible through other means (Using Data to Lift Completion Likelihood).

- Map the Postsecondary Pipeline: As described above, students' matriculation patterns tend to be place-based and proximate to their high school. That pattern emphasizes the importance of districts and schools knowing how students fare when they matriculate. Using data to understand the percentages of students heading to a given set of institutions and then understanding how the students do when they get there is critical. It also starts new conversations. For example, a district sending 40% of its students to an institution delivering a 30% second-year persistence rate should be asking why students are stumbling and what can be done to connect them with supports, better prepare them before arriving on campus, or both. Districts with better alternative destinations for their students can be changing the postsecondary advising conversation with students and parents. If meaningful progress cannot be made with an institution regarding students' outcomes, districts and schools should consider advising toward alternative pathways that would offer a higher likelihood of completion (Using Data to Lift Completion Likelihood).
- Put Completion on the Forefront for Students: Students make college-going decisions on the basis of all kinds of factors: cost and affordability, location, academic programs, family advice, institutional reputation, where their friends are going, campus atmosphere and amenities, and even the institutions' sports teams. These factors and more combine to comprise the concept of "fit" in fit and match. But our experience is that too few students are putting the likelihood of completion toward or at the top of their list of deciding factors. Tools like the College Scorecard allow students to look up completion rates for institutions, and this brief's analysis emphasizes the importance of considering completion in this critical decision (Using Data to Lift Completion Likelihood).
- A study by Wei-Cheng Mau, Amber Fernandes investigated differences in use of and satisfaction with career counseling services as a function of sex, race, and age based on a nationally representative sample of college graduates of different ages, gender, and ethnicity. Finding that Hispanic students were less likely to use career counseling services, they recommend employing outreach efforts that target this group and that are tailored to increase use may be helpful. Counseling professionals need to take a proactive role in reaching this population. For example, Flores and Spanierman (1998) have suggested that flyers be posted in the community at establishments that serve these targeted students. Providing information and making a presentation at a Hispanic American student association meeting may be more appropriate than waiting for students to seek counseling help at the center. Consideration should be given to taking programs and services to locations where various subpopulations of students naturally congregate (Bishop, 1990). The ability to reach out effectively to minority students will be increasingly important, and service delivery systems must be adapted to accommodate such populations (Characteristics and satisfaction of students who used career counseling services).

- Counselors who are interested in increasing the use of services by nontraditional students may want to make themselves more available and flexible during evenings and weekends when those students are more likely to be on campus and enrolled in classes. Creativity in programming that would make nontraditional students more aware of the programs and services available on campus should be applied. Rayman (1999) has made several excellent suggestions on how to be responsive to the needs of nontraditional students (Characteristics and satisfaction of students who used career counseling services).
- Use multiple measures to assess postsecondary readiness and place students. Most open-access institutions require incoming students to take brief standardized assessments in math, reading, and writing. The results of these assessments are used to place students in either developmental or college-level courses. However, there are concerns about misplacement rates arising from single placement tests used in isolation. One way to improve college readiness assessment (and therefore to reduce misplacement) is to use multiple measures — such as high school GPA, the number of years since high school graduation or equivalent, the number of courses taken in the subject (e.g., English or math), and the highest level taken in the subject (e.g., Algebra I or Algebra II) — to inform placement decisions (What Works Clearinghouse, Strategies for Postsecondary Students in Developmental Education).
- Require or incentivize regular participation in enhanced advising activities. Advising, guidance, and counseling services help students determine academic majors, understand the relationship between school and subsequent employment, and address a variety of academic and personal issues. Some colleges have created more intensive advising experiences, often called "enhanced advising" or "intrusive advising." Enhanced advising replaces the quick, transactional structure of traditional advising (e.g., a focus on class schedules, degree requirements, and financial aid procedures) with a more holistic structure in which advisors ask deeper questions and engage with students to help them succeed. Mentoring programs that aim to build relationships between students and knowledgeable adults on goal-oriented academic planning may also be considered enhanced advising (What Works Clearinghouse, Strategies for Postsecondary Students in Developmental Education).
- Offer students performance-based monetary incentives. Performance-based incentives are monetary awards that students receive when they meet specific academic benchmarks. These awards supplement students' financial aid packages, which may be based on need (e.g., Pell grants) or past achievement (e.g., state merit aid grants). The short-term goal of such initiatives is to encourage students to perform better in (and successfully complete) their classes. A longer-term goal is to support students' progress through developmental education and course requirements to increase degree attainment (What Works Clearinghouse, Strategies for Postsecondary Students in Developmental Education).
- Compress or mainstream developmental education with course redesign. Participation in accelerated developmental experiences, referred to interchangeably as "intensive," "compressed," "condensed," or "time-shortened" models, can minimize the negative effects of being placed into developmental education. Students who register for more than one sequential course in a semester are more likely to enroll in the second course, thereby improving retention. Accelerated courses that mainstream developmental education students into college-level work with contextualization or supplemental instruction also help students achieve the goals and outcomes of the college level course assignments. Acceleration may promote

persistence and academic success because the reduced time in developmental education also reduces the opportunity for external factors, such as work or family responsibilities, to hinder students' success (What Works Clearinghouse, Strategies for Postsecondary Students in Developmental Education).

- Teach students how to become self-regulated learners. Traditional academic instruction emphasizes learning content. Many students, including those in developmental education, arrive on college campuses with little knowledge about how they learn and which study strategies might work best. Schools and teachers should attempt to incorporate self-regulated learning strategies into existing subject-matter coursework. The training should encourage students to monitor and reflect on their learning and focus students on the parts of the learning process that they have control over. Typically, teaching students to become self-regulated learners involves demonstrating how to (a) approach a task, (b) implement that approach or strategy, (c) evaluate how well the approach or strategy worked, and (d) decide what to do next (What Works Clearinghouse, Strategies for Postsecondary Students in Developmental Education).
- Implement comprehensive, integrated, and long-lasting support programs. Some institutions have implemented comprehensive and integrated support programs that incorporate a variety of components. Although many colleges offer multiple supports to their students, what differentiates this practice from business as usual is the intentional focus on integrating these supports and incentivizing participation in the long term. One example is the City University of New York's (CUNY's) Accelerated Study in Associate Programs (ASAP). ASAP provides a comprehensive, integrated package of student services, monetary incentives, linked courses, an ASAP seminar, and other supports. The program's implementers sent consistent, strong messages to ASAP students to enroll full time, take their developmental classes early, and graduate within three years (What Works Clearinghouse, Strategies for Postsecondary Students in Developmental Education).

Policies

- Colleges and universities that are serious about addressing systemic racial inequities in student outcomes should allocate sufficient resources to ensure that academic advisors can offer students of color critical culturally engaging support. Allocating sufficient resources requires providing professional development opportunities and ensuring that academic advisors have manageable caseloads to spend a significant amount of their time learning about the realities of students of color, reflecting on their own practice and grappling with questions about how it can be more culturally engaging, and cultivating relationships with educators in culturally relevant curricular and cocurricular programs on their campuses (Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students).
- Institutions of higher education should ensure that advisors are evaluated and rewarded for having commitments and investing substantial energy in cultivating the ability to provide culturally engaging advising. Doing so might mean the prioritization of supporting activities that enhance culturally engaging academic advising skills through the allocation of professional development funding, annual performance reviews, and recognition awards (Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students).
- Colleges and universities should also consider the importance of providing culturally engaging academic advising in hiring practices. While it is increasingly common for institutions of higher education to ask about and consider a candidate's experience with diversity and difference, the attention given to these factors can be superficial. Academic advisor search-and-

hiring processes can more meaningfully center on a candidate's capacity to provide culturally engaging support to their students and advocate equity on their campuses. Such processes might involve including explicit language about prioritizing abilities to provide humanized, proactive, and holistic support to advisees. Such approaches might also warrant explicit interview questions and search committee conversations about a candidate's knowledge of diverse communities, their commitment to providing culturally engaging support, and evidence of their providing such support in the past or alternatively their capacity to do so (Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students).

- On the ground, academic advisors should engage in continuous reflection on their own practice and how they might more effectively integrate humanized, proactive, and holistic approaches into the ways in which they support students. They can ask themselves questions that require self-reflection, such as: How can I approach interactions with students to cultivate more meaningful relationships with them? How do my students know I really care about them? What opportunities do I need to deepen my knowledge about so I can proactively encourage students to take advantage of them? What relationships do I need to strengthen on campus to ensure that I am able to be an effective conduit to the larger support network? The many demands most academic advisors face and the reality that they might not have been socialized into prioritizing these types of support means such reflection will likely be difficult for many people. Over time and with practice, however, such continuous reflection can become easier and even normalized (Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students).
- Academic advisors should also make efforts to cultivate relationships with ethnic studies programs and other curricular and cocurricular units that provide culturally relevant learning opportunities across their institutions. Such connections are vital to academic advisors developing the capacity to provide holistic support and serve as a conduit to transformative learning environments for students of color on their campuses. Cultivating these networks can also break down organizational silos and maximize the likelihood that educators in such culturally relevant learning environments are more equipped to reach out to advisors for support when it is necessary to proactively, holistically, and effectively serve their students (Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students).
- Academic advisors should invest time and energy in understanding the unique issues their students of color often face. Higher education scholars have generated a plethora of research on the experiences of students of color, which can serve as an ample resource for academic advisors. However, advisors have a much broader range of resources available to them, such as culturally relevant literature from ethnic studies, diversity and equity programming on their respective campuses, and the wide range of digital resources (e.g., digital stories, blogs and vlogs, and online communities) college students of color create themselves and are now available online. These forms of knowledge can be critical tools for advisors who seek to enhance their capacity to find common ground with their students (Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students).
- Institutional leaders must consider the investment of additional resources in academic advising services so that advisors can take the time to provide humanized, holistic, and proactive academic advising for students of color (Characteristics of Academic Advising That Contribute to Racial and Ethnic Minority Student Success at Predominantly White Institutions).
- Academic advisors working with students of color should make every effort to incorporate a human element into advising and demonstrate that they care about and are committed to their students'

success. For advisors to be viewed as authentic, they should avoid being overly empathetic or completely disengaged. An overly empathetic advisor may seem disingenuous and patronizing to a student of color, and a completely disengaged advisor may give an impression that he or she is disinterested in the student. To be perceived as authentic human beings, advisors can share their own personal stories and struggles with their advisees. Advisors can also humanize academic advising by using the advisee's name during meetings, talking about pop culture or social activities with students, learning to pronounce an advisee's name correctly, sending an advisee useful individualized resources between meetings, inquiring about their advisees' home life, and being honest about the student's academic standing (Characteristics of Academic Advising That Contribute to Racial and Ethnic Minority Student Success at Predominantly White Institutions).

- Advisors should provide holistic academic advising. This means that advisors should both try to understand nonacademic challenges faced by students of color that might be influencing their academic experiences. For example, Asian American students encounter immense pressure to succeed, which results from both high family expectations and racial stereotypes that perpetuate assumptions that all Asian Americans are overachievers (Museus, 2008; Museus & Kiang, 2009). This pressure has been associated with negative psychological consequences, and Asian American students who are more likely than other groups to underutilize counseling services (Kim & Omizo, 2003; Suzuki, 2002). This can be detrimental for many Asian American students who come from communities that are already economically under-resourced and who are at risk. Understanding such nonacademic factors can enable advisors to more effectively understand the issues that their students face and when they should refer their racial and ethnic minority students to other offices on campus to address such issues (Characteristics of Academic Advising That Contribute to Racial and Ethnic Minority Student Success at Predominantly White Institutions).
- Those working in academic advising offices should frequently ask themselves how they can make their delivery of services more proactive and less passive. Beyond typical academic-advising duties (e.g., helping students plan their course taking activity or fulfillment of graduation requirements), for example, advisors should consider proactively introducing or accompanying students of color to activities, events, and networks that will expose them to faculty members and peers with similar interests. Advisors should also consider how they can more fully incorporate intrusive advising practices into their work, including systems of monitoring and early intervention systems (Characteristics of Academic Advising That Contribute to Racial and Ethnic Minority Student Success at Predominantly White Institutions).
- The information and assistance an effective counselor provides can have considerable and long-lasting benefits for his or her students, boosting college outcomes years after they graduate high school. Schools and districts can help students do better not just by improving teacher performance, but by supporting more effective counseling, as well (Better School Counselors, Better Outcomes).
- Improving access to effective counselors may be a simpler and more cost-effective way to increase educational attainment than improving access to effective teachers. There are far fewer counselors than teachers, so it is probably cheaper, and possibly easier, to deliver training to them. Counselors' limited (and often nonexistent) training on college advising means that even basic training may have large effects on postsecondary outcomes. And because counselors already work in nearly every U.S. high school, improving their effectiveness may be a more attainable goal than increasing student access to highly personalized (and often expensive) interventions aimed at improving college access (Better School Counselors, Better Outcomes).

Support Networks that Build Social Capital

Support networks build social capital by connecting students with supportive adults who understand and reflect their identities. These relationships foster belonging and open doors to opportunities like internships.

7 Do students have strong, supportive relationships with teachers, mentors and other influential adults?

Why this matters

Strong, supportive relationships with teachers, mentors and other influential adults play a critical role in helping students — especially those from low-income or first-generation backgrounds — enroll and persist in postsecondary education. These relationships provide social and emotional support, help students navigate complex college application processes and build the confidence and motivation needed to pursue higher education. Positive teacher-student relationships have also been linked to increased academic engagement and a stronger sense of belonging, which are key predictors of college-going behavior (National Library of Medicine). For first-generation students, mentoring provides access to critical information and social capital that can otherwise be out of reach (evidencebasedmentoring.org), while peer mentoring has been shown to reduce "summer melt" and boost college entry, especially among students of color (mentorcollective.org).

Positive Peer Groups: Access to positive peer groups is crucial for students transitioning from high school to postsecondary education, as these relationships significantly influence academic success, emotional well-being, and overall adjustment. Research indicates that students who feel supported by their peers exhibit higher academic motivation and achievement. For instance, positive peer relationships have been shown to enhance students' motivation in learning by providing support, encouragement and a sense

of belonging. Moreover, peer support plays a vital role in students' psychological adjustment during the college transition. Studies have found that maintaining close peer relationships can help mitigate feelings of loneliness and stress, which are common during this period. Additionally, participation in learning communities, which foster peer interactions, has been linked to improved academic performance and retention rates among first-year college students (Project Muse).

Transition to Postsecondary Life: Relationship quality is positively and significantly associated with adjustment among first-year college students, a population typically in the developmental stage of emerging adulthood. During the early weeks of college, close relationships with high school friends can provide critical emotional support; however, by the end of the first semester, students tend to benefit more from forming close friendships with new college peers. This shift reflects the central role peers play in the lives of adolescents and emerging adults. According to Erikson's theory of psychosocial development, the primary developmental task of the early twenties is to establish close, intimate relationships (Erikson, 1963). Although research on friendships during emerging adulthood is still developing, existing studies suggest that peers often become primary attachment figures during this period (Fraley & Davis, 1997). In educational settings, peer relationships influence student development (Chickering & Reisser, 1993) and impact students' overall satisfaction with their college experience (Astin, 1993). Still, the transition from high school to college often disrupts existing friendships due to physical distance or diverging life paths, leading many students to experience friendship changes or losses (Paul & Brier, 2001; Rose, 1984)

Friendship Quality and Adjustment: Positive, healthy friendships play a powerful role in shaping whether students enroll in college. Research shows that friends provide vital social capital — sharing information, encouragement and norms that support college-going (Stanton-Salazar, 1997; Crosnoe & Riegle-Crumb, 2007). When students are surrounded by peers who value education and plan to go to college, they're more likely to aspire to and follow through on those goals themselves (Perkins et al., 2011; Carbonaro, 1999). These friendships also boost motivation, foster a sense of belonging and help students manage stress during the college application process (Ryan, 2001; Wentzel et al., 2004; National Academies, 2019). In short, strong peer relationships don't just make high school more enjoyable, they directly support students' academic persistence and increase the likelihood they'll successfully enroll in college.

Network of supportive adults and peers

Indicators

System indicators

- Parental Press for Academic Achievement: The extent to which parents pushed student to do well in school. Students were asked the extent to which their parents/guardians: (1) encourage me to work hard in school; (2) talk to me about how I am doing in my classes; (3) encourage me to continue my education after high school; (4) talk to me about what I am studying in class; (5) talk to me about my homework assignments; (6) help me select courses that will prepare me for college or work; and (7) push me to take the steps I need to make my plans happen. The measure is constructed using Rasch rating scale analysis (Roderick, M. From high school to the Future).

- Parent/Guardian Structured Support: The extent to which parents helped student in the college search and application process. Students reported the extent to which their parents/guardians: (1) encourage the student to apply to several different schools; (2) talk to the student about what college would be like; (3) help the student fill out applications for colleges or vocational/technical schools; (4) help the student find scholarships to apply for; (5) help the student decide which school to attend; (6) discuss with the student how much tuition she can afford; and (7) help the student with college application essays or personal statements. The measure is constructed using Rasch rating scale analysis (Roderick, M. From high school to the Future).
- Peer Support for Academic Achievement: The extent to which peers provided support for academic success. Students were asked the extent to which their friends: (1) try hard in school; (2) discuss class activities; (3) help each other prepare for tests; (4) think it is important to do well in school; (5) help each other with homework assignments; and (6) think it is important to attend every class. The measure is constructed using Rasch rating scale analysis (Roderick, M. From high school to the Future).
- First-generation status of college applicant. The IHEP Toward Convergence framework recommends defining first-generation students as students whose parents' highest education level was some college but no degree, or below (e.g., some college, no degree; vocational/technical training; high school diploma or equivalent; did not complete high school). According to the Beginning Postsecondary Students (BPS) Longitudinal Study, degree completion rates increase from 35% for students whose parents have no education beyond high school, to 56% for students whose parents have bachelor's degrees or higher. While there is a linear increase in students' completion rates as their parents' education level increases from high school to some college, to associate's degree, to bachelor's degree, to professional degree, there is a sizable difference between students whose parents have less than an associate's degree (43%) and those whose parents have an associate's degree or higher (59%) (IHEP, Toward Convergence).

Practices and Policies

Practices

- Train youth serving adults in the developmental relationship framework. Search Institute created the Developmental Relationships Framework, five elements — expressed in 20 specific actions — that are proven to catalyze young people's lives: express care, challenge growth, provide support, expand possibilities and share power (Developmental Relationships).
- Young people develop resilience when they have at least one well-rounded, strong, and sustained relationship in their lives. And they thrive when they experience a broader web of relationships in their homes, schools, programs and communities (Developmental Relationships).
- PACE is a college-readiness program that aims to boost high school graduation and college enrollment rates among low-income and first-generation students by offering comprehensive support. Established in 2011 in one high school with just seven students, PACE now operates in six Salt Lake County high schools, with plans for further expansion. PACE equips students with critical study and time-management skills, career exploration guidance, and mentorship in overcoming challenges. Graduates of the program earn up to six-semesters of scholarship support to SLCC, empowering them to pursue higher education and contribute to Utah's future. Through ongoing community investment and donor contributions, SLCC is committed to expanding PACE to serve even more students

across Salt Lake County, building a brighter future for all. (PACE Scholarship Program).

- The Posse Foundation's model works for both students and college campuses and is rooted in the belief that a small, diverse group of talented students — a Posse — carefully selected and trained, can serve as a catalyst for individual and community development. For more than 35 years, Posse has identified and trained young people with extraordinary potential who might be missed by elite schools. Their program places Scholars in supportive, multicultural groups of 10 students — Posses. With mentoring and full-tuition leadership scholarships from partner colleges, Posse Scholars graduate at a rate of 90%. As alumni, they are well prepared and positioned for success. (Posse Foundation).
- EdRedesign's Institute for Success Planning is building a movement toward a broader conception of education and youth development to ensure every child has the opportunity to succeed, irrespective of race, place, and income. Success Planning is a relationship-based approach that connects each child or youth to an adult Navigator who co-creates a personalized plan for action in partnership with their families and other caring adults. The plan highlights the child's needs and strengths and identifies supports, enrichments, and other resources to remove barriers, help them thrive, and support their goals. Through a whole-child approach, Success Planning provides a mechanism to ensure every child is known, seen, and heard, has a positive connection to a caring adult, and has agency over their pathway to success. (EdRedesign, Institute for Success Planning).
- Surround students with adults and peers who build and support their college-going aspirations. High schools should build and support students' aspirations by developing social networks that encourage college attendance and assist students in preparing for college. College students and college-educated adults can serve as mentors for students, providing guidance and support throughout the college preparation process. Extracurricular activities and college access programs can encourage the formation of college-going peer groups that share an interest in pursuing college. High schools can use career exploration activities to develop students' career interests and link those interests to postsecondary plans. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Provide mentoring for students by recent high school graduates who enrolled in college or other college-educated adults. Link students to adults who can serve as college-going role models and build students' interest in college. High schools can recruit college-educated professionals to serve as volunteer mentors by reaching out to local businesses interested in partnering with schools in the community. High schools also can identify volunteer mentors by recruiting local college students — particularly graduates of the high school — or partnering with a college that has service-learning opportunities for college students willing to work with high school students. Individuals who share the same background as students, such as high school alumni or professionals from the local community, may understand the types of challenges students face in reaching college (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Facilitate student relationships with peers who plan to attend college through a structured program of extracurricular activities. College access programs can bring a group of students together on a regular basis throughout the school year to focus on preparing for college. These programs develop college-going peer groups by providing opportunities for students to work together toward a common goal of reaching college. Activities that encourage students to interact and collaborate can

encourage new relationships, and these programs can be used to promote a college-going identity. For example, a program might create visible markers of group participation, such as designating a group name and meeting space or developing a group newsletter. (What Works Clearinghouse, Helping Students Navigate the Path to College).

- High schools also can develop student groups that encourage academically oriented friendships, such as a debate club or an honor society. Schools can infuse these extracurricular activities with a college-going message. For example, a debate club might visit a college to meet with the college debate team, or a community service club might collaborate with a student organization from a local college. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Provide hands-on opportunities for students to explore different careers, and assist them in aligning postsecondary plans with their career aspirations. A high school can design a sequence of career exploration activities that identify students' career interests and provide a variety of activities that inform and build on these interests. For example, career or interest inventories can be used to help students identify the type of work or career that interests them. High schools can use this information to invite local professionals from these career fields to speak about their education and career paths. Students can then be matched to job-shadowing opportunities that allow them to follow an adult throughout the day and experience the day-to-day work of a profession that matches their area of interest. By developing relationships with local employers, high schools can link students to job-shadowing activities and help interested students obtain short-term internships. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Serve as college-going role models. Mentors can serve as examples of college-going adults from the community and share their experiences in preparing for college, completing a college degree, and pursuing a career. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Assist with the college entry process. The one-on-one relationship mentors have with students allows them to provide individualized assistance with the college application and selection process for students interested in pursuing a four-year degree. This might include helping with a college application, reading an application essay, assisting with a financial aid application or researching college options. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Monitor academic progress. Mentors can monitor students' academic progress by reviewing report cards and discussing students' high school coursework. Mentors can advocate for students who are struggling academically to receive tutoring or additional help. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Listen and advise. A mentor can simply serve as a caring adult who listens to the student, discusses his or her issues or concerns, and offers advice as needed. (What Works Clearinghouse, Helping Students Navigate the Path to College).
- Student Leadership Network's college access program addresses roadblocks on the road to college. The network creates college-bound cultures in under-resourced schools to increase college enrollment and completion. Dedicated, full-time, school-based counselors provide hands-on support to build early college and career awareness. (Student Leadership Network).
- Coaching models: In coaching models, staff work collaboratively with participants in a nondirective way to identify their goals and support their progress toward goal achievement. Unlike many case management approaches where staff set

goals for participants and define what actions need to be taken to meet those goals, coaches act as a partner to support and motivate participants. Coaching models have been used in a few Workforce Innovation and Opportunity Act (WIOA) programs and increasingly to engage with and support Temporary Assistance for Needy Families (TANF) program participants to improve employment and earnings outcomes, which makes these models especially applicable for expanded use with WIOA programs and services (The Workforce Innovation and Opportunity Act Research Portfolio).

- Intrusive advising: Often applied in an academic setting, intrusive advising involves advisors proactively engaging with students and encouraging them to be participants in the advising process, as opposed to being reactive and responding only to students' requests for assistance. This model sometimes requires students to maintain attendance in advising sessions as a condition of enrollment in their academic program (Rajecki and Lauer 2007; Donaldson et al. 2016). In a workforce setting, a similar approach could include proactive outreach by case managers to provide career services to job seekers. In instances where a WIOA participant is also enrolled in a training program or where the AJC is co-located with a community college, for example, intrusive advising could be combined with services offered under WIOA (The Workforce Innovation and Opportunity Act Research Portfolio).
- Navigator models: A career navigator provides guidance in assessing career interests, understanding various steps to pursue a selected career, developing training plans, and guiding participants toward appropriate services offered by partner and other programs (The Workforce Innovation and Opportunity Act Research Portfolio).
- Strengths-based models: Strengths-based models, used in many settings including when working with individuals with significant challenges to employment, focus on the overall strengths of individual program participants and encourage self-efficacy in receipt of services. Prior studies of the effectiveness of this model for individuals with serious mental health challenges have found positive effects in multiple areas, including employment, independent living, and reduced hospitalizations (The Workforce Innovation and Opportunity Act Research Portfolio).
- Coaching model example: Goal4 It!™ This model focuses on moving from compliance-driven interactions to engaging, meaningful exchanges with participants to support and motivate them toward change. The model uses four steps — Goal, Plan, Do, Review/Revise — aimed at improving outcomes for children and families. It uses three main strategies: (1) reducing sources of stress, (2) strengthening life skills, and (3) forming relationships within and beyond the program. This model is currently included in the Evaluation of Employment Coaching for TANF and Related Populations (The Workforce Innovation and Opportunity Act Research Portfolio).
- Coaching model example: MyGoals for Employment Success (MyGoals). The MyGoals model is built on a sustained, three-year relationship between staff and the participant, focusing on helping participants achieve their goals by addressing challenges in executive functioning skills — the mental skills needed to complete tasks such as emotional control, stress tolerance, and time management (Riccio and Castells 2020). This model is currently included in the Evaluation of Employment Coaching for TANF and Related Populations (The Workforce Innovation and Opportunity Act Research Portfolio).
- Coaching model example: Family-centered coaching. The objective of this model is to support families holistically as they move toward goal achievement and economic prosperity. This includes a family-led and strengths-based

approach with seven areas of focus: (1) child well-being and parenting; (2) employment, education, and career; (3) legal assistance; (4) financial assistance; (5) health and well-being; (6) family, friends, and relationships; and (7) basic needs — food, housing, transportation, and safety (Derr and Joyce 2020) (The Workforce Innovation and Opportunity Act Research Portfolio).

- Coaching model example: Human services coaching. This model focuses on helping participants identify goals and drive motivation. Specifically, staff assist participants to direct, own, and experience the changes they want to see in their lives. Its core principles are to be person-centered, relationship-based, and goal-driven. Two additional coaching models are also included in the ongoing Evaluation of Employment Coaching for TANF and Related Populations (The Workforce Innovation and Opportunity Act Research Portfolio).
- Coaching model example: Family Development and Self-Sufficiency (FaDSS). Administered by the Iowa Department of Human Rights, FaDSS focuses on assisting families at risk of long-term welfare receipt. This approach includes goal setting and ongoing support from a coach, all through a home visiting approach. Coaches conduct at least two home visits during the first three months of participation, followed by visits as needed with a minimum of one visit per month (Moore et al. 2019) (The Workforce Innovation and Opportunity Act Research Portfolio).
- Coaching model example: LIFT. Based in New York City, Chicago, and Los Angeles, LIFT focuses on long-term financial goals of participants, such as a home purchase or college savings for a child. Coaches work with participants to set shortand long-term goals and identify milestones toward achieving those goals. As they move forward with their goals and complete a "three-month goal cycle," participants can receive financial payments in the amount of $150, totaling up to $1,000 over a two-year period (Moore et al. 2019) (The Workforce Innovation and Opportunity Act Research Portfolio).

Mentoring Programs

Indicators

Contributing Indicators

- The number of developmental relationships each young person experiences (The Developmental Relationships Framework).
- The number/percentage of mentors representing the student population served (for youth-serving organizations providing mentors).

Practices and Policies

Practices

- Programs like iMentor that match 11th and 12th grade students with a committed mentor (iMentor).
- My Brother's Keeper Alliance, a cross-sector collaborative action effort focused on improved life outcomes for boys and young men of color (My Brother's Keeper Alliance).
- Peer mentoring platforms that help mentors track key indicators and monitor progress towards postsecondary enrollment of mentees (The Mentor Collaborative).

Indicators

Contributing indicators

- Share choosing to re-enroll in the same school (in school choice settings) (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Measures of student engagement/enthusiasm/academic aspirations (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Student-Teacher Connections: The average of graduates' reports on the 2005 CCSR senior survey of the extent to which they know at least one teacher who: (1) would be willing to give me extra help with my schoolwork if I need it; (2) would be willing to help me with a personal problem; (3) really cares about how I am doing in school; (4) knows who my friends are; (5) I could ask to write me a recommendation for a job, program, or college; (6) knows what I will be doing next year; and (7) would be willing to help me even after I graduate. The measure is constructed using Rasch rating scale analysis. The student-level version of this variable is also used in some analyses. (Roderick, M. From high school to the Future).
- Student-Teacher Connections: The extent to which a student had a teacher she felt personally and academically connected to. Student reports of the extent to which they know at least one teacher who: (1) would be willing to give me extra help with my school work if I need it; (2) would be willing to help me with a personal problem; (3) really cares about how I am doing in school; (4) knows who my friends are; (5) I could ask to write me a recommendation for a job, program or college; (6) knows what I will be doing next year; and (7) would be willing to help me even after I graduate. The measure is constructed using Rasch rating scale analysis. The school average of this variable is also used in some analyses. (Roderick, M. From high school to the Future).
- Counselor Press for Academic Achievement: The extent to which student said her counselor: (1) helped select courses needed for work or admission to college; (2) encouraged taking AP/honors courses; (3) encouraged continuing education after high school; and (4) talked about college/schools that were suited to the student's interests and abilities. The measure is constructed using Rasch rating scale analysis. The school average of this variable is also used in some analyses. (Roderick, M. From high school to the Future).
- Teacher Press for Academic Achievement: The extent to which student said her teachers: (1) helped select courses needed for work or admission to college; (2) encouraged taking AP/honors courses; (3) encouraged continuing education after high school; and (4) talked about college/schools that were suited to the student's interests and abilities. The measure is constructed using Rasch rating scale analysis. (Roderick, M. From high school to the Future).
- Teacher/Counselor Structured Support: The extent to which teachers or counselors helped a student with her college search and application process. Student reports of the extent to which a teacher or counselor has: (1) encouraged the student to apply to several different schools; (2) talked to the student about what college would be like; (3) helped the student fill out applications for colleges or vocational/technical schools; (4) helped the student find scholarships to apply for; (5) helped the student decide which school to attend; (6) helped the student plan how to pay for tuition and

other expenses; and (7) helped the student with college application essays or personal statements. The measure is constructed using Rasch rating scale analysis. The school average of this variable is also used in some analyses. (Roderick, M. From high school to the Future).

- Discussions on College Planning: Student reports of the extent to which she received information on postsecondary education from someone at school. Students were asked the extent to which someone at school has discussed: (1) different admissions requirements of community colleges vs. four-year colleges; (2) different admissions requirements among four-year colleges; (3) how to decide which college to attend; (4) the likelihood of being accepted at different types of schools; (5) ACT/SAT scores needed to get into colleges; (6) opportunities to attend out-of-state schools; (7) readiness for college-level coursework; (8) the kind of study skills needed in college or vocational/technical school; and (9) how to pay for college. The measure is constructed using Rasch rating scale analysis. (Roderick, M. From high school to the Future).
- Importance of high school for the Future: The extent to which student felt her high school academic experience is important for her future. Students were asked the extent to which they agree that: (1) my classes give me useful preparation for what I plan to do in life; (2) high school teaches me valuable skills; (3) working hard in high school matters for success in the work force; (4) what we learn in class is necessary for success in the future; and (5) I'm getting a good education at my school. The measure is constructed using Rasch rating scale analysis. (Roderick, M. From high school to the Future).

System indicators

- Relationship quality between student and teacher as measured through closeness, commitment, and complementarity (Jowett, S. et al., Teacher-Student relationship quality as a barometer of teaching and learning effectiveness).
- The Student–Teacher Relationship Scale (STRS, Pianta, 1994, 2001; see also Koomen et al., 2012; Koomen & Jellesma, 2015) is the most often used assessment tool that has been specifically developed to examine teachers' perceptions of relationships with their students through three relational dimensions: closeness (interactions and communications are warm and open), conflict (the degree of friction and discordant between the teacher and student), and dependency (the degree to which the student is overly dependent on the teacher). Its conceptual basis is derived from parent–child attachments. Bowlby's (1973) attachment theory describes these attachments as either warm or secure, angry or dependent, and anxious or insecure (Jowett, S. et al., Teacher-Student relationship quality as a barometer of teaching and learning effectiveness).

Practices

- Provide training for teachers on the Developmental Relationship Framework (Developmental Relationship Framework).
- The National Dropout Prevention Center/Network's 15 Effective Strategies for Dropout Prevention: Mentoring/Tutoring — Mentoring is typically a one-to-one caring, supportive relationship between a mentor and a mentee that is based on trust. Mentoring offers a significant support structure for high-risk students. Tutoring, also typically a one-to-one activity, focuses on academic support and is an effective practice when addressing specific needs in collaboration with the student's base teacher (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).
- Students whose relationships with their teachers are characterized by high levels

of support and low levels of conflict obtain higher scores on measures of academics, and behavioral adjustment than do students whose relationships with teachers are less positive. Prospective studies find that a more positive teacher-student relationship is associated with a greater sense of school belonging, lower levels of externalizing behaviors, improved peer relationships, and higher achievement. Longitudinal mediational analyses find that the effect of a supportive teacher-student relationship on achievement is due to the direct effect of teacher-student relationship quality on students' engagement in the classroom (Wu, J. et al. Teacher student relationship quality type in elementary grades).

Near-peer mentors

Indicators

Contributing indicators

- The % of college educated mothers at high schools. Recent evidence suggests that the composition of one's high school classmates can also influence college enrollment. Bifulco, Fletcher, and Ross (2011) finds that students whose school cohorts have higher percentages of students with college educated mothers are more likely to attend college (Do high school Peers Have Persistent Effects on College Attainment and Other Life Outcomes?).
- The frequency of conversations between high school graduates preparing to attend college in the fall with near-peer mentors. 1-3 conversations with a peer mentor throughout the duration of the program reduces summer melt significantly for historically underserved racial and ethnic groups and first-generation students (The Mentor Collective).

Policies and Practices

Practices

- Encourage student-athletes to network with college-accepted student-athletes to understand how they got into their top-choice college (Student Athlete Scholars).
- Encourage collegiate athletes to mentor student-athletes applying to college (Student Athlete Scholars).
- In 2016-17, 10 Idaho high schools hired near-peer mentors — recent college graduates who help seniors apply for colleges, scholarships and federal financial aid. high schools with near-peer programs had a higher college enrollment rate than other comparable high schools, according to the study (Near-peer Mentoring Programs Show Promise).
- The College Advising Corps partners with universities across the country to place recent college graduates in under-resourced high schools where they serve as near-peer advisers (The College Advising Corps).
- Required peer cooperative learning in STEM courses has been shown to improve retention in STEM majors (International Journal of STEM Education).
- AdviseMI places college graduates in selected high schools across Michigan, particularly high schools that are located in communities with low college-going rates, to serve as college advisers. Serving alongside high school counselors and other school professionals, advisers support students as they explore their postsecondary options and complete college-going steps. Advisers make a difference in the lives of Michigan students, families, and communities (MCAN).

Policies

- The state of Idaho spent $9 million (2018) on college and career advising programs — all designed to help high school students chart their future, and improve Idaho's stubbornly low postsecondary completion rates. School districts and charter schools can choose from several advising approaches, including near-peer mentoring (Near-peer Mentoring Programs Show Promise).

Friendship Quality and Adjustment

Indicators

Contributing Indicators

- The extent to which students have quality, positive attachment peer relationships. Researchers studying emerging adults have described a significant link between the quality of college students' peer relationships and their adjustment to college (Project Muse). Assessments of relationship quality include the use of friendship quality measures, which assess variables such as the extent of intimacy, validation, or conflict resolution and measures of attachment style between partners in the relationship.
- The degree to which students become interested, engaged, comfortable and successful in the school environment (Project Muse).
- The extent to which high school students have positive attachments to their caregivers during times of stress. Researchers found that attachment to one's parents, but not to one's peers, was beneficial to high school students' well-being–being following a stressful life event (Project Muse).
- The extent to which college students have positive peer relationships during college. Researchers studying emerging adults have described a significant link between the quality of college students' peer relationships and their adjustment to college. In contrast, poor attachment was associated with better social adjustments (Project Muse).
- The extent to which students have strong social support over the first two semesters of college. Researchers reported that increased social support over the first two semesters of college predicted improved social and emotional/personal adjustment (Project Muse).
- The extent to which students develop new, positive friendships at their new institution. The quality of students' relationships with their "old" high school best friend and their best new college friend determined how students adjusted socially to their new environment. Bean (1985) described that if students have greater attachments to "outsiders" then they are not likely to be as successfully socialized to the new institution, thus suggesting the importance of making friends in the new school environment (Project Muse).

System Indicators

- Assessment of relationship quality to identify at-risk students who have the potential to be lost from the system (Project Muse).

Practices and Policies

Practices

- Providing opportunities for peer interaction and friendship formation is crucial to helping students adjust to their new environment (Project Muse).

- Counselors could help new students learn how to balance time with "old" friends back home and time with new peers in the new college setting (Project Muse).
- Institutions should establish cohorts of students, as research indicates that students perform the best through sustained interaction with a group of peers. By gathering college-bound students together, they create a peer group in which students can support one another and motivate each other to succeed. (Center of Higher Education Policy, University of Southern California).
- Make program identity visible--by giving students T-shirts, backpacks, folders, etc., emblazoned with the program name and logo so they can be identified as members of a discrete peer group (Center of Higher Education Policy, University of Southern California).

8 Do students have effective, representative teachers and leaders?

Why this matters

Having effective and representative teachers — those who are both skilled in instruction and share students' racial, ethnic or cultural backgrounds — is essential for supporting students as they transition from high school to college. Research consistently shows that teacher effectiveness is one of the most significant school-based factors influencing student achievement and when students of color are taught by effective teachers who reflect their backgrounds the impact is even greater. For instance, Black students who had at least one Black teacher in elementary school were more likely to graduate from high school and express interest in attending college (Education Next). Additionally, representative teachers are more likely to hold high expectations and provide culturally responsive instruction, both of which are linked to improved academic outcomes and stronger student engagement (TNTP). Research also shows that non-Black teachers are significantly less likely than Black teachers to expect Black students to graduate from college, highlighting the role of bias in shaping student trajectories (Wikipedia – Educational Inequality). In short, having effective, representative teachers can boost academic achievement, foster student identity and belonging and increase postsecondary enrollment — especially for historically underserved students.

Indicators

Contributing indicators

- Student academic growth measured by standardized assessments in math and literacy. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

System indicators

- Teacher absences (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teacher engagement with professional development (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Opportunities for teacher leadership (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teacher retention/turnover (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Percentage of instructors demonstrating above average contributions to student learning, as measured by student growth on state standardized tests or other outcomes (for example, using value-added models or student growth percentiles) (Education-to-Workforce).
- Teachers demonstrate instructional expertise. They demonstrate strong knowledge of content and pedagogy, display mastery of content knowledge and instructional strategies, convey ideas and information clearly, and are able to differentiate learning (TNTP, Competency-Aligned Educator Interview Questions and Activities).
- Teachers demonstrate strong communication skills. They demonstrate effective written and oral communication skills, display mastery of written grammar, usage and organization, and speak clearly and precisely (TNTP, Competency-Aligned Educator Interview Questions and Activities).
- Teachers apply feedback to improve practice. They are open to feedback and are able and willing to incorporate it to develop as a professional. They are committed to becoming an excellent teacher, seek and incorporate feedback from others with humility, and draw lessons from prior experience and apply to future endeavors (TNTP, Competency-Aligned Educator Interview Questions and Activities).
- Teachers demonstrate critical thinking. They analyze situations thoroughly and generates effective strategies, identify key issues, generate effective/creative strategies or responses to situations and develop logical responses to address challenges (TNTP, Competency-Aligned Educator Interview Questions and Activities).
- Teachers demonstrate strong teamwork and relational skills. They are respectful of students and others in all situations, are aware of how one's own background and assumptions can influence one's perspective and interactions with others, strive to understand the opinions and experiences of others, and demonstrate the ability to effectively and appropriately interact with students and others in the school community (TNTP, Competency-Aligned Educator Interview Questions and Activities).

Effective program and school leadership

Key source: E-W Framework

Indicators

Contributing indicators

- School leaders' decision making processes (collaborative, hierarchical). (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' hiring (if given authority). (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' fund allocation and budget (if given authority). (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' mission. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' disciplinary policy. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' expectations for staff and students. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' ability to keep order. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' communication style. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' consistency. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' use of data/setting a data culture. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' ability to raise additional resources. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- School leaders' flexibility and adaptivity. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

Institutions' contributions to student outcomes

Key source: E-W Framework

Indicators

Contributing indicators

- Teaching and learning practice: Instructional practice (including customization/personalization of instruction) (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teaching and learning practice: Intervention models (including strategies for student engagement, formative assessment). (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teaching and learning practice: Progress monitoring (including use of data). (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teaching and learning practice: Time on task. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teaching and learning practice: Expectations and rigor. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Teaching and learning practice: Development of student identity as learners. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

Indicators

Contributing indicators

- Rate of enrollment of English learners in college, disaggregated by 2-year colleges and 4-year colleges (ESL programs at U.S. community colleges).
- English language learner redesignation/ reclassification (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- % of [English Language Learner] students participating in college orientation programs (NCAN, Common Measures for Success).
- % of students participating in summer bridge programs (NCAN, Common Measures for Success).
- % of students who enroll within 6 months of high school graduation (NCAN, Common Measures for Success).
- Student enrollment by institution type and status (full time vs. part time) (NCAN, Common Measures for Success).
- Percentage of students who enroll within 12 months of high school graduation (NCAN, Common Measures for Success).
- Percentage of students placed into remedial courses (English/Math) (NCAN, Common Measures for Success).
- Percentage of students completing remedial coursework within one academic year (NCAN, Common Measures for Success).
- Percentage of students completing college level math course (NCAN, Common Measures for Success).
- Percentage of courses attempted to courses successfully completed (NCAN, Common Measures for Success).
- Percentage of students completing more than 20 credits in the first academic year (NCAN, Common Measures for Success).
- Average college GPA (NCAN, Common Measures for Success).
- Percentage of students who complete and submit renewal FAFSA form (NCAN, Common Measures for Success).
- Percentage of students awarded financial aid (NCAN, Common Measures for Success).

System indicators

- Colleges report offering support to English learners and/or ESL-specific coursework (ESL programs at U.S. community colleges).
- Length (e.g., in semesters) of ESL course sequences (ESL programs at U.S. community colleges).
- Colleges who have valid placement procedures for English learners (ESL programs at U.S. community colleges).
- Colleges who award college credit for ESL coursework (ESL programs at U.S. community colleges).

Practices and Policies

Practices

- Assessment: Single assessments may not fully measure the depth and breadth of ELLs' knowledge, skills, and abilities. Using multiple measures, adaptive tools, and ongoing assessments will lead to both a better understanding of ELLs' language abilities and academic growth (American Institutes for Research, Serving English Language Learners in Higher Education).
- Improving Remedial Course Taking: The burden of time and money for remedial ESL or reading/writing coursework prevents many ELLs from finishing their degrees (Bailey et al., 2010). Offering ELLs flexibility in when and how they improve their English may facilitate a more efficient path toward degree completion (Edgecombe, 2011; Hern & Snell, 2010). When students do not demonstrate adequate English language proficiency according to college and

university placement tests, they must enroll in additional coursework for language and literacy development. Enrollment in remedial coursework poses two major challenges. First, it is difficult for colleges and universities to meet the wide array of linguistic and educational needs of ELL students, and thus students are often placed into courses that are not an appropriate match for their individual needs. Second, requiring students to complete additional classes extends the amount of time in which they must be enrolled, which takes a toll on the resources (both time and money) for students (Bunch et al., 2011). Flexibility in when and how students are able to complete core requirements addresses several challenges often faced by ELLs in IHEs. First, in making classwork available outside of typical class hours, colleges and universities acknowledge and allow ELLs to work around competing priorities and move at their own pace. In addition, remedial coursework should be streamlined and aligned to the skills needed for future academic success. Finally, providing flexibility — as with adaptive learning technology — also allows students to move forward to new content or repeat material as needed, creating a more personalized learning environment that has been shown to lead to greater retention within courses (Boersma, 2013; Fishman, Ludgate, & Tutak, 2017) (American Institutes for Research, Serving English Language Learners in Higher Education).

- Highly Qualified Instructors: Because high-quality, highly qualified teachers design their instruction to draw on students' strengths and target the areas in which students need support, their effective teaching helps students meet their needs and goals (Mishkind, 2016). These teachers understand the importance of supporting their students' oral language development, explicitly teaching academic English, valuing cultural diversity, and integrating these areas into their practice (Samson & Collins, 2012). They also are able to help ELLs make stronger connections between what is learned in the classroom and the students' everyday lives, helping to develop a deeper understanding of the skills and concepts (Mishkind, 2016) (American Institutes for Research, Serving English Language Learners in Higher Education).
- Differentiating to meet ELL's diverse needs: Allowing educators to more easily differentiate instruction based on assessment of students' skills, needs, and goals will result in more personalized learning for ELLs. Teachers working with ELLs must address a wide range of backgrounds and needs within their class context. Technology offers a way to address the diversity of student needs within one class by allowing teachers to customize instruction in online platforms, often with little to no burden on the teacher (ASCD, 2011). For example, technology can simultaneously assess student learning and provide additional scaffolding in ways that are much faster than human responses. Adaptive materials that reinforce areas of challenge or build on areas of strength can be seamlessly woven into high-quality online instructional materials and platforms. By personalizing instruction, ELLs can receive instruction that is tailored to their individual skills and interests (American Institutes for Research, Serving English Language Learners in Higher Education).
- Integrating Language and Content for Personalized Instruction: ELLs need language beyond everyday communication if they are to meet their career and academic goals. However, because teachers have a limited amount of time with their students, they may not always teach all of the language skills and knowledge their students need to learn. For example, Peyton and Schaetzel (2016) found that many ESL teachers do not tend to teach academic writing despite the necessity of learning how to write for academic or professional audiences. Moreover, teaching writing skills in isolation does not sufficiently prepare students for academic or professional writing (Grubb et al., 2011). Integrating language with disciplinary content prepares students for the various types of texts and academic skills they will encounter both as part of their postsecondary education and throughout their careers (Parrish, 2015). Using authentic and relevant materials in the

ESL classroom facilitates effective language learning by providing ELLs with the opportunity to develop language skills in contexts similar to what they will encounter outside the classroom, but with structured opportunities for practice and support from the teacher. The use of authentic materials also helps students recognize the connection between what they are learning in the classroom and their everyday lives (Mishkind, 2016). Teachers can support students in learning how to understand academic text rather than leaving students to figure out how to transfer the skills that they learned in the classroom so that they apply to the new context (Huang, Tidwell, & Nisbet, 2011) (American Institutes for Research, Serving English Language Learners in Higher Education).

- Technology can help support the integration of language and content. In higher education, adult ELLs have varied educational and career aspirations (Slaouti et al., 2013), and technology can make English language instruction more meaningful and pertinent by providing teachers with a way to integrate authentic materials on content that is relevant to students based on their interests and needs (Jobs for the Future, 2013). Teachers can use online or software-based training modules to help students gain very specific academic or technical skills (Wrigley, 2015). Technology allows students to conduct research using culturally rich materials that are authentic and current (Shrum & Glisan, 2005), gather information through reading or discussion, and present their findings (Vinogradov, 2016). Students in a single class can learn more about nursing or hotel management, for example, without the instructor needing to be an expert in both topics. Students can practice reading and writing (Motteram, 2013) through online communication such as blogs, forums, peer reviews, and digital storytelling activities (Mansbach, 2015). By sharing their ideas with others around the world, their language learning becomes even more meaningful than what the traditional classroom allows (Motteram, 2013) (American Institutes for Research, Serving English Language Learners in Higher Education).
- Address the diverse needs of the three different ELL profiles. An important starting point for IHE administrators is to consider the differing needs of international, immigrant, and Generation 1.5 students. Technology can be used to identify, assess, place, monitor, and instruct students from each of these groups. Finally, rather than aggregating international students, recent immigrants, and Generation 1.5 students into a single ELL group, acknowledging and addressing the differences between them will allow colleges and universities to better plan how to draw on each group's strengths to meet its needs (American Institutes for Research, Serving English Language Learners in Higher Education).
- Ensure that learning is individualized, relevant, and meaningful for students. Despite general similarities among students within a single profile, recognizing and addressing individual differences among learners can increase students' engagement in their learning, which will increase retention and improve outcomes. Although many teachers at colleges and universities already provide some tailored, authentic content to their learners, technology provides access to even more tailored and authentic content that meets individual student interests and goals. Technology can help teachers personalize instruction to ELLs' proficiency levels and learning goals. In that same vein, it allows for self-paced, flexible learning that can adapt to students' demanding schedules and help move them forward toward course and degree completion (American Institutes for Research, Serving English Language Learners in Higher Education).
- Link qualified educators with learners. IHEs increasingly use online vehicles for instructing, tutoring, and advising for students who are not able to attend face-to-face classes. Technology provides a means of connecting students to the high-quality academic supports they need for success without excessive burden (e.g., traveling long distances to class, sacrificing work or family responsibilities to attend class). In regions or colleges with limited resources, technology can provide students with access to high-quality instructional support that may not be available

in their communities (American Institutes for Research, Serving English Language Learners in Higher Education).

- Assess students and collect data about outcomes. Many colleges and universities already collect data for the purpose of evaluation and reporting, but technology can both simplify the process and provide a more rigorous means for accomplishing this. When instruction is delivered through a technological platform, colleges and universities can quickly obtain data about student participation and usage and assess progress and learning outcomes that can inform instruction. Moreover, technology-based data collection can standardize which data are collected and how, allowing programs to analyze their success and challenges and make adjustments as needed to better meet students' needs. Technology also allows programs to easily share the results of their efforts with other institutions, facilitating a dialogue about best practices for instructing ELLs (American Institutes for Research, Serving English Language Learners in Higher Education).

Experiences and Neighborhood Conditions

Students living in neighborhoods with ample resources and access to public services like healthcare, nutrition and financial aid tend to perform better academically.

9 Do families live in well-resourced neighborhoods?

Why this matters

Neighborhoods play a central role in supporting families' stability and well-being, their access to social and economic opportunities and their children's chances to thrive and succeed. Neighborhoods are where children experience critical stages of socio-emotional and physical development, where social ties form, and where people access resources and life opportunities. The

ability to find and afford quality housing, to feel welcomed and respected in one's community and social circles, and to have equitable access to local resources all reflect essential aspects of an inclusive neighborhood (Urban Institute).

Students and families in neighborhoods experiencing poverty have limited access to resources and opportunities that promote economic mobility. The size of the middle class in an area is associated with levels of upward mobility. Moving to a lower-poverty area before age 13 improves the likelihood of students eventually attending college and earning more as adults. Economic segregation varies by race, with a higher percentage of Black and Latine people experiencing poverty living in low-income communities compared to white people from similar economic backgrounds (Education-to-Workforce Framework).

Access to affordable housing: A lack of affordable housing leads to material hardships like reduced access to food, clothing, medicine and transportation, while also negatively impacting mental and physical health, such as increased depression among tenants behind on rent and developmental delays in children living in poor housing conditions. This issue is also linked to higher eviction rates, disproportionately affecting families experiencing poverty, women and people of color (Education-to-Workforce Framework). Families experiencing poverty are more likely than middle-income families to live in substandard housing, which is associated with exposure to lead paint, asbestos, mold, roaches and rodents. These conditions can affect children's cognitive functioning and behavior, and can increase the incidence of asthma, which can cause school absences (Annie E. Casey Foundation). Families experiencing poverty also are more likely than middle-income families to move frequently, often causing their children to change schools mid-year. Students who have changed schools two or more times in the previous year are half as likely as their stable peers to read well (Annie E. Casey Foundation).

Well-resourced neighborhoods and family well-being: A well-resourced neighborhood, in contrast, has affordable housing in safe communities, diversity of income and demographics, access to technology, transportation and other resources that help families thrive. Affordable, stable and safe housing is foundational to individual and family well-being. Children who grow up in safe and stable housing are more likely to enter kindergarten ready to learn, succeed in elementary and middle school and graduate from high school. Adults living in stable housing are more likely to complete postsecondary training and obtain and keep high-quality employment. And individuals with lower incomes living in mixed-income neighborhoods tend to experience better outcomes at all life stages (Results for America).

Environmental quality: Good and stable health helps people of all ages surmount life's challenges, excel in school and on the job, ensure their families' well-being, and fully participate in their communities. Environmental quality reduces people's risk of health complications that may undermine school or work performance. Access to and usage of health services can help parents ensure that their children receive basic care through critical formative years and enable adults to obtain the tests needed to screen for early detection of diseases, enhancing the likelihood of effective treatment (Urban Institute).

Political participation and representation: Governance that is attentive to the needs of all community members and residents who are deeply engaged in collective decision making are hallmarks of a community that supports upward mobility. A responsive local government empowers the people it serves by ensuring their concerns are addressed. By allocating resources equitably, local governments can help ensure all residents have good prospects for economic success. And when public institutions that are intended to serve and protect communities act with justice and restraint, residents feel that they are valued and respected members of the community (Urban Institute).

Indicators

Contributing indicators

- Percentage of residential units that are unoccupied, or vacant, in a given year, disaggregated by rentals and homeownership (US Census Bureau).
- Average age of housing stock, which helps communities isolate potential issues, like exposure to asbestos and/or lead paint and connect people to resources (US Census Bureau, American Community Survey).
- Student mobility rate (Promise Neighborhoods; The Urban Institute, prepared for U.S. Department Of Education).
- Students experiencing housing instability and changing schools as a result (Data sources: Local SEA, LEA or school records or analysis) (StriveTogether 2021).
- Number of students experiencing housing instability that requires changing schools (StriveTogether 2021).
- Number of students who experience homelessness during the school year (StriveTogether 2021 and Urban Institute).
- Ratio of affordable and available housing units to households with low, very low, and extremely low income levels. Families and individuals need the security and stability of a decent house or apartment they can afford, where family budgets are not stretched too thin to pay for other basic needs like nutritious food, health care and educational opportunities (Urban Institute).
- Number and share of public school children who are ever homeless during the school year. Housing instability and homelessness represent extreme manifestations of powerlessness and the loss of dignity and belonging, disrupting family stability and undermining both physical and emotional health (Urban Institute).
- Ratio of (1) the number of affordable housing units to (2) the number of households with low and very low incomes in an area (city or county). Housing units are defined as affordable if the monthly costs do not exceed 30% of a household's income. Households with low incomes are defined as those earning below 80% of area median income (AMI), and very low-income households are defined as those earning below 50% of AMI (Education-to-Workforce Framework).
- Percentage of eligible households receiving federal rental assistance (Education-to-Workforce Framework).

System indicators

- There is sufficient availability of affordable housing for the number of families with low incom es in an area (city or county). (Education-to-Workforce).
- Ratio of (1) the number of affordable housing units to (2) the number of households with low and very low incomes in an area (city or county). Housing units are defined as affordable if the monthly costs do not exceed 30% of a household's income. Households with low incomes are defined as those earning below 80% of area median income (AMI), and very low-income households are defined as those earning below 50% of AMI. (Education-to-Workforce).
- Percentage of eligible households receiving federal rental assistance. (Education-to-Workforce).
- Percentage of household income spent on rent (StriveTogether 2021).
- Number of affordable and available housing units per 100 households with low, very low, and extremely low incomes. This metric reflects the extent of housing options for households with low incomes. Housing is considered affordable when monthly costs fall at or below 30% of a household's income (Urban Institute).

- Location affordability index (StriveTogether 2021).
- Eviction rate (StriveTogether 2021).
- Environmental racism, as measured by air quality index (StriveTogether 2021).
- Environmental racism, as measured by environmental health hazards (StriveTogether 2021).
- Level of public investment in neighborhoods as measured through programs like Opportunity Zones, Community Development Blocks and tax credits (StriveTogether).
- Share of people experiencing poverty who live in high-poverty neighborhoods. A high-poverty neighborhood is where more than 40% of residents are experiencing poverty. This metric reflects the extent of economic segregation in a community (Urban Institute).

Practices and Policies

Practices

- Invest in safe, affordable housing (Alliance for Early Success).
- Balancing resident needs with inspector capacity (Results for America).
- Healthy home environment assessments: Professional home inspections evaluating environmental health risks (Results for America).
- Proactive inspections to help maintain safe and healthy housing. The foundation of many effective programs is a more strategic deployment of a jurisdiction's home inspection capacity. Oftentimes, this includes using data analysis to identify high-risk blocks or neighborhoods and then sending inspectors to walk those areas, conduct visual exterior assessments, speak to residents and schedule proactive inspections (Results for America).
- Raising tenant and landlord awareness about maintaining safe and healthy housing. Many successful programs include a robust education component — often run by inspectors — to help landlords and tenants identify home hazards and other threats to home safety. This can include written materials, videos and public workshops (for instance, walking through a home to demonstrate an inspection). Such efforts also often include information on how to request a home inspection (Results for America).

Policies

- Housing rehabilitation loan and grant programs: Funding in the form of loans and/or grants to income-eligible owner-occupants to assist with repair, rehabilitation and/or reconstruction of homes (Results for America).
- To ensure property owners have the financial capacity to address home hazards, some programs provide income-eligible property owners with grants and/or loans to assist with repair, rehabilitation and/or reconstruction of homes. Funding is often tied to specific forms of home improvement, such insulation, plumbing or mold removal (Results for America).
- Lead paint abatement programs: Programs focused on removing lead-based and contaminated surfaces from homes and other buildings (Results for America).
- Percentage of eligible households receiving federal rental assistance (Education-to-Workforce Framework).
- Ratio of the number of affordable housing units to the number of households with low and very low incomes in an area (by city or county). Housing units are defined as affordable if the monthly costs do not exceed 30% of a household's income. Households with low incomes are defined as those earning below 80% of area median income (AMI), and very low-income households are defined as those earning below 50% of AMI (Education-to-Workforce Framework).
- Adopting rent regulation, eviction prevention, just-cause eviction and right-to-counsel policies to protect tenants (Urban Institute).
- Balancing community development with creating opportunities for residents with low by addressing

vacancy and blight; and investing in schools, transportation and job creation (Urban Institute).

- Creating affordable homeownership opportunities, including by providing down payment or closing-cost assistance and expanding access to financing, such as through the use of subsidized or shared appreciation (Urban Institute).
- Creating more dedicated affordable housing, including by subsidizing affordable housing development, establishing incentives for developers to create affordable units (e.g., density bonuses) and exploring ways to build affordable housing on publicly-owned land (Urban Institute).
- Creating permanent supportive housing for individuals and families experiencing chronic homelessness (Urban Institute).
- Enacting foreclosure prevention, property tax relief and rehabilitation assistance programs to assist homeowners (Urban Institute).
- Enforcing fair housing laws (Urban Institute).
- Expanding affordable housing in resource-rich neighborhoods (Urban Institute).
- Increasing the overall housing supply, including by reforming zoning and land-use policies, streamlining permitting processes and creating incentives for developers to build new housing (Urban Institute).
- Preserving subsidized and unsubsidized affordable rental housing (Urban Institute).
- Providing rental assistance to residents and incentivizing landlords to rent to tenants receiving assistance (Urban Institute).
- Reforming property taxes and property assessment processes to ensure that they do not disproportionately burden residents with low incomes (Urban Institute).
- Supporting community development in high-poverty neighborhoods, including incomes to move to more resource-rich communities (Urban Institute).
- Supporting permanently affordable housing models, such as community land trusts (Urban Institute).

Access to transportation

Key source: E-W Framework

Indicators

Contributing indicators

- Individuals have access to low-cost and timely transportation to commute to school or work (Education-to-Workforce).
- Average commute time to work, school, or college (Education-to-Workforce).
- The Low Transportation Cost Index, from the U.S. Department of Housing and Urban Development (Education-to-Workforce).
- Distance to school and average student travel time (Birth to Grade 3 Indicator Framework, 2017).
- Average travel time to school (Data sources: Local SEA, LEA or school records or analysis) (StriveTogether 2021).
- Average travel time to work (Data sources: Center for Neighborhood Technology; American Community Survey) (StriveTogether 2021).
- Percentage of workers who commute by walking and by biking (Data sources: Center for Neighborhood Technology; American Community Survey) (StriveTogether 2021).
- Trips made to work by mass transit (Data sources: Center for Neighborhood Technology; American Community Survey) (StriveTogether 2021).
- Access to mass transit departure and arrival points (Measuring Accessibility).
- Share of income spent on transportation. This metric reflects how much households spend on both public transit and cars (Urban Institute).

- Transit trips index and transportation cost index. Without accessible transportation options, families may be unable to take advantage of opportunities for work and education, or they may have to trade expensive commutes for other needs and goods (Urban Institute).

System indicators

- Transit trips index. This metric reflects a community's access to public transportation. It is %ile-ranked nationally based on the number of public transit trips taken annually by an average household earning 80% of the area median income (Urban Institute).

Practices and Policies

Practices

- Complete Streets approach to ensure the design of streets balance the needs of different modes of transportation, support local land uses, economies, cultures and natural environments (Smart Growth America).
- Districts and schools explore transportation solutions to help students living far from school participate in sports or afterschool programs. (Promise Partnership Utah).
- The United Way of Central Minnesota notes that a challenge in regards to transportation is that students within 2 miles of the school will not be picked up by the bus. This has students to the extent that some transfer schools twice within a single school year to access transportation during winter months. (United Way of Central Minnesota).

Policies

- Complete Streets policies (Smart Growth America).
- Availability of public transportation subsidies for students (Data sources: Local SEA, LEA or school records or analysis) (StriveTogether 2021).
- Affordable housing within walking distance from public transportation (Data source: Center for Neighborhood Technology) (StriveTogether 2021).
- Transit connectivity index (Data source: Center for Neighborhood Technology) (StriveTogether 2021).
- Encouraging housing development near transit, including affordable housing and housing for people with disabilities (Urban Institute).
- Expanding transportation options, including public transportation, such as buses and light rails, and active transportation, such as bike lanes and sidewalks (Urban Institute).
- Improving the quality and frequency of public transportation (Urban Institute).
- Improving transportation accessibility for people with mobility challenges, including by creating paratransit systems and ensuring existing transit is accessible to people with disabilities (Urban Institute).
- Reducing barriers to using public transportation, including by providing fare subsidies, making systems easy to navigate (e.g., having clear signage and route maps in multiple languages), and centralizing fares across different modes of transportation (Urban Institute).

Neighborhood economic diversity

Key source: E-W Framework

Indicators

Contributing indicators

- The concentration of poverty within a city or county. Percentage of city or county residents experiencing poverty who live in a high-poverty neighborhood (defined as a neighborhood in which more than 40% of residents experience poverty). (Education-to-Workforce).
- Percentage of children under age 6 living in neighborhoods in which more than 20% of the population lives in poverty (Rhode Island Kids Count).

- Concentration of Poverty Block (Neighborhood Poverty): Based on 2000 U.S. Census information on the block group in which students lived on two reverse-coded indicators: (1) the log of the percentage of male residents over age 18 employed one or more weeks during the year and (2) the log of the percentage of families above the poverty line (Roderick, M. From high school to the Future).

System indicators

- Percentage of city or county residents experiencing poverty who live in a high-poverty neighborhood (defined as a neighborhood in which more than 40% of residents experience poverty) (Education-to-Workforce Framework).
- Percentage of families who have lived in poverty for two generations or more (Brookings Institute).
- Share of residents experiencing poverty who live in high-poverty neighborhoods. Economic segregation excludes families with low incomes from well-resourced and opportunity-rich neighborhoods, undermines their sense of belonging, and creates neighborhoods of concentrated poverty and distress, which damage their children's long-term prospects (Urban Institute).

Practices and Policies

Practices

- ImpactTulsa's Child Equity Index: ImpactTulsa is a collective impact organization in the StriveTogether Cradle to Career Network that works with local partners in the Tulsa, Oklahoma area to advance more equitable outcomes. The Child Equity Index, a data tool developed by ImpactTulsa in partnership with Tulsa Public Schools, aims to help partners better understand the landscape of opportunity and systemic inequities in the Tulsa area. The index uses more than 40 indicators to measure environmental conditions across six domains of influence: (1) student-level factors, (2) neighborhood health, (3) neighborhood socioeconomic status, (4) neighborhood safety, (5) neighborhood pride and custodianship, and (6) neighborhood access. The index uses student addresses to attach "place-based" measures to neighborhood environments, defined using census tract and zip code geographic boundaries. The index also uses a Neighborhood Model to measure the relationship between environmental conditions and students' academic outcomes. Findings from the Child Equity Index have sparked conversation about systemic inequities in Tulsa and have translated into action for students and families. For example, when Internet access maps by census tract revealed inequities in access for low-income communities and communities of color, local school districts adjusted their remote learning strategies, and their partners launched a City of Tulsa Internet Access Taskforce. (Education-to-Workforce).

Neighborhood juvenile arrests

Key source: E-W Framework

Indicators

Contributing indicators

- Rate of juvenile arrests by city or county (number of arrests per 100,000 residents) (Education-to-Workforce).
- Minority youth who experience contact with the criminal justice system. A study in the American Sociological Review has shown aggressive policing can lower educational performance for black boys. These findings provide evidence that the consequences of policing extend into key domains of social life, with implications for the educational trajectories of minority youth and social inequality more broadly (Aggressive Policing and the Educational Performance of Minority Youth).

- High school graduation rate and adult incarceration rate of youth who have ever been incarcerated. Estimates based on over 35,000 juvenile offenders over a ten-year period from a large urban county in the US suggest that juvenile incarceration results in large decreases in the likelihood of high school completion and large increases in the likelihood of adult incarceration (National Bureau of Economic Research).
- Juvenile arrest data from the Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) program are publicly available and regularly reported (Education-to-Workforce).

Practices and Policies

Practices

- Examining juvenile arrest rates by type of offense (for example, drug abuse violation, curfew and loitering, disorderly conduct, etc.) can also help data users better understand community dynamics and inequities in policing (Education-to-Workforce).
- Examine data on post-arrest handling of juvenile cases (For example, users could examine whether youth are referred to juvenile court after arrest or diverted from formal court processing (Education-to-Workforce).

Access to technology

Key source: E-W Framework

Indicators

Contributing indicators

- Individuals have access to a reliable Internet connection and a personal desktop or laptop computer (Education-to-Workforce).
- Percentage of individuals who have both (1) access to at least one desktop or laptop computer owned by someone in the home and (2) reliable broadband Internet (Education-to-Workforce).
- Number and percentage of students who have school and home access to broadband internet and a connected computing device (Promise Neighborhoods; The Urban Institute, prepared for U.S. Department Of Education).

System indicators

- Access to internet and computer/devices and technical support (StriveTogether 2021).
- Percentage of the community that has access to a desktop or laptop, a smartphone, a tablet or another computer (Data source: American Community Survey) (StriveTogether 2021).
- Percentage of households that have broadband internet subscriptions (Data source: American Community Survey) (StriveTogether 2021).
- Residential fixed broadband deployment (Data source: Federal Communications Commission) (StriveTogether 2021).
- Percentage of individuals who have both (1) access to at least one desktop or laptop computer owned by someone in the home and (2) reliable broadband internet (Education-to-Workforce Framework).
- Share of households with a computer and broadband internet subscription in the home. This metric reflects a community's digital divide by measuring in-home access to a computer and the internet, including DSL, cable modem, cellular data and fiber connections. Without reliable access to online resources, young people and adults are locked out of opportunities to learn, build skills and gain the credentials they need to advance economically (Urban Institute).
- The state has a broadband task force/ commission to promote broadband access (National Council of State Legislatures).

Practices and Policies

Practices

- Connectivity: Even when learning is in-person, students and their families need internet

access, proper equipment and training on utilizing online learning platforms to complete school-based learning and assignments. This access allows for greater access to learning opportunities and also ensures they can obtain learning materials if they must stay home. School districts should determine which students do not have internet access and equipment and determine through partnership with local and state governments, along with community partners how to secure the resources to address gaps. Districts and schools should also assess whether school staff have access to needed technology and equipment and the skills to use them. (Attendance Works, Expanded Metrics).

- Technology to support learning and assessment in the classroom and online (Annie E. Casey Foundation).
- Local and state coalitions who advocate for access to broadband with city and state officials and by partnering with telecommunications companies (National Council of State Legislatures).
- Addressing financial barriers to home broadband internet access, including by providing direct cash transfers or subsidies for the costs of broadband service and devices, such as laptops, tablets and phones (Urban Institute).
- Addressing physical barriers to home broadband internet access, such as the lack of appropriate infrastructure or wiring (Urban Institute).
- Creating free, public options for accessing the internet, including by providing Wi-Fi in public, accessible spaces like libraries (Urban Institute).
- Providing digital literacy training for residents, particularly underserved residents, to close the digital divide (Urban Institute).

Policies

- State subsidizes broadband subscriptions for families with limited incomes (FCC).[1]
- Federal Bipartisan Infrastructure Law: Offers broadband infrastructure and digital equity grants (Connected Nation).
- Smart Cities policies and resources

1 Federal funding for this program has ended but we chose to include it so that communities see what federal programs can look like.

Exposure to neighborhood crime

Key source: E-W Framework

Indicators

Contributing indicators

- Number and percentage of students who feel safe at school and traveling to and from school, as measured by a school climate survey (Promise Neighborhoods; The Urban Institute, prepared for U.S. Department Of Education).
- Proportion of children with a parent or guardian who has served time in jail (Data source: Health Resources and Services Administration) (StriveTogether 2021).

System indicators

- Rate of violent felonies and property felonies by city or county (number of incidents per 100,000 residents). (Education-to-Workforce).
- Rates of reported violent crime and property crime. Exposure to crime, even if one is not a direct victim, can contribute to stress, depression, and anxiety in youth and adults, and teens who are exposed to high levels of violent crime are more likely to engage in criminal activity themselves. (Data source: Federal Bureau of Investigation) (StriveTog ether 2021) (Urban Institute).

- Rate of juvenile arrests by city or county (number of arrests per 100,000 residents) (Education-to-Workforce Framework).
- Rate of juvenile justice arrests (Data source: Federal Bureau of Investigation) (StriveTogether 2021).
- Rate of violent felonies and property felonies by city or county (number of incidents per 100,000 residents) (Education-to-Workforce Framework).
- Creating reentry supports for those recently released from jail or prison (Urban Institute).
- Implementing restorative justice approaches, which can help reduce recidivism (Urban Institute).
- Improving neighborhoods by redeveloping vacant or abandoned properties, installing street lighting and supporting community development activities (Urban Institute).
- Improving residents' financial security, including by strengthening the social safety net and reducing obstacles to accessing public benefits (Urban Institute).
- Preventing gun violence by limiting access to firearms and raising awareness of gun safety best practices (Urban Institute).
- Promoting community-led violence prevention initiatives, which identify residents at highest risk and intervene before conflict occurs (Urban Institute).
- Shifting toward evidence-based policing, in partnership with communities (Urban Institute).

Neighborhood racial diversity

Key source: E-W Framework

Indicators

System indicators

- Percentage of an individual's neighbors who are members of other racial or ethnic groups, calculated as a Neighborhood Exposure Index. (Education-to-Workforce).
- Neighborhood exposure index, or share of a person's neighbors who are people of other races and ethnicities (Data source: American Community Survey) (StriveTogether 2021).
- Percentage of an individual's neighbors who are members of other racial or ethnic groups, calculated as a Neighborhood Exposure Index (Education-to-Workforce Framework).
- Proportion of community residents who are immigrants (Data source: National Equity Atlas) (StriveTogether 2021).
- Ratio of the share of local elected officials of a racial or ethnic group to the share of residents of the same racial or ethnic group (Data sources: American Community Survey; local elections data) (StriveTogether 2021).
- Share of the voting-eligible population who are registered to vote and share who turn out to vote (Data source: Census) (StriveTogether 2021).
- Index of people's exposure to neighbors of different races and ethnicities. Racially and ethnically diverse neighborhoods are hallmarks of inclusive communities. This metric calculates separately for each racial or ethnic group the average share of that group's neighbors who are members of other racial or ethnic groups (Urban Institute).

Practices and Policies

Practices

- Narrowing racial homeownership gaps, including by creating affordable homeownership opportunities for households of color (Urban Institute).
- Reducing housing discrimination in the private market, including by enacting source-of-income laws and funding fair housing organizations (Urban Institute).
- Reforming zoning policies to allow for more diverse, high-density, mixed-income communities (Urban Institute).

Environmental quality

Indicators

Systems indicators

- Air quality. Carcinogenic, respiratory and neurological toxins in the air can harm people's health. A higher value for this metric indicates better air quality and lower exposure to toxins (Urban Institute).

Policies

Policies

- Addressing home health hazards, such as lead paint and pipes, to foster safe and healthy home environments (Urban Institute).
- Developing parks and other green spaces to absorb carbon and improve air quality (Urban Institute).
- Improving the quality and frequency of public transportation and encouraging housing development near transit to reduce reliance on personal vehicles (Urban Institute).
- Incentivizing private-sector actors to reduce their carbon footprints, including by leveraging government procurement and contracting procedures (Urban Institute).
- Investing in green infrastructure, such as permeable pavements, that can help mitigate exposure to environmental stressors like extreme heat (Urban Institute).
- Reducing the carbon footprint of all public-sector operations, including by transitioning to clean energy sources, electrifying bus and vehicle fleets, retrofitting city-owned buildings and implementing other energy efficiency measures (Urban Institute).

Just policing

Indicators

Systems indicators

- Juvenile arrests per 100,000 juveniles. High number of arrests among young people, ages 10 to 17, is a strong indicator of elevated criminal legal system involvement and over policing. This metric includes arrests for any crime or status offense (Urban Institute).

Policies

Policies

- Creating community responder or co-responder programs for nonviolent emergencies, such as mental health or behavioral crises, domestic disputes, traffic safety issues and homelessness (Urban Institute).
- Creating diversion programs and other alternatives to arrest, trial and incarceration (Urban Institute).
- Improving police officer recruitment, retention and training, as well as addressing officer wellness (Urban Institute).
- Minimizing the use of over-policing strategies, including stop-and-frisk, pretextual and non-safety-related traffic stops and "broken windows" policing (Urban Institute).
- Shifting funding from police departments to other local agencies where appropriate, such as

funding programs in schools to address truancy instead of relying on police officers to enforce truancy laws (Urban Institute).

- Shifting toward evidence-based policing, in partnership with communities (Urban Institute).
- Supporting greater police accountability, including by publishing data on police misconduct and use of force, advocating for the reform of qualified immunity and creating civilian oversight boards that operate independently of law enforcement agencies (Urban Institute).

Political participation and representation

Indicators

Systems indicators

- Ratio of the share of local, elected officials of a racial or ethnic group to the share of residents of the same group. Political scientists commonly use this metric to capture the extent to which racial and ethnic groups are represented by their community's elected leaders (Urban Institute).
- Share of the voting-age population who turns out to vote. Voter turnout is a well-established and broadly available reflection of political engagement in a community (Urban Institute).
- Number of membership associations per 10,000 people and ratio of Facebook friends with higher socioeconomic status to Facebook friends with lower socioeconomic status. Social networks help connect people across lines of income, education, and identity, enabling them to share information and other resources that support well-being, connect to opportunities for advancement, and strengthen feelings of belonging (Urban Institute).

Policies

Policies

- Adopting direct democracy practices, such as participatory budgeting, to empower community members and encourage them to participate in local governance (Urban Institute).
- Creating public financing systems for local elections (Urban Institute).
- Reducing barriers to voting, including by automatically registering voters, expanding the number of voting sites and their voting hours and offering additional options, such as mail-in, early and absentee voting (Urban Institute).
- Restoring voting rights to formerly incarcerated people (Urban Institute).
- Scheduling local elections to coincide with state or national elections, which can lead to a more representative electorate (Urban Institute).
- Scheduling local elections to coincide with state or national elections (Urban Institute).
- Strengthening and diversifying the local government workforce, including by investing in hiring, recruitment, training and compensation (Urban Institute).
- Strengthening civics education courses in schools (Urban Institute).
- Supporting labor unions and the right to organize (Urban Institute).
- Switching from at-large to district elections, adopting proportional representation systems and moving to choice voting or cumulative voting systems to make local governments more representative of their constituents (Urban Institute).

Community resources

Practices and Policies

Practices

- GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs): The federal program is a comprehensive intervention program and is tasked with equalizing access to higher education for low- income students. The GEAR UP grantees are charged with establishing partnerships among school districts, colleges and other organizations to operate the projects; and states and partnerships are awarded six- year grants to provide the services at high- poverty middle and high schools (Bridget Terry Long, Dropout Prevention and College Prep).
- Upward Bound: One of the largest and longest running federal programs, Upward Bound is "designed to generate skills and motivation necessary for success in education beyond high school among young people from low- income backgrounds and inadequate secondary school preparation" (Public Law 90- 222, December 23, 1967) (Bridget Terry Long, Dropout Prevention and College Prep).
- Talent Search: The Talent Search program was created in 1965 as one of the original federal TRIO programs, which also includes Upward Bound (discussed in the previous section). The program is designed to help low- income, first generation college students prepare for and gain access to college by providing information on the types of high school courses students should take to prepare for college and on the financial aid available to pay for college. The program also helps students complete financial aid applications and navigate the college application process. (Bridget Terry Long, Dropout Prevention and College Prep).
- Project GRAD: First launched in Houston, Texas, Project Graduation Really Achieves Dreams (Project GRAD) is designed to improve academic achievement, high school graduation rates, and rates of college attendance for low- income students. It does this by first trying to help students arrive at high school better prepared academically by implementing a specific reading and math curricula, along with enhanced professional development for teachers, at the elementary and middle school levels. At the high school level, Project GRAD offers special academic counseling and summer academic enrichment and a college scholarship (Bridget Terry Long, Dropout Prevention and College Prep).
- AVID: The Advancement Via Individual Determination (AVID) Program targets students in fifth through twelfth grade with the hope of helping students who are capable of completing a rigorous curriculum but currently fall short of their potential. Many of AVID's students are from low- income or minority families. To improve outcomes, AVID attempts to enroll students in more challenging classes, including honors and advanced placement (AP) courses. Students also enroll in the AVID elective, in which they learn organizational and study skills, work on critical thinking, and get academic help from peers and college tutors (Bridget Terry Long, Dropout Prevention and College Prep).
- Puente Project: The Puente Project is an outreach program with the goal of increasing the number of educationally disadvantaged students who enroll in four year institutions, earn degrees, and return to the community as mentors. Although it services all kinds of students, Puente targets Latino students in particular as an original goal was to increase the number of Latino students attending the University of California. The program includes a rigorous counseling component in which participants meet with trained community members. Students must also meet at least monthly with teachers and advisors to discuss challenges and life choices. Their parents must also sign a statement agreeing to support the student and attend necessary meetings (Bridget Terry Long, Dropout Prevention and College Prep).

10 Do families with children have access to public support (i.e., health care access, nutrition programs, economic support, etc.)?

Why this matters

Access to public support programs significantly influences high school students' ability to graduate by mitigating economic hardships and fostering stable, supportive environments conducive to learning.

Programs such as the Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF) provide essential financial resources to low-income families. These supports alleviate economic stress, enabling parents to better meet their children's basic needs and invest in their education. Studies have shown that access to cash assistance and income supports correlates with increased high school and college graduation rates, as well as higher overall educational attainment (Urban Institute).

Stable housing is crucial for academic success. Rental assistance programs reduce the incidence of health problems among children, leading to fewer school absences due to illness. This effect is particularly pronounced among adolescents, who benefit significantly from improved living conditions (National Library of Medicine).

Public support programs play a critical role in promoting high school graduation, which is a key milestone to postsecondary enrollment, by addressing the underlying economic and social challenges that can impede educational success. By ensuring families have access to necessary resources, these programs help create stable environments where students can thrive academically.

Childhood experiences *Key source: E-W Framework*

Indicators

Contributing indicators

- Percentage of births to mothers with less than a 12th grade education (Rhode Island Kids Count).
- Births to teens ages 15-17 per 1,000 girls (Project Thrive, NCCP).
- Childhood Migrant Education Program participant (California Department of Education & WestEd, Cradle-to-Career Data System Public Data Definitions).
- Foster youth status (California Department of Education & WestEd, Cradle-to-Career Data System Public Data Definitions).

- Individuals have not experienced repeated traumatic events within home environments. Childhood experiences such as maltreatment, interparental violence, family disruption, poverty, and stress all have a negative impact on children's development and lifelong outcomes. (Education-to-Workforce).
- Percentage of individuals with fewer than three ACEs. (Education-to-Workforce).
- Physical, sexual and emotional abuse in childhood (Head Start ECLKC).
- Emotional and physical neglect in childhood (Head Start ECLKC).
- Children living with a family member with mental health or substance use disorders (Head Start ECLKC).
- Witnessing domestic violence in childhood (Head Start ECLKC).
- Sudden separation from a loved one in childhood (Head Start ECLKC).
- Childhood poverty (Head Start ECLKC).
- Racism and discrimination in childhood (Head Start ECLKC).
- Violence in the community during childhood (Head Start ECLKC).
- Percentage of individuals with fewer than three Adverse Childhood Experiences (ACEs) (Education-to-Workforce Framework).
- Reduced exposure of children to adverse childhood experiences (Campaign for Grade-Level Reading).
- Children in households where the household head has graduated high school. (Note: Those who have a GED or equivalent are included as high school graduates.) (Data source: U.S. Census Bureau, American Communities Survey.) (Annie E. Casey Foundation).
- Number of U.S. children living in poverty with asthma (Campaign for Grade-Level Reading).
- Mother's Highest Level of Education: Student reported on the 2005 CCSR survey her mother/female guardian's highest level of education completed (Roderick, M. From high school to the Future).
- Mother's Nativity: Student reported on the 2005 CCSR survey if her mother/female guardian was born in the United States (Roderick, M. From high school to the Future).

System indicators

- Deaths caused by injury per 100,000 people. These deaths both reflect and cause trauma in a community. They include planned deaths (e.g., homicides or suicides) and unplanned deaths (e.g., from motor vehicle and other accidents) (Urban Institute).

Practices and Policies

Practices

- AVANCE Parent-Child Education Program (PCEP): Nine-month intensive bilingual program for child development (Results for America).
- Triple P Spartanburg (Positive Parenting Program): Free services to help develop parenting skills and understanding of child development (Triple P Spartanburg).
- Hello Family Spartanburg: Parent support and education initiative (Hello Family Spartanburg).
- ParentCorps: Early childhood, family-centered intervention that takes place in schools and Head Start programs (Results for America).
- Evidence-based home visiting programs (Prenatal-to-3 Policy Impact Center).
- Lead paint inspection and abatement (Rhode Island Kids Count).

Policies

- Creating targeted supports for vulnerable groups, including children and young people — particularly those in foster care and those returning from juvenile detention — and survivors of domestic or intimate partner violence (Urban Institute).

- Fostering positive learning environments for students, including by developing programs that prevent bullying, moving away from punitive disciplinary practices and applying other trauma-informed practices (Urban Institute).
- Improving traffic safety by implementing calming measures, building complete streets and creating safer environments for pedestrians and bicyclists (Urban Institute).
- Increasing access to mental health services, including substance use treatment and prevention (Urban Institute).
- Preventing gun violence by limiting access to firearms, keeping guns out of schools and raising awareness of gun safety best practices (Urban Institute).
- Strengthening workplace safety regulations and creating paid sick leave and predictable scheduling laws to enhance worker well-being (Urban Institute)

Food security

Key source: E-W Framework

Indicators

Contributing indicators

- Individuals have access to enough affordable, nutritious food.
- Percentage of individuals with high or marginal food security, as measured by the U.S. Department of Agriculture's (USDA) Food Security Survey Module. (Education-to-Workforce).
- Percentage of eligible individuals participating in SNAP. (Education-to-Workforce).
- Percentage of individuals living in a census track with low access to healthy food, as defined by the USDA's Food Access Research Atlas. (Education-to-Workforce).
- Percentage of individuals with high or marginal food security, as measured by the U.S. Department of Agriculture's (USDA) Food Security Survey Module (Education-to-Workforce Framework).
- Percentage of eligible individuals participating in SNAP (Education-to-Workforce Framework).
- Percentage of individuals living in a census tract with low access to healthy food, as defined by the USDA's Food Access Research Atlas (Education-to-Workforce Framework).
- Number of food-insecure children in the U.S. (Campaign for Grade-Level Reading).
- Number of children who receive free lunch during the summer (Campaign for Grade-Level Reading).
- Percentage of eligible units with children under age 18 not receiving SNAP (Prenatal to 3 Policy Impact Center).
- Percentage of households reporting child food insecurity (Prenatal to 3 Policy Impact Center).
- Number and percentage of children who consume five or more servings of fruits and vegetables daily (Promise Neighborhoods; The Urban Institute, prepared for U.S. Department Of Education).
- Percentage of eligible individuals receiving WIC benefits (U.S. Department of Agriculture).
- Percentage of eligible units with children under age 18 not receiving SNAP (Desired outcome: Families have access to necessary services through expanded eligibility, reduced administrative burden or programs to identify needs and connect families with services) (Prenatal to 3 Policy Impact Center).

System indicators

- Percentage of eligible individuals participating in SNAP (Education-to-Workforce Framework).
- Percentage of individuals living in a census tract with low access to healthy food, as defined by the USDA's Food Access Research Atlas (Education-to-Workforce Framework).
- Percentage of individuals with high or marginal food security, as measured by the U.S. Department of Agriculture's (USDA) Food Security Survey Module (Education-to-Workforce Framework).
- Proportion of eligible students participating in the School Breakfast Program (Data source: U.S. Department of Agriculture) (StriveTogether 2021).
- Proportion of households experiencing food insecurity (Data sources: Census, Child Protective Services) (StriveTogether 2021).

Practices and Policies

Practices

- Support health and affordable food options in high-poverty neighborhoods (Alliance for Early Success).
- Increase participation of families, child care providers, schools and communities in federal nutrition programs (Alliance for Early Success).
- Summer food programs keep kids healthy when school is out (Campaign for Grade-Level Reading).
- Breakfast at school improves attendance and learning (Campaign for Grade-Level Reading).
- Reduced Administrative Burden for SNAP (Prenatal to 3 Policy Impact Center).

Policies

- Create Food Security: College students who are worried about their next meal are not able to fully engage in their studies. Unfortunately, students who experience food insecurity are often ineligible for the Supplemental Nutrition Assistance Program (SNAP) – a crucial means-tested program that provides a monthly benefit to be used for qualifying food purchases – due to requirements that can present undue barriers for students to access this assistance. Policymakers should make permanent the COVID-era exemption that allows students who would otherwise be eligible for SNAP to receive these benefits by fulfilling the 20-hour work requirement with a combination of work and credit hours. (NCAN, Ensuring Food Security).
- States expand access to WIC benefits (e.g., increasing income threshold, extending benefits for postpartum people).
- Child and Adult Care Food Program (CACFP): Allows educational programs in eligible low-income areas to serve a free meal and/or snack to students 18 and younger (No Kid Hungry).

Health insurance coverage

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of individuals with health insurance. This measure captures participation in any insurance program, including those offered by the government (such as CHIP and Medicaid), employers, or community clinics, as well as those that individuals purchase (for example, through Health Insurance Marketplaces). Multiple surveys measure health insurance coverage and can be adapted for use by educational institutions or employers. At the national level, they include the Current Population Survey, Medical Expenditure Panel Survey, National Health Interview Survey, and Survey of Income and Program Participation. (Education-to-Workforce).

- Percentage of eligible individuals (children or adults) enrolled in Medicaid or CHIP. This information can be used to support families with low incomes in enrolling in these programs. (Education-to-Workforce).
- Percentage of individuals with health insurance (Education-to-Workforce Framework).
- Percentage of eligible individuals (children or adults) enrolled in Medicaid or CHIP (Education-to-Workforce Framework).
- Percentage of uninsured U.S. children overall and percentage of uninsured U.S. children who are living in poverty (Campaign for Grade-Level Reading).
- Percentage of children nationally without a medical home. A medical home is a health care setting that patients visit regularly for their primary care needs, building familiarity and consistency with care providers (Campaign for Grade-Level Reading).

System indicators

- Ratio of population per primary care physician. Access to health services is essential to both preventive care and treatment of health conditions, enabling people to enjoy the good health that facilitates success in school, work, and social relationships (Urban Institute).
- Air quality index. Environmental hazards expose people to health risks that threaten their quality of life and may undermine school and work performance (Urban Institute).
- Deaths due to injury per 100,000 people. Exposure to trauma affects children's brain and socioemotional development; undermines people's feelings of connection, agency, and self-efficacy; and interferes with capacities for school and work success (Urban Institute).

Practices and Policies

Practices

- Expand outreach to ensure access to affordable, physical, oral, and mental health insurance coverage for children and parents (Alliance for Early Success).
- Simplify enrollment to ensure access to affordable, physical, oral, and mental health insurance coverage for children and parents (Alliance for Early Success).
- Eliminate barriers to retention to ensure access to affordable, physical, oral, and mental health insurance coverage for children and parents (Alliance for Early Success).
- Address health care shortages — both of providers who accept Medicaid/CHIP, and of providers who offer specialized care (e.g., dental care, mental health, developmental specialists) (Alliance for Early Success).
- Increase access to comprehensive health (medical) homes that identify and respond to the physical, social, and emotional determinants of health (Alliance for Early Success).
- Prioritize funding for prevention programs, including those delivered outside of traditional medical settings (Alliance for Early Success).
- Implement health care data systems to track and improve referral and follow-up services (Alliance for Early Success).
- Improve coordination between IDEA Part B and C, primary care, and public health programs (Alliance for Early Success).
- Access to high-quality, affordable, comprehensive health care (including preventative, acute, emergency, and chronic care) for physical, mental, and oral health for all families with infants and young children (Annie E. Casey Foundation).
- Policies and programs which would increase access to health insurance for children and to improve education for parents, particularly in low-income families, could play an important role in fostering children's educational success. In families, parents are the first teachers, preparing their children to read simply by talking and reading to them frequently. Parents can

be the first to spot health and developmental problems that may lead to reading difficulties. But parents don't always know what to look for or how to help their children, and access to health care is essential. Poverty is strongly associated with lack of health insurance coverage. For example, 10% of people in families with incomes of $50,000 or more are not covered by health insurance, but this jumps 19% for those with family incomes between $25,000 and $49,999, and to 29% for those with family incomes below $25,000. Children in poor families also are more likely than their peers to have parents with limited education, because lower education is associated with earning lower incomes. (Annie E. Casey, Double Jeopardy).

Policies

- Expanding Medicaid, under the Affordable Care Act, eligibility significantly increases access to healthcare for low-income families and children. States that expanded Medicaid have seen higher rates of insured children, better access to preventive care, and improved health outcomes. States like New Mexico and Oregon have seen significant declines in uninsured rates after expansion (Centennial Care Medicaid; Oregon Health Plan).
- Expanding School Based Health Centers allows students to access medical, dental, and mental health services in schools. Medicaid reimbursement for SBHC services ensures financial sustainability. Colorado and Maryland use Medicaid billing to fund SBHCs, improving student health and attendance (Colorado Department of Public Health and Environment; Maryland Public Schools).
- California, Illinois, and Washington offer coverage to all children, including undocumented minors, extending Medicaid/CHIP-like coverage to all children, regardless of immigration status (California Budget and Policy Center; Illinois Department of Human Services; Washington State Health Care Authority).
- Continuous eligibility policies for Medicaid and CHIP benefits ensures children maintain Medicaid/CHIP coverage for 12 months, even if family income fluctuates.
- Streamlining Medicaid/CHIP enrollment through automatic data matching with other public programs (e.g., SNAP). Reduces paperwork and administrative barriers for families. Louisiana uses data-driven auto-enrollment to increase child health coverage rates (Louisiana Department of Health).
- Universal child health insurance. In 1998, an Institute of Medicine committee found that "insurance coverage is the major determinant of whether children have access to health care," and that uninsured children are "most likely to be sick as newborns, less likely to be immunized as preschoolers, less likely to receive medical treatment when they are injured, and less likely to receive treatment for illnesses such as acute or recurrent ear infections, asthma, and tooth decay." Other studies have verified that after enrolling in the Children's Health Insurance Program, children's unmet health needs fall by 50% or more and their routine health, dental and asthma care improves in terms of both access and quality. Despite gains made under the Affordable Care Act, however, the United States is still far from ensuring that all children have health insurance (Campaign for Grade-Level Reading).
- Ensure a medical home for every child. A medical home is a health care setting that patients visit regularly for their primary care needs, building familiarity and consistency with care providers. Care typically is provided by a team of practitioners including physicians, medical assistants, nurses, nurse practitioners and care coordinators. The American Academy of Pediatrics (AAP) defines a medical home for infants and children as having well-trained primary care physicians who are known to the child and family, able to develop "a partnership of mutual responsibility and trust," and able

to help manage and facilitate all aspects of pediatric care. Medical homes are especially important for medically underserved children, who often have more "chronic conditions and economic, geographic, and psychosocial factors" that combine to aggravate medical problems (Campaign for Grade-Level Reading).

- Medi-Cal status: California's Medicare health care program (California Department of Education & WestEd, Cradle-to-Career Data System Public Data Definitions).

Economic stability

Indicators

Contributing indicators

- Rates of financial insecurity by race. That is, the ability of a college student to meet food, housing, utility, medical care, and child care expenses and a $500 emergency expense, disaggregated by race. A study by Jobs for the Future found that compared with white students, Black and Latine students were more likely to have needed food, housing, utility, and medical assistance. Black students additionally were more likely than white and Latine students to have needed child care assistance. Both Black and Latine students were more likely than white students to have faced difficulty covering a $500 emergency. (Jobs for the Future, Unveiling Disparities).
- Rates of financial insecurity by gender. That is, the ability of a college student to meet food, housing, utility, medical care, and child care expenses and a $500 emergency expense, disaggregated by gender. A study by Jobs for the Future found that in comparison to men, women were almost two times more likely to report they would struggle to handle a $500 emergency. Additionally, women in the sample indicated a significantly higher likelihood of using welfare services than men: Women were 1.5 times more likely to use food assistance, 1.4 times more likely to use housing assistance, 1.3 times more likely to use utility assistance, and 1.6 more likely to use medical care assistance. Among students who were parents, women were two times more likely to require child care assistance. (Jobs for the Future, Unveiling Disparities).
- Rates of financial insecurity by parent-status. That is, the ability of a college student to meet food, housing, utility, medical care, and child care expenses and a $500 emergency expense, disaggregated by whether the student is a parent. A study by Jobs for the Future found that being a parent had a major impact on the use of welfare assistance across all measures, with use of food assistance 4.6 times higher, use of medical assistance 3.2 times higher, and difficulty of covering a $500 emergency 1.5 times higher compared with students who were not parents. The greater financial insecurity of parents was evident within all racial and ethnic groups. (Jobs for the Future, Unveiling Disparities).
- Rates of financial insecurity of students based on their grant/scholarship status. That is, the ability of a college student to meet food, housing, utility, medical care, and child care expenses and a $500 emergency expense, disaggregated by whether the student relied on grants and scholarships to pay for college. Students relying on grants or scholarships (including Pell grants) were more than two times more likely than those not relying on this method of tuition

payment to need food, housing, utility, and medical assistance. In addition, students who relied on student loans to pay tuition were more than 2.5 times more likely than other students to be unable to cover a $500 emergency and also more likely than students who did not rely on loans to face more financial insecurity across all the measures. Those students relying on family assistance and personal savings were the least likely to face financial insecurities. (Jobs for the Future, Unveiling Disparities).

- Average Education and Occupation Status of Adults (Neighborhood SES): Based on 2000 U.S. Census information on the block group in which students lived on two indicators: (1) the log of the percentage of employed persons 16 years old or older who are managers or executives and (2) the mean level of education among people over 18 (Roderick, M. From high school to the Future).
- Student Immigrant Status: Student reported on the 2005 CCSR survey if she was born in the United States and age of immigration (Roderick, M. From high school to the Future).
- Work: Student reported on the 2005 CCSR survey how many hours per week was spent working for pay (Roderick, M. From high school to the Future).

System indicators

- The IHEP Toward Convergence framework explores the advantages and disadvantages of six potential measures of economic status: Pell Grant receipt, Pell Grant eligibility, expected family contribution (EFC), income, poverty status, and student's home location (geocode). It ultimately recommends using Pell Grant receipt as the primary indicator of low-income status. Income is a promising indicator for economic status that should be tested further in the field and explored for inclusion in future iterations of the framework. (IHEP, Toward Convergence).
- The IHEP Toward Convergence framework recommends using Pell Grant receipt as the primary indicator of low-income status among college students, despite its known limitations. Pell receipt is the most frequently used measure of economic status in the field, and each alternate indicator faces even more substantial limitations than Pell receipt. While Pell receipt is a frequently used proxy for economic status, it is not perfectly accurate. Its primary limitation is that it undercounts the proportion of low-income students, especially at institutions where many do not apply for federal financial aid, due to either lack of information, low costs, or citizenship status. Also, it is subject to changes in federal financial aid policy, sometimes causing notable shifts that may not actually reflect demographic shifts. However, Pell receipt remains the primary indicator of economic status used by the field, is fairly comprehensive of low-income students, and takes into consideration important factors that influence financial need, such as family size. (IHEP, Toward Convergence).

Practices and Policies

Practices

- Institutions can use economic status to disaggregate other metrics and gain a better understanding of how low-income students are accessing and succeeding in their colleges or universities. Low-income students face different challenges in higher education than do middle- and high-income students, so it is crucial that institutions have access to disaggregated data to identify gaps and to tailor solutions and financial aid strategies for the neediest students. Recent research confirms that some institutions serve low-income populations more effectively than others, so institutions can use these data to continuously improve student access and success.
- State and federal policymakers often express interest in understanding how low-income

students access, progress through, and succeed in higher education. At the federal level specifically, policymakers are interested in the outcomes of low-income students, and a recent Integrated Postsecondary Education Data System (IPEDS) proposal includes Outcome Measures for Pell Grant recipients.

- Student Basic Needs Centers: Over the past 10 years, colleges, especially public and community, have stepped in to provide and connect students in need with supports. One national survey found that 74% of the responding institutions had some kind of emergency aid program in place for their students. Consolidating these services through Basic Needs Centers located on college campuses and accessed virtually can make it easier for students to apply for an array of financial, food, child care, housing, transportation, and other assistance in "one shop." One of the biggest challenges with these centers, however, is their low utilization rate. Some research suggests that utilization rates rise when students are provided nudging in the form of email or text messages about services in ways that are not stigmatizing (Jobs for the Future, Unveiling Disparities).

Policies

- Federal, state, and local assistance for students facing financial hardships: Systems and policies of financial support for students have not kept pace with the "new economics of college." Unlike in the past, when four-year colleges largely admitted young white students from middle income or higher families, the good news today is that there are many more people from low-income families attending college who are also older adults, workers, and caregivers. However, although the demographics of students have shifted, college costs have risen, minimum wages have stagnated, and inflationary pressures have driven up the costs of food and housing. Students from low-income families are more likely than other students to depend on loans, grants, and scholarships to help cover the expenses of attending college. But as this and other research shows, these kinds of financial assistance are inadequate, leaving too many students hungry, homeless, and unable to pay basic expenses including medical and child care. Unfortunately, outdated rules currently exclude many students from participating in federal food and housing assistance programs. And even among those who qualify, the uptake of benefits has been low. In 2018, for example, the U.S. Department of Agriculture found that only 2.6% of eligible students were receiving SNAP food assistance compared with 85% of those in the population as a whole who were eligible for this program. Additional research has found that housing assistance programs also sometimes limit student eligibility. For postsecondary education to be accessible and feasible for all students, the "new economics of education" will require systems of assistance that better meet student need and increase accessibility (Jobs for the Future, Unveiling Disparities).
- National data on postsecondary student financial wellness — the National Postsecondary Student Aid Study — are limited. The NPSAS, which surveys students about how they finance their education, is administered only every three to four years. Data about student financial wellness are not collected in the survey but gathered mainly through interviews, which results in a much more limited sample. To better monitor student financial well-being and address gaps, annual institutional-level financial well-being data are needed. With this kind of data, institutions can assess student financial insecurity over time, link financial insecurity measures to outcomes to assist policy and program development, and evaluate the effectiveness of programs and policy changes (Jobs for the Future, Unveiling Disparities).

Positive, Supportive Environments

Positive college and career-bound cultures foster safety, inclusivity and holistic student development. They intentionally cultivate students' confidence to engage challenges, overcome obstacles and succeed across all areas of learning.

11 Do students attend high schools, postsecondary institutions and/or work-based programs with safe, inclusive and supportive environments?

Why this matters

Attending postsecondary institutions that prioritize safety, inclusivity and supportive environments is crucial for student success. Research indicates that when students feel safe and included, they are more likely to engage academically, persist through challenges and achieve higher educational outcomes. A positive school climate — characterized by respect, belonging and emotional support — has been linked to improved attendance, academic performance and graduation rates. Moreover, inclusive environments that acknowledge and support diverse identities contribute to students' sense of belonging, which is essential for motivation and resilience during the college transition. Conversely, environments lacking in support can lead to increased stress and hinder academic achievement. Therefore, fostering safe and inclusive postsecondary settings is not only beneficial for individual student well-being but also enhances overall educational equity and success (NCSL)

School safety

Indicators

Contributing indicators

- Students feel physically, mentally, and emotionally safe at school or campus (that is, safe from both physical threats and violence, as well as bullying and cyberbullying) (Education-to-Workforce).
- Percentage of students reporting high levels of physical, mental, and emotional safety in school climate surveys, such as the U.S. Department of Education ED School Climate Surveys (EDSCLS), the Sense of Safety subscale within the CORE Districts school culture and climate survey, or the School Safety subscale within the Panorama Student Survey
- Percentage of students indicating they feel safe and cared for at their school (National Education Association).

System indicators

- Facilities that are safe, healthy, inviting, welcoming, and conducive to teaching and learning (Annie E. Casey Foundation).
- Percentage of educators surveyed indicating they feel safe and cared for at their school (National Education Association).
- Percentage of public school employees in each job category who have received in-service training on intervention techniques, such as restorative practices (National Education Association).
- Schools report disaggregated data on incidents of student bullying on a daily or weekly basis (National Education Association).
- Student-to-counselor ratio and access to school social workers.
- Whether an LEA has a written policy or policies prohibiting harassment or bullying of students on the basis of all of the following: sex; race, color, or national origin; disability (LEA) (Civil Rights Data Collection, Office for Civil Rights).
- Web link to policy or policies prohibiting harassment or bullying of students on the basis of all of the following: sex; race, color, or national origin; disability (LEA) (Civil Rights Data Collection, Office for Civil Rights).
- Whether an LEA has a written policy or policies prohibiting harassment or bullying of students on the basis of: sexual orientation; gender identity; or religion (LEA) (Civil Rights Data Collection, Office for Civil Rights).
- Web link to policy or policies prohibiting harassment or bullying of students on the basis of: sexual orientation; gender identity; or religion (LEA) (Civil Rights Data Collection, Office for Civil Rights).

Practices and Policies

Practices

- The National Dropout Prevention Center/ Network's 15 Effective Strategies for Dropout Prevention: Safe Learning Environments — Safe, orderly, nurturing, inclusive, and inviting learning environments help students realize potential as individuals and as engaged members of society. All students need to be safe, physically and emotionally; to be expected to achieve; to be recognized and celebrated equitably for accomplishments; and to feel genuinely welcomed and supported. A safe and orderly learning environment provides both physical and emotional security as well as daily experiences, at all grade levels, that enhance positive social attitudes and effective interpersonal skills. A comprehensive discipline plan and violence prevention plan should include conflict resolution strategies and should

deal with potential violence as well as crisis management. A safe, nurturing, and responsive learning environment supports all students, teachers, cultures, and subgroups; honors and supports diversity and social justice; treats students equitably; and recognizes the need for feedback, innovation, and second chances (The National Dropout Prevention Center/Network, 15 Effective Strategies for Dropout Prevention).

- Build a School Climate that Fosters Academics. In a survey administered by researchers of The Silent Epidemic report, seven in ten surveyed favored increasing supervision in school and more than three in five (62%) felt more classroom discipline was necessary. More than half (57%) believed their high schools did not do enough to help students feel safe from violence. Students in the focus groups talked about how they could not do homework or pay attention in class because of the many disruptions, including the fear of violence. Seven in ten (7 %) said their schools did not do enough to make school interesting (Civic Enterprises, The Silent Epidemic).
- Districts educate all school personnel on intervention techniques in incidents of student bullying and harassment, such as restorative practices and Positive Behavioral Intervention and Supports (PBIS) (National Education Association).
- Programs like Communities In Schools (CIS) embed support within schools to assist at-risk students. CIS offers services such as mentoring, counseling, and basic needs provision. A multiyear study found that CIS effectively reduces dropout rates and increases graduation rates when implemented with high fidelity (Communities in Schools).

Policies

- Districts allocate resources toward interventions around student safety issues (e.g., LGBTQ+ bullying and harassment) (National Education Association).

Inclusive environments

Key source: E-W Framework

Indicators

Contributing indicators

- Percentage of students enrolling in colleges by race and gender. In an interview with NPR, Dr. Calvin Hadley of Howard University commented on the decline of black men enrolling in Historically Black Colleges and Universities: "At every educational institution, we want a diversity of experience. And so when you don't have as many males in the classroom, that diversity of experience is significantly impacted...I think we're dealing with some really unique statistics right now. Black males are graduating at a much lower rate than Black females." (NPR, Fewer Black men are enrolling in HBCUs).
- Percentage of students reporting belonging on campus, as measured by surveys such as the Higher Education Research Institute (HERI) Diverse Learning Environments Survey, the National Institute for Transformation and Equity (NITE) Culturally Engaging Campus Environments (CECE) Survey, or the Ascend survey's Belonging Certainty, Identity Safety, Social Belonging, and Social Connectedness scales (Education-to-Workforce Framework).
- Individuals feel they belong and feel connected to their peers in their schools, postsecondary institutions, and workplaces (Education-to-Workforce).
- Percentage of students reporting belonging in school, as measured by surveys such as the Sense of Belonging subscale of the CORE Districts school culture and climate survey, the Classroom Belonging subscale of the Panorama Student Survey, or the Elevate survey's Affirming

Identities and Classroom Community scales (Education-to-Workforce).

- Percentage of students experiencing mechanical versus physical constraint and seclusion (Data source: Civil Rights Data Collection) (StriveTogether 2021).
- Percentage of students experiencing school-related arrests (Data source: Civil Rights Data Collection) (StriveTogether 2021).
- Percentage of students receiving in-school or out-of-school suspensions (Data source: Civil Rights Data Collection) (StriveTogether 2021).
- Sense of belonging and connection to school community (Data sources: Youth Risk Behavior Survey; local school climate surveys) (StriveTogether 2021).
- Student perceptions of their school's inclusion of their history, culture and racial identity (Data sources: Local school climate surveys) (StriveTogether 2021).

System indicators

- School culture and climate, including the following indicators: Teacher-leader relationship and dynamics; Teacher peer engagement (e.g., peer learning communities, peer observation; Teacher investment in school and students; Mentoring relationships between adults and students; Consideration of students' social location and how status differences shape student experiences of school; Student peer relationships (including issues like bullying); Student attachment to school/sense of belonging; Community/family engagement (including formal associations); School culture and climate: Safety and perceptions of safety (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Percentage of teachers who have received professional development in culturally-responsive pedagogy (National Education Association).
- Percentage of teachers who have received professional learning time in equity and racial and social justice (National Education Association).
- Percentage of teachers who have received professional learning time in implicit bias (National Education Association).
- Percentage of teachers who have received professional learning time in trauma-related practices (National Education Association).
- Measurement of bullying, harassment and discrimination (Data sources: Youth Risk Behavior Survey; local school climate surveys) (StriveTogether 2021).
- Schools annually report on school climate and student engagement (National Education Association).
- Schools have data-driven, site-based school climate and student engagement plans (National Education Association).
- Percentage of programs where classrooms demonstrate equitable socio-cultural interactions (STEP Forward with Data Framework).
- Percentage of system-level funding that is allocated to equity-focused activities targeted to children, families and/or workforce members from focal populations (STEP Forward with Data Framework).
- Results from publicly available school climate surveys (Birth to Grade 3 Indicator Framework).

Practices and Policies

Practices

- Districts dedicate professional learning time to culturally-responsive pedagogy (National Education Association).
- Districts dedicate professional learning time to equity and racial and social justice (National Education Association).
- Districts dedicate professional learning time to implicit bias (National Education Association).
- Districts dedicate professional learning time to trauma-informed practices (National Education Association).

Policies

- Protecting & Promoting Diversity & Inclusion: Attacks on higher education diversity and inclusion initiatives across the country put at risk the wellbeing, safety, and sense of belonging among students of color. The National College Attainment Network opposes efforts to eliminate diversity and inclusion initiatives and instead encourages policymakers to redouble their commitment to enhancing diversity to help narrow persistent gaps in college access and completion (National College Attainment Network, State Policy Priorities).
- Institutions allocate funds to advance educators' awareness of implicit bias (National Education Association).
- Institutions allocate funds to advance educators' competence in culturally-responsive pedagogy (National Education Association).
- Institutions allocate funds to advance educators' understanding of equity and racial and social justice (National Education Association).
- Institutions allocate funds to advance educators' understanding of trauma-informed practices (National Education Association).
- Institutions allocate resources to a workforce wellness and safety program, ensuring educators of color and LGBTQ+ educators feel safe and cared for in their schools (National Education Association).
- The state develops a policy that requires annual reporting by Institutions on school climate and student engagement (National Education Association).
- Fostering positive learning environments for students, including by reducing class sizes, developing programs that prevent bullying, moving away from punitive disciplinary practices and applying other trauma-informed practices (Urban Institute).

Representational racial and ethnic diversity of educators

Key source: E-W Framework

Practices and Policies

Practices

- The National Institutes of Health and the National Science Foundation have issued statements and funded initiatives focused on increasing diversity in science, with specific attention focused on expanding access to faculty positions (American Council on Education).
- The Consortium for Faculty Diversity in Liberal Arts Colleges offers residential postdoctoral fellowship awards, fostering the ability of member institutions to build relationships and recruit young scholars to their institutions (American Council on Education).
- Institutions such as Harvard University (MA), Brown University (RI), and Boston College have developed comprehensive strategies to recruit, hire, and retain a more diverse faculty body. California Lutheran University, a liberal arts college, contracted with the University of Southern California's Center for Urban Education to increase inclusion and mitigate bias in their faculty search and hiring processes (American Council on Education).
- National agencies and consortia such as the Association of Public and Land-grant Universities and the Center for the Integration of Teaching, Research, and Learning have encouraged discourse, provided resources, and offered training focused on expanding access to and increasing diversity in the academy at research universities and community colleges, respectively (American Council on Education).

- Philanthropic entities such as the Kresge Foundation, the Mellon Foundation, and ECMC Foundation have partnered with the Penn Center for Minority Serving Institutions to support faculty and increase access to positions at minority serving institutions, collaborating to offer mentorship, leadership development, and workshops focused on faculty success. These efforts are a promising start, and should be encouraged, evaluated, and expanded to promote meaningful progress toward a more diverse academy (American Council on Education).
- Increasing faculty diversity in the most vulnerable academic positions (i.e., non-tenure track and part-time positions) does not solve the overall problem; rather, it creates new, pernicious inequities (American Council on Education).
- One solution is to rethink whether and how institutions recognize the importance and value of multiple forms of scholarly and other contributions to make faculty positions more appealing, and to address the issue of work-life balance (American Council on Education).
- Increasing faculty diversity requires attention to departmental and campus climates and environments, including the provision of support and resources necessary for faculty retention (American Council on Education).

School and workplace racial and ethnic diversity

Key source: E-W Framework

Indicators

Contributing indicators

- Students are exposed to racial and ethnic diversity within their schools. Student body composition by race and ethnicity (percentage) (Education-to-Workforce).

System indicators

- Student body composition by race and ethnicity (Education-to-Workforce Framework).
- Share of students attending high-poverty schools, by race or ethnicity (Urban Institute).

Practices and Policies

Practices

- Use of research and data tools to understand school and workplace racial and ethnic diversity to understand equity issues and trends (National Equity Atlas).

Policies

- Creating more equitable school attendance boundaries (Urban Institute).
- Developing centralized school lottery application systems that prioritize school diversity (Urban Institute).
- Ending school and neighborhood segregation, including by expanding affordable housing in resource-rich neighborhoods and reforming zoning policies to allow for more diverse, high-density, mixed-income communities (Urban Institute).
- Implementing more equitable school funding policies and advocating for reforms to state and federal funding (Urban Institute).
- Rethink school district lines by enrolling students across district lines. District lines are responsible for roughly 60% of segregation in schools. State policymakers should invest in the creation or expansion of interdistrict transfer programs and magnet schools to enroll students across district lines. Controlled choice approaches can succeed with the right design elements to help advance integration rather than facilitating segregation. These elements include four things: (a) Free transportation to make program participation a meaningful option for all families; (b) Fair, transparent, and inclusive lotteries to ensure

true diversity; (c) Ongoing, extensive multilingual outreach and communication to families in a wide range of neighborhoods; (d) School siting policies that ensure that historically underserved students are not asked to bear disproportionate commuting burdens (Brown's Promise, Fulfilling Brown's Promise: A State Policy Agenda).

- Rethink school district lines by changing district lines. State leaders should consider changing existing lines. In many cases, shifting a district line by a matter of blocks can dramatically reduce segregation; in other cases, it may make sense to consider shifting to truly countywide school districts or pursuing other consolidation strategies. Strategically revising district lines can enhance diversity and improve resource equity (Brown's Promise, Fulfilling Brown's Promise: A State Policy Agenda).
- Rethink school district lines by strengthening anti-secession laws to prevent continued district fracturing and segregation. Without careful attention, efforts to promote integration may be met with backlash and backsliding. This is what happened in Tennessee after education leaders pursued an innovative effort to consolidate Memphis Schools into Shelby County School District, which would have integrated school districts and increased access to resources for the predominantly Black students in Memphis (Brown's Promise, Fulfilling Brown's Promise: A State Policy Agenda).
- Foster positive student experiences in integration efforts by promoting educator quality and diversity. A truly integrated school is staffed by diverse, high-quality, well-supported educators. State leaders should – every time they invest in an integration program – also do the following: (1) Publish annual educator quality and diversity data in the schools and districts impacted by the initiative, and how they compare to other schools in the surrounding district(s); (2) Set educator diversity, quality, and support goals in the schools and districts that participate, including timelines with interim targets; (3) Identify state resources to support educator quality, diversity, and support in schools and districts that participate; (4) Invest in opportunities to prepare, support, and retain teachers of color in the schools and districts that participate; (5) Require and fund ongoing, job-embedded, evidence-based professional learning for educators in schools and districts that participate, including support for understanding adult mindsets and asset-based pedagogies; anti-bias training; and diversity, equity, inclusion, and belonging training (Brown's Promise, Fulfilling Brown's Promise: A State Policy Agenda).
- Foster positive student experiences in integration efforts by encouraging meaningful student, family, and community engagement. State leaders should — every time they invest in an integration program — also provide guidance, training, and funding to local leaders that are focused on community engagement. This support should focus on four actions that will help educators in integrating schools: (a) Engaging families that live further from a particular school or who speak different languages. This is particularly important for magnet schools and other public, choice-based integration efforts, which cannot create diversity if diverse families are not aware of, connected to, and excited about sending their children to the schools; (b) Leveraging community-based organizations (CBOs) in both the "sending" and "receiving" communities to partner with a school to accelerate student learning and meet whole-child needs; (c) Creating parent and family advisory councils with power to participate in decision-making about a school's programming, practices, and policies. These councils should include meaningful representation of families from underrepresented communities; (d) Providing ongoing financial and personnel support for the daily work of authentic community engagement (Brown's Promise, Fulfilling Brown's Promise: A State Policy Agenda).

- Foster positive student experiences in integration efforts by ensuring all students have access to advanced coursework. Districts working to integrate schools are historically prone to segregate students within "integrated" buildings via biased academic tracking policies. State leaders should require — and fund — all schools, and especially those participating in an integration program, to do two things: (a) Conduct universal screening for participation in gifted and talented programs at the elementary level. For an example, see Maryland's universal screening requirement; and (b) Implement automatic enrollment policies that put all students who demonstrate readiness on one or more of a wide variety of valid metrics (including grades, end of course assessments, standardized tests, and teacher recommendations) into advanced courses (Brown's Promise, Fulfilling Brown's Promise: A State Policy Agenda).

School and workplace socioeconomic diversity

Key source: E-W Framework

Indicators

Contributing indicators

- Students are exposed to socioeconomic diversity within their schools. Student body composition by income (Education-to-Workforce).
- Share of students attending high-poverty schools, by race or ethnicity. Students from families with low incomes and students of color achieve better academic outcomes when they attend more economically and racially diverse schools (Urban Institute).

Practices and Policies

Practices

- Use of research and data tools to understand school and workplace socioeconomic diversity to understand equity issues and trends (National Equity Atlas).

Policies

- Creating more equitable school attendance boundaries (Urban Institute).
- Developing centralized school lottery application systems that prioritize school diversity (Urban Institute).
- Ending school and neighborhood segregation, including by expanding affordable housing in resource-rich neighborhoods and reforming zoning policies to allow for more diverse, high-density, mixed-income communities (Urban Institute).
- Implementing more equitable school funding policies and advocating for reforms to state and federal funding (Urban Institute).

12 Do students attend high schools, postsecondary institutions and/or work-based programs that prioritize their social, emotional and physical development and well-being?

Why this matters

Colleges and universities that actively support students' social, emotional and physical development create the conditions necessary for long-term academic success and personal growth. Research indicates that students with strong mental and emotional health are more likely to stay motivated, overcome challenges and achieve their educational goals (LSU). Institutions that foster a sense of belonging and community also see higher levels of student engagement and persistence (Institute for Higher Education Policy). Additionally, programs that promote social-emotional learning have been shown to improve academic performance and reduce stress (edutopia.org). By investing in comprehensive wellness initiatives, postsecondary institutions not only support students' immediate needs but also help build the foundation for lifelong well-being and achievement.

Access to health, mental health, and social supports *Key source: E-W Framework*

Indicators

Contributing indicators

- Ratio of number of students to number of health, mental health, and social services FTE staff (for example, school nurses, psychologists, and social workers) (Education-to-Workforce).
- Physical health/fitness of high school graduates (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Rate of teen parenthood (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Rate of drug/substance use/abuse (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Depression Screen: Depression is measured using the Patient Health Questionnaire-9 (PHQ-9), a nine-item instrument based on the symptoms provided in the Diagnostic and Statistical Manual for Mental Disorders for a major depressive episode in the past two weeks (Spitzer, Kroenke, & Williams, 1999) (Healthy Minds Study).
- Anxiety Screen: Anxiety is measured using the GAD-7, a seven-item screening tool for screening and severity measuring of generalized anxiety disorder in the past two weeks (Spitzer, Kroenke, Williams, & Lowe, 2006) (Healthy Minds Study).
- Eating Disorder Screen: Eating disorders are measured using the written U.S. version of the SCOFF, a five-item screening tool designed

to identify subjects likely to have an eating disorder (Morgan, Reid, & Lacey, 1999) (Healthy Minds Study).

- Loneliness screen: "How often do you feel (a) you lack companionship; (b) left out; (c) isolated from others?" (Healthy Minds Study).
- Suicidality and self-injurious behavior: suicidal ideation within the past year; suicide plan within the past year, suicide attempt within the past year, non-suicidal self-injury within the past year (Healthy Minds Study).
- Lifetime diagnoses of mental disorders: "Have you ever been diagnosed with any of the following conditions by a health professional (e.g., primary care doctor, psychiatrist, psychologist, etc.)?" Respondents are asked to select all that apply from the following list: Substance use disorder (e.g., alcohol abuse, abuse of other drugs); Personality disorder (e.g., antisocial personality disorder, paranoid personality disorder, schizoid personality disorder); Psychosis (e.g., schizophrenia, schizo-affective disorder); Eating disorder (e.g., anorexia nervosa, bulimia nervosa); Neurodevelopmental disorder or intellectual disability (e.g., attention deficit disorder, attention deficit hyperactivity disorder, intellectual disability, autism spectrum disorder); Trauma and stressor related disorders (e.g., posttraumatic stress disorder); Obsessive-compulsive or related disorders (e.g., obsessive-compulsive disorder, body dysmorphia); Anxiety (e.g., generalized anxiety disorder, phobias); Bipolar (e.g., bipolar I or II, cyclothymia); Depression or other mood disorders (e.g., major depressive disorder, persistent depressive disorder) (Healthy Minds Study).

System indicators

- School structure and resources, including the following indicators: General population support services (e.g., guidance counselor, college counselor, employment assistance, emergency funds, disability support); ELL or dual-language program(s) offered; Special education and support for students with disabilities; Advanced coursework (e.g., AP, IB, dual enrollment/early college); Ability tracking; Career pathway programming for students (e.g., internships, credentials, vocational education, job fairs, job readiness programming); College connections (e.g., visits to school by college representatives, college centers); Behavior management system (e.g., PBiS systems and fidelity, restorative practices); Health and mental health services; Socioemotional/leadership development interventions; General population programs/interventions (e.g., reading programs, incentive systems); Online learning; Curriculum/teaching materials (not infrastructural); Curriculum development (including for cultural relevance); Teacher and staff professional development (including on data usage, collaborative and systemic analysis of student work, formative assessment practices); Specials (physical education, electives, extracurricular activities, and enrichment programming); Student affiliation or decision making bodies (e.g., GSA, student government). (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- College faculty feels comfortable having conversations with students about their mental health (Healthy Minds Study).
- College faculty have a good idea of how to recognize that a student is in emotional or mental distress (Healthy Minds Study).
- College faculty believe that student mental health problems are significantly worse now compared to when I began my career (Healthy Minds Study).
- College faculty believe supporting students in mental and emotional distress has taken a toll on my own mental and emotional health (Healthy Minds Study).
- In the past 12 months, college faculty have had any one-on-one conversations with students (whether in person, by phone, video conference, or email) about their mental or emotional health? (Healthy Minds Study).

Practices and Policies

Policies

- Supporting Students' Basic Needs: In an interview conducted with state-level members of the National College Attainment Network, members in four states (California, New York, Ohio, Tennessee) identified better support for students' basic needs as a key state policy issue. When members discussed student basic needs, they included access to housing, food, transportation, and other supports necessary for postsecondary success outside of tuition and fees. Organizations considered the impact of a wide variety of student needs – from financial to social-emotional – on access and attainment outcomes. One member suggested that many access and attainment policies are "outdated and antiquated" and "don't address the needs and wants of students today." Another interviewee shared their belief that "students need to be at the table, with a voice, and with a vote" to ensure that more holistic supports are provided. Members across states highlighted policy efforts to support student mental health, assist with food, housing, and transportation, and ensure that students are retained throughout their postsecondary education because concerns about their basic needs are alleviated (NCAN, Building Momentum at the State Level).

Social-emotional skills*

Key source: E-W Framework

Social-emotional skills includes characteristics like self-management, growth mindset, self-efficacy, social awareness, cultural competency, and civic engagement

Indicators

Contributing indicators

- Self-management: percentage of individuals reporting a high level of self-management on surveys such as the Shift and Persist scale for teens and adults (Education to Workforce Framework).
- Growth mindset: percentage of students reporting a high level of growth mindset on surveys such as the Growth Mindset Scale developed by Carol Dweck (Education to Workforce Framework).
- Self-efficacy: percentage of individuals reporting a high level of self-efficacy on surveys such as the New General Self-Efficacy Scale or Ascend survey's Self-Efficacy Scale (Education to Workforce Framework).
- Social awareness: percentage of individuals demonstrating social proficiency on a performance assessment, such as the National Work Readiness Credential Essential Soft Skills assessment (Education to Workforce Framework).
- Cultural competency: percentage of students demonstrating proficiency on an assessment of cultural competency, such as the HEIghten Outcomes Assessment for Intercultural Competency & Diversity or The Intercultural Development Inventory (Education to Workforce Framework).
- Civic engagement: percentage of individuals reporting a high level of civic engagement on surveys such as the Index of Civic and Political Engagement (Education to Workforce Framework).
- Civic engagement of high school graduates: Voter participation (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Civic engagement of high school graduates: Incarceration rates (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Civic engagement of high school graduates: Rates of volunteerism (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Civic engagement of high school graduates: Community organization participation and

leadership. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

- Deeper learning skills of high school graduates: Knowledge (academic content, career, citizenship content, practical life knowledge) (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Deeper learning skills of high school graduates: Skills/ability (creativity; confidence; self-regulation, responsibility, goal-setting, reflexivity; social interaction/communication; critical thinking/problem solving; information and technology; resourcefulness) (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Deeper learning skills of high school graduates: Mission motivation to learn and be challenged/ academic self-concept (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Deeper learning skills of high school graduates: Appreciation of and ability to engage with diversity/equity (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).
- Self-management: Students are able to regulate their emotions, thoughts, and behaviors effectively in different situations; percentage of students reporting a high level of self-management on surveys such as the CORE Districts SEL Survey self-management scale (grades 5–12) or Shift and Persist scale for children. (Education-to-Workforce).
- Growth mindset: Students believe that their abilities can grow with effort; percentage of students reporting a high level of growth mindset on surveys such as the CORE Districts SEL Survey Growth Mindset Scale (grades 5–12) or the Growth Mindset Scale developed by Carol Dweck, which may be used with children, teens, and adults. (Education-to-Workforce).
- Self-efficacy: Students believe in their ability to achieve an outcome or reach a goal. percentage of students reporting a high level of self-efficacy on surveys such as the CORE Districts Social-Emotional Learning (SEL) Survey self-efficacy scale (Education-to-Workforce).
- Social awareness: Students are able to understand others' perspectives; understand social and ethical norms for behavior; and recognize family, school, and community resources and supports. percentage of students reporting a high level of social awareness on surveys such as the CORE Districts SEL Survey social awareness scale, or percentage of students meeting benchmarks on teacher ratings of social skills drawn from Elliott and Gresham's Social Skills Rating Scale (Education-to-Workforce).
- Cultural competency: Individuals are able to understand the perspectives of and empathize with others from diverse backgrounds and cultures. Reflecting the lack of developed tools in the field, the EW Framework is unable to recommend a specific measurement tool. In some contexts, it might be possible to adapt an existing measure for adults for use with youth. For examples, the HEIghten Outcomes Assessment for Intercultural Competency & Diversity or The Intercultural Development Inventory®. (Education-to-Workforce).
- Civic engagement: Individuals exhibit the knowledge, skills, values, motivation, and activities that promote quality of life within a community and society at large through political and nonpolitical processes. percentage of students reporting a high level of civic engagement on surveys such as the Youth Civic and Character Measures Toolkit Survey and Youth Civic Engagement Indicators Project Survey (Education-to-Workforce).

Practices and Policies

Practices

- Collaborative for Academic, Social, and Emotional Learning's (CASEL) best practices for building inclusive school environments through social-emotional learning (CASEL).

- Whole-school culture-building strategies, such as using the first two weeks of the school year intentionally to build school culture, promoting school values in messages around the school, or playing music outdoors between classes to foster a positive environment (PACE, Enacting Social-Emotional Learning).
- Promoting personal interaction to build trust and relationships, for example by greeting students by name and shaking hands at the beginning of school or class (PACE, Enacting Social-Emotional Learning).
- Advisory periods that provide teachers and students time to form relationships, learn social skills, discuss issues like bullying, and process difficult events happening on or off campus (PACE, Enacting Social-Emotional Learning).
- Organizing schedules and students to support relationships, for example by offering bridge programs for students just entering the school, grouping students into smaller communities or "families" within large schools, and keeping groups of students with the same teachers for multiple years (PACE, Enacting Social-Emotional Learning).
- Inclusion strategies, such as organizing student volunteers to reach out to isolated or lonely students, and student clubs that specifically offer support to groups that might feel excluded at school (e.g., African American or Latinx students, special education students, or female students interested in computer coding) (PACE, Enacting Social-Emotional Learning).
- Impact of teaching a growth mindset: Researchers Susana Claro and Susanna Loeb estimate that the average growth in English language arts and math scores corresponding to the difference between a fixed mindset to a growth mindset (an approximately two standard deviation change) are approximately 0.07 and 0.05 standard deviations in the corresponding test performance. Based on a rough calculation developed by Hanushek, Peterson & Woessmann (2012), these changes are equivalent to more than 35 days of learning. The difference is especially meaningful considering that the evidence that social-emotional barriers such as a fixed mindset can potentially be addressed by low-cost scalable interventions (PACE, Students with Growth Mindset Learn More in School).
- Positive behavior management and restorative practices that help teachers focus on why a student acted out, help students develop more appropriate skills, and in some cases, mend damaged relationships between educators and students. Strategies range from formal, packaged programs to everyday strategies such as "cooling off" rooms where students can get support and avoid suspension (PACE, Students with Growth Mindset Learn More in School).
- Setting and enforcing clear values and expectations, through direct instruction, specific programs or events, rewards systems for positive behavior, and visuals posted throughout the school (PACE, Students with Growth Mindset Learn More in School).
- Targeted approaches for struggling, at-risk, or historically marginalized students, ranging from professional counseling, multi-tiered systems of support for struggling students, and programs meant to support equity, particularly for African American youth (PACE, Students with Growth Mindset Learn More in School).
- Elective courses such as music or PE as opportunities to model good communication and group interaction skills, and to form trusting relationships between adults and students (PACE, Students with Growth Mindset Learn More in School).
- Student clubs that specifically promote kindness, compassion, and positive behavior, with some clubs going further to support students facing trauma. Several schools also have leadership programs that teach students to model good behavior on campus, help other students, and mediate conflicts (PACE, Students with Growth Mindset Learn More in School).
- Afterschool programs and activities (e.g., music, yoga, sports) that are intentionally designed to give students opportunities to connect

with students from other backgrounds, form relationships with adults, or relieve stress (PACE, Students with Growth Mindset Learn More in School).

- Strategies for creating a positive classroom environment, such as seating students in groups to reinforce norms of getting help from peers, taking on specific roles in a group, and learning to receive feedback (PACE, Students with Growth Mindset Learn More in School).
- Strategies for managing emotions, such as permitting students to redo homework assignments and tests to reduce pressure and show students they can improve over time with consistent effort (PACE, Students with Growth Mindset Learn More in School).
- Modeling appropriate language and mindsets, for example by providing concrete protocols for how students should communicate with one another or by coaching students to say "I can't do it YET" instead of "I can't do it." (PACE, Students with Growth Mindset Learn More in School).
- Staff leadership teams charged with overseeing the behavior and school climate approaches at the school. (PACE, Students with Growth Mindset Learn More in School).
- Use of non-instructional staff in creative ways, such as staffing a "Listening Room" where students can find a trusted adult, training PE teachers as life coaches for frequently truant students, or explicitly recruiting staff members who are a good fit with the values of the school and the racial/ethnic makeup of the student body (PACE, Students with Growth Mindset Learn More in School).
- Opportunities for adults to learn about social-emotional learning, such as professional development on topics like growth mindset; staff meetings where educators model the kinds of behaviors and language expected of students, or pairing experienced teachers with new teachers for coaching on social-emotional learning practices (PACE, Students with Growth Mindset Learn More in School).
- Use of CORE survey data to guide and improve school efforts, often led by the staff leadership teams mentioned above (PACE, Students with Growth Mindset Learn More in School).
- School- or staff-led local data collection efforts to provide more rapid or specific feedback, such as developing short student surveys, administered monthly, to track whether students feel safe, have friends, and have a trusted adult connection at school (PACE, Students with Growth Mindset Learn More in School).
- Schools with strong SEL practices tend to build on existing assets, such as an established program or particular individuals. For example, one outlier school uses a well-developed sports program as a primary vehicle for supporting social-emotional learning; another uses its strong music program. In each school, an existing program was re-purposed to help build student confidence, promote teamwork, build positive relationships with peers and adults, and improve student attendance and motivation. The specific content of these programs seems to be less important than the fact that they are authentic to the school's strengths and needs, are deeply embedded in the school culture, and are explicitly designed to advance social-emotional learning (PACE, Students with Growth Mindset Learn More in School).
- Schools with strong SEL practices tend to implement with intention. Practices used to foster social-emotional learning and positive campus climate are implemented intentionally, not in a spontaneous or ad hoc manner. When formal programs are implemented, there are clear roles for staff, specific trainings, and purposeful rules and incentives. Appropriate levels of staffing and financial investment also appear to be important to success (PACE, Students with Growth Mindset Learn More in School).
- Schools with strong SEL practices tend to promote student agency and leadership. Educators in outlier schools believe that youth-led efforts help students engage and also promote positive behaviors and a school culture of trust

and inclusion. Strategies range from buddy programs to kindness clubs and student-led lessons on respect (PACE, Students with Growth Mindset Learn More in School).

- To advance social-emotional learning, it appears that schools and districts need to invest in relevant staff positions and adult learning activities. Sometimes these decisions are made at the school level, but often, district support is needed to fund school-level positions or professional development. In addition, districts can invest in district-level personnel who coordinate or support social-emotional learning, as several CORE districts do. All of the outlier schools we studied received some form of professional development around social-emotional learning topics (PACE, Students with Growth Mindset Learn More in School).
- Districts — or other entities — can help by measuring social-emotional learning outcomes and providing support to use the data. The CORE districts have an annual survey to measure social-emotional learning outcomes and can use it to monitor school performance and provide targeted supports to schools. Districts use the survey data in a variety of ways: for evaluating school and educator performance, for public reporting to parents, and for grouping schools into cohorts for specialized training. As a result of these and other activities, administrators are quite aware of social-emotional learning outcomes and take them seriously (PACE, Students with Growth Mindset Learn More in School).
- Districts can help schools integrate social-emotional learning and racial equity efforts. While many of the educators in our study approach their work with a strong equity orientation, not all connect their specific social-emotional learning strategies to their equity goals. As a result, schools may be left with an incomplete or incoherent approach. This may be an area where district (or network) leadership can make a substantial difference, by addressing the issue head-on, inviting dialog, and explicitly articulating how social-emotional learning efforts relate to racial equity goals (PACE, Students with Growth Mindset Learn More in School).

Policies

- More work is needed to help schools achieve a common understanding of social-emotional learning and to align social-emotional learning activities, both within a school and between the school and district levels. Certainly, this is an area where district leadership can make a substantial difference. In our study, we found the strongest conceptual and programmatic coherence in the district with the most comprehensive approach, which includes social-emotional learning standards for students and adults, use of the adult standards in personnel evaluations, use of social-emotional learning priorities and measures in school performance evaluations, relevant professional development, and financial investment in these social-emotional learning interventions. This level of formal alignment may be necessary to make social-emotional learning a true priority for school-level educators and bring coherence to varied practices and supports within a school or district (PACE, Students with Growth Mindset Learn More in School).
- Districts can provide support to help schools integrate social-emotional learning and subject area content — an area that even the strongest outlier schools are just beginning to explore. One CORE district has integrated social-emotional learning into its content standards. A few others have curricula that include or emphasize social-emotional learning topics. At the same time, some teachers in the outlier schools argue that social-emotional learning should be considered a pedagogical approach rather than a component of course curricula. Moving forward, policymakers and educational leaders could consider what content-specific social-emotional learning practice looks like and how to support it at scale (PACE, Students with Growth Mindset Learn More in School).

Indicators

Contributing indicators

- Individuals have access to and are able to mobilize relationships that help them further their goals (Education-to-Workforce).
- Percentage of students or individuals reporting a high level of social capital on surveys such as the Social Capital Assessment + Learning for Equity (SCALE)
- Network Diversity, and Network Strength scales (Education-to-Workforce Framework).
- Percentage of students or individuals reporting a high level of social capital on surveys such as the Social Capital Assessment + Learning for Equity (SCALE) Social Capital, Network Diversity, and Network Strength scales. (Education-to-Workforce).
- The EW Framework recommends consulting guidance by the Christensen Institute that describes emerging practices for measuring students' social capital using a four-dimensional framework based on quantity of relationships, quality of relationships, structure of networks, and ability to mobilize relationships (Education-to-Workforce Framework).
- A student has strong developmental relationships, that is, close connections through which young people discover who they are, gain abilities to shape their own lives, and learn how to interact with and contribute to the world around them. A developmental relationship is distinct from more generalized notions of positive relationships in that it is defined by the combination of five interconnected elements: express care, challenge growth, provide support, share power, and expand possibilities (Search Institute, Social Capital Assessment).
- A student has access to the resources provided by developmental relationships. Resources can include things such as financial or material help, information, skill-building opportunities, guidance, and values and norms. The following social capital measure focuses on three types of resources: access to useful information, new connections, and skill-building opportunities (Search Institute, Social Capital Assessment).
- Students have a web or network of developmentally-rich relationships that can provide access to valuable resources. There are several indicators that have been used to understand the quality of an individual's social network, such as network structure, size, diversity, and strength (Search Institute, Social Capital Assessment).
- Students have people in their network who are from different cultures, racial and ethnic backgrounds, economic backgrounds, and have different skills (Search Institute, Social Capital Assessment).
- Students have people in their network they can go to for help, trust, and feel close to, as well as people who they feel less close to (i.e., weaker tie) but who may be influential in helping them access their goals or who may connect them to others (Search Institute, Social Capital Assessment).
- Catalysts to Mobilize Relationships and Resources: The degree to which an individual has different relationships that help build their self-awareness, confidence, relationships-building skills, and possible selves (Search Institute, Social Capital Assessment).
- Self-Initiated Social Capital: The degree to which an individual actively builds relationships and uses the relationships and the resources they have to reach their goals (Search Institute, Social Capital Assessment).

- Relationship-Building Skills: The degree to which an individual is able to build positive relationships with others (Search Institute, Social Capital Assessment).
- Networking Skills: The degree to which an individual purposefully uses relationships within their social network to reach their goals (Search Institute, Social Capital Assessment).
- Personal Identity: The degree to which an individual has a clear sense of their personal identity (Search Institute, Social Capital Assessment).
- Racial and Ethnic Identity: The degree to which an individual has a clear sense of their racial and ethnic background and what this identity means to them (Search Institute, Social Capital Assessment).
- Sense of Purpose: The degree to which an individual has a clear sense of their life's purpose (Search Institute, Social Capital Assessment).
- Self-Efficacy for Reaching Life Goals: The degree to which an individual feels they can successfully reach their life goals (Search Institute, Social Capital Assessment).
- Progress Towards Education or Career Goals: The degree to which an individual reports making progress towards their education or career goals (Leveraging Social Capital to Broaden Participation in STEM).
- Commitment to Paying It-Forward: The degree to which an individual engages in behaviors that demonstrate a commitment to paying-it-forward to others (Leveraging Social Capital to Broaden Participation in STEM).
- Collective Efficacy to Change Systems: The degree to which an individual feels that they can work with their program or organization to change employment and education systems (Leveraging Social Capital to Broaden Participation in STEM).
- Occupational Identity: The degree to which an individual has a clear sense of their occupational identity (Leveraging Social Capital to Broaden Participation in STEM).
- Job-Seeking Skills: The degree to which an individual engages in behaviors that may lead to securing employment (Leveraging Social Capital to Broaden Participation in STEM).

System indicators

- To measure concentration of social capital at a systems level, users could consider an index adapted from researchers Anil Rupasingha and Stephan Goetz. Their index includes: the number of all associations per 10,000 population, including religious organizations, civic and social associations, political organizations, professional organizations, labor organizations, bowling centers, physical fitness facilities, public golf courses, and sports clubs. The measure also includes commercial and nonprofit associations drawn from Census Bureau County Business Patterns data. It also includes the percentage of voters who participated in a presidential, state, or county election (Education-to-Workforce Framework).
- The county-level census response rate in the person's county (Education-to-Workforce Framework).
- The number of charitable, nonprofit organizations with an office in the county (Education-to-Workforce Framework).
- Cohesiveness: The degree to which a person's social networks are fragmented into cliques (Leveraging Social Capital to Broaden Participation in STEM).
- Economic connectedness: The degree to which low-income and high-income people are friends with each other. Studies have shown that children who grow up in communities with more economic connectedness (cross-class interaction) are much more likely to rise up out of poverty (Leveraging Social Capital to Broaden Participation in STEM).

- Civic engagement: Rates of volunteering and participation in community organizations (Leveraging Social Capital to Broaden Participation in STEM).
- Program Support for Social Capital Development: The degree to which an individual reports receiving forms of support as a result of participating in a program that is believed to promote social capital (e.g., skill building, increasing network size) (Leveraging Social Capital to Broaden Participation in STEM).
- Sense of Program/School Community: The degree to which an individual feels a sense of community within their program, school, or organization (Leveraging Social Capital to Broaden Participation in STEM).
- Psychological Safety: The degree to which an individual feels their program or organization provides a safe space for them to express who they are as an individual (Leveraging Social Capital to Broaden Participation in STEM).
- Volunteer Support: The degree to which an individual perceives that volunteers in their program or organization have provided them with social capital support (e.g., useful information, new connections) (Leveraging Social Capital to Broaden Participation in STEM).
- Seeking Volunteer Support: The degree to which an individual actively seeks social capital support from volunteers within their program or an organization (e.g., asks for information, guidance, and other forms of instrumental support) (Leveraging Social Capital to Broaden Participation in STEM).
- Seeking Teacher/Professor Support: The degree to which an individual actively seeks social capital support from teachers, professors, and other campus staff (e.g., asks for information, guidance, and other forms of instrumental support) (Leveraging Social Capital to Broaden Participation in STEM).

Practices and Policies

Practices

- Students' social capital in STEM education (derived from families, peers, teachers, and professional networks) demonstrably promotes their STEM educational outcomes and career paths. Inclusive STEM schools, mentoring, and after-school programs are some promising approaches that can enhance STEM social capital and outcomes of underrepresented students, particularly women, Blacks/Latine/Native Americans, youth with low socioeconomic status, and persons with disabilities (Leveraging Social Capital to Broaden Participation in STEM).
- In out-of-school settings, offering after-school or summer programs, such as robotics team or science summer camp, can foster peer networks and pair students with STEM mentors. These out-of-school time programs are practical social capital building strategies that can reach a large number of students across the country, especially in rural communities (Leveraging Social Capital to Broaden Participation in STEM).
- Schools and nonprofit organizations can help cultivate social capital among young people through educational and non-educational programming (Education-to-Workforce Framework).

Policies

- Interventions such as zoning and affordable housing policies aimed at integrating neighborhoods and college admissions reforms to boost diversity on campuses can increase cross-class interaction substantially and are likely to be very valuable (Opportunity Insights, Social Capital and Economic Mobility).
- Friending bias (i.e., the tendency for people to befriend people similar to them) can be influenced by policy changes as well. While more work needs to be done to identify what

types of interventions reduce friending bias, there are a number of programs being piloted around the country that warrant further study: efforts to reduce the size of groups in which students interact and limit the divisions created by tracking in schools, changes in architecture and urban planning to foster greater interaction, and the creation of new domains for interaction via programs that seek to break down class barriers. (Opportunity Insights, Social Capital and Economic Mobility).

- Providing relevant bridging social capital may make other programs that seek to increase economic mobility more effective. For example, recent programs that have had large impacts in helping families move to higher-opportunity neighborhoods or obtain higher-paying jobs provide bridging social capital and outperform traditional programs that focus solely on economic resources or skills. These results suggest that prioritizing the provision of adequate social support so people can take advantage of available economic resources may greatly amplify the impacts of existing programs to reduce intergenerational poverty (Opportunity Insights, Social Capital and Economic Mobility).
- Policy initiatives and programs aimed at enhancing opportunities for students to connect and engage with more interest-sharing peers and professionals in STEM fields could help them develop extended social networks that can support their educational and career pathways in STEM. ISTEMSs represent one of the latest comprehensive schoolwide reform models that offer opportunities for students, particularly underrepresented groups, to participate in a STEM-specialized learning environment with interest-sharing peers (Leveraging Social Capital to Broaden Participation in STEM).
- Policymakers and educators can develop and expand programs that promote STEM-oriented interactions among peers and parental involvement in STEM education both at home and at school. Creating and supporting STEM-focused clubs or study groups, in and out of school, is one approach (Leveraging Social Capital to Broaden Participation in STEM).
- Policymakers and educators can introduce STEM-related materials or activities to the existing well-established student organizations such as Girl Scout STEM Programs and Young Men's Christian Association (YMCA) STEM Programs (Leveraging Social Capital to Broaden Participation in STEM).
- To promote parental engagement in STEM, they must have expanded access to STEM learning resources and activities, especially for those parents without a college degree and those who are not working in STEM fields. Equally important is providing training and professional development in STEM for educators and social service providers, such as public librarians or museum staff, whose tasks involve engaging parents in their children's learning activities (Leveraging Social Capital to Broaden Participation in STEM).
- Policy initiatives can create and facilitate well-designed mentoring programs that pair students (in particular women, under-represented minorities, low-SES students, and people with disabilities) with STEM educators or professionals who are knowledgeable and passionate about supporting students' educational and career development. Training and supporting those STEM educators or professionals in providing mentorship can help them be effective mentors for their mentees. Also helpful is partnering schools with industry organizations to offer internships for students to shadow professionals in real-world STEM settings (Leveraging Social Capital to Broaden Participation in STEM).

Communication skills

Key source: E-W Framework

Indicators

Contributing indicators

- Individuals have the oral, written, nonverbal, and listening skills required for success in school and at work (Education-to-Workforce).
- Percentage of students demonstrating proficiency on assessments such as the following: The Collegiate Learning Assessment (CLA+) or Success Skills Assessment (SSA+) for postsecondary students that measure critical thinking, problem solving, and written communications; The HElghten Outcomes Assessment for Written Communication (Education-to-Workforce Framework).

System indicators

- Percentage of students demonstrating proficiency on assessments such as the College and Career Readiness Assessment (CCRA+), an assessment for grades 6–12 that measures critical thinking, problem solving, and written communications (Education-to-Workforce).

Higher-order thinking skills

Key source: E-W Framework

Indicators

Contributing indicators

- Individuals have the problem solving, critical thinking, and decision-making skills needed in the workplace. Higher-order thinking (also referred to as critical thinking, problem solving, or decision making) is consistently ranked as one of the most in-demand workforce readiness competencies by employers across industries (Education-to-Workforce).
- Percentage of students demonstrating proficiency on assessments such as the College and Career Readiness Assessment (CCRA+), an assessment for grades 6–12 that measures critical thinking, problem solving, and written communications (Education-to-Workforce).
- Remembering: Students recognize or recall knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information (Anderson and Krathwohl, Bloom's Taxonomy Revised).
- Understanding: Students construct meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying, summarizing, inferring, comparing, or explaining (Anderson and Krathwohl, Bloom's Taxonomy Revised).
- Applying: Students carry out or use a procedure through executing or implementing. Applying relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations (Anderson and Krathwohl, Bloom's Taxonomy Revised).
- Analyzing: Students break materials or concepts into parts, determine how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included in this function are differentiating, organizing, and attributing, as well as being able to distinguish between the components or parts. When one is analyzing, he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or

diagrams, or graphic representations (Anderson and Krathwohl, Bloom's Taxonomy Revised).

- Evaluating: Students make judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy, evaluating comes before creating as it is often a necessary part of the precursory behavior before one creates something (Anderson and Krathwohl, Bloom's Taxonomy Revised).
- Creating: Students put elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires students to put parts together in a new way, or synthesize parts into something new and different creating a new form or product. This process is the most difficult mental function in the new taxonomy (Anderson and Krathwohl, Bloom's Taxonomy Revised).

Practices and Policies

Practices

- Teachers use a variety of question types to gauge students' understanding. When gauging students' learning in math class, it's essential to ask a variety of questions that encourage critical thinking, communication, and reflection. Open-ended questions can help you understand students' thought processes and identify areas where they may need additional support. Probing questions can uncover students' thought patterns and help you diagnose misconceptions. Higher-order thinking questions can assess students' ability to apply mathematical concepts to real-life scenarios and make connections to broader mathematical ideas. Self-reflection questions can help students identify their own strengths and weaknesses and develop a growth mindset. Modeling and visualizing questions can encourage students to think creatively and develop their spatial reasoning skills. Finally, discussion and connection questions can foster a sense of community and help students see the relevance of math to their everyday lives. By mixing up the types of questions you ask, you can get a more comprehensive picture of your students' understanding and provide targeted support to help them deepen their learning (National Council of Teachers of Mathematics).

Bibliography

A. Key frameworks and research

Organization	Publication	Description	Source
Advance equity CTE	Achieving Inclusive CTE: Companion Manual	Presents an Excel-based tool and companion manual to help CTE leaders set data-informed goals for underrepresented learners.	Link
Alliance for Early Success	Birth Through Eight State Policy Framework	Lays out core values and policy guidance for state early childhood systems from birth to age eight.	Link
Alliance for Excellent Education (All4Ed)	Opening Doors: Ensuring Access to Advanced Coursework in high schools	Examines disparities in access to advanced-level courses (like AP, IB) and offers school/district-level policy recommendations.	Link
Alliance for Excellent Education (All4Ed)	Paper Thin? Why All high school Diplomas Are Not Created Equal	Uses state-by-state data to illustrate how diploma credentials vary in rigor and often underprepare underserved students.	Link
American Association of Colleges and Universities (AAC&U)	High-Impact Practices	Defines and describes high-impact educational practices (HIPs) — like first-year seminars, writing-intensive courses, and undergraduate research — that enhance student engagement and outcomes.	Link
American Institutes for Research (AIR)	Serving English Language Learners in Higher Education: Unlocking The Potential	Profiles diverse ELL students in higher education and outlines strategies to improve access, support, and success.	Link

Organization	Publication	Description	Source
Angela Hanks, Annie McGrew, Daniella Zessoules	The Apprenticeship Wage and Participation Gap	Highlights a stark gender and racial wage gap in registered apprenticeships, with women earning just 42¢ for every dollar men earn.	Link
Annie E. Casey Foundation	Early Warning! Why Reading by the End of Third Grade Matters (2010 full report)	Highlights that failing to read proficiently by third grade is strongly linked to higher dropout rates and long-term socioeconomic disadvantages.	Link
Brown's Promise (Squarespace)	Fulfilling Brown's Promise: A State Policy Agenda	Presents state-level policy strategies to advance equitable resources, integration, and support in schools.	Link
Carrie E. Miller, Meredith Phillips	Leaks in the College Access Pipeline: Examining Summer Melt in a Large Urban School District	Analyzes summer melt in a large urban district, shedding light on students who intend to enroll in college but fall off during the transition.	Link
Center for Postsecondary and Economic Success at CLASP	A Framework for Measuring Career Pathways Innovation: A Working Paper	Defines a shared framework and performance metrics for high-quality career pathway systems to guide continuous improvement and accountability.	Link
Center for Research on College-Workforce Transitions (CCWT)	National Survey of College Internships (NSCI) 2021 Report	Reports on the prevalence, quality, demographics, and barriers of college internships across 17 campuses.	Link
Christine Mokher	Aligning Career and Technical Education with High-wage and High-demand Occupations in Tennessee	Examines how high school CTE program completions in Tennessee align with regional high-wage, high-demand occupations.	Link
Civic Enterprises (Bridgeland, Dilulio & Morison)	The Silent Epidemic: Perspectives of high school Dropouts	Most dropouts believe they could have succeeded academically, highlighting preventable factors behind high school departure.	Link
Civic Enterprises Everyone Graduates Center at the School of Education at Johns Hopkins University	Building a Grad Nation: Progress and Challenge in Raising high school Graduation Rates	Reports on U.S. high school graduation rates, highlighting progress, persistent attainment gaps, and state policy trends.	Link

Organization	Publication	Description	Source
Civil Rights Data Collection Office for Civil Rights U.S. Department of Education	Data on Equal Access to Education	A nationwide biennial data collection capturing rich detail on K–12 equity indicators - enrollment, disciplinary practices, course access, school climate, among other civil rights metrics.	Link
Colin Powell	Powering Industry Growth Through Workforce Investment	Discusses federal policies strengthening workforce development in STEM and manufacturing sectors post-Infrastructure and CHIPS Acts.	Link
College Board	2013 SAT Report on College & Career Readiness	Reveals that only 43% of SAT takers in 2013 met college readiness benchmarks, underscoring the need for improved preparation.	Link
College Board	Broadening Access to Advanced Placement: A Toolkit for Educators and School Leaders Created by AP Teachers	Highlights strategies and toolkits for expanding equitable access to Advanced Placement courses and exams.	Link
Colorado Workforce Development Council	2024 Colorado Talent Pipeline Report	This report offers a comprehensive analysis of Colorado's talent landscape, examining the current and projected demand and supply of skilled workers. It serves as a strategic tool to guide legislation, program development, and cross-sector collaboration. Key sections include economic trends, workforce development strategies, and policy recommendations, supported by detailed appendices.	Link
Consortium On Chicago School Research At The University Of Chicago	From high school to the Future: Potholes on the Road to College	Highlights challenges Chicago Public School students face in the college search/application process, despite aspirations.	Link
Education Strategy Group	From Tails to Heads: Building Momentum for Postsecondary Success	Introduces "momentum metrics" — predictive indicators states and communities should use to improve postsecondary transitions.	Link
Education Strategy Group	Rethinking high school Graduation Requirements (Oct 2024)	Offers recommendations for modernizing diploma requirements to better prepare students for postsecondary success.	Link

Organization	Publication	Description	Source
Education Strategy Group	Credential Currency: How States Can Identify and Promote Credentials of Value (Executive Summary, Sep 2018)	Outlines state-level strategies to identify high-value industry-recognized credentials, incentivize their attainment, and build data systems to track equitable credential attainment.	Link
Education Strategy Group, Advance CTE, Council of Chief State School Officers	Credential Currency: How States Can Identify and Promote Credentials of Value	Guides policymakers on defining, evaluating, and promoting industry-recognized credentials that lead to strong career and educational outcomes.	Link
Education-to-Workforce Indicator Framework	Indicator: Industry-Recognized Credential	Defines industry-recognized credentials as third-party, exam-based certifications supplemental to traditional higher education.	Link
Education-to-Workforce Indicator Framework	Indicator: Neighborhood Juvenile Arrests	Discusses how juvenile arrest rates negatively influence educational outcomes including an increased likelihood of high school dropout .	Link
Education-to-Workforce Indicator Framework	Education-to-Workforce Website	Offers a comprehensive framework of 99 indicators and resources designed to help organizations track educational progress from early education through workforce entry.	Link
Elizabeth Ganga & Amy Mazzariello	Modernizing College Course Placement by Using Multiple Measures	Reviews evidence supporting placement systems that include high school transcripts, course grades, and other data — rather than test scores alone — to improve placement accuracy.	Link
Grade-Level Reading Network	Toward Bigger Outcomes	Reports strategies and progress in advancing early literacy, school readiness, and summer learning to achieve stronger long-term educational gains.	Link
Guan K. Saw	Leveraging Social Capital to Broaden Participation in STEM	Explores how social capital enhances STEM engagement and outcomes across large-scale projects.	Link
Head Start	Trauma and Adverse Childhood Experiences	Summarizes how childhood trauma and ACEs impact development and stress responses in young children.	Link

Organization	Publication	Description	Source
Healthy Minds Network	The Healthy Minds Study	Presents national survey data on mental health, stigma, and support services among faculty/staff in postsecondary institutions.	Link
Heather Hough, Julie Marsh & Susan McKibben	Enacting Social-Emotional Learning: Lessons from "Outlier Schools" in California's CORE Districts	Highlights a diverse range of effective SEL practices in 10 California middle schools and shares implementation lessons for wider adoption.	Link
Institute for Higher Education Policy	Toward Convergence: A Technical Guide for the Postsecondary Metrics Framework	Advocates for integrating higher education, student success, and workforce data systems as strategic investments.	Link
Instruction Partners	Essential Practices in Early Literacy	Defines five core practices and provides a playbook to guide K-2 literacy instruction improvement.	Link
Jacob Stenstrom	State Investment in Workforce Development on the Rise	States committed $1.76 billion in FY 2020 to workforce development, more than doubling 2011 levels.	Link
Jobs For the Future	Promising Credentials: Aligning Dual Enrollment with Health Care Labor Market Needs	Evaluates a Rockford HS initiative offering industry-aligned credentials to enhance student postsecondary readiness.	Link
Jobs For the Future	Unveiling Disparities Racial, Ethnic, and Gender Gaps in Student Financial Insecurity and Proposed Solutions	Analyzes financial insecurity among students and its impact on educational persistence and success.	Link
Jobs for the Future (JFF)	Policy Blueprint to Modernize & Expand Apprenticeship Nationwide	Recommends a federal policy framework to scale apprenticeships and align training with modern workforce needs.	Link
Jobs for the Future (JFF)	Center for Apprenticeship & Work-Based Learning	Explores the role of apprenticeship and work-based opportunities in modernizing workforce development and supporting equitable transitions to career.	Link

Organization	Publication	Description	Source
Johns Hopkins University Press	The Role of Peer Relationships in Adjustment to College	This paper shows that maintaining close ties with high school friends helps students transition to college, while forming new peer bonds later boosts adjustment.	Link
Jon Alfuth	Four Key Insights into Competency-based Graduation Requirements	Highlights how competency-based education empowers students to progress based on demonstrated skills rather than seat time.	Link
Kimberly A. Griffin	Redoubling Our Efforts: How Institutions Can Affect Faculty Diversity	Discusses institutional strategies to enhance faculty diversity across campuses.	Link
KIPP	College Match Strategies Framework	Presents a framework of enabling conditions and tools for counselors to align students with well-matched colleges.	Link
KIPP Public Schools	Supporting Students to Find Their Match: A Playbook for College & Career Match.	Provides a data-driven, student-centered counseling model advising students to apply to at least nine diverse colleges to reduce undermatching.	Link
Laura Jimenez, Scott Sargrad	Are high school Diplomas Really a Ticket to College and Work?	A 50-state audit reveals widespread misalignment between graduation requirements and college eligibility standards.	Link
Leslie Owen Wilson	Anderson and Krathwohl Bloom's Taxonomy Revised Understanding the New Version of Bloom's Taxonomy	Details the revision of Bloom's cognitive taxonomy, evolving from nouns to verbs and updating hierarchical structure .	Link
Massachusetts Business Alliance for Education	Industry-Recognized Credentials: National Best Practices and Applications to Massachusetts	Reviews IRC programs' impact, showing higher GPAs, graduation, and postsecondary enrollment among participants.	Link
Mathematica	A Research Evidence Scan of Key Strategies Related to WIOA	Reviews evidence on strategies like case management in WIOA programs, identifying positive impacts and research gaps.	Link

Organization	Publication	Description	Source
Mathematica Policy Research	An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States	Evaluates apprentice outcomes using UI wage data, including detailed pre- and post-program earnings analyses.	Link
Mathematica, Bill & Melinda Gates Foundation, Mirror Group	Education-to-Workforce Indicator Framework	Updates the indicator framework with evidence-based metrics and action to address disparities across priority groups.	Link
National Center for Education Statistics	Career and Technical Education (CTE) Statistics	Describes the National Center for Education Statistics' ongoing CTE surveys that track vocational education offerings and outcomes,	Link
National Center for Education Statistics	Trends in Undergraduate Nonfederal Grant and Scholarship Aid by Demographic and Enrollment Characteristics: Selected Years, 2003–04 to 2015–16	Reports on demographic patterns in undergraduate nonfederal grants and scholarships from 1999–2000 to 2011–12.	Link
National College Attainment Network (NCAN)	Common Measures for Success	Details a research-based set of metrics for assessing outcomes in college access and success programs.	Link
National College Attainment Network (NCAN)	Building Momentum at the State Level	Shares how NCAN supports state policymakers in advancing college attainment efforts through research, policy engagement, and collaboration.	Link
National College Attainment Network (NCAN)	Summer Melt Resources	Toolkit from NCAN defining "summer melt" and offering multi-year strategies and tools to support college-bound students.	Link
National Dropout Prevention Center	15 Effective Strategies for Dropout Prevention	Identifies 15 research-backed approaches — such as family engagement and safe learning environments — to reduce dropout rates.	Link

Organization	Publication	Description	Source
National Education Association	GPS Indicators Framework	Lays out criteria and metrics across seven areas to assess and improve states' and districts' support for great public schools.	Link
Nicholas Tucker Reyes and Julia Raufman	Bringing Equity Into College Placement Reforms	Centers equity by affirming students' identities as integral to meaningful placement reform.	Link
Nick David, Yasuko Kanno	ESL Programs at U.S. Community Colleges: A Multistate Analysis of Placement Tests, Course Offerings, and Course Content	Investigates ESL placement, course sequences, and offerings across U.S. community colleges.	Link
Office of Career, Technical, and Adult Education	Perkins V	Describes the 2018 reauthorization of Perkins V, which provides $1.4 billion annually to support CTE programs, career pathways, and accountability measures.	Link
Policy Analysis for California Education CORE-PACE Research Partnership	Students with Growth Mindset Learn More in School	Shows that students with growth mindsets learn significantly more - equivalent to 35–48 extra days of learning in California CORE districts.	Link
Prenatal-to-3 Policy Impact Center	Perinatal Telehealth Services	Provides policy insights to scale telehealth services for perinatal care, enhancing maternal and infant health equity.	Link
REL Appalachia	Assessing the Alignment between West Virginia's high school Career and Technical Education Programs and the Labor Market	A quantitative study showing many WV high school career & technical education programs are misaligned with regional labor demand.	Link
Results for America	Maintaining Safe and Healthy Housing	Highlights "safe, healthy housing" as a key strategy for equitable workforce and community outcomes.	Link
Roby Chatterji, Neil Campbell, Abby Quirk	Closing Advanced Coursework Equity Gaps for All Students	Analyzes disparities in AP access and success for BIPOC students and highlights state/district strategies for boosting equity.	Link

Organization	Publication	Description	Source
Samuel D. Museus	Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students	Highlights the importance of culturally engaging, humanized advising to improve equity for students of color.	Link
Samuel D. Museus & Joanna N. Ravello	Characteristics of Academic Advising That Contribute to Racial and Ethnic Minority Student Success at Predominantly White Institutions	Finds that only 53% of students in WV CTE programs aligned locally with high-demand occupations, despite 93% of such occupations being regionally served.	Link
Search Institute	Social Capital Assessment + Learning for Equity (SCALE) Measures User Guide	Offers validated social capital scales for practitioners to assess and strengthen youth relationships supporting equity.	Link
Smith, Jonathan	Can Applying to More Colleges Increase Enrollment Rates? Research Brief	Shows that applying to more colleges causally increases four-year college enrollment, particularly for lower-income students.	Link
Strada Education Network & Gallup	Strada-Gallup 2017 College Student Survey	Over 32,000 college students reported a "crisis of confidence" in their readiness to enter the workforce.	Link
StriveTogether	A Guide to Racial and Ethnic Equity Systems Indicators	Recommends key cradle-to-career indicators for tracking racial and ethnic equity within education and related systems.	Link
Student Leadership Network	College Access & Success	Highlights how placing full-time college counselors in high-need schools doubles four-year college graduation rates among CBI students.	Link
The Annie E. Casey Foundation	The KIDS COUNT Data Center	An online platform offering a wide range of regional, state, and national data on child and family well-being to inform policy and advocacy.	Link
The University of Chicago Consortium on Chicago School Research	Looking Forward to high school and College Middle Grade Indicators of Readiness in Chicago Public Schools	Offers state-level guidance on tools for curriculum alignment, career advising, and job-skills gap analysis.	Link

Organization	Publication	Description	Source
TNTP	Competency-Aligned Educator Interview Questions and Activities	Provides definitions, sample indicators, interview questions, and selection activities aligned to core competencies.	Link
U.S. Department of Education (Federal Student Aid)	The Better FAFSA: What high school Educators and College Access Counselors Need to Know	Offers resources, outreach tools, and training materials to help counselors guide students through FAFSA completion.	Link
U.S. Department of Education, Office of Career, Technical, and Adult Education	Collecting and Analyzing Data for the Secondary Program Quality Indicators in the Carl D. Perkins Career and Technical Education Act of 2006	Details quality indicators for career and technical education programs under the Perkins V reauthorization, including enrollment, credentialing, and postsecondary outcomes.	Link
University of Chicago Press	Targeting Investments in Children: Fighting Poverty When Resources are Limited	Reviews literature on dropout prevention and college prep programs as vehicles for reducing poverty.	Link
Urban Institute	Robust and Equitable Measures to Identify Quality Schools (REMIQS)	Presents an equity-centered logic model featuring measures to identify and compare school quality across contexts.	Link
Urban Institute	Boosting Upward Mobility: Metrics to Inform Local Action (Second Edition)	Provides updated community-level metrics to assess economic mobility, set policy targets, and track progress over time.	Link
Urban Institute	Promise Neighborhoods	Describes a federal place-based initiative aimed at transforming high-poverty neighborhoods into cradle-to-career opportunity zones through integrated supports.	Link
Urban Institute	Public Sector Apprenticeship: Improving Work for Governments and Residents	Explains how public-sector apprenticeship programs provide career pathways for residents while enhancing government service quality.	Link
Urban Institute (Upward Mobility Initiative)	Upward Mobility Initiative	Showcases Urban's efforts, tools, and case studies supporting data-informed cross-sector community work to improve upward economic mobility.	Link

Organization	Publication	Description	Source
Urban Institute's Workforce Initiative	Guide to Learning About Local Workforce Systems	Offers national data, research, and policy analysis on workforce trends and economic mobility.	Link
US Department of Labor – Employment and Training Administration	Six Key Elements of Career Pathways: Career Pathways Initiative	Outlines six essential components — such as industry engagement, curriculum alignment, and support services — for designing effective career pathways.	Link
What Works Clearinghouse	Helping Students Navigate the Path to College: What high schools Can Do	Provides evidence-based recommendations to community colleges for developing structured career pathway programs.	Link
What Works Clearinghouse	Designing and Delivering Career Pathways at Community Colleges	Summarizes practical guidance on implementing career pathway programs based on evidence.	Link
What Works Clearinghouse	Strategies for Postsecondary Students in Developmental Education Practice Guide Summary	Offers six evidence-based recommendations for supporting academically underprepared college students.	Link

B. Background research

Organization	Publication	Description	Source
ACT	ACT Learning Resources	Offers tools, practice tests, and educator guides to help students prepare for college and career readiness.	Link
ACT Research and Policy	What Are the ACT College Readiness Benchmarks?	Describes the minimum ACT scores in core subjects that correlate with a 50% chance of achieving a B or better in corresponding college course.	Link

Organization	Publication	Description	Source
Advance CTE	Without Limits: A Shared Vision for the Future of Career Technical Education Promotional Toolkit- Partners	Toolkit empowering partners to promote a shared vision of inclusive, responsive Career Technical Education (CTE).	Link
Agency for Healthcare Research and Quality	Medical Expenditure Panel Survey (MEPS)	The only national survey measuring U.S. health care usage, expenditures, insurance coverage, and out-of-pocket costs via detailed components: household, provider, and employer.	Link
All4Ed (Alliance for Excellent Education)	The Graduation Effect	Highlights that raising high school graduation rates boosts job creation, earnings, and national economic growth.	Link
Alliance for Excellent Education (All4Ed)	Paper Thin? Why All high school Diplomas Are Not Created Equal	A state-by-state analysis of Class of 2014 diplomas shows that fewer than half are truly college- and career-ready (CCR), especially impacting traditionally underserved students, and highlights how only states that set CCR diplomas as default (e.g., Texas, Arkansas, Indiana) close equity gaps.	Link
Allison Bruhn, Sara Mcdaniel, and Christi Kreigh	Self-Monitoring Interventions for Students with Behavior Problems: A Systematic Review of Current Research	Systematic review shows self-monitoring techniques improve behavior and academic engagement for students with behavioral disorders.	Link
American Institutes for Research	College and Career Readiness and Success Center	Research initiatives analyzing readiness, placement, and alignment between K-12, postsecondary education, and workforce.	Link
American Institutes for Research	Delta Cost Project	Tracks postsecondary instructional and administrative spending trends to support transparent analysis.	Link

Organization	Publication	Description	Source
American Institutes for Research	Early College, Early Success: Early College high school Initiative Impact Study	Evaluation report showing ECHSI participants are more likely to earn associate degrees and transfer to four-year institutions.	Link
American School Counselor Association (ASCA)	Homepage	ASCA provides professional resources, ethical standards, and best practices for school counselors nationwide.	Link
Amy K Syvertsen, Laura Wray-Lake, Aaron Metzger	Youth Civic and Character Measures Toolkit	A practical toolkit offering validated instruments to assess youth civic attitudes, knowledge, and character development.	Link
Anastasia Goodwin, Claire Partain	More HISD Students Are Passing AP Exams Than Ever Before. What's Changed?	HISD has seen a ~10% increase in AP pass rates and expanded advanced-course access, though significant equity and performance gaps persist.	Link
Andrew Fenelon, Michel Boudreaux, Natalie Slopen, Sandra J Newman	The Benefits of Rental Assistance for Children's Health and School Attendance in the United States	Shows federal rental assistance reduces school absenteeism due to illness, especially among adolescents and non-Hispanic White/Hispanic children.	Link
Angela Hanks, David Madland	Better Training and Better Jobs	Argues that high-quality workforce training increases productivity and workers' access to good jobs, while current systems fall short.	Link
Anil Rupasingha, Stephan J. Goetz	Social and Political Forces as Determinants of Poverty: A Spatial Analysis	Analyzes multiple economic, social, political, demographic, and spatial factors to explain disparities in poverty rates across the U.S.	Link
Ann Huff Stevens	What Works in Career and Technical Education (CTE)? A Review of Evidence and Suggested Policy Directions	Reviews evidence that high-quality CTE improves employment and earnings but identifies expansion challenges.	Link
Anna Aizer & Joseph J. Doyle, Jr.	Juvenile Incarceration, Human Capital and Future Crime: Evidence from Randomly-Assigned Judges	Finds that juvenile incarceration significantly reduces high school completion and increases adult incarceration rates, using a random–judge study design.	Link

Organization	Publication	Description	Source
Anna Farr, Cary Lou, Hannah Sumiko Daly	How Do Children and Society Benefit from Public Investments in Children?	Reviews evidence on societal benefits of public investment in children, exploring outcomes and returns.	Link
Anna J. Egalite	What We Know About Teacher Race and Student Outcomes	Reviews multiple studies showing that same-race teachers often positively impact academic performance and reduce disciplinary actions.	Link
Annenberg Institute for School Reform	College Readiness Indicator Systems: Building Effective Supports for Students	Introduces the concept of "leading indicators" to support struggling students before test results arrive.	Link
Anthony P. Carnevale, Jeff Strohl, Kathryn Peltier Campbell, Artem Gulish, Ban Cheah, Emma Nyhof, and Lillian Fix	Learning and Earning by Degrees: Gains in College Degree Attainment Have Enriched the Nation and Every State, but Racial and Gender Inequality Persists	A comprehensive analysis of degree attainment trends across demographics and regions, detailing postsecondary attainment gaps.	Link
Apprenticeship USA	Career Seeker	Provides information and tools for individuals to discover and enter registered apprenticeship programs.	Link
Apprenticeship USA	Explore Apprenticeship	Helps employers understand how apprenticeship programs can meet their workforce needs.	Link
Apprenticeship USA	Registered Apprenticeship Program	Details how employers can create and manage registered apprenticeship programs.	Link
Apprenticeship USA	Investing in Talent Development: Benefits to Employers of Registered Apprenticeships from the American Apprenticeship Initiative	Offers a visual data overview of employer participation in apprenticeship programs.	Link

Organization	Publication	Description	Source
Arizona Commerce Authority	Arizona's Opportunity for Business	Provides employers grants to deliver on-the-job training for unemployed Arizona job seekers.	Link
Attendance Works	Expanded Metrics for Monitoring Attendance and Engagement	Recommends tracking metrics like attendance, connectivity, relationships, and prior chronic absence to support remote learners.	Link
Ben Castleman	Why Aren't Text Message Interventions Designed to Boost College Success Working at Scale?	Explains that while early trials showed promise, large-scale SMS campaigns have not reliably increased college enrollment or persistence.	Link
Benjamin L. Castleman, Lindsay C.	Summer Nudging: Can Personalized Text Messages and Peer Mentor Outreach Increase College Going Among Low-income high school Graduates?	A randomized trial found that summer text messages and peer mentor outreach significantly increased college enrollment among low-income high school grads.	Link
Bill DeBaun	Survey Data Strengthen Association Between FAFSA Completion and Enrollment	Shows that increased FAFSA completion narrows the socioeconomic postsecondary enrollment gap by ~34 percentage points.	Link
Bloomberg Philanthropies	CollegePoint	A community-driven program improving college access and success using mentorship and data tools.	Link
Bottom Line	About Bottom Line	A nonprofit offering multi-year advising and support to first-generation, low-income students from high school through college and career.	Link
Brookings Institution	Policies That Reduce Intergenerational Poverty	Proposes evidence-informed solutions — like EITC, SNAP, community investment, and family planning — to break poverty cycles.	Link
California Cradle-to-Career Data System	Cradle-to-Career Data Point Definitions	Defines longitudinal metrics — like college application and completion status — for California's cradle-to-career data system.	Link

Organization	Publication	Description	Source
California Dept. of Education	California Transformative SEL Competencies	Details a framework of knowledge, skills, dispositions, and capacities that foster whole-child development via transformative social-emotional learning.	Link
California Firefighter Joint Apprenticeship	Homepage	Facilitates firefighter pre-apprenticeship training — over one million hours annually — with EMT/Paramedic certification and outreach to underrepresented communities.	Link
Caroline Hoxby & Sarah Turner	Expanding College Opportunities for High-Achieving, Low-Income Students	Shows that informational interventions and fee waivers significantly increase selective college application and enrollment among high-achieving, low-income students.	Link
Caroline Hoxby and Christopher Avery	The Missing "One-Offs": The Hidden Supply of High-Achieving,Low-Income Students	Reveals that most high-achieving students from low-income backgrounds do not apply to selective colleges — despite being just as qualified and likely to succeed as their wealthier peers — primarily due to informational, geographic, and social constraints..	Link
Carrie E. Miller, Meredith Phillips, and Caitlin E. Ahearn	Leaks in the College Access Pipeline: Examining Summer Melt in a Large Urban School District	Reports on the prevalence of "summer melt" among high school graduates in urban districts and explores potential mitigation strategies.	Link
CASEL	Homepage	Presents the "CASEL wheel" framework for advancing equitable social-emotional learning (SEL) across educational settings.	Link
CCSSO	Birth to Grade 3 Indicator Framework	Toolkit to integrate early childhood in ESSA plans	Link
CDC – National Center for Health Statistics	National Health Interview Survey	The country's oldest continuous health survey, NHIS collects critical data on population health, insurance, and disparities.	Link

Organization	Publication	Description	Source
Center for Energy Workforce Development (CEWD)	Recruiting and Retaining Women in Non-Traditional Positions	Offers guidance and tools to help energy-sector employers efficiently recruit, train, and retain qualified hourly workers.	Link
Center for Higher Education Policy Analysis, University of Southern California	The Impact of Peers on College Preparation: A Review of the Literature	Reviews how peer networks shape college-going behavior and suggests interventions using cohorts, shared identity, and structured programming.	Link
Center for Postsecondary and Economic Success at CLASP	The Alliance for Quality Career Pathways Approach: Developing Criteria and Metrics for Quality Career Pathways	Presents a framework defining high-quality career pathway systems and shared performance metrics to support educational and workforce alignment.	Link
CEW (Georgetown University Center on Education and the Workforce)	America's Divided Recovery: College Haves and Have-Nots	Reveals that 99%+ of jobs created in the post-Great Recession recovery went to workers with postsecondary education, deepening the divide between college-educated and less-educated workers.	Link
Chelsea Thomson	New Workforce Development Programs Reflect Importance and Need for Training and Talent Development (Aug 2020)	Describes state-led workforce initiatives promoting reskilling, upskilling, and targeted training to help marginalized groups re-enter the labor market.	Link
Chicago Public Schools	Chicago Public Schools Announces 97.5 % of Seniors Submitted Concrete Post-secondary Plan as Part of Learn.Plan.Succeed.	Announces that 97.5% of CPS seniors met the Learn.Plan.Succeed. requirement by submitting a concrete postsecondary plan for graduation.	Link
Christensen Institute	The Missing Metrics: Emerging Practices for Measuring Students' Relationships and Networks (ED607287)	Presents a research-grounded framework for schools to intentionally develop and assess students' social capital.	Link

Organization	Publication	Description	Source
Civic Enterprises Everyone Graduates Center at the School of Education at Johns Hopkins University	Closing the College Gap: A Roadmap to Postsecondary Readiness and Attainment	Offers a 48-page framework identifying key strategies states and districts can use to increase college access and close attainment gaps.	Link
Clive Belfield & Peter M. Crosta	Predicting Success in College: The Importance of Placement Tests and high school Transcripts	Finds that placement test scores and transcripts are weak predictors of community college performance.	Link
College Advising Corps	Homepage	Connects trained college advisers to partner high schools to support underrepresented students through the entire college-going process.	Link
College Board Advocacy & Policy Center	Measuring the Impact of high school Counselors on College Enrollment	Finds that adding one high school counselor is linked to a 10 percentage-point increase in four-year college enrollment.	Link
College in high school Alliance	Equity Goal & Public Reporting	Urges states to set equity goals and public reporting mechanisms to bridge access and attainment gaps in college-in-high-school programs.	Link
Colorado CDPHE	School-Based Health Center (SBHC) Program	Grants support school-based health services for uninsured/underinsured children and youth, with Colorado first SBHC established in 1978.	Link
Colorado Department of Higher Education	Postsecondary Degree & Earnings Outcomes Tools	An interactive set of tools (2002–2018 data) for analyzing degree completions, post-college earnings, and living-wage attainment by institution and program.	Link
Colorado Department of Education	Secondary, Postsecondary and Work-based Learning Integration Task Force Report	Recommends system improvements — shared data, clearer metrics, equitable access — to streamline career-and-college readiness programs in Colorado.	Link

Organization	Publication	Description	Source
Colorado Department of Education	Concurrent Enrollment	Provides Colorado high school students with tuition-free college courses that transfer across all public institutions — 46k students participated (~1/3 of juniors/seniors), boosting college enrollment from 52% to 77% and persistence from 77% to 82%	Link
Colorado Department of Education & Legislature	Career Development Incentive Program	Incentivizes schools with up to $1,000 per student for career credential attainment via "Career Development Success" funds, supporting local accountability and workforce readiness.	Link
Colorado Education Initiative and Colorado Succeeds	Pathways to College and Career: Advancing Colorado's Homegrown Talent Coalition to Lead and Sustain Complex Change	Lays out strategic priorities and a partnership model for establishing coherent K–12 to career pathways statewide, with a list of contributors as of April 2025.	Link
Colorado General Assembly	HB 24-1365 – Opportunity Now Grants & Tax Credit	Creates grants and tax credits to support regional talent development initiatives and workforce training in Colorado.	Link
Colorado Office of New Americans	Homepage	The site highlights programs and resources from Colorado's Office of New Americans aimed at integrating immigrant and refugee communities into state systems.	Link
Colorado Workforce Development Council	Reskilling, Upskilling, and Next-skilling Workers	Describes COVID-era funding strategies to support workforce development via reskilling and upskilling programs in Colorado.	Link
Colorado Workforce Development Council	Work-Based Learning	Outlines Colorado strategies to integrate work-based learning opportunities into education-to-career pathways.	Link
Communities In Schools	Communities In Schools Home Page	Details their national model bringing caring adults into schools to provide integrated support services and prevent dropouts.	Link

Organization	Publication	Description	Source
CONGRESS OF THE UNITED STATES CONGRESSIONAL BUDGET OFFICE	The Federal Pell Grant Program: Recent Growth and Policy Options	Reviews Pell Grant expansion from 2006 to 2012 and outlines policy levers to improve affordability for low-income students.	Link
Corporation for Public Broadcasting (CPB)	American Graduate	National initiative aiming to reduce dropout rates and increase high school completion through community-driven solutions.	Link
Council for Aid to Education (CAE)	Empower Students for Future Success by Building Higher-Order Skills Today	Offers assessment tools and instructional resources to measure, teach, and monitor critical higher-order cognitive skills in K–12 and higher education.	Link
Cumpton, Greg, Deanna Schexnayder and Christopher T. King	Factors Associated with Education and Work after high school for the Classes of 2008 and 2009	Research partnership documenting Central Texas high school students' pathways into college and career via longitudinal data analysis.	Link
Cuyamaca College	Equity-Minded Teaching & Learning Institute (EMTLI)	Offers a professional development institute focused on inclusive, equity-oriented pedagogical practices.	Link
D. W. Rajecki and Joan B. Lauer	Improved Advising Ratings in an Undergraduate Psychology Program	A 2007 study revealing that implementing advising interventions significantly improved student satisfaction in an undergrad psychology program.	Link
Davey Alba	The Nonprofit That's Giving Underprivileged Kids Jobs in Tech Companies	Features Genesys Works, a nonprofit providing high school students in underserved communities paid internships, career training, and support to launch professional careers.	Link
David A. Bergin, Helen C. Cooks, Christi Bergin	Effects of a college access program for youth underrepresented in higher education: A randomized experiment	Analysis shows that high- and low-achieving students maintain their academic status post-intervention.	Link

Organization	Publication	Description	Source
DeNavas-Walt, Carmen, Bernadette D.Proctor, and Jessica C. Smith, U.S. Census Bureau	Income, Poverty, and Health Insurance Coverage in the United States: 2009 (Report P60-238)	Offers detailed analysis of U.S. household income, poverty levels, and health insurance coverage based on the 2010 CPS ASEC survey.	Link
DHS Science & Technology	SMART Cities Archives	Details S&T activities around integrating smart technology into urban infrastructure under DHS purview.	Link
DJ Windsor, Richard Reeves	HBCUs at a Crossroads: Addressing the Decline in Black Male Enrollment	Reports that Black male enrollment at HBCUs has fallen to just 26%, down from 38% in 1976, raising concerns about support and representation.	Link
Dr. Irene M. Sanchez	Schools Can Stop Summer Melt: Lessons Learned from the Wisconsin Text Steps Project	This brief considers the experiences of district- and school-level practitioners in planning and implementing a summer melt intervention. Their perspectives are specific to the Text Steps project, but there are broader lessons for other practitioners about advisable approaches and avoidable pitfalls while pursuing similar efforts elsewhere.	Link
Economic Mobility Systems	Economic Mobility Systems	Provides tech-driven platforms that support equitable college readiness, workforce alignment, and improved socioeconomic outcomes.	Link
EdRedesign Lab (Harvard GSE)	EdRedesign Lab (Website)	A Harvard-based initiative catalyzing cradle-to-career place-based partnerships to build cross-sector systems of personalized youth support.	Link
EdRedesign Lab, Harvard, Institute for Success Planning	Success Planning Community of Practice Summer Workshop	Promotes “Success Planning,” a navigator-led, personalized support model ensuring every child is known and connected to services.	Link

Organization	Publication	Description	Source
Education Commission of the States	Main Website	The website for the Education Commission of the States (ECS) offers nonpartisan research, data tracking tools, policy analysis, and state-by-state comparisons on K-12 through postsecondary education issues — covering topics like funding, early learning, school choice, and workforce development.	Link
Education Commission of the States	Education and Workforce Development Connections 2021	Compares statewide policies linking education and workforce systems, highlighting best practices and policy innovation.	Link
Education Commission of the States (ECS)	50-State Comparison: high school Graduation Requirements (2023)	Offers a comprehensive comparison of state graduation policies — course requirements, assessments, endorsements, and flexibility.	Link
Education Next	Better School Counselors, Better Outcomes	Argues that the effectiveness of school counselors significantly affects student outcomes and that quality varies widely.	Link
Education Strategy Group	Aligning Advising Across K-12 and Postsecondary Systems is Better for Students, Institutions, and Communities	Emphasizes that aligned advising spanning K-12, postsecondary education, and workforce leads to better continuity and equitable student outcomes.	Link
Education to Workforce Project	Indicator: Access to In-Demand CTE Pathways	Discusses how regional labor-market data are used to align career and technical education (CTE) programs with occupations in demand.	Link
Education Week	About Our Board	Profiles the governance structure of EPE Education Week and outlines its editorial oversight practices.	Link
Edutopia	Homepage	A well-established platform sharing evidence-based strategies and stories about K–12 teaching, learning, and leadership.	Link

Organization	Publication	Description	Source
Elizabeth Baylor	State Disinvestment in Higher Education Has Led to an Explosion of Student-Loan Debt	Proposes a federal–state partnership ("Public College Quality Compact") to mitigate rising college tuition during economic downturns.	Link
Eric A. Hanushek, Ludger Woessmann	Do Better Schools Lead to More Growth? Cognitive skills, economic outcomes, and causation	Demonstrates that higher cognitive skills — driven by school quality — have a strong causal effect on economic growth across OECD countries.	Link
Erica Blom, Macy Rainer, Matthew Chingos	Comparing Colleges' Graduation Rates	Examines how student demographics and academic preparation explain much of the variation in six-year graduation rates between colleges.	Link
Evans, Gary W.; Li, Dongping; Whipple, Sara Sepanski	Cumulative Risk and Child Development.	The 2013 Psychological Bulletin article "Cumulative Risk and Child Development" demonstrates that exposure to multiple dichotomized risk factors (using a cumulative risk or CR index) predicts poorer developmental outcomes more effectively than single-risk models, while also discussing both the methodological limitations of CR and its theoretical alignment with bioecological, allostasis, and developmental evolutionary frameworks — and highlighting implications for targeted interventions and policy.	Link
Evidence-Based Mentoring	Homepage	Features research, tools, and frameworks on high-quality mentoring practices and program effectiveness.	Link
Fastweb	Homepage	A free online tool connecting students to college and trade school scholarships along with financial aid resources .	Link
Federal Bureau of Investigation (FBI)	Crime/Law Enforcement Stats (Uniform Crime Reporting Program)	Describes the nation's primary crime-reporting framework, with public access via the FBI's Crime Data Explorer .	Link

Organization	Publication	Description	Source
Federal Communications Commission (FCC)	Affordable Connectivity Program (ACP)	A federal initiative providing households up to $30/month (or $75 for tribal) toward broadband service.	Link
Federal Student Aid	FAFSA Completion by high school	Provides data on FAFSA submission and completion rates by high school to support tracking and improvement .	Link
Florida Department of Education	Guide to Calculating Perkins Secondary Accountability Measures	A detailed guide explaining how Florida calculates district and school accountability ratings using performance metrics and weighted scoring.	Link
Frank Gresham, PhD, Stephen N. Elliott, PhD	Social Skills Improvement System SSIS Rating Scales	A comprehensive multi-rater assessment tool for ages 3–18 that measures social skills, problem behaviors, and academic competence, with linked interventions.	Link
Gart Peters	Peters, Cassidy, Boozman Reintroduce Bipartisan Legislation to Make Higher Education More Accessible & Affordable	Bipartisan legislation enabling high school students to earn college credit through expanded dual/concurrent enrollment, aiming to lower debt and support degree attainment.	Link
Georgia.org	Training Thousands of Georgians for the Hyundai Metaplant	Profiles Georgia Quick Start's workforce training efforts preparing over 1.8 million workers — including specialized prep for Hyundai's EV Metaplant.	Link
Getting Smart	18 Examples of State Policies That Support Competency-Based Programs	Lists state-level policies fostering competency-based education, including flexible scheduling, competency diplomas, and credit transfers.	Link
Hello Family	Got Kids? Need Resources or Support?	Provides behavioral health guidance, developmental screenings, and parental support tools for families with young children.	Link

Organization	Publication	Description	Source
Holzman, Brian; Hanson, Vansa Shewakramani	Summer Melt and Free Application for Federal Student Aid Verification	Examines how FAFSA verification contributes to "summer melt," finding that nearly one-third of Houston high school seniors are flagged — especially impacting minority students — and correlates with college enrollment drops.	Link
Hope Center for Children	Hope Center For ChildrenHope Center For Children Menu Triple P Spartanburg A Positive Parenting Program	Offers families free evidence-based parenting strategies designed to build healthy relationships and prevent behavioral problems.	Link
HUD	Low Transportation Cost Index	Calculates transportation costs as a percentage of income for single-parent families earning up to 50% of median income, aiding affordability assessments.	Link
IES	The Regional Educational Lab Program: Making a Difference in Literacy and Math Outcomes	Highlights how Regional Educational Laboratories support districts to improve literacy and math using research-informed partnerships.	Link
Illinois Department of Human Services	Policy Memo: All Kids	Announces that beginning July 1, 2006, all uninsured children in Illinois became eligible for medical benefits under the All Kids program regardless of income or immigration status, with insurance costs based on family income and a new pre-registration form require.	Link
Illinois General Assembly	Illinois Compiled Statutes	Establishes state standards and requirements for educator preparation program accreditation, oversight, and reporting in Illinois.	Link
iMentor	iMentor Model	A two-year mentorship model pairing 11th–12th graders with mentors to support their college access and success.	Link
Impact Tulsa	Pathways to Opportunity: 2019 Community Impact Report	Describes multi-sector initiatives in Tulsa targeting early childhood, education, health, and economic equity, supported by data from 2019.	Link

Organization	Publication	Description	Source
Institute for Higher Education Policy (IHEP)	How Student Experience and Belonging Interventions Can Support Strong Postsecondary Outcomes	Highlights six evidence-based strategies — like growth-mindset instruction and reducing red tape — that boost student persistence, mental health, and degree completion.	Link
Institute of Education Sciences	Tuition Costs of Colleges and Universities	Reports that total undergraduate enrollment in the U.S. is projected to rise ~9% by 2031, from 15.4M to 16.8M students.	Link
Intercultural Development Inventory	Homepage	The Intercultural Development Inventory (IDI) website offers a validated, cross-culturally reliable 50-item assessment and supporting services — including administration training, interpretive seminars, development plans, and resources — to help individuals and organizations build cultural competence via the Intercultural Development Continuum model.	Link
Jackie McDonald	Summer Programs: Proven To Address Learning Loss, Reduce Summer Melt, Increase College Enrollment	Highlights Tennessee's statewide summer bridge programs that effectively decrease learning loss and summer melt, boosting college enrollment.	Link
Jiun-yu Wu, Jan N Hughes, Oi-man Kwok	Teacher Student Relationship Quality Type in Elementary Grades: Effects on Trajectories for Achievement and Engagement	Demonstrates that high-support, low-conflict teacher–student relationships predict better academic performance among students.	Link
JobsOhio	Ohio Partners with Anduril to "Rebuild the Arsenal" for Essential National Security Needs	Announces Ohio's $1 billion "Arsenal-1" plant in Pickaway County, creating 4,000+ advanced manufacturing jobs by 2035 .	Link
John Marotta, Andrew Campbell, Zach Boren	Growing Youth Apprenticeship in Greater DC	Examines opportunities and barriers in expanding youth apprenticeship programs in the Washington, DC area.	Link
Joscha Legewie, Jeffrey Fagan	Aggressive Policing and the Educational Performance of Minority Youth	First causal evidence showing that higher levels of aggressive policing negatively affect minority youths' educational outcomes.	Link

Organization	Publication	Description	Source
Juana Summers, Jason Fuller, Patrick Jarenwattananon	Fewer Black Men are Enrolling in HBCUs. Here's Why and What's Being Done	Only about 26% of students at HBCUs are Black men — their lowest share in nearly 50 years — reflecting a significant decline from approximately 38% in 1976 and prompting concern over financial, educational preparatory, and systemic barriers affecting their college enrollment.	Link
Judith Scott-Clayton	Do High-Stakes Placement Exams Predict College Success?	Finds placement exams better predict math than English performance and are more reliable in identifying likely high achievers than those likely to fail.	Link
Karen Appleyard, Byron Egeland, Manfred H.M. van Dulmen, L. Alan Sroufe	When More is Not Better: The Role of Cumulative Risk in Child Behavior Outcomes	A research article supporting the hypothesis that cumulative early-life risks predict greater behavioral problems in adolescence.	Link
Keeter, Scott (Semantics Scholar)	Three Core Measures of Community-Based Civic Engagement: Evidence from the Youth Civic Engagement Indicators Project	Introduces three principal measures for community-based civic engagement among youth, validated through the Youth Civic Engagement Indicators Project.	Link
Kevin Richert	Near-peer Mentoring Programs Show Promise, Study Says	Reports that high schools with near-peer mentoring show a 4–6 percentage point increase in college enrollment, especially for male students.	Link
Kevin Richert	Target 2025? Task Force Presses Reset on the '60 % goal'	Explains that Idaho is trying to get 60% of young adults to earn a degree or certificate by 2025, but progress has been slow, so a new task force is working on better strategies to help reach that goal.	Link
Kimberly Foley and Lily Freedman	Individual Placement and Support (IPS) in Practice Lessons from Breaking Barriers	A practitioner-focused summary detailing findings and strategies from the Building Better Supports Dataset.	Link
KIPP	KIPP Forward	Details KIPP's whole-student development framework focused on identity, agency, and belonging to support student achievement.	Link

Organization	Publication	Description	Source
Krysti Ryan, Katie Boucher, Christine Logel, Mary Murphy	Practice Category: Self-Efficacy	Lists educational practices aimed at boosting students' belief in their ability to succeed and learn.	Link
Latino College Dollars	Latino College Dollars Scholarship Directory	A regional directory listing scholarship and grant opportunities for eligible Latino students in California.	Link
Laura Perna	The Role of College Counseling in Shaping College Opportunity: Variations Across high schools	Examines how variations in high school college counseling practices influence college opportunity and enrollment outcomes.	Link
Laura Spitalniak	FAFSA Completions Largely Stalled in June, Fueling Enrollment Concerns	FAFSA completion rates among seniors plateaued in June, raising college enrollment concerns.	Link
LED FastStart Recruiting	"Louisiana Wins Again," Governor Jeff Landry & LED Secure $5.8 Billion Hyundai Steel Plant	Reports that Governor Jeff Landry led Louisiana to secure a US$5.8 billion Hyundai steel plant investment, highlighting the state's economic development success.	Link
Lindsay Daugherty, Alexandra Mendoza-Graf, Diana Gehlhaus, Trey Miller, Russell Gerber	How Does Corequisite Remediation Change Student Experiences? Results from a Randomized Study in Five Texas Community Colleges	A randomized study in five Texas community colleges found that corequisite remediation significantly improves student success compared to traditional developmental courses.	Link
Livia Lam	A Design for Workforce Equity	Proposes policy strategies to improve equity in workforce training and outcomes.	Link
Louisiana Department of Health	Louisiana Receives Approval for Unique Strategy to Enroll SNAP Beneficiaries in Expanded Medicaid Coverage	Announces planned Community Care Network expansions and related EQRO activities across Louisiana regions.	Link
LSU Online Newsroom	The Link Between Mental & Physical Health and Academic Success	Emphasizes that strong mental and physical health supports focus, retention, and motivation, thereby improving academic performance.	Link

Organization	Publication	Description	Source
Lumina Foundation	Stronger Nation	An annual state-by-state report tracking progress and gaps in postsecondary attainment in the U.S.	Link
Lumina Foundation	Trends in College Spending 2003–2013	Examines historical changes in how colleges invested tuition and public funds into instruction, student services, and grants over a decade.	Link
Madisonville Community College	Placement & Academic Testing	Describes the MCC Assessment Center's proctored placement exams (e.g., KYOTE) available up to three attempts per semester to direct students to appropriate course levels.	Link
Manhattan Institute For Policy Research	Public high school Graduation and College-Readiness Rates: 1991–2002	This working paper calculates national and state-specific graduation and college-readiness rates using rigorous methods, revealing that while overall high school graduation remained flat (~72% to ~71%) from 1991 to 2002, the share of students graduating with the academic qualifications to attend four-year colleges rose significantly (from ~25% to ~34%), albeit with persistent racial and state-level disparities.	Link
Manufacturing USA	Key Initiatives	Showcases initiatives that engage Manufacturing USA institutes in STEM workforce training and pathways for future talent.	Link
Maryland State Dept. of Education	School-Based Health Centers	Provides information on health centers within Maryland public schools that offer medical, dental, and mental health services to students.	Link
Mass Life Sciences Center	Data Science Internship Program	Announces opportunities for students to work on analytics and life science industry projects through paid internships.	Link

Organization	Publication	Description	Source
Matriculate	Homepage	A nationwide nonprofit that links high-achieving, low-income high schoolers with trained undergraduate advisers via near-peer virtual advising to enhance college application outcomes.	Link
Matthew Salomone & Thomas Kling	Required Peer-cooperative Learning Improves Retention of STEM Majors	Introduces a validated 24-item science self-efficacy survey for high school students that tracks competence across time and gender.	Link
MDRC	P-TECH 9–14 Evaluation	A rigorous impact and cost study of NYC P-TECH 9–14 schools showing increased internships, dual enrollment, and modest gains in associate degree completion.	Link
MDRC	WorkAdvance	A long-term evaluation showing positive employment and earnings outcomes for participants in sector-based workforce training.	Link
MDRC	Reconnecting Youth	Catalogs 78 programs serving disconnected youth (16–24), detailing shared practices and service models.	Link
Melissa Roderick, Jenny Nagaoka, Vanessa M. Coca	College Readiness for All: The Challenge for Urban high schools	Examines the structural and systemic barriers urban high schools face in preparing all students — especially from underserved populations — for college.	Link
Mentor Collective	Homepage	A scalable mentorship program linking students with peer, alumni, or professional mentors to improve retention and success.	Link
Mentor Collective	Mentor Collective Homepage	Offers a peer-mentoring platform that pairs students with trained peers to boost belonging, reduce summer melt, improve retention, and support underserved and first-year students.	Link
Mentor Collective (White Paper)	The Impact of Peer Mentorship on College Enrollment	Demonstrates that peer mentoring decreases summer melt by ~30 percentage points, particularly benefiting first-generation and underserved students.	Link

Organization	Publication	Description	Source
Mentor Collective (White Paper)	Peer Mentoring Supplement to the Elements of Effective Practice for Mentoring™	Provides practical frameworks and best practices for designing and implementing peer-mentoring programs.	Link
Michelle Hodara	Putting a Freeze on Summer Melt (Blog)	Explains summer melt — in which college-intending students fail to enroll — and offers evidence-based strategies to prevent it.	Link
Michigan College Access Network (AdviseMI)	AdviseMI AmeriCorps	Places recent college graduate AmeriCorps advisers in Michigan high schools with low college-going rates to improve access, reaching 56 advisers in over 70 schools.	Link
Minnesota Department of Employment & Economic Development	Automation Training Incentive Program	Provides grants up to $35K for small businesses to train incumbent workers on new automation tech, supporting upskilling in Greater Minnesota.	Link
Missouri Department of Economic Development	Missouri Prepared to Support Schneider Electric as Boone County is Considered for Location of $73.6 Million Expansion and Creation of 241 New Jobs	Announces Schneider Electric's new manufacturing site in Boone County, Missouri, driven by the state's workforce preparedness efforts.	Link
MIT Press / Joshua Hyman	ACT for All: The Effect of Mandatory College Entrance Exams on Postsecondary Attainment and Choice	A difference-in-differences study of 11 states shows that mandating and funding universal ACT/SAT testing modestly boosts four-year college enrollment — especially among low-income students — and is cost-effective compared to traditional aid.	Link
Mokher, Christine	Aligning Career and Technical Education with High-Wage and High-Demand Occupations in Tennessee. Summary. Issues & Answers. REL 2011-No. 111	Analyzes Tennessee high school CTE offerings and finds mismatches between student concentrations and high-demand/high-wage job opportunities.	Link
Molly Andolina, Scott Keeter, Cliff Zukin, Krista Jenkins	A Guide to the Index of Civic and Political Engagement	This guide outlines the methodology and applications of the Index of Civic and Political Engagement, a tool for measuring civic involvement.	Link

Organization	Publication	Description	Source
Monica Saucedo and Adriana Ramos-Yamamoto	California Sees Health Gains for Undocumented Residents After Medi-Cal Expansion	Documents improved health outcomes among undocumented children since Medi-Cal expansion, while coverage gaps remain for adults.	Link
Nathan Smith	Economics Can Help State Broadband Leaders Rise to the Challenge of Universal Internet Access	Recommends that state broadband leaders apply economic principles.	Link
National Center for Children in Poverty	Short Take No. 7 State Indicators	Analyzes the causes and consequences of child poverty in the U.S., and recommends federal policies (like expanding tax credits) to reduce child poverty and improve outcomes.	Link
National Center for Education Statistics	DataLab	An online toolkit that allows users to query, visualize, and download U.S. education statistics from early childhood through postsecondary levels.	Link
National Center for Education Statistics	Public School Graduates and Dropouts From the Common Core of Data: School Year 2005–06	Using HSLS:09 data, the report finds common barriers to FAFSA completion include perceived ineligibility, lack of information, and form complexity.	Link
National Center for Education Statistics	Dual Credit & Exam-Based Courses in U.S. Public high schools: 2010–11	First-look report analyzing prevalence, structure, and school policies regarding dual-credit, AP, and IB participation nationwide.	Link
National Center for Education Statistics	Dual Enrollment Programs & Courses for high school Students at Postsecondary Institutions: 2010–11	Provides detailed national statistics on enrollment in postsecondary courses by high school students and demographic breakdowns.	Link
National Center for Education Statistics	Why Didn't Students Complete a Free Application for Federal Student Aid (FAFSA)? A Detailed Look	Using HSLS:09 data, the report finds common barriers to FAFSA completion include perceived ineligibility, lack of information, and form complexity.	Link

Organization	Publication	Description	Source
National Center for Education Statistics	Why Didn't Students Complete a Free Application for Federal Student Aid (FAFSA)? A Detailed Look	Analyzes why about 24% of U.S. high school graduates did not complete the Free Application for Federal Student Aid (FAFSA) — highlighting primary reasons such as perceiving college as affordable without aid (33%), believing they were ineligible (32%), avoiding debt (28%), and finding the form burdensome (23%), with significant variations across demographic groups.	Link
National Center for Education Statistics	The Beginning Postsecondary Students Longitudinal Study (BPS)	A longitudinal survey following first-time postsecondary students over six years to study persistence, completion, and labor-market outcomes.	Link
National Center for Education Statistics	The National Postsecondary Student Aid Study (NPSAS)	A quadrennial survey since 1987 detailing how U.S. students and families finance higher education, forming the sampling base for BPS cohorts.	Link
National Center on Safe Supportive Learning Environments	ED School Climate Surveys (EDSCLS)	A validated, national school climate survey tool enabling real-time collection of reliable climate data for local use.	Link
National College Attainment Network	E-Learning for College Access & Success	Online training modules for college access practitioners covering admissions, financial aid, equity, and cultural competence.	Link
National College Attainment Network	Summer Melt Toolkit: Knowledge and Resources for Ensuring Students Arrive On Campus	Provides practical strategies and a 16-week texting campaign to prevent college "summer melt," noting that ~25% of Pell-eligible students fail FAFSA verification.	Link
National College Attainment Network	Support All Our Students	Highlights equity-driven strategies and actionable recommendations to improve college access and success for all students.	Link
National College Attainment Network	Growing Gap 2024: Spotlight on the Midwest	Analyzes disparities in college access across six Great Lakes states — Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin — highlighting widening equity gaps.	Link

Organization	Publication	Description	Source
National College Attainment Network	Access & Affordability for Undocumented Students	Reviews state-level policy barriers and supports affecting undocumented students' college affordability and access.	Link
National College Attainment Network	Support AmeriCorps For College Success	Explains how AmeriCorps service opportunities help students build access to college, scholarships, and career readiness through structured service learning.	Link
National College Attainment Network	Standardize Financial Aid Award Letters	Advises students and families on understanding and comparing college financial aid award letters to make informed enrollment decisions.	Link
National College Attainment Network	Equitable Free College	Advocates for free-college policies that include low-income, rural, and underrepresented students to ensure equitable state-sponsored tuition programs.	Link
National College Attainment Network	Student-Level FAFSA Data Sharing: Policies By State	Details how statewide agreements and data-sharing frameworks can streamline FAFSA completion and support student advising and progress monitoring.	Link
National College Attainment Network	NCAN's FAFSA Tracker	Provides a tool for high schools and colleges to monitor FAFSA progress in real time, identify gaps, and increase completion of financial aid forms.	Link
National College Attainment Network	A Federal-State Partnership to Incent Investment	Highlights collaborative models between federal, state, and local agencies to align resources and policies aimed at improving college access outcomes.	Link
National College Attainment Network	Fix FAFSA	Outlines NCAN's recommendations and advocacy efforts for simplifying the FAFSA process to improve equity in financial aid access.	Link
National College Attainment Network	Ensuring Food Security	Offers guidance and resources for addressing student food and basic-needs insecurity as part of comprehensive college support services.	Link

Organization	Publication	Description	Source
National College Attainment Network	Improve Federal Work-Study	Recommends strategies like diversifying work-study jobs, raising award levels, and simplifying allocation formulas to enhance the impact of the Federal Work-Study program.	Link
National College Attainment Network	Student Loan Counseling	Highlights the importance of early, mandatory, and personalized loan counseling to help students make informed borrowing decisions and reduce default rates.	Link
National College Attainment Network	Need-Based Aid	Advocates for stronger investments in need-based aid programs to support students who lack financial means to attend college.	Link
National College Attainment Network	Double Pell	Emphasizes that increasing FAFSA completions leads to greater Pell Grant access and encourages ongoing tracking of completion rates.	Link
National College Attainment Network	College Access and College Savings	Showcases initiatives such as matched savings programs (e.g., Earn to Learn) that help students and families prepare financially for college.	Link
National College Attainment Network	State Higher Education Funding	Urges states to maintain or increase budget allocations for public college operations, adopt multi-year funding cycles, and implement accountability measures.	Link
National College Attainment Network	NCAN's State Policy Priorities	Outlines state policy priorities focused on boosting equitable postsecondary access, affordability, and degree/certificate completion — emphasizing strategies like universal FAFSA, streamlined financial aid, better high school counseling alignment, and optimized state budgeting for student success.	Link
National College Attainment Network	Universal FAFSA Completion with Supports	Promotes policies requiring FAFSA submission for high school graduation, along with structured supports, to boost equity and completion rates.	Link

Organization	Publication	Description	Source
National College Attainment Network	Signal Vine Text Messages and Schedule Template	Provides a curated set of sample email/ text message templates designed to engage students over the summer and prevent college "summer melt."	Link
National College Attainment Network (NCAN)	Using Data in Postsecondary Advising to "Lift" Completion Likelihood	Describes strategies using advising data to improve student matriculation and degree completion rates.	Link
National Conference of State Legislatures (NCSL)	Supporting Safe Schools: A Report Focused on Prevention, Response, and Positive Climate	Highlights state legislative strategies — including mental health supports, anti-bullying policies, and school climate initiatives — to foster safer and more supportive schools.	Link
National Council of Teachers of Mathematics (NCTM)	Asking Questions and Promoting Discourse	Encourages use of Fermi-type estimation questions to facilitate student-centered discourse and deeper mathematical reasoning in classrooms.	Link
National Equity Atlas	Research	Provides interactive, data-rich resources to analyze racial and economic equity at various geographic scales across the U.S.	Link
National Forum on Education Statistics	Forum Guide to Early Warning Systems: Case Studies & Lessons Learned	Details state and district case studies using predictive early-warning systems to identify at-risk students and deploy targeted support.	Link
National Forum on Education Statistics	Trends in high school Dropout and Completion Rates in the United States: Indicator 1	Presents five dropout/completion rates (event, status, adjusted cohort, etc.) and analyzes long-term trends and demographic characteristics.	Link
National Forum on Education Statistics	Trends in high school Dropout and Completion Rates in the United States: Indicator 2	Provides national and state data on public high school graduates, dropouts, graduation rates, and ethnic/racial breakdowns.	Link
National Forum on Education Statistics	Trends in high school Dropout and Completion Rates in the United States: Indicator 3	Reviews dropout rates and cohort graduation indicators, including definitions, measurement methods, and historical context.	Link

Organization	Publication	Description	Source
National Forum on Education Statistics	Trends in high school Dropout and Completion Rates in the United States: Indicator 4	Defines and explains the AFGR metric and reports on its historical calculations for early 2000s cohorts.	Link
National Forum on Education Statistics	Trends in high school Dropout and Completion Rates in the United States: Indicator 5	Discusses the collection and reporting of dropout/completion data across multiple years and states.	Link
National Longitudinal Surveys	Index to the NLSY79 Cohort	A longitudinal survey beginning in 1979 that tracks nearly 10,000 individuals born 1957–64 across more than 30 rounds, monitoring transitions from youth to adulthood.	Link
National Student Clearinghouse	Postsecondary Data Partnership	Details the Postsecondary Data Partnership (PDP) tool to help institutions benchmark and improve student outcomes.	Link
National Work Readiness Council (NWRC)	National Work Readiness Credential	A nationally recognized credential validating foundational academic, soft, and digital skills — endorsed by U.S. Chamber and NWRC — for entry-level workforce readiness.	Link
NCSL (National Conference of State Legislatures)	State Broadband Task Forces, Commissions, or Authorities	Summarizes over 35 states' governance bodies established to plan, fund, and oversee broadband deployment and digital equity, updated Feb 26, 2024.	Link
New America	School Funding Equity Factor	Explains the federal "equity factor" in Title I that allocates additional aid to districts based on spending equity and state fiscal effort.	Link
New Mexico Health Care Authority	Turquoise Care Overview	Turquoise Care is NM's Medicaid managed care program starting July 2024, with four MCO options targeted at improving care coordination.	Link
No Kid Hungry Center for Best Practices	Afterschool Meals Program	Describes how schools and non-profits can implement federal afterschool meal programs to support after-school nourishment.	Link

Organization	Publication	Description	Source
Obama Foundation	My Brother's Keeper Alliance Mission	Community-driven partnership focused on improving life outcomes for boys and young men of color through mentorship, violence prevention, and cross-sector collaboration.	Link
Office of Community College Research and Leadership (OCCRL)	Institute Resources	Offers archived racial equity and antiracist teaching tools — like readings and webinar slides — used in completed community-college-focused institute sessions.	Link
Office of Planning, Research & Evaluation	Evaluation of Employment Coaching for Temporary Assistance for Needy Families (TANF) and Related Populations & Long-Term Follow-Up Study	A decade-long evaluation examining coaching interventions aimed at improving job entry and retention among TANF participants.	Link
Ohio Department of Education	FAQs about State-Funded ACT and SAT	Details Ohio's policy funding a statewide ACT or SAT test for all juniors, including participation exceptions and procedures.	Link
Opportunity Insights	Social Capital and Economic Mobility	Summarizes research linking community social connectedness to upward economic mobility.	Link
Oregon Health Authority	Learn more about the Oregon Health Plan (OHP	Oregon's Medicaid program covering a range of services — medical, dental, mental health — for low-income populations like families, seniors, and pregnant adults.	Link
Panorama Education	Student Survey product	A comprehensive survey platform for gathering insights on student engagement, SEL, school culture, and learning environments.	Link
Pathways to Work	Good Transitions	Supports low-income noncustodial parents with subsidized employment, training, and case management to improve job readiness and earnings.	Link

Organization	Publication	Description	Source
Pathways to Work	Work Plus	Allows TANF recipients new to employment to reduce participation hours while pursuing education/training to support upward mobility.	Link
Paul Donaldson; Lyle McKinney; Mimi Lee; Diana Pino	First-Year Community College Students' Perceptions of and Attitudes Toward Intrusive Academic Advising	A qualitative case study showing intrusive advising in a large urban community college improves student satisfaction and clarity on advising roles.	Link
Phil Oliff, Vincent Palacios, Ingrid Johnson, and Michael Leachman	Recent Deep State Higher Education Cuts May Harm Students and the Economy for Years to Come	Warns that reduced state funding for public colleges has driven tuition up and disproportionately impacted students of color.	Link
Prenatal-to-3 Policy	Evidence-Based Home Visiting Programs	Reviews HomVEE evidence models showing modest positive impacts on parenting skills via Medicaid or other funding.	Link
Promise Partnership Utah	What is Promise Partnership?	A cross-sector "cradle-to-career" initiative in Utah that aligns public and private stakeholders to improve student outcomes.	Link
PWR Act	Postsecondary and Workforce Readiness Act (PWR)	Illinois law (2016) mandating competency-based pathways, endorsements, and navigators to improve K–12 to career readiness.	Link
Results for America	Housing Rehabilitation Loan and Grant Programs	Offers loans/grants to low-income homeowners for critical home repairs, usually with eligibility based on income (≤ 80% AMI), property value limits, and mortgage support criteria.	Link
Results for America	Lead Paint Abatement Programs	Strongly evidence-backed interventions that eliminate lead exposure risk in homes and improve children's health outcomes .	Link
Results for America	ParentCorps	A culturally affirming, 12-week group program led by mental health professionals to teach parents evidence-based strategies supporting early learning in pre-K children.	Link

Organization	Publication	Description	Source
Results for America (Economic Mobility Catalog)	Housing & Community Development	Highlights the foundational role of stable housing in long-term academic and workforce outcomes.	Link
Results for America (Economic Mobility Catalog)	Avance Parent-Child Education Program (PCEP)	The AVANCE Parent-Child Education Program (PCEP) is a nine-month, evidence-based, two-generation initiative designed to empower Latino families by enhancing parenting skills and fostering early childhood development.	Link
Results for America (Economic Mobility Catalog)	Healthy-Home Environment Assessments	Healthy Home Environment Assessments are evidence-based programs that involve trained professionals conducting in-home evaluations to identify and mitigate environmental health risks, particularly for individuals with asthma.	Link
Rhode Island KIDS COUNT	Getting Ready (February 2005)	Early-childhood report emphasizing the importance of school readiness for long-term success.	Link
Richard J. Murnane, John B. Willett, and Kathryn Parker Boudett	Do high school Dropouts Benefit From Obtaining a GED?	Finds GED attainment correlates with increased wage growth among male dropouts using longitudinal data.	Link
Robert Bifulco, Jason M Fletcher, Sun Jung Oh, Stephen L Ross	Do high school Peers Have Persistent Effects on College Attainment and Other Life Outcomes?	Indicates that increasing college attendance via peer influence doesn't necessarily boost degree completion rates.	Link
Robert Hiltonsmith	Pulling Up the Higher-Ed Ladder: Myth and Reality in the Crisis of College Affordability	Investigates the limitations of higher education in closing mobility gaps and affordability challenges.	Link
Roby Chatterji, Neil Campbell, Abby Quirk	The Funnel To Passing AP Exams	Analyzes the progression from AP course enrollment to passing exam, highlighting where students, especially students of color, fall out of the pipeline.	Link

Organization	Publication	Description	Source
Roby Chatterji, Neil Campbell, Abby Quirk	Closing Advanced Coursework Equity Gaps for All Students	Shows that even with similar AP course availability, Black, Indigenous, and rural students enroll and succeed at lower rates, and offers strategies to close gaps.	Link
Roderick, Melissa; Nagaoka, Jenny; Coca, Vanessa; Moeller, Eliza	From high school to the Future: Potholes on the Road to College Research Report	Examines key roadblocks CPS students face during the college search and application process, highlighting where guidance systems falter.	Link
Roderick, Melissa; Nagaoka, Jenny; Coca, Vanessa; Moeller, Eliza	From high school to the Future: Potholes on the Road to College. Executive Summary	Finds regional misalignment between CTE programs offered and actual labor demand, recommending adjustments to curricula.	Link
Salt Lake Community College	PACE Scholarship Program	Describes SLCC's Professional and Continuing Education (PACE) offerings, including continuing education and workforce development.	Link
San Gabriel Unified School District	Mathematics Placement Policy (SB 359)	A district-hosted page outlining resources or programs — likely related to student services or curriculum planning.	Link
Sandy Goodman, National College Transition Network at World Education, Inc	College and Career Navigator Trainer Manual	Describes using a SMART-goal framework and interactive exercises to help educators support students through college transitions.	Link
Saul Geiser, Maria Veronica Santelices	Validity of high school Grades for Predicting Student Success Beyond the Freshman Year: High-School Record vs. Standardized Tests as Indicators of Four-Year College Outcomes	Finds that high school GPAs are more reliable predictors of postsecondary success than standardized test scores.	Link
Saul Geiser, Maria Veronica Santelices	Validity of high school Grades for Predicting Student Success Beyond the Freshman Year: High-School Record vs. Standardized Tests as Indicators of Four-Year College Outcomes	Finds that high school GPAs are more reliable predictors of postsecondary success than standardized test scores.	Link

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Search Institute	Developmental Relationships	Defines close mentor-like connections that help youth thrive by expressing care, challenging growth, and sharing power.	Link
Search Institute	Social Capital Assessment + Learning for Equity (SCALE) Measures	A toolkit and technical manual for measuring and building young people's social capital within programs.	Link
Search Institute	Developmental Relationships Framework	Outlines five relational strategies (express care, challenge growth, provide support, share power, expand possibilities) to foster youth flourishing.	Link
Search Institute	The Developmental Relationships Framework	Describes the framework's five foundational relational elements (e.g., express care, challenge growth) and 20 actionable practices to foster youth development.	Link
Shaun M. Dougherty, Joshua S. Goodman, Darryl V. Hill, Erica G. Litke, and Lindsay C. Page	Middle School Math Acceleration and Equitable Access to Eighth-Grade Algebra: Evidence From the Wake County Public School System	Wake County's universal acceleration into algebra led to increased access but raised equity concerns.	Link
Smart Growth America	National Complete Streets Coalition	Advocates for equitable street safety via design approaches that prioritize all users, with resources to support local policy implementation.	Link
Smart Growth America	Programs & Coalitions	Advocates for Complete Streets policies that ensure safe, convenient, and equitable access for all users — pedestrians, cyclists, transit riders, and drivers — supported by detailed state/county maps.	Link
Smith, Pender & Howell	The Full Extent of Student–college Academic Undermatch	This study documents that academically qualified students often attend less-selective colleges than they're eligible for, exploring contributing patterns and predictors.	Link

Organization	Publication	Description	Source
Sophia Jowett, Victoria E. Warburton, Lee C. Beaumont	Teacher–Student Relationship Quality as a Barometer of Teaching & Learning Effectiveness: Conceptualization and measurement	Validates the TSRQ-Q survey instrument and underscores how teacher–student relationship quality reflects effective teaching and learning.	Link
Stanford SPARQ	New General Self-Efficacy Scale	An 8-item measure assessing individuals' belief in their ability to overcome challenges and achieve goals.	Link
Stanford SPARQ	Shift-and-Persist Scale (Child)	A 5-item scale measuring children's adaptive stress-coping (shift) and future orientation (persist) strategies.	Link
Stanford SPARQ	Shift-and-Persist Scale (Teen/Adult)	A longer (14-item) version assessing stress adaptation and perseverance strategies in teens and adults.	Link
Stanford SPARQtools	Growth Mindset Scale	A 4-item scale by Carol Dweck to assess individuals' belief in intelligence as developable.	Link
State Smart Transportation Initiative	Measuring Accessibility – A Guide for Transportation and Land Use Practitioners	Offers practitioners data definitions, analytical tools, and examples for computing geographic accessibility to jobs, services, and transit.	Link
Stephen B Plank and Will J Jordan	Effects of Information, Guidance, and Actions on Postsecondary Destinations: A Study of Talent Loss	Using longitudinal data, illustrates that access to college guidance and information is crucial to prevent talented students from exiting the college track.	Link
Stephen V. Cameron and James J. Heckman	The Nonequivalence of high school Equivalents	Analyzes how GED recipients differ academically and economically from traditional high school graduates.	Link
StriveTogether	Homepage	An initiative linking cradle-to-career organizations to drive equitable outcomes in education and community.	Link

Organization	Publication	Description	Source
Student Athletes Scholars	Homepage	Discusses how fostering belonging among student-athletes can increase retention and academic success.	Link
Susan B. Neuman, Esther Quintero, Kayla Reist	Reading Reform Across America: A Survey of State Legislation	A comprehensive report advocating for reading curriculum reform with data-driven recommendations.	Link
Susan Dynarski	ACT/SAT for All: A Cheap, Effective Way to Narrow Income Gaps in College	Argues that providing universal, school-day ACT/SAT testing is a low-cost, effective way to boost college attendance among low-income students.	Link
T4PA Center	Title IV, Part A Student Support and Academic Enrichment Program Profile	Profiles the Student Support & Academic Enrichment Grant (ESSA Title IV-A), designed to boost well-rounded education, school climate, and digital literacy via state-to-school funding.	Link
talent FOUND	Quality and In-demand Non-degree Credentials: Advancing Access, Affordability, Equity, and Quality	Examines how four U.S. states — Alabama, Colorado, North Carolina, and Tennessee — are building coordinated systems for ensuring the quality of non-degree credentials through frameworks, data infrastructure, and governance mechanisms.	Link
Tennessee Department of Education	Public Chapter No. 322 Legislative Report of Study Findings	This report provides the findings from a landscape analysis of best practices in other states including a summary of how states define "on track" high school success; develop indicators to identify students at risk of dropping out of high school; develop and use statewide dropout early warning systems (EWS); utilize methods to publicly report relevant data regarding "on track" high school success indicators; set goals and monitor how many students remain "on track" in alignment with statewide graduation goals; and provide support and guidance to schools and districts to improve and increase the number of ninth grade students who are "on track."	Link

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Tequilla Brownie	Teacher Diversity: A Critical Lever for Student Success	Research shows increasing teacher diversity enhances student engagement, academic outcomes, and cultural relevance for all students.	Link
Territorium	Demonstrate and Measure Critical Skills	A modular, evidence-based assessment platform evaluating key skills like critical thinking and literacy for higher-ed students.	Link
Texas Education Agency	Dual Credit	Details Texas's dual credit offerings, including eligibility, course models, and funding for high school students to earn both high school and college credit.	Link
The Annie E. Casey Foundation	Double Jeopardy: How Third-Grade Reading Skills and Poverty Influence high school Graduation	Finds that children who are not reading proficiently by third grade — particularly those from low-income families — are significantly less likely to graduate high school on time, with nearly one in six nonproficient readers failing to graduate versus only about 4% of proficient readers, and poverty further exacerbating these disparities.	Link
The Campaign for College Opportunity	Equity in College Placement	Advocates systemic reforms to ensure equitable advising and placement into college-level courses for incoming students.	Link
The Consortium on Chicago School Research at the University of Chicago	Freshman Year: The Make-it or Break-it Year	Shows that freshman-year course performance and school context significantly shape graduation outcomes.	Link
The Education Trust (EdTrust)	5 Things to Advance Equity in Access to and Success in Advanced Coursework	A set of five policy recommendations for expanding and supporting state-level advanced coursework access, particularly for underserved students.	Link
The Education Trust (EdTrust)	The Pell Partnership: Ensuring a Shared Responsibility for Low-Income Student Success	Highlights a persistent 14% age-point graduation gap between Pell and non-Pell students nationally and institutional disparities.	Link

Organization	Publication	Description	Source
The National Association for College Admission Counseling (NACAC)	2019 State of College Admission 2019	NACAC's annual report explores trends, challenges, and equity issues in the college admission landscape for U.S. high school students.	Link
The Office of Workforce Development	Workforce Development	Announces a registered apprenticeship combining a six-month academy and year-long paid field work to train diverse residents as EMTs within Boston EMS.	Link
The Posse Foundation	Homepage	Identifies, recruits, and trains diverse student cohorts ("posses") to attend top colleges with full scholarships and support networks.	Link
the To &Through project	Homepage	Research-practitioner collaboration focused on improving equitable college access and success through data-driven, in-school reform practices.	Link
U.S. Bureau of Labor Statistics	Employment Projections	Shows unemployment rates decrease and earnings rise with increasing education levels.	Link
U.S. Census Bureau	Why We Ask Questions About...Year Built and Year Moved In	Explains why the ACS includes "year built" to assess housing age and inform affordability and community planning.	Link
U.S. Census Bureau	Educational Attainment in the United States: 2009	Highlights that 85% of Americans aged 25 and older had completed at least high school, 28% held a bachelor's degree or higher, and individuals with greater educational credentials earned significantly higher median incomes — ranging from around $18,000 for those without a diploma to over $60,000 for those with advanced degrees — with notable disparities across gender and race/ethnicity.	Link
U.S. Census Bureau	Quarterly Residential Vacancies and Homeownership, First Quarter 2025	Provides monthly data on rental and homeowner vacancy rates, used by government and forecasters as a housing market and economic health indicator.	Link

Organization	Publication	Description	Source
U.S. Census Bureau	Current Population Survey (CPS)	A premier monthly survey collaboratively run with the Bureau of Labor Statistics, tracking U.S. employment, income, education, and demographics.	Link
U.S. Census Bureau	Survey of Income and Program Participation (SIPP)	Longitudinal survey covering income, employment, family dynamics, and government program engagement at the household level.	Link
U.S. Congress	H.R. 3684 – Infrastructure Investment and Jobs Act	Known as the 2021 Bipartisan Infrastructure Law, this act funds nationwide transportation, water, broadband, and workforce programs.	Link
U.S. Congress	H.R. 4346 – CHIPS & Science Act	Establishes ~$280 billion in funding for domestic semiconductor manufacturing, R&D, and science workforce development.	Link
U.S. Congress	S. 2813 – Hispanic Educational Resources & Empowerment Act	Proposes competitive grants to foster partnerships between HSIs and high-enrollment Hispanic districts to boost Latino postsecondary attainment.	Link
U.S. Congress	S. 2814 – Jumpstart on College Act	Aims to enhance college readiness and support using evidence-based strategies — currently under review.	Link
U.S. Congress	S. 3279 – Advanced Coursework Equity Act	Establishes grant programs to advance equitable enrollment of underrepresented students in AP/ advanced courses, especially in STEM.	Link
U.S. Department of Education	The Better FAFSA: What You Need to Know	A resource aiming to simplify FAFSA completion and increase access to federal student aid.	Link
U.S. Department of Education	Homepage	The official federal resource for national education news, policy updates, programs, and resources.	Link

Organization	Publication	Description	Source
U.S. Department of Education	The Toolbox Revisited: Paths to Degree Completion From high school Through College	Analyzes the academic trajectories of students from the 1988 eighth-grade cohort (NELS:88/2000) to identify factors influencing bachelor's degree attainment.	Link
U.S. Department of Education – Student Privacy Office	Privacy and Data Sharing	Provides best practices and FERPA guidance (e.g., consent exceptions, data-sharing agreements, audit provisions) to support lawful and secure student data exchanges.	Link
U.S. Department of Education (NCES)	Agency Information Collection Activities; Comment Request; Integrated Postsecondary Education Data System (IPEDS) 2016–2019	A request under the Paperwork Reduction Act to continue collecting annual postsecondary data (enrollments, degrees, finances, outcomes) from ~7,500 U.S. institutions via IPEDS for 2016–2019, with estimated 999,060 annual burden hours.	Link
U.S. Department of Education College Scorecard	Homepage	Official database detailing college metrics — graduation rates, earnings, debt, and more — for making informed college decisions.	Link
U.S. Department of Labor	WIOA Worforce Programs	Describes key workforce development services funded by the Workforce Innovation and Opportunity Act, including training and employment.	Link
U.S. Department of Labor	Career Pathways Toolkit: A Guide for System Development	Provides detailed federal guidelines on WIOA performance reporting requirements.	Link
U.S. Federal Student Aid	Federal Student Aid Estimator (formerly FAFSA4caster)	A free federal calculator for estimating college financial aid eligibility based on family income and assets.	Link
UChicago Consortium (2017 research)	The Predictive Power of Ninth-Grade Performance GPA	Highlights how ninth-grade grades are stronger predictors of high school graduation than standardized test scores.	Link
UChicago Consortium on School Research	Elevate: Measures Summary	Outlines a set of research-backed indicators and metrics for evaluating and guiding schoolwide social, emotional, and academic development (SEAD) initiatives using an equity-centered framework.	Link

Organization	Publication	Description	Source
Uncommon Schools	Data-Driven Counseling for College Success	Describes how the network uses real-time data dashboards to inform college advising, enabling staff to proactively support students through the application process.	Link
United Way of Central Minnesota	Local chapter homepage	Provides information about United Way's community support services, volunteer opportunities, and local impact.	Link
University of Texas Ray Marshall Center	Central Texas Student Futures Project	Examines policies and practices enabling Central Texas residents to transition effectively into college and the workforce.	Link
University of Virginia / Pianta	Student Teacher Relationship Scale (STRS)	A validated 15-item parent-report scale assessing closeness and conflict in parent-child relationships, predictive of children's behavior and school outcomes.	Link
Urban Institute	Providing Employment Services	A category on the Urban Institute's site focused on workforce-related research and analysis.	Link
Urban Institute	Unemployed or Underemployed Workers	Defines and explains issues facing unemployed or underemployed individuals, including those seeking but unable to secure adequate work.	Link
Urban Institute	Adult Education	Research category focused on workforce readiness, job quality, and education alignment — node likely covers policy insights and data analysis.	Link
Urban Institute	Blended and Braided Funding	Research node examining postsecondary credential attainment and economic mobility.	Link
Urban Institute	Collaborative Funding Models	Research node focused on skills-based hiring, workforce development systems, and employer demands.	Link

Organization	Publication	Description	Source
Urban Institute	Performance-Based Funding	Explains how tying workforce program funding to outcomes — like credential completion — can incentivize better results while highlighting potential drawbacks like unintended consequences.	Link
Urban Institute	Social Impact Bonds	Describes the "pay-for-success" model where private investors pre-fund social programs and are reimbursed by government only if pre-defined outcomes are met.	Link
Urban Institute	Data Sharing	Details formal data-sharing across agencies/systems (e.g., education, employment) to enable outcome tracking, evaluation, and coordinated service delivery.	Link
Urban Institute	Labor Market Information Analysis	Defines LMI — data on jobs, demand, skills — and how local workforce systems use it to align training programs with employer needs.	Link
Urban Institute	Performance Measurement	Highlights the role of metrics and common measures (e.g., employment rates, earnings, credentials) in tracking program progress and accountability.	Link
Urban Institute	Program Evaluation	Explains types of evaluations — experimental, quasi-experimental, outcomes, and ROI — used to assess and improve workforce program effectiveness.	Link
Urban Institute	Federal Sources of Workforce Funding	Describes federal funding streams — from WIOA to Pell Grants and TANF — used to support local workforce development activities.	Link
Urban Institute	Providing Education and Training	Defines how providers like apprenticeships, adult ed, and career academies help workers gain skills and credentials for in-demand jobs.	Link
Urban Institute	Providing Supportive Services	Highlights services (childcare, transportation, counseling) that help participants complete training or employment programs.	Link

Organization	Publication	Description	Source
Urban Institute	Improving Job Quality and Access	Discusses efforts to enhance wages, benefits, scheduling, and equitable hiring through "high-road" practices and community benefit agreements.	Link
Urban Institute	Youth	Defines youth participants (ages 16–24) in local workforce systems, focusing on services like career exploration, training, and job placement.	Link
Urban Institute	Adults with Low Basic Skills	Identifies adult learners lacking a high school credential or basic competencies and explores tailored workforce and education supports.	Link
Urban Institute	Employers and Industry and Business Groups	Covers employer-driven workforce initiatives in specific industry sectors aimed at aligning training with labor market demand.	Link
Urban Institute	Government Agencies	Describes coordinated sequence of education and training for career advancement, integrating services across sectors.	Link
Urban Institute	Workforce Intermediaries and Collaboratives	Focuses on addressing disparities in access, outcomes, and representation across race, gender, and geography through targeted workforce policies.	Link
Urban Institute	Unions and Worker-Focused Advocacy Organizations	Defines the role of unions and advocacy groups that influence employer practices, working conditions, and workforce policies.	Link
Urban Institute	Foundations and Philanthropic Organizations	Explains how collective bargaining structures and labor groups shape employment quality, compensation, and worker rights.	Link
Urban Institute	Supporting Employers' Human Resources Needs	Describes how local boards and governments coordinate the design and governance of workforce development systems.	Link

Organization	Publication	Description	Source
Urban Institute	Service Providers	Covers strategies for collaborating with employers and sector partnerships to align training programs to hiring needs.	Link
Urban Institute	People with Personal Challenges to Work	Explores how personal barriers — like transportation, childcare, health, and language — affect individuals' access to employment and training.	Link
USDA Economic Research Service (ERS)	Food Access Research Atlas Documentation	Explains data sources, indicators, and methodology behind USDA's interactive mapping tool tracking food access across the U.S.	Link
USDA ERS	Food Security in the U.S. Survey Tools	Offers detailed survey instruments used to assess food security levels among U.S. households.	Link
Utah State Legislature	H.B. 260 First Credential Program	Establishes a credential program with funding and a performance-based incentive tied to credential attainment, effective July 1, 2025.	Link
Van-Kim Bui Lin, Silvana Esposito Hackett, Dale Epstein Richards, Carlise King, Meg Bredeson	System Transformation for Equitable Preschools: STEP Forward Data Framework	Outlines a data-informed framework for transforming preschool systems to ensure equity, with tools and implementation guidance.	Link
Vincent J Felitti, Robert F Anda, Dale Nordenberg, David F Williamson, Alison M Spitz, Valerie Edwards,Mary P Koss, James S Marks,	Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults	Classic trial demonstrating that workplace health programs can significantly improve employee health behaviors.	Link
Virginia Department of Taxation	Business Development Credits	Describes Virginia's worker training tax credit program for employer-sponsored workforce training.	Link

Organization	Publication	Description	Source
Wally Gobetz	New Colorado Legislation Links CTE and Apprenticeship Systems	Describes Colorado's 2024 legislation aligning CTE with state apprenticeship systems, including employer incentives, data systems, and credential evaluation.	Link
Washington Health Care Authority	Noncitizens	Washington allows noncitizens to access state-funded long-term care services under ACES and other medical programs.	Link
Wei-Cheng Mau, Amber Fernandes	Characteristics and Satisfaction of Students Who Used Career Counseling Services	A university-maintained open-access repository for scholarly works and resources.	Link
Wendy L. Tackett, Kelley PasattaFollow, Evan Pauken	Lessons Learned from a Summer Melt Prevention Program	Explores students' views on the importance of developmental relationships in educational programs.	Link
WIC Works Resource System	About WIC Works	Provides nutrition supplementation, health screenings, and referrals to low-income pregnant/postpartum individuals and children under age five via the WIC program.	Link
Wikipedia	Educational inequality in the United States	Discusses how disparities in funding, policies, family wealth, and systemic bias result in unequal educational outcomes in the U.S.	Link
Xiangliang Liu	Effect of Teacher–student Relationship on Academic Engagement: The Mediating Roles of Perceived Social Support and Academic Pressure	Finds strong teacher–student support correlates with increased academic engagement via perceived social support and pressure mediation.	Link
Youthprise	Homepage	An initiative supporting youth empowerment in Minnesota through leadership development, cultural engagement, and community involvement.	Link

StriveTogether®

Every child. Cradle to career.

StriveTogether is a national network of community partnerships that join together neighbors, including youth and families, nonprofits, businesses, schools and more, to work toward a future where youth can thrive in their communities. Cradle to Career Network members change the way their communities work together by building connections, sharing resources and using data to put more young people on a path to economic mobility. Our work helps young people meet seven key life milestones so that they have the opportunities they need to reach their goals, and, ultimately, thrive.

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