StriveTogether®

Every child. Cradle to career.

Cradle-to-Career Outcomes Playbook: Postsecondary Completion

Contents

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Contributors

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Introduction

When students complete a postsecondary pathway, they unlock greater opportunities — for themselves, their families and their communities. A degree, credential or apprenticeship can open doors to well-paying careers, long-term stability and upward mobility. It's not just about finishing school — it's about building a future with real choices, economic independence and the ability to thrive. Supporting more students to complete their chosen path is one of the most powerful ways communities can invest in individual potential and collective prosperity.

This playbook is designed to help educators, community leaders and policy makers increase postsecondary completion — whether through two- or four-year degrees, industry-recognized credentials, registered apprenticeships, military service or skilled trades programs. These pathways share a common goal: preparing students for careers that offer a living wage and a clear path to upward mobility.

To do this effectively, community leaders need evidence-based insights on what helps young people persist and complete postsecondary pathways — but accessing that information can be difficult. Too often, leaders spend valuable time searching for research when they could be focused on driving solutions with their communities. Consider three real examples:

- An organization is expanding its student success initiatives and needs a clear understanding of the key factors that influence postsecondary completion.
- A cross-sector group of educators, employers and community leaders is convening to identify concrete, evidence-based strategies to help students not only enroll, but stay enrolled and earn credentials that lead to a living wage.
- A city planning group working to boost local employment is meeting with business leaders and needs compelling research on how improving postsecondary completion rates strengthens the workforce and economy.

This playbook is a practical guide to research and best practices for improving postsecondary completion. It equips community leaders with the tools to identify opportunities, co-design effective strategies with their communities and build support for collective action — ensuring more young people finish what their degrees and move confidently into adulthood.

The playbook is organized around 14 essential questions that help communities understand their starting point and identify potential focus areas. Each question aligns to research-based topics that support postsecondary completion 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

Here's one example:

Essential Question *Areas to focus*	**Indicators** *Metrics to track*	**Practices and Policies** *Actions to take*
To what extent are students completing their chosen postsecondary pathway?	Degrees and Certificates Awarded. Annual number of certificates, associate degrees, bachelor's and graduate degrees awarded; disaggregated by age group, gender, race/ethnicity, Pell status (at any time), remedial status (at any time), transfer/ first-time students and discipline. Measures how many undergraduate degrees and certificates the state's system of postsecondary education and its public colleges and universities are awarding annually and to measure change over time (Complete to Compete).	Offer structured programs of study: Research in behavioral economics and other fields suggests that students perform better when offered a limited set of clearly defined program options that have well-structured or prescribed paths to completion (see Scott-Clayton, 2011) (Get with the Program). Integrated student supports: Community college students are more likely to benefit from student support services that are integrated into the educational experience and that help students (a) create social relationships, (b) clarify aspirations and enhance commitment, (c) develop college know-how and (d) address conflicting demands of work, family and college (see Karp, 2011) (Get with the Program).

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 Completion

Postsecondary Completion. Postsecondary completion — whether a college degree or a work-based credential — is one of the most powerful drivers of economic mobility. Individuals who complete a program are significantly more likely to access higher wages, stable employment and career advancement, while those who enroll but do not finish often miss out on these benefits and may carry debt without the income to offset it.	
1	To what extent are students completing their chosen postsecondary pathway, earning degrees and/or credentials of value?
2	Are students completing credentials of value after high school that set them up for success in the workforce?
3	Are students attending institutions with well-designed programs that help them efficiently move towards degree completion?
Postsecondary Persistence. Postsecondary persistence refers to a student's continued enrollment in a college, university or other postsecondary pathway from one academic term to the next. Persistence matters because it strongly predicts whether a student will ultimately complete a degree or credential, which is linked to greater career opportunities, economic mobility and long-term stability.	
4	Are students experiencing sufficient early momentum in postsecondary education to be on track for on-time completion?
5	Do students have access to adequate support to enable them to succeed academically and in the workforce?
6	Are students attending institutions (either 2-year colleges, 4-year colleges or career training) offering quality pathways that lead to employment in quality jobs?
7	Do students attend postsecondary institutions that provide adequate financial aid and that are adequately funded to offer a quality educational experience?
Support networks that build social capital. Students with strong relationships — such as mentors, peers, advisors and supportive adults — are more likely to stay motivated, navigate challenges and persist to completion. For first-generation and low-income students especially, these social connections provide critical social capital, bridging gaps in knowledge and confidence, fostering a sense of belonging and increasing the likelihood of earning a degree or credential.	
8	Do students have strong, supportive relationships with professors, mentors and other influential adults?
9	Do students have access to paid, relevant internships, work-study programs, apprenticeship programs or other work-based learning opportunities?
10	Do students have effective, representative college and work-based learning educators?

Experiences and neighborhood conditions. Students who live in well-resourced neighborhoods, where families have access to public support — such as healthcare, nutrition programs and economic assistance — are more likely to thrive academically.	
11	Do families live in well-resourced neighborhoods?
12	Do families with children have access to public support (i.e., health care access, nutrition programs, economic support, etc.)?
Positive, supportive environments. Students living in neighborhoods with ample resources and access to public services like healthcare, healthy foods and financial aid tend to perform better academically.	
13	Do students attend postsecondary institutions and programs with safe and inclusive environments?
14	Do students attend postsecondary institutions that prioritize their social, emotional and physical development and well-being?

The Case for Postsecondary Completion

Postsecondary completion marks a critical step on the path to opportunity, but completion — not just enrollment — is what ultimately unlocks economic mobility and long-term stability. Completion refers to successfully earning a degree, credential or skill-based certification from a college, training program or apprenticeship. Whether through two- or four-year colleges, career and technical education (CTE), industry-recognized certifications or skilled trades, finishing what the postsecondary path one starts is what delivers real returns for individuals and communities.

Research consistently shows that completing a postsecondary credential significantly increases lifetime earnings. According to Georgetown University's Center on Education and the Workforce, an associate's degree holder earns about $400,000 more over a lifetime than someone with only a high school diploma and a bachelor's degree holder earns $1.2 million more. The return on investment in postsecondary education depends heavily on completion; those who start but do not finish often carry debt without the income increase to repay it.

Beyond income, completion enhances job stability and access to benefits. Workers with verified postsecondary credentials are less likely to be unemployed during economic downturns and more likely to secure jobs with benefits such as health insurance, retirement savings and paid leave. Completion also opens doors to career advancement. Many middle- and high-skill jobs require a completed credential to move up the ladder.

Importantly, increasing postsecondary completion rates is also a powerful strategy for promoting opportunity. For students from low-income families, first-generation college-goers and Black and Latine communities, completing a credential can dramatically change life trajectories. Research from the Institute for Higher Education Policy shows that students of color who complete postsecondary programs are far more likely to move from the lowest income bracket into the middle or upper brackets. These benefits often extend across generations — children of parents who complete postsecondary programs are more likely to pursue and finish their own education.

Completing a postsecondary program is associated with broader personal and civic well-being. Credential holders report higher life satisfaction, stronger health outcomes and greater participation in civic life, including voting and community leadership. Completion also reinforces a sense of confidence and capability, which fuels ongoing learning and personal growth throughout adulthood.

In today's economy, Postsecondary Completion is only the beginning. Completion is the catalyst — it's what transforms potential into progress. It turns a training program into a paycheck, a classroom into a career and a first step into a lifetime of opportunity. For students, communities and the nation as a whole, the true value of postsecondary pathways lies in helping every learner reach the finish line.

About the Postsecondary Completion Playbook

StriveTogether's Cradle-to-Career Playbook: Postsecondary Completion synthesizes leading research, indicators and evidence-based practices to promote equitable outcomes in postsecondary completion 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 14 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 Completion 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. 87% of the indicators, practices and policies (45 out of 52) included in the Postsecondary Completion Playbook come from the Education-to-Workforce Framework.

About the playbook structure

The playbook is organized around 14 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 14 essential questions help communities ask and answer questions that help them identify areas where co-designed solutions can improve postsecondary completion 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 Completion helps communities identify key metrics to track, pinpoint effective strategies and determine where to start, enabling them to steadily improve postsecondary completion rates for all learners over time.

Indicators: metrics to track

Contributing indicators help communities see what it looks like when postsecondary completion 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 graduating college with a degree). 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 college advising programs, 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 completion 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?

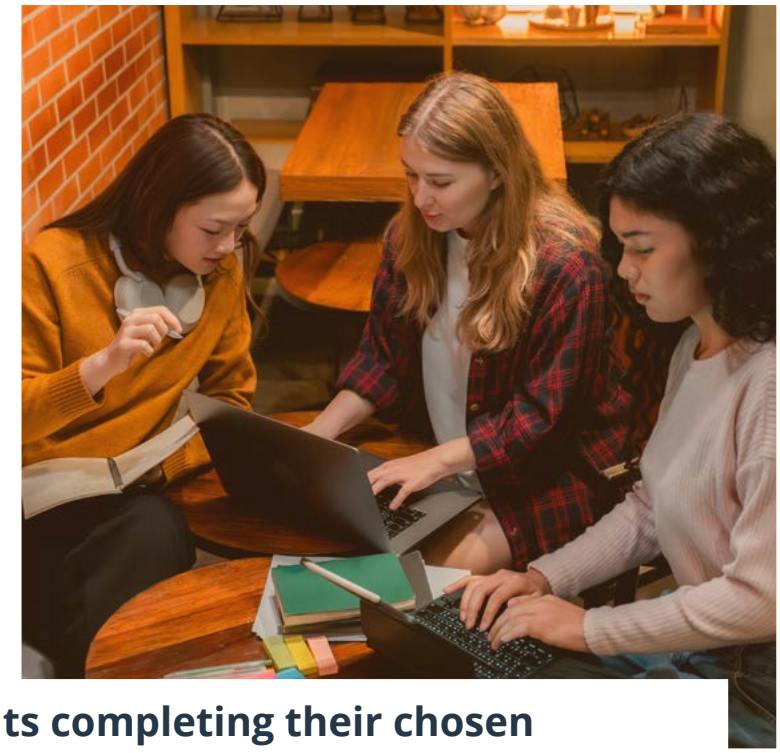
This resource does not replace the voice and perspective of community members, who often know the solutions that will work best in their communities. Instead, consider this playbook a resource that community members can also access to support the co-designing of solutions and to inform your planning. 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 Completion highlights initiatives and examples from StriveTogether Cradle to Career Network members making clear progress on their postsecondary completion outcomes, illustrating what has worked for them.

Postsecondary Completion

Postsecondary completion — whether a college degree or a work-based credential — is one of the most powerful drivers of economic mobility. Individuals who complete a program are significantly more likely to access higher wages, stable employment and career advancement, while those who enroll but do not finish often miss out on these benefits and may carry debt without the income to offset it.



1 To what extent are students completing their chosen postsecondary pathway?

Why this matters

Earning a postsecondary degree or industry-based certificate has significant benefits for both young people and their communities. Research from Georgetown University's Center on Education and the Workforce shows that individuals with a postsecondary credential earn substantially higher lifetime wages than those with only a high school diploma — up to $1 million more on average. Postsecondary attainment is also linked to lower unemployment rates, better health outcomes and higher civic engagement (Baum, Ma, & Payea, 2013).

Postsecondary completion drives both individual and community outcomes. For communities, postsecondary opportunities support local economic growth, reduce poverty and create a more skilled and adaptable workforce — factors that are essential for attracting and sustaining businesses and fostering innovation. For individuals, particularly young people in underserved areas, earning credentials increases the likelihood of breaking cycles of generational poverty and contributing to intergenerational upward mobility.

However, many regions face a mismatch between the number of graduates and the needs of their labor markets, particularly in high-demand fields such as healthcare, engineering, IT and skilled trades. This gap varies by region: rural areas experience persistent shortages of nursing, education and social work graduates; urban tech hubs struggle to produce enough computer science, data analytics and cybersecurity professionals; and manufacturing-intensive regions face deficits in mechanical, electrical and industrial engineering graduates. Addressing this gap is critical to ensuring that both communities and individuals can fully realize the economic and social benefits of higher education.

Postsecondary certificate or degree completion *Key source: E-W Framework*

Indicators

Contributing indicators

- Degrees and Certificates Awarded. Annual number of certificates, associate degrees, bachelor's and graduate degrees awarded; disaggregated by age group, gender, race/ethnicity, Pell status (at any time), remedial status (at any time), transfer/first-time students and discipline. Measures how many undergraduate degrees and certificates the state's system of postsecondary education and its public colleges and universities are awarding annually and to measure change over time (Complete to Compete).
- Graduation Rates. Number and percentage of entering undergraduate students who graduate from a degree or certificate program within 100%, 150% and 200% of program time. Disaggregated by degree/credential type, race/ethnicity, gender, age group, Pell status (at time of entry) and remedial status (at time of entry). Measures the rate at which students graduate from a public institution of higher education (Complete to Compete).
- College completion, disaggregated by key population metrics. Significantly increasing college completion will require closing the gaps in success rates for low-income and minority students, as well as ensuring the success of targeted subgroups such as adults, transfer students, part-time students and students who required remedial education. The metrics should also facilitate measuring progress on a state's specific postsecondary goals, such as increasing the number of graduates in science, technology, engineering and mathematics (STEM) or health fields. To understand and track improvement, outcome and progress metrics must be disaggregated by race/ethnicity, gender, income (Pell Grant recipients), age group, student attendance status, transfer versus native-to-the-institution students, degree type and discipline. States may also wish to flag within their data systems those students who graduated from high schools within the state ("in-state" students). For all of these metrics, the standard rule of nondisclosure of personally identifiable information applies. States and institutions should not publicly report disaggregated data that pertain to a sample size (N) of 10 or fewer students (Complete to Compete).
- Graduation rates for (a) first-time, full-time associate degree-seeking students; (b) first-time, part-time associate degree-seeking students; (c) Transfer at entry associate degree-seeking students; (d) first-time, full-time bachelor's degree-seeking students; (e) first-time, part-time bachelor's degree-seeking students; (f) transfer at entry bachelor's degree-seeking students; (g) first-time, full-time certificate-seeking students; (h) first-time, part-time certificate-seeking students (Complete to Compete).
- Transfer Rates (for community colleges only). Annual number and percentage of students who

transfer from a two-year campus to a four-year campus by race/ethnicity, gender, age group, Pell status (at time of entry) and remedial status (at time of entry). Measures the proportion of students successfully transferring from two-year institutions of higher education to four-year institutions of higher education (Complete to Compete).

- Time to degree. Average length of time in years a student takes to complete an associate degree, a bachelor's degree, or a certificate of one year or greater normal program time. Start with the degrees/certificates awarded in a specified year and determine how many total years and months elapsed from the first date of entry to the date of completion. Partial years should be expressed as a decimal. Average the number of years across students and report by degree type. Measures the average length of time in years and number of credits to complete a certificate or undergraduate degree by student entry status, race/ethnicity, gender, age groups, Pell status (at any time), remedial status (at any time) and discipline (Complete to Compete).
- Credits to degree. Average number of credits a student has accumulated when they earn an associate degree, a bachelor's degree or a certificate of one year or greater. Start with the degrees/certificates awarded in a specified year and determine the total number of credit hours each student completed since first enrolling. Average the number of credit hours across students and report by degree type. Measures the average length of time in years and number of credits to complete a certificate or undergraduate degree by student entry status, race/ethnicity, gender, age groups, Pell status (at any time), remedial status (at any time) and discipline (Complete to Compete).
- Enrollment in Remedial Education. Annual number and percentage of entering first-time undergraduate students who enroll in remedial math, English/reading or both math and English/reading courses; by race/ethnicity, gender, age groups, Pell status (at time of entry). Measures the proportion of undergraduate students who enroll in remedial coursework at public institutions of higher education (Complete to Compete).
- Success in Remedial Education. Annual number and percentage of entering first-time undergraduate students who complete remedial education courses in math, English/reading or both and complete a college-level course in the same subject; by race/ethnicity, gender, age groups, Pell status (at time of entry). Measures the proportion of undergraduate students who complete remedial education and go on to complete college-level coursework in the same subject within two academic years (Complete to Compete).
- Some College, No Credential (SCNC) population: U.S. adults who left higher education without receiving a postsecondary credential. Additional measurements for SCNC population: Re-enrollment after stopout, completion of a first credential and perseverance as indicated by continuing enrollment into a second academic year. Recent Stopouts consists of students who were newly identified as SCNC this year, having been stopped out (National Student Clearinghouse Research Center).
- Potential Completers: Students with at least two years of full-time equivalent enrollment in the last decade. Individuals in this group are called Potential Completers because the combination of credits accumulated and the relative recency of their prior enrollment makes them the most likely to be able to complete a degree or other credential (National Student Clearinghouse Research Center).
- Reasons for not starting or not finishing college. Survey responses include: (a) too expensive; (b) family responsibilities; (c) wanting to work; (d) simply not being interested in college; (e) not being admitted/low grades; (f) benefits of attending college were not worth the cost. Family responsibilities are the most common reason given for not completing a degree after starting college, cited by 38% of the respondents who dropped out as a reason for

not continuing their education (Federal Reserve, Economic Well Being).

- Educational attainment of adults ages 25 and older, disaggregated by race and ethnicity. A 2022 report by the American Council on Education observed the levels of educational attainment continued to rise for all racial and ethnic groups, yet the gaps — such as those for non-White, non-Asian adults who were less likely to get a college degree — remained large. (Note, data sourced from U.S. Census Bureau, Current Population Survey) (Race and Ethnicity in Higher Education).
- Undergraduate Completions across award levels, by race and ethnicity. A 2022 report by the American Council on Education observed that while postsecondary completions increased for all racial and ethnic groups, some consistently experienced poorer outcomes than those of other groups. Regardless of the institution type at which they began, Black or African American students were less likely than their peers from other racial and ethnic groups to complete a degree or certificate (Race and Ethnicity in Higher Education).
- Field of study for bachelor's degree recipients, by race and ethnicity. For instance, degrees organized as STEM fields, business, education, health care fields, social sciences, humanities, general studies and other applied fields. This report defines "other applied fields" as personal and consumer services; manufacturing, construction, repair and transportation; military technology and protective services; architecture; communications; public administration and human services; design and applied arts; law and legal studies; library sciences; and theology and religious vocations. (Race and Ethnicity in Higher Education).

System indicators

- Institution-level Enrollment. Annual unduplicated number of students enrolled over a 12-month period at public institutions of higher education, disaggregated by attendance status at entry (full-time or part-time), race/ ethnicity, gender, age and Pell recipient status at entry. Enrollment should be reported for each public institution and aggregated by sector and by certificate-seeking, associate degree-seeking, bachelor's degree-seeking and undetermined or courses-only. Measures the number of students enrolling at public institutions of higher education and to measure changes in enrollment over time, overall and for specific subgroups (Complete to Compete).
- Completion Ratio. Annual ratio of undergraduate degrees and certificates (of at least one year in expected length) awarded per 100 full-time equivalent (FTE) undergraduate students at the state level, disaggregated by race/ethnicity, gender and degree type. Measures the proportion of certificates (of at least one year in expected length) and undergraduate degrees awarded relative to undergraduate student enrollment at public institutions of higher education (Complete to Compete).
- Market Penetration. Annual ratio of undergraduate degrees and certificates (of at least one year in program length) awarded relative to the state's population aged 18-24 years old with a high school diploma. Measures the proportion of certificates (of at least one year in program length) and undergraduate degrees awarded at public institutions of higher education relative to the young adult age cohort for a state (Complete to Compete).
- Completions per student: The number of completions divided by the number of FTE students (based on 12-month enrollment) in a given year expressed as completions per 100 FTE. Measures the twelve-month FTE undergraduate enrollment and undergraduate credentials (certificates, associate's, bachelor's) conferred in a given year. Disaggregated by race/ethnicity, gender, age, credential level, program of study (at exit), academic preparation (at any time), economic status (at any time), first-generation status, enrollment status (at entry),

attendance status (at any time). Additional related metrics include: Change in number of completers; Change in FTE enrollment; Completion rates (IHEP, Toward Convergence).

- Learning outcomes assessments are used by institutions to demonstrate educational effectiveness transparently, effectively communicate program goals and outcomes to a variety of audiences and fulfill accreditation requirements. While not in use in federal data collections, learning outcomes data can be used by the institution and state to measure the quality of programs and institutions of higher education. For example, in 2012 and 2013, Massachusetts commissioned the Multi-State Collaborative for Learning Outcomes Assessment to compare outcomes with other states in partnership with AAC&U and SHEEO. Using the VALUE Rubrics as a common language, colleges and universities in Massachusetts used several metrics to create composite indicators of student learning, including: pass rates on national licensure exams and mean scores on graduate entrance exams. States and institutions use these exams as evidence that college students accumulated knowledge and skills while enrolled. Precollege and post-college scores are examined to gauge quality of learning and inform curricular or instructional changes (IHEP, Toward Convergence).
- Graduate Education Rate: The number and percentage of bachelor's recipients enrolling in post baccalaureate or graduate programs in one, five and 10 (optional) years of completion. Disaggregated by program of study (at exit),enrollment status, attendance intensity (at any time while enrolled), academic preparation (at any time while enrolled), economic status (Pell ever), race/ ethnicity, gender, age, first-generation status (IHEP, Toward Convergence).
- Other metrics related to Graduate Education Rate include: Relationship between undergraduate program of study and graduate program of study; Income, gender, or racial gaps in graduate education, especially STEM programs; Relationship between debt and graduate education enrollment or graduate program of study (IHEP, Toward Convergence).
- Outcome Rates – Graduation rate: The percentage of students in a cohort who earn the credential sought at their initial institution, up to 200% of program length. Measures twelve-month incoming student cohorts by credential level sought, enrollment status and attendance intensity at entry (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (at entry). Should be captured at least at 100%, 150% and 200% of program length and should be reported in real-time, not retroactively (IHEP, Toward Convergence).
- Outcome Rates – Success rate (graduation rate + transfer rate): The percentage of students in a cohort who either graduate with the credential initially sought at the initial institution or transfer to a longer program at the initial or subsequent institution(s), up to 200 percent of program length. Measures twelve-month incoming student cohorts by credential level sought, enrollment status and attendance intensity at entry (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (at entry). Should be captured at least at 100%, 150% and 200% of program length and should be reported in real-time, not retroactively (IHEP, Toward Convergence).
- Outcome rates provide a more complete picture of how effectively students achieve their postsecondary objectives, highlight institution-level student success and best reflect the information needed by students, policymakers and institutions to understand and improve student outcomes. Outcome rates are used in tandem with persistence and retention rates to explore student mobility and success in

higher education even more fully (IHEP, Toward Convergence).

- Completers: The number of students who complete a credential in a given year. Measures all completers in a given year by credential level attained. Disaggregated by race/ethnicity, gender, age, academic preparation (at any time), economic status (at any time), first-generation status, program of study (at exit) and part-time (at any time) and transfer status. This completers metrics recommends counting the number of students who complete, as opposed to the number of credentials completed (IHEP, Toward Convergence).
- Other metrics related to completers: Cross tabulations of credentials awarded by key disaggregates (e.g., race and gender); Distribution of credentials awarded by program of study; Distribution of credential awarded to underrepresented populations; Credentials awarded to underrepresented populations in STEM; Time and credits to credential (IHEP, Toward Convergence).
- The number and percentage of youth working full-time or attending school / college as their primary activity. Individuals not working full-time or attending school/ college as their primary activity are considered "Opportunity Youth" (The Economic Value of Opportunity Youth).
- Opportunity Youth Intensity Measure: This approach gives youth a weighted value equal to 1 if they are completely an opportunity youth and zero if they are fully employed or in full-time education. So, a person who is in college half-time (and not working) is counted as 0.5 of an opportunity youth; a person who works for three months of the year is counted at 0.75; and a person who does both these activities in the same year is counted as 0.25. This method captures the balancing of work and education, as well as measuring low engagement of youth; and it sheds more light on what opportunity youth might be able to do (The Economic Value of Opportunity Youth).
- Chronic Opportunity Youth: These individuals are most likely different from students who are intermittently out of school or unemployed. Chronic status may be triggered by involvement in juvenile crime and vice versa. We distinguish chronic opportunity youth as a subset of all opportunity youth: the former are likely to require different supports and policy interventions from those youth who are partially attached to the labor market or enrolled part-time in higher education (The Economic Value of Opportunity Youth).
- A high school's promotion power, that is, the school's impact on the long-term success of its students, as indicated by high school graduation, college or career readiness, college enrollment and persistence and success in the job market. Measures of promotion power aim to fairly compare schools serving different populations of students. The measures are based on statistical models developed by Mathematica that identify schools' contributions to students' long-term outcomes separately from other factors, such as prior achievement and demographic characteristics (Mathematica, The Promotion Power Impacts of Louisiana High Schools).

Practices and Policies

Practices

- Institutions can compare graduate education rates with the mission of their programs to see if their credentials are in fact preparing students for their intended outcomes – either employment or further education. If graduate education rates are not consistent with expected student outcomes (i.e., the continuing education rate is low for a program that should be the foundation for graduate school education), then leadership can evaluate why student pathways are inconsistent with the institution's or program's goals. Because this metric is disaggregated by program of study, institutions also can evaluate the enrollment of specific populations of students into graduate programs, specifically for the STEM fields and

measure whether students enroll in a program similar to that of the undergraduate degree (IHEP, Toward Convergence).

- Institutions can use counts of completing students to demonstrate productivity and their institutional contribution to the workforce and society. Especially when disaggregating by demographic characteristics, top-performing institutions can make the case that they are contributing large numbers of underrepresented college graduates. Alternately, these data on completers could show that some institutions are producing very few graduates in certain fields (e.g., STEM) or from certain student groups (e.g., African Americans) or a cross between the two (e.g., African American STEM graduates). These results can trigger the college to investigate the cause for small numbers or gaps and evaluate whether their credential awarding patterns align with institutional goals and workforce needs. Students and policymakers can employ this metric to examine the types of students that succeed at a particular college, contributing to informed school selection and strategic policies that advance those institutions that serve all students well. For example, many states include the number of credentials awarded or students completing — particularly for underrepresented student groups — in their outcomes-based funding formulas (IHEP, Toward Convergence).
- The Completions per Student metric is intended to show how effectively institutions turn credential-seekers into credential-holders. Some institutions use this metric to illustrate student progress toward graduation. For example, the University of Texas-El Paso uses a similar degree-production ratio that compares the total number of FTE undergraduates enrolled four years earlier with the total number of baccalaureate degrees awarded that year. These data can supplement the traditional IPEDS graduation rates by capturing completions regardless of whether the student began with a first-time, full-time status, although the more inclusive completion rates recommended as part of this framework can alleviate this issue. Policymakers can also use this metric, in conjunction with success rates, to determine how many credentials institutions award in relation to how many students they enroll. Some states, like Tennessee, include a similar completion per 100 FTEs metric in their outcomes-based funding models (IHEP, Toward Convergence).
- Learning outcomes: Public display of student learning goals, assessments and outcomes using the National Institute for Learning Outcomes Assessment's (NILOA's) Transparency Framework. Institutions also should consider using Lumina Foundation's Degree Qualifications Profile (DQP) and the Association of American Colleges & Universities' (AAC&U's) Valid Assessment of Learning in Undergraduate Education (VALUE) Rubrics to develop, refine and measure mastery of learning outcomes. Disaggregated by credential level, economic status (Pell ever), race/ethnicity and academic preparation, program of study (IHEP, Toward Convergence).
- Learning outcomes strive to quantify what students learn through their credential program. States and institutions should use these rubrics and assessment tools to benchmark progress on student outcomes and to refine teaching and curriculum to improve student learning. Institutions can use these tools to understand where gaps in student learning exist, especially for specific student groups (e.g., low-income students and students of color), restructure and revise course structure and content and continuously improve student academic achievement (IHEP, Toward Convergence).
- Critically examine and refine how students connect with college by having recruitment, advising and academic departments ask these questions: How can we improve understanding among high school students about the credential program opportunities offered by the college?

How can we motivate and guide students to prepare to enter a college-level program of study as soon as they graduate high school? Can we more effectively recruit students from adult basic skills, non-credit vocational and community-based education programs into college-level programs of study? (Get with the Program).

- Ideas for increasing the number of new students entering the college motivated and prepared to enter a college-level program of study: (a) Create marketing materials for use with prospective students showing the major program streams offered by the college, where each stream is designed to lead in terms of further education and (for CTE programs) career advancement and what students who want to enter a given stream need to do to succeed in it; (b) Partner with feeder high schools to provide orientation to college program options and requirements as well as early assessment of college readiness, beginning in the sophomore year; (c) Reorient dual or concurrent high school–college enrollment programs to encourage high school students to enter college-level programs, not just take college-level courses, while they are still in high school; (d) Build "bridge" programs that enable adult basic skills students to advance to college-level programs, especially in career–technical fields (Get with the Program).
- Questions that colleges' advising staff, in partnership with developmental education and academic departments, should be asking regarding students' entry into a program of study: What guidance and support can we provide to help students develop clear goals for college and careers and choose a program of study as soon as possible? What approaches to remedial instruction are most effective for preparing academically underprepared students to enter and succeed in a program of study? How can we help students who are attempting to enter a program of study pass the gatekeeper courses that often prevent students from getting on a program path? (Get with the Program).
- Ideas for increasing the rate and pace at which students enter a program of study: (a) Require all degree-seeking, first-time college students to develop a program completion plan; (b) Require all first-time college students to take a three-credit college success course (ideally in their first term) that exposes students to college program options and requirements, helps them develop a program completion plan tied to goals for further education and employment and provides instruction in "college success skills," such as note taking, test taking and time management; (c) Customize remedial offerings for each major program stream (e.g., liberal arts, STEM, business, allied health, engineering technologies, etc.) with contextualized instruction to ensure that students are mastering the basic skills and knowledge that are essential for success in the given stream; (d) Require students who need remediation to take a prescribed set of courses that includes a college success course, customized remedial instruction and an introductory college-level survey course in a program area of interest (Get with the Program).
- Questions that academic departments, in consultation with student services staff, should be asking regarding student progress: Are we effectively tracking and advising program concentrators to ensure that they are making progress toward completion? Are our programs well structured so that students can complete them as quickly as possible? Are required courses offered when students need to take them? (Get with the Program).
- Ideas for accelerating rates of student progress and program completion: (a) Strongly recommend that all students declare a program of study within the first year and require them to keep up-to-date a program completion plan; (b) Improve instruction and integrate supports into coursework to help students pass gatekeeper courses in each program area; (c) Assign concentrators to program faculty advisors who will regularly meet with them to ensure that

they are progressing according to their program plans; (d) Ensure that the courses required to complete each program are offered regularly and on a schedule convenient to students (Get with the Program).

- Questions that academic departments and top administrators should be asking regarding student completion: Are our academic program options and requirements clearly defined for students entering the college and for program majors? How are we assessing whether students are mastering the skills and knowledge that our programs seek to teach them? What can we learn from baccalaureate program faculty, employers and program alumni to ensure that our programs prepare students to succeed in further education and (with career–technical programs) advance in the labor market? (Get with the Program).
- Ideas for ensuring that programs of study are coherent and prepare for success in further education and (for CTE) employment: (a) Consolidate program offerings into a small number of program streams (such as liberal arts/transfer, business, allied health and nursing, engineering technology, education, consumer services, etc.), each with a limited set of clearly specified programs leading to credentials; (b) Clearly map out for each program a prescribed sequence of courses, limiting the number of elective courses; (c) Regularly communicate with faculty and administrators in partner baccalaureate programs to ensure that program curricula are aligned with transfer requirements; (d) Regularly communicate with employers to ensure that CTE programs are meeting labor market requirements; (e) Survey recent graduates for their suggestions for how the programs they completed could be improved (Get with the Program).
- Offer structured programs of study – Research in behavioral economics and other fields suggests that students perform better when offered a limited set of clearly defined program options that have well-structured or prescribed paths to completion (see Scott-Clayton, 2011) (Get with the Program).
- Provide contextualized instruction – Evidence is promising for approaches to teaching basic skills in the context of instruction in content area subject matter (see Perin, 2011) (Get with the Program).
- Acceleration – Evidence suggests colleges may be able to increase the rate at which students needing remediation advance to college-level study through various approaches, including restructuring of courses using instructional technology and "mainstreaming" higher-level remedial students into college-level courses with added support (see Edgecombe, 2011) (Get with the Program).
- Integrated student supports – Community college students are more likely to benefit from student support services that are integrated into the educational experience and that help students (a) create social relationships, (b) clarify aspirations and enhance commitment, (c) develop college know-how and (d) address conflicting demands of work, family and college (see Karp, 2011) (Get with the Program).
- Strong, outcomes-oriented leadership. College leaders, including not only top administrators but also faculty leaders, deans and department chairs, need to agree on and communicate a clear and compelling vision for improving student outcomes and set ambitious goals that faculty and staff will want to work to achieve (Get with the Program).
- Broad-based engagement and supporting professional development. Obviously, substantial change in community college practice will not happen without the active support and involvement of faculty and student services staff. Therefore, college leaders need to empower faculty and staff from across divisions to address the questions outlined above; identify priority areas for improvement; and implement, evaluate and further improve changes to practice. Leaders

also need to provide resources for professional development that strategically supports the efforts by faculty and staff in the redesign work. This reframes professional development as an activity that supports the collective involvement of faculty and staff in the redesign process rather than an activity that mainly supports professional growth of faculty and staff as individuals (Get with the Program).

- Evidence-based improvement. To the extent possible, decisions on how to improve practice should be supported by evidence. Colleges should assess the effectiveness of earlier efforts to improve student success. Moreover, any new innovations should be evaluated to ensure they are helping to improve student outcomes (Get with the Program).
- Attention to cost-effectiveness and productivity. Colleges should evaluate not just the effectiveness of innovations but also their costs. In general, the goal should be to increase organizational productivity—that is, to increase rates of student success and improve student learning outcomes without requiring net additional staff and monetary resources (Get with the Program).
- Re-engaging with the Some College, No Credential (SCNC) population has broad benefits for states, institutions and students. For states, seeing additional SCNC students earn credentials can help to increase the attainment levels of their workforces and make their economies more competitive. For institutions, SCNC students can help address enrollment shortfalls amid a shifting demographic landscape. Perhaps more importantly, helping SCNC students through completing their first credentials can advance institutional missions to drive social mobility for students of all backgrounds. For SCNC students, reengaging with higher education can mean reclaiming dreams and aspirations along with the chance to realize social and economic mobility by earning credentials that start or advance careers and boost earnings (National Student Clearinghouse Research Center).
- States and institutions could look to the Potential Completer population to help reach their re-engagement and attainment goals in equitable ways. Hispanic, Black and Native students are well-represented in this group, which is almost twice as likely to complete credentials within two years of re-enrollment as their other SCNC peers. Potential Completers who earn credentials are also more likely to earn associate and bachelor's degrees than other SCNC re-enrollees (National Student Clearinghouse Research Center).

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

- 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 need (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).
- 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).
- 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).
- 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).

- 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).
- 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, Hispanic 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 formula since 2010 (Massachusetts Business Alliance for Education).

Indicators

Contributing indicators

- Outcomes six years after transfer for students who transferred to four-year public institutions (National Student Clearinghouse, Baccalaureate Attainment).
- Outcomes six years after transfer for students who transferred to four-year private nonprofit institutions (National Student Clearinghouse, Baccalaureate Attainment).
- Outcomes six years after transfer for students who transferred to four-year private for-profit institutions (National Student Clearinghouse, Baccalaureate Attainment).
- Baccalaureate outcomes six years after transfer by Carnegie Classification of transfer destination institution (National Student Clearinghouse, Baccalaureate Attainment).
- Eight-year baccalaureate outcomes of students who began at four-year and two-year institutions (National Student Clearinghouse, Baccalaureate Attainment).
- Completion and persistence outcomes are disaggregated by gender, enrollment intensity, transfer institution type, length of pretransfer enrollment at a two-year institution and time lapse between two- and four-year institution enrollments (National Student Clearinghouse, Baccalaureate Attainment).
- Strategic transfer: Formal transfer from a community college to a four-year college and formal transfer from one four-year college to another were positively associated with degree completion, but wandering from one school to another was not. In fact, the nomadic multi-institutional attendance behavior increasingly known as 'swirling,' held a significant and negative relationship to degree completion (The Toolbox Revisited).
- Outcome Rates – Transfer rate: The percentage of students in a cohort who transfer into longer programs at the initial or subsequent institution(s), up to 200 percent of program length. Measures twelve-month incoming student cohorts by credential level sought, enrollment status and attendance intensity at entry (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ethnicity, gender, age, first-generation status and program of study (at entry). Should be captured at least at 100 percent, 150 percent and 200 percent of program length and should be reported in real-time, not retroactively (IHEP, Toward Convergence).
- Baccalaureate attainment among two-year and four-year starters (National Student Clearinghouse, Baccalaureate Attainment).
- Length of enrollment in two-year institutions and baccalaureate attainment (National Student Clearinghouse, Baccalaureate Attainment).
- Stop-out time between two-year and four-year enrollments and baccalaureate attainment (National Student Clearinghouse, Baccalaureate Attainment).
- Equity Index for a target student demographic group: The percent of Associate Degree for Transfer (ADT) Earners who are of a target student demographic group divided by the percent of Degree/Transfer Aspirants who are of that student demographic group. An Equity Index score of less than 1.0 shows that the target student group is under-represented among ADT earners, relative to the degree/transfer-seeking population (College Opportunity, Chutes or Ladders).
- Community college students complete at least 60 semester credits before transferring to university. Transferring to a university is a typical outcome measure for community

colleges and is generally assumed to signify a student having earned two years of credit toward a bachelor's degree. Under the typical understanding of transfer, a student completes at least 60 semester credits of lower-division coursework at a community college and then moves to a university to complete an additional 60 credits of upper-division coursework for the typical bachelor's degree requiring a total of 120 credits. However, few students follow this ideal transfer path to the baccalaureate, moving on to a university after accumulating far fewer than 60 credits. A 2009 study of California Community College (CCC) student outcomes by C. Moore et al. found that transfer students who did not complete a transfer curriculum were less likely to have completed the important gateway courses in English and math within two years of enrolling in the CCC. They may have entered college with lower levels of academic preparation, requiring enrollment in remedial coursework in these subjects. Policies requiring early enrollment in English and math for degree-seeking students and effective practices for getting underprepared students through developmental coursework expeditiously, would likely get more transfer-oriented students on the pathway to completing a full transfer curriculum. The students not completing a transfer curriculum were also less likely to have taken a college success course, giving them less opportunity to gain an understanding of the transfer process through the curriculum in those courses. A primary factor distinguishing students who did complete a transfer curriculum from those who did not was completing at least 20 credits in the first year. Students who did not complete a transfer curriculum had a substantially lower credit completion ratio in the first year, likely contributing to their lesser likelihood of accumulating 20 credits. Examples of interventions in response to this finding include integrating supplemental instruction into courses with high drop/failure rates, instituting "early alert" systems to identify students having trouble in courses and implementing policies that limit the number of course withdrawals (Steps to Success).

System indicators

- Transfer-out rate: The number of transfer students who started at the community college divided by the number of students in the community college's fall cohort (National Student Clearinghouse, Tracking Transfer).
- Transfer-with-award rate: The number of transfer students who started at the community college and earned a certificate or associate degree from that college prior to their earliest enrollment at a four-year institution, divided by the number of transfer students in the community college's fall cohort (National Student Clearinghouse, Tracking Transfer).
- Transfer-out bachelor's completion rate: The number of transfer students who started at the community college and earned a bachelor's degree from any four-year institution within six years of community college entry, divided by the number of transfer students in the community college's fall cohort (National Student Clearinghouse, Tracking Transfer).
- Transfer-in bachelor's completion rate: The number of transfer students in the fall cohort who started at any community college and earned a bachelor's degree from the four-year institution within six years of community college entry, divided by the number of transfer students in the fall cohort who started at any community college and enrolled at the four-year institution. Transfer students who enrolled at multiple four-year institutions were counted for each four-year institution (National Student Clearinghouse, Tracking Transfer).
- Community college cohort bachelor's completion rate: The number of students who started at a community college and earned a bachelor's degree from any four-year institution within six years of community college entry, divided by the total number of students in the community

college's fall cohort (National Student Clearinghouse, Tracking Transfer).

- Racial, ethnic and economic composition of two-year colleges: A study by Wassmer, R. et al. shows that community colleges with higher percentages of either Latino or African American students have lower 6-year transfer rates. The findings also confirm the results of other studies: community colleges with higher transfer rates tend to have younger student populations, students with higher socioeconomic status and better academic preparation and a greater focus on academic programs (Wassmer, R. Effect of Racial/Ethnic Composition on Transfer Rates in Community Colleges).

Practices and Policies

Practices

- Advisors guide transfer students on taking courses aligned with planned degree: Students who do not seek a degree or certificate from a two-year institution before transferring may benefit from more careful guidance on course-taking so as to take more courses that count towards bachelor's degree requirements upon transfer (National Student Clearinghouse, Baccalaureate Attainment).
- Advisors inform students of the potential negative relationship of a longer stop-out between two-year and four-year enrollments to bachelor's degree completion. Indeed, in this era of postsecondary educational accountability, when certificate or degree completion has become a key metric for determining institutional effectiveness, it behooves community college policymakers to seek out institutional policy levers for increasing the proportion of students who complete their degree before transferring and transfer immediately upon completing their degree programs (National Student Clearinghouse, Baccalaureate Attainment).
- Create academic support programs for delayed-entry transfer students. Students who had a longer stop-out before enrolling in a four-year institution may need more assistance because they are transitioning not only to a four-year institution, but also back to postsecondary education in general. It may be wise for campus administrators at four-year institutions to create academic support programs for delayed-entry transfer students, much like the targeted support programs at many institutions that assist native first-year students who have been identified as at-risk (National Student Clearinghouse, Baccalaureate Attainment).
- Institutions implement customer relations management tools (CRMs) to enhance student success. These tools use student enrollment information to communicate directly to students regarding their course-taking behaviors and related enrollment patterns and about the optimal paths for course taking and transfer to four-year institutions (National Student Clearinghouse, Baccalaureate Attainment).
- In 2+2 systems, policies guarantee the transfer and application of general education and pre-major course credits across institutions in a system and ensure transfer students can seamlessly enter university ready for upper-division major coursework. These systems provide more clarity for students and advisors about credits that transfer and apply to specific majors across a state or system. However, to take advantage of these policies, students must select their major early on. Further, in practice, variation in lower-division major requirements may persist to some degree across institutions in 2+2 systems (Improving Credit Mobility for Community College Transfer Students).
- In credit equivalency systems, policies have guarantees for the transfer and application of general education and some pre-major course credits across institutions in a system for all programs, the most popular programs, or programs with very specific lower-division coursework (Improving Credit Mobility for Community College Transfer Students).

- In institution-driven systems, policies guarantee the transfer and application of general education course credits, but the application of pre-major credit to majors and major-ready status are largely determined by individual institutions. In credit equivalency and institution-driven systems, community college students interested in transfer must select their major and destination institution early on to know what courses they need to take to stay on track to earning a bachelor's degree (Improving Credit Mobility for Community College Transfer Students).
- Develop "transfer college knowledge" early and at key milestones in students' academic career. Developing transfer college knowledge is not intended to be an additional task for secondary and postsecondary counselors, but rather should provide some structure and improve the limited time they already may have with students. Elements of transfer college knowledge could be used as a basis for a checklist or agenda of items to review with high school students interested in attending community college. Similarly, the list could be used with community college students during an orientation session on transfer or during a student success course focused on transfer. Additionally, such tools could be used to structure advising sessions where community college or university advisors check-in with students at the beginning of their first term and later, as students move through their college career and prepare to transfer (Improving Credit Mobility for Community College Transfer Students).
- Improve data systems and conduct research on credit mobility to determine policy effectiveness. States should pursue a robust research agenda that examines credit mobility and credit loss. Specific questions states might pursue include the following: Within a state, how many credits are transfer students bringing with them to university and how many of those apply to their majors? How do average credits transferred and applied to a major vary based on where students are transferring from/to? How do average credits transferred and applied to a major vary based on degree program? How do average credits transferred and applied to a major vary based on students' socioeconomic status, whether they are first-generation college students and other characteristics that might illuminate equity gaps in the problem of credit loss? (Improving Credit Mobility for Community College Transfer Students).
- Community college students interested in transfer would benefit from guided transfer pathways. Under a guided pathways model, community colleges provide students with more guidance and structure through intake processes and career counseling that encourage and help students select a major and career path, offer clearer curricular maps for majors or fields of interest and give ongoing student supports. In particular, guided meta-major or interdisciplinary program pathways may support students who are undecided about their major and future career pursuits (Improving Credit Mobility for Community College Transfer Students).
- Potential transfer students would benefit greatly from more intentional efforts to develop their transfer college knowledge starting in high school and continuing throughout their time at community college. Reviewing the elements of transfer college knowledge could help structure the content of orientation sessions, student success courses and check-ins with community college and university advisors (Improving Credit Mobility for Community College Transfer Students).
- State-level and system-level transfer policy reforms must be continuously evaluated, to better understand both the complexities of implementation and the extent to which the policies are achieving their intended goals. The next step for research is to begin to understand at a more systematic level the impact of recent developments in transfer policies on students' credit mobility and bachelor's degree completion. Continuing to highlight effective ways to ensure

transfer students do not lose the credits they earned or accumulate excess elective credits is essential to supporting the degree completion of millions of community college students each year, many of whom are the first in their families to go to college and who seek an affordable path to a bachelor's degree and, ultimately, a gainful career (Improving Credit Mobility for Community College Transfer Students).

Policies

- A study of transfer student outcomes by the National Student Clearinghouse reinforces the importance of the transfer function of community colleges in not only contributing to individuals' success in postsecondary education but also in helping to achieve the national goals for college completion. Students who transferred to a four-year public institution had the highest baccalaureate completion rate (65%), which is related to the number of credits students were able to transfer from their two-year institutions because of articulation agreements in place in many states (National Student Clearinghouse, Baccalaureate Attainment).
- Given that two-thirds of the transfer students in this cohort transferred without the benefit of a two-year credential, policymaking should focus on enabling students to align coursework with bachelor's degree requirements and transfer more credit hours (National Student Clearinghouse, Baccalaureate Attainment).
- State and federal policymakers should also consider creating incentives through financial aid programs or reduced tuition and/or statewide communication campaigns that encourage students starting at community colleges to carefully monitor the transferability of their courses, which would reduce their time-to-degree and, in all likelihood, the amount of debt they accrue on their way to earning a four-year degree. Policymakers should be interested in this point especially because federal financial aid policies have recently moved toward limiting eligibility or subsidies based upon an evaluation of whether or not a student is making progress toward completion in a timely fashion (National Student Clearinghouse, Baccalaureate Attainment).
- Include private and for-profit institutions in statewide articulation agreements. A study by the National Student Clearinghouse shows that students who transferred to four-year private for-profit institutions had the lowest bachelor's degree completion rate six years after transfer. This might be related to the fact that those students were least likely to benefit from the alignment of their pretransfer credit hours with coursework at the four-year institution, highlighting the need for statewide articulation agreements to include private for-profit institutions (National Student Clearinghouse, Baccalaureate Attainment).
- Improve access to two- to four-year transfers and encourage national calls for state policies and institutional practices that support more community college students who aspire to this pathway (National Student Clearinghouse, Baccalaureate Attainment).
- Refine policies to better meet the needs of undecided students: Use policy to assist institutions in creating and maintaining guided pathways with support. For example, North Carolina community colleges require that by 30 hours, students must meet with an advisor to select a major and destination institution and all students must take a student success course in which they map out their educational plan (Altstadt, 2014). Florida developed eight meta-major academic pathways; when students enroll, their advisor provides them with a pathway for the meta-major they are most interested in. Then, by 30 credit hours, students select a destination institution and an advisor informs them of the common prerequisite courses for that institution (Improving Credit Mobility for Community College Transfer Students).
- Refine policies to better meet the needs of undecided students: Education systems could

work together to develop a smaller number of transfer pathways at community colleges that lead to multiple bachelor's degree programs at four-year universities. This policy approach might limit the likelihood of taking the wrong course for a major if the student persisted in the same broad field during their college career. This is the same idea as meta-major transfer pathways. In Florida, systemwide meta-major transfer pathways specify a set of agreed-upon general education and pre-major courses for a set of degree programs or majors in the same field at four-year institutions in the state or system (Altstadt, 2014) (Improving Credit Mobility for Community College Transfer Students).

- Refine policies to better meet the needs of undecided students: Create bachelor's degree programs for college students, both transfer and native, who are uncertain about their path and want meaningful opportunities to explore different fields without accumulating excess credits. This might look like an interdisciplinary program. For example, in Washington, a community college transfer student who wanted to change majors was able to switch to an interdisciplinary major at university, which prevented any credit loss (Improving Credit Mobility for Community College Transfer Students).
- The Associate Degree for Transfer (ADT) is a specific type of associate's degree in California designed to make it easier for students to transfer from a California Community College to a California State University (CSU). Earning an ADT guarantees admission to a CSU, though not necessarily to a specific campus or major and provides priority consideration for admission. It also allows students to complete their bachelor's degree with a maximum of 60 additional units at the CSU. A study by the Campaign for College Opportunity studies ways to strengthen California Community College's Transfer of ADT-earning students. (California Community Colleges).
- Articulate a bold, intersegmental vision for transforming community college transfer with clear goals and benchmarks for improving timely transfer and completion and for reducing racial equity gaps: (a) Align lower division coursework, so that completion of a single-degree pathway will allow students to transfer to four-year colleges; (b) Increase the number of community college students transferring annually to a 4-year public or private, non-profit college college; (c) Decrease the number of credits accumulated by students on their path to transfer and to earning their degrees; (d) Reduce and close racial equity gaps, as well as regional disparities, in student outcomes (College Opportunity, Chutes or Ladders).
- Uplift and strengthen the ADT pathway, so that it becomes the preferred method of transfer for community college students across the state (College Opportunity, Chutes or Ladders).
- Communicate the benefits of the ADT to students as early as high school and again at the front end of their community college journey (College Opportunity, Chutes or Ladders).
- Establish ongoing professional development and staff training, so counselors and faculty have the necessary tools to guide students onto the pathway (College Opportunity, Chutes or Ladders).
- Prioritize the ADT for more transfer-seeking students by automatically placing students in an ADT pathway if one is available in the academic major they intend to pursue (College Opportunity, Chutes or Ladders).
- Phase out terminal associate degrees that do not give students the ability to transfer all their credits or provide them with on-ramps back into postsecondary in pathways for which equivalent ADTs have been developed (College Opportunity, Chutes or Ladders).
- Grow the number of subject offerings in STEM, where pathway development has lagged by identifying pathways where the 60-credit lower division pathway cap is impeding the development of ADT degree pathways and determine a suitable alternative cap for STEM, health and other higher than 60-credit majors.

Examine industry relevance and emerging subject area majors to ensure the ADT can meet future workforce demands (College Opportunity, Chutes or Ladders).

- Ensure the state's two- and four-year colleges have the capacity, sufficient resources and right incentives to enroll and support all students seeking a path to complete a four-year degree (College Opportunity, Chutes or Ladders).
- Reverse longstanding community college system underinvestment in essential student support services and policies that promote successful transfer, such as through dual enrollment opportunities, advising and public awareness campaigns.
- Fund state universities to serve an increasing number of community college transfer students (College Opportunity, Chutes or Ladders).
- Prioritize state funding to the two- and four-year campuses that will help close racial equity gaps and improve timely college completion rates for transfer students
- Encourage state 4-year universities to guarantee admission to ADT students, with a higher GPA threshold if appropriate, by tying their institutional aid to ADT enrollment expectations (College Opportunity, Chutes or Ladders).
- Encourage state 4-year universities to honor its admissions guarantee to ADT students at local campuses by establishing ADT enrollment goals and benchmarks and tying institutional aid to these expectations (College Opportunity, Chutes or Ladders).
- Create a transfer implementation and oversight body to enable more seamless coordination between the state's two-year and four-year colleges and private nonprofit institutions (College Opportunity, Chutes or Ladders).
- Establish an intersegmental committee that can provide state level guidance and accountability to tackle persistent barriers to the scaling of the ADT program and enable a statewide focus on simplifying transfer in the state (College Opportunity, Chutes or Ladders).
- Ensure the state's Cradle-to-Career data system can answer vital questions about academic trajectories and outcomes for students who follow different pathways to their degrees (College Opportunity, Chutes or Ladders).
- Analyze system-level data and collect more qualitative student-level feedback to drive decisions regarding the ADT pathway; where students are falling off the path and how to better support students pursuing bachelor's degrees (College Opportunity, Chutes or Ladders).
- Develop an equity index made up of data disaggregated by race/ethnicity, gender and other relevant demographic characteristics to ensure higher education institutions are working for students of all backgrounds (College Opportunity, Chutes or Ladders).

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. "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 Completion 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).
- Rate of completion of college-level courses/ credits in high school. (Urban Institute, Robust and Equitable Measures to Identify Quality Schools).

Practices and Policies

- 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).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 Are students completing credentials of value after high school that set them up for success in the workforce?

Why this matters

Research from the Georgetown University Center on Education and the Workforce (2022) shows that while higher education generally boosts lifetime earnings, some degrees and certificates yield far greater returns than others, particularly in high-demand fields like healthcare, technology and skilled trades. For the nation's five million opportunity youth — young people disconnected from school and work — earning a credential of value is especially critical, as it provides a pathway back into the economy and into careers that offer stability and advancement. To make informed choices, students need clear information about which credentials are aligned to local labor market demand and will provide a meaningful economic return — helping them avoid unmanageable debt and ensuring their investment of time and money leads to real job opportunities. Career and technical education (CTE) pathways that culminate in credentials of value are particularly powerful, as they connect learning directly to employment in fields where skilled workers are in high demand. Ultimately, credentials of value should deliver at least a minimum economic return, supporting access to well-paying jobs and long-term economic mobility.

Degree Completion for Opportunity Youth *Key source: E-W Framework*

Indicators

Contributing indicators

- Percentage of young people classified as "Opportunity Youth" in a community, disaggregated by race, ethnicity and gender. Opportunity Youth are defined as young people between the ages of 16 and 24 who are not in school and not working. Opportunity youth often come from communities with higher levels of poverty or limited resources. Many of these young people have disabilities, experience with homelessness or have crossed paths with the child welfare or juvenile justice systems. Youth of color are also disproportionately represented in this group. While these teens are sometimes called "disconnected youth," the term "opportunity youth" is increasingly preferred, as this phrase is more positive and reflects the potential of these young people to become thriving adults if provided the right opportunities. (Annie E. Casey, Who Are Opportunity Youth).

- Percentage of opportunity youth who have earned a high school diploma but no further education (Measure of America).
- Percentage of opportunity youth who receive public insurance (Measure of America).
- Percentage of opportunity youth who have children (Measure of America).
- Percentage of opportunity youth who live in poverty (Measure of America).
- Percentage of opportunity youth who have a disability. Includes cognitive difficulty, independent-living difficulty, self-care difficulty, hearing difficulty, vision difficulty and ambulatory difficulty (Measure of America).
- Percentage of opportunity youth who are uninsured (Measure of America).
- Percentage of opportunity youth ages 16 - 17 who are not living with parents
- Percentage of opportunity youth who are married (Measure of America).
- Percentage of opportunity youth who are living in institutionalized group quarters
- Percentage of opportunity youth who have limited English proficiency (Measure of America).
- Percentage of opportunity youth ages 21 - 24 who have completed at least a bachelor's degree (Measure of America).
- Teachers in alternative schools report a high level of engagement and motivation from students in their classes (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Number of students in alternative high school settings taking and passing end-of-course exams, dual-enrollment courses and college entrance exams (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Students in alternative high school settings are applying college-readiness skills in their academic classes, including higher-level Questioning, Writing to Learn and Collaborative Group Work (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Percent of students in alternative high school settings applying to and being accepted to postsecondary education and training (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Percentage of students enrolling in postsecondary programs (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Percentage of students who are either in school or employed a year after graduation (JFF, Making Higher Education Policy Work for Opportunity Youth).

Systems indicators

- Percentage of Opportunity Youth who participate in youth-adult partnerships. Through the formation of youth–adult partnerships and mentoring, the paths of opportunity youth can be redeveloped by implementing supports and spaces where youth are able to showcase their strengths and potential (AIR, Expanding the Evidence Base for Reconnecting Opportunity Youth).
- Percentage of Opportunity Youth who are successfully reengaged in education or work. Reengagement involves staff, typically at a school or dropout recovery center, identifying young people who have stopped attending school and then reaching out to those students through letters and phone calls and by visiting students' homes. Staff establish a connection with young people to learn more about their interests and goals and then work to identify an appropriate placement (e.g., traditional high school, alternative educational setting, or high school equivalency program) to help them complete their high school degree and prepare for postsecondary opportunities or a career (AIR, Expanding the Evidence Base for Reconnecting Opportunity Youth).
- Percentage of Opportunity Youth who are engaged in paid opportunities for work-based learning. Through paid work-based learning opportunities, young people can gain crucial on-the-job experience and build important professional

connections that support long-term job stability, all while receiving the financial compensation necessary to sustain their focus on professional learning (AIR, Expanding the Evidence Base for Reconnecting Opportunity Youth).

- Percentage of Opportunity Youth receiving wraparound services. Wraparound services may include childcare, mental health services, supplemental nutrition assistance, living stipends and transportation stipends. Providing wraparound services is a common strategy employed by comprehensive programs that serve opportunity youth and is part of a wholistic approach to mitigating the numerous barriers that opportunity youth face (AIR, Expanding the Evidence Base for Reconnecting Opportunity Youth).

Practices and Policies

Practices

- Connecting opportunity youth with a coach or dedicated academic advisor to help prepare young adults for college and navigate college when they arrive (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Providing opportunity youth access to community-based programs designed to help students become familiar with the college campus, develop positive academic habits and develop general skills required to succeed in college (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Providing access to affordable, accessible high-quality early childhood education, especially in low-income communities, sets the stage for academic success and decreases disparities by income and race (Annie E. Casey, Who Are Opportunity Youth).
- Providing equitable access to high-quality K–12 education, including ensuring that schools in low-income areas have adequate resources, counselors and support services as well as positive environments and non-punitive discipline policies (Annie E. Casey, Who Are Opportunity Youth).
- Strengthening early-warning systems in schools and communities to identify youth who are struggling and to connect them with needed support, whether related to academics, disabilities, family issues, health care, mental health or other needs (Annie E. Casey, Who Are Opportunity Youth).
- Ensuring that flexible learning experiences are available and tailored to youth needs and offering strong support for the transition from high school to postsecondary pathways, especially in areas with higher rates of youth disconnection (Annie E. Casey, Who Are Opportunity Youth).
- Increasing access to youth development programs — such as mentoring, after-school and civic engagement — helps youth form relationships with supportive adults and meaningfully contribute to their community (Annie E. Casey, Who Are Opportunity Youth).
- Providing equitable access to high-quality employment opportunities, such as internships, apprenticeships and career and technical training programs.
- Creating targeted plans to address the unique needs of communities with high rates of opportunity youth (Annie E. Casey, Who Are Opportunity Youth).
- Jobs for the Future's Back on Track Postsecondary Success model lays out three overlapping phases: Enriched Preparation, Postsecondary Bridging and First Year Supports. Enriched preparation integrates high-quality college/career-ready instruction with strong academic and social supports. Postsecondary Bridging builds college/career-ready skills and provides informed transition counseling. First Year Supports offer appropriate supports to ensure postsecondary persistence and career success (JFF, Supporting Dropout Recovery Programs to Focus on Postsecondary Success).
- Opportunity Works was a three-year effort led by JFF with the Aspen Institute Forum for Community Solutions (AFCS) to help opportunity

youth — young people ages 16 to 24 not in school or meaningfully employed — access postsecondary and career pathways. Based on the Back on Track framework, seven cities undertook cross-sector collaborative approaches with diverse partners to provide supportive enhanced preparation and postsecondary/career bridging for eligible young people, with a particular focus on young men of color. A study by the Urban Institute found that Opportunity Works has a positive and significant impact on postsecondary persistence and completion for program participants in South King County. The magnitude of the impact is large: about 17% of Opportunity Works program participants in South King County were awarded a college degree or a non-degree credential in up to five years after program entry, compared with 2% of the comparison group. Most of the graduation effects are because of increases in non-degree credentials awarded to participants. But the Urban Institute also found suggestive evidence that Opportunity Works increases South King County program participants' likelihood of graduating with a two-year college degree (positive effects but imprecisely measured) (Urban Institute, Effects of the Back on Track Model on College Persistence and Completion).

- The Back on Track framework fosters the growth and scale of programs aimed at improving the postsecondary success of opportunity youth. Back on Track is characterized by three program phases: (a) Enriched preparation: recruits high school noncompleters ages 16 to 24 and provides them with the curriculum, support and coaching essential for educational success and career readiness, as well as support in completing a high school credential; (b) Postsecondary/career bridging: helps students bridge to college and/or careers. This phase caters to opportunity youth who already have or are very close to obtaining high school credentials and helps them build the skill set essential for postsecondary achievement; and (c) First-year support: provides support to students to gain the skills necessary to persist through their first year of college or career (Urban Institute, Effects of the Back on Track Model on College Persistence and Completion).
- Goodwill Excel, Austin: Excel is part of a charter network managed by Goodwill, Inc. catering both to older youth (18 to 26) and adults (26 to 50). It offers both diplomas and GEDs and has a flexible schedule to allow for its older clientele to work and/or take care of their families (JFF, Supporting Dropout Recovery Programs to Focus on Postsecondary Success).
- American YouthWorks/Youthbuild, Austin: American Youthworks is a nonprofit organization that offers a Youthbuild program, providing the opportunity for young adults in Austin to take control of their education through combining completion of a high school credential with attainment of skills and certifications in one of several industry areas, work experience in that area and preparation for and successful transition to postsecondary education and/or training. To support students in each of these areas, the school faculty includes professionals who come with expertise in a particular technical/occupational area, teachers who have been more traditionally trained to deliver instruction in traditional high school subject matter to help students prepare for the GED or meet the TSI requirements and prepare for college coursework and transition experts who teach courses such as Adult Life and Mental Toughness II to help smooth the path to college and/or workplaces (JFF, Supporting Dropout Recovery Programs to Focus on Postsecondary Success).
- Restore Education, San Antonio: Restore Education is unique among the five sites in promoting a high degree of individualization and in offering only a GED, with no diploma option. Most students spend the majority of their school hours working to prepare for the GED in one-on-one sessions with paid instructional staff and volunteer tutors from the community. The program also offers group English as a Second

Language (ESL) classes, as well as classes to help students who want to prepare to meet the requirements for the TSI and workforce training classes (JFF, Supporting Dropout Recovery Programs to Focus on Postsecondary Success).

- Texans CAN Academy, Fort Worth: The Fort Worth CAN Academy is part of a statewide charter network of schools, all of which focus on serving at-risk students who were struggling academically and/or socially in their high schools and seeking an alternative to the traditional school system. The academy offers a halfday high school-level academic program, where students proceed from subject-area class to subject-area class, much as in a traditional high school. In the second half of the day, students participate in classes focused on attaining industry certifications and dual-enrollment classes that carry college credit (JFF, Supporting Dropout Recovery Programs to Focus on Postsecondary Success).
- College and Career Center, La Joya: The La Joya ISD College and Career Center is a district alternative program offering older students the opportunity to complete high school or earn a high school equivalency degree while also preparing for postsecondary education, careers and the military. A majority of the students are English learners, needing to build up their language skills simultaneously with preparing for postsecondary education and life. The center shares a building with the La Joya Early College High School and also serves as one of the campuses of South Texas College. Unusual hours accommodate a nontraditional population, many of whom attend part-time for a year or even less. Classes are offered in the mornings, afternoons, evenings and even on weekends for students who work and/or have child care responsibilities (JFF, Supporting Dropout Recovery Programs to Focus on Postsecondary Success).
- Portland YouthBuilders (PYB), a YouthBuild USA affiliate program and its partner, Portland Community College, have collaborated to identify college-ready standards in mathematics, reading and writing and then modified program courses to embed these standards. Through extended instructional periods and interdisciplinary units of instruction with such high-interest themes as "social justice," PYB faculty introduces students to literary analysis and research skills essential to success in college. In math, PYB staff members are continuing to work with the college's faculty on mapping the curriculum to align with college preparation. The partners also track students' progress in postsecondary bridging programs to determine whether further adjustments are needed during the enriched preparation phase of the Back on Track model (JFF, Pathway to Recovery).
- West Brooklyn Community High School, a New York City Transfer School for over-aged and undercredited students, is a partnership between the NYC Department of Education and Good Shepherd Services. Three years ago, West Brooklyn initiated a College Culture Committee to focus on postsecondary awareness and planning across the school and to assess how well its instructional strategies align with building college-ready skills and behaviors. As a result, staff saw the need for a more targeted focus on the development of high-level cognitive skills across all content areas. They developed a peer observation protocol that all teachers use to observe one another's classes and provide feedback on the use of college-ready instructional strategies. In addition, staff plan and facilitate college and postsecondary planning activities during advisories called Community Leaders (JFF, Pathway to Recovery).
- Improved Solutions for Urban Systems (ISUS), an affiliate of the National Youth Employment Coalition in Dayton Ohio, has created dropout recovery career and technical charter schools focused on in-demand careers — construction, advanced manufacturing, renewable energy and health care. Through an articulation agreement with Sinclair Community College, designated

ISUS teachers can be certified as adjunct faculty to teach college-approved curricula leading to Associate's degrees in health care and other selected fields. To support this postsecondary bridging, ISUS has lengthened the school day and school year. Once enrolled at Sinclair, students can also earn nationally recognized "stackable" industry credentials, Associate's degrees and apprenticeships (JFF, Pathway to Recovery).

- New York City's College Access and Success initiative brings together the New York City College of Technology (City Tech), Cypress Hills Local Development Corporation, Good Shepherd Services and the Youth Development Institute. Each month, Cypress Hills, Good Shepherd and City Tech staff — including the Provost, the Dean of Curriculum and Instruction, academic advisors and case managers — meet to discuss the progress of students in the program. At the meetings staff review data about student courses and performance, as well as qualitative information about students' performance and lives. Discussions of individual students yield guidance on how to help each one and staff members come to agreement on follow-up actions (JFF, Pathway to Recovery).
- In Massachusetts, a partnership with Massasoit Community College (MCC) has enabled YouthBuild Brockton to add a focus on college-ready instruction, as well as to offer a supported dual enrollment class, taught by an MCC instructor. Shepherded by Mark Showan, executive director of YouthBuild Brockton and Amanda Huggon-Mauretti, special programs coordinator at MCC, the partnership's graduates are well prepared to succeed in the postsecondary bridging program the college runs for high school and GED graduates. MCC, like many community colleges, is enrolling a growing number of very underprepared young people who have to take developmental education courses before engaging in any college-level work. By establishing bridge programs and partnerships with organizations like YouthBuild, the college has gained a steady supply of motivated young adults who are better prepared for college and many of them have continuing support from their sending programs. Among these supports, two YouthBuild staff check in on students regularly to help ensure they have what they need to succeed. The scale of the bridge program and continuing support make it possible for Huggon-Mauretti to oversee the bridge programming, act as YouthBuild's liaison at the college and serve as the academic advisor to all YouthBuild students after they complete the bridge program and enroll in the college (JFF, Pathway to Recovery).
- In a region of Texas with large numbers of 18- to 26-year olds who are disconnected from school and work, the PharrSan Juan-Alamo Independent School District teamed up with South Texas College to create the College, Career and Technology Academy (CCTA), a college-connected dropout recovery school. CCTA's slogan exemplifies the goal the academy is designed to achieve: "You didn't graduate from high school? Start college today!" For years, dropouts had shown up at South Texas College seeking to enroll and gain credentials, but entry required a high school diploma or GED. Thus, Dr. Shirley Reed, the founding president of the college, responded immediately when Pharr-San Juan-Alamo Superintendent Dr. Daniel King proposed a joint venture. Both knew a partnership was essential to creating a pathway through postsecondary for this large number of young people. Registration for college courses, facilitated by staff from both South Texas College and CCTA, occurs when students enroll at the academy. Even while completing high school requirements, students can select from among a limited number of "mini-mesters" — shortened dual enrollment courses that include career-oriented certificate courses offered at the college. They can also take a College Success course that helps them develop study skills, explore career interests and understand their options for high-

payoff credentials. Dual enrollment courses are funded by the state, as specified in Texas legislation designed to improve college and career readiness (JFF, Pathway to Recovery).

Policies

- Improving Data: Opportunity youth need information about the education and labor market outcomes they can expect to achieve to help them learn about and choose the best institution and program of study. Policy should enable data systems that link students' education and workforce outcomes and then make that data available, understandable and accessible (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Support Services: Policy should ensure alignment of financial aid with programs that offer child care, transportation, nutrition and other benefits for which opportunity youth are eligible. Opportunity youth also need guidance and counseling on choices both big—like selecting a college or choosing a career pathway —and small — like deciding what courses to take or how to get the textbooks they need. Policy should ensure that opportunity youth have the guidance they need before they enter higher education and once they enroll (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Flexible Financial Aid: Many opportunity youth support families, work while going to college, or have never completed high school. These students need flexible financial aid policies that make applying for financial aid simple, allow students to attend school all year, help them access Ability to Benefit and recognize costs for students that go beyond tuition and books (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Guided Pathways: Policy should incentivize and enable the creation of guided pathways, a framework for redesigning institutions of higher education to improve students' experiences from entry through completion. Pathways provide students with clear "maps" to guide students through a program of study through a credential, combined with robust advising (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Accelerated Pathways: Rather than allowing opportunity youth to get stuck in unengaging remedial coursework, policy should help these students accelerate faster towards their higher education goals. This includes giving students credit for prior learning and experiences, advancing competency-based education models and promoting co-enrollment and dual enrollment models that allow students to move more quickly towards credentials (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Work-Based Learning: Work-based learning traditionally has been available to the most socially connected students, rather than those who have the most to gain from work experiences. Policy should expand access to high-quality, relevant work-based learning experiences for opportunity youth, including through pre-apprenticeships, apprenticeships and work-study opportunities (JFF, Making Higher Education Policy Work for Opportunity Youth).
- Providing access to affordable, accessible high-quality early childhood education, especially in low-income communities, sets the stage for academic success and decreases disparities by income and race (Annie E. Casey, Who are Opportunity Youth).
- Providing equitable access to high-quality K–12 education, including ensuring that schools in low-income areas have adequate resources, counselors and support services as well as positive environments and non-punitive discipline policies (Annie E. Casey, Who are Opportunity Youth).
- Strengthening early-warning systems in schools and communities to identify youth who are struggling and to connect them with needed support, whether related to academics, disabilities, family issues, health care, mental health or other needs (Annie E. Casey, Who are Opportunity Youth).

- Ensuring that flexible learning experiences are available and tailored to youth needs and offering strong support for the transition from high school to postsecondary pathways, especially in areas with higher rates of youth disconnection (Annie E. Casey, Who are Opportunity Youth).
- Increasing access to youth development programs — such as mentoring, after-school and civic engagement — helps youth form relationships with supportive adults and meaningfully contribute to their community (Annie E. Casey, Who are Opportunity Youth).
- Providing equitable access to high-quality employment opportunities, such as internships, apprenticeships and career and technical training programs (Annie E. Casey, Who are Opportunity Youth).
- Creating targeted plans to address the unique needs of communities with high rates of opportunity youth (Annie E. Casey, Who are Opportunity Youth).
- Invest in what works and spur innovation around successful models. Two opportunities to do so are the reauthorizations of the Elementary and Secondary Education Act and the Workforce Investment Act (JFF, Pathway to Recovery).
- Simplify eligibility, reporting and blending of funds. To identify and serve disconnected youth in ways that support their postsecondary attainment, it is critical to align requirements around data, reporting, eligibility and uses of funds across federal, state and private funding streams and programs that touch this group of young people (JFF, Pathway to Recovery).
- Promote and codify improvements to education accountability systems. Accountability for graduation rates can spur and support districts and schools to focus on dropout prevention and recovery and ensure that such efforts prepare young people for postsecondary success (JFF, Pathway to Recovery).
- Place a high priority on encouraging state and local partnerships. Efforts to collectively develop, sustain and scale up what works for disconnected youth should include incentives for employers and educational institutions to collaborate on college and career pathways, including apprenticeships for off-track and out-of-school youth (JFF, Pathway to Recovery).
- Use the bully pulpit. Highlight programs, activities and partnerships that show promising results in helping disconnected youth succeed in postsecondary education (JFF, Pathway to Recovery).

Minimum economic return

Key source: E-W Framework

Indicators

Contributing indicators

- Minimum economic return: Individuals earn enough after completing their education to recover the costs of their investment. Measured as the percentage of individuals that earn at least as much as the median high school graduate in their state plus enough to recoup their total net price plus interest within 10 years of completing their highest degree or leaving education (high school, postsecondary education, or workforce training) (EW Framework).
- Cost of Attendance: When considering students' cost of attendance in the context of the Postsecondary Value Framework, it is important to include their costs beyond tuition. To be successful in school, students need to be able to cover the costs of books, supplies and transportation to and from class. Additionally, having sufficient resources for housing and food is crucial for allowing students to focus on their coursework without needing to work long hours to cover those expenses. Food and housing insecurity were barriers to student

completion prior to the COVID-19 pandemic and the pandemic has amplified these insecurities and put a spotlight on additional challenges, including lack of access to a household computer/laptop or reliable home internet connection. Institutions rely on the federal definition of COA to calculate student expenses and COA data are reported publicly through The Integrated Postsecondary Education Data System (IPEDS) to measure tuition and non-tuition costs for first-time, full-time (FTFT) degree/certificate-seeking undergraduates. However, federal guidelines do not currently require institutions to include some expenses that students must incur to be successful in college in their COA calculations, including living expenses for students living off-campus with family, health insurance and healthcare costs, internet costs and cell phone plan costs. Additional non-tuition expenses that students regularly incur also should be added to federal COA estimates. For instance, health insurance, healthcare costs, intent costs and cell phone plan expenses are critical elements of student budgets (Postsecondary Value Commission).

- Cost of Borrowing: The Postsecondary Value Framework incorporates the cost of borrowing because the postsecondary education system saddles too many students—especially Black, Latinx, Indigenous and underrepresented AAPI students and students from low-income backgrounds—with debt. Student loan fees already are counted through the statutory COA definition and consistent with prior models in the field, the framework applies interest over the course of 10 years to account for the additional cost of financing college through borrowing. Additional research is needed to determine a more precise methodology to estimate students' actual interest accumulation (Postsecondary Value Commission).
- Economic value: To measure how different institutions and programs return economic value to their students over time, the Postsecondary Value Framework uses a series of thresholds. The first four thresholds (0 through 3) measure individuals' earnings outcomes and the final two (4 and 5) measure wealth outcomes. The ultimate goal is for students to reach economic security and wealth parity, whereby a person has sufficient earnings and wealth to withstand life's economic shocks and their race/ethnicity, income, or gender does not predict their ability to accumulate earnings or wealth. These thresholds are: (0) Minimum Economic Return: A student meets this threshold if they earn at least as much as a high school graduate plus enough to recoup their total net price plus interest within ten years; (1) Earnings Premium: A student meets this threshold if they reach at least median earnings in their field of study (or, if field of study data is unavailable, the median earnings for the institution's predominant degree type); (2) Earnings Parity: This threshold measures whether students of color, students from low-income backgrounds and women reach the median earnings of their systemically more advantaged peers (White students, high-income students, or men); (3) Economic Mobility: This threshold measures whether students reach the level of earnings needed to enter the fourth (60th to 80th percentile) income quintile, regardless of field of study; (4) Economic Security: While sufficient earnings can create a stable life, wealth is key to building the type of security needed to withstand life's financial shocks. This threshold therefore measures whether students reach median levels of wealth; (5) Wealth Parity: Mirroring the earnings parity threshold, this threshold measures whether students of color, students from low-income backgrounds and women reach the level of wealth attained by their more privileged White, high-income, or male peers (Postsecondary Value Commission).
- Earnings gains for degrees earned: A study by the Center for Analysis of Postsecondary Education and Employment (CAPSEE) found that completing an associate degree yields strongly positive, persistent and consistent earnings gains: studies show that completing an associate degree yields on average approximately $4,640–$7,160 per annum in extra earnings compared to entering college but not completing an award. For certificates, the evidence shows positive but

modest returns and that these returns may fade out within a few years post-college. For non-completers, there is evidence that earning more credits is associated with higher earnings (CAPSEE, Labor Market Returns)

- Average debt held by students disaggregated by race and degree type (Education Data Initiative).
- Average monthly student loan payments disaggregated by race and degree type (Education Data Initiative).
- Student loan payment status (e.g., paid, current, behind) among borrowers, disaggregated by race (Education Data Initiative).
- Average cumulative amount borrowed by degree type, disaggregated by race (Education Data Initiative).

System indicators

- Workforce Outcomes – Employment rate: The percentage of former students with any reported annual earnings at one, five and 10 years after exit from the institution. Disaggregated by credential level, completion status, program of study (at exit), economic status (Pell ever), race/ethnicity, gender, age, enrollment status, attendance intensity (at any time while enrolled), academic preparation (at any time while enrolled), first-generation status (IHEP, Toward Convergence).
- Workforce Outcomes – Median earnings: The median annual earnings of former students one, five and 10 years after exit from the institution (excludes zeros). Disaggregated by credential level, completion status, program of study (at exit), economic status (Pell ever), race/ethnicity, gender, age, enrollment status, attendance intensity (at any time while enrolled), academic preparation (at any time while enrolled), first-generation status (IHEP, Toward Convergence).
- Workforce Outcomes – Earnings threshold: The percentage of former students earning more than the median high school graduate salary ($25,000 in 2014; includes zeros) at one, five and 10 years after exit from the institution. The threshold should be updated annually using Current Population Survey data. Disaggregated by credential level, completion status, program of study (at exit), economic status (Pell ever), race/ethnicity, gender, age, enrollment status, attendance intensity (at any time while enrolled), academic preparation (at any time while enrolled), first-generation status (IHEP, Toward Convergence).
- Additional metrics related to workforce outcomes include: Percentiles for earnings (10th, 25th, 75th and 90th); Pre- and post-college earnings; Relative wages (e.g., compared with local or regional wages) (IHEP, Toward Convergence).
- Distribution of Median Student Earnings Ten Years After Entry, by Institutional Type (Postsecondary Value Commission).

Practices and Policies

Practices

- Post-college workforce outcome measures like earnings, employment and earnings thresholds can be used by a variety of audiences. Students and families can use these data to learn about the potential earning power of their intended degree post-graduation, considering the expected value in relation to the major investment required to attend an institution of higher education (IHEP, Toward Convergence).

Policies

- In recent years, policymakers at both the state and federal levels have used workforce outcomes data for accountability and funding. For example, gainful employment incorporates student earnings — as it relates to debt — into its accountability framework (IHEP, Toward Convergence).
- Institutions can use post-college workforce outcomes data to be aware of their students' outcomes to revise program offerings, tailor prices and financial aid and implement student supports like career services and increased work opportunities that make their students more prepared for the workforce. The primary reason many students pursue college is to improve their employment prospects. While students also gain other life skills in college that allow them to contribute to society in other non-financial ways, a baseline assumption for many students is that they will be prepared to earn a

middle-class living. These metrics can be used individually or in tandem to explore post-college workforce outcomes for students (IHEP, Toward Convergence).

3 Are students attending institutions with well-designed programs that help them efficiently move towards degree completion?

Why this matters

Selection of a well-matched institution: Attending a "well-matched institution" — a college or program that aligns with a student's academic readiness, interests and goals — greatly increases the likelihood of earning a degree. Research from the College Board and others shows that students who attend institutions where their academic profile matches or slightly exceeds the school's admissions standards are more likely to persist, graduate on time and avoid unnecessary remediation. Best matches also tend to offer stronger academic support, peer networks and pathways aligned to students' long-term career and financial goals, all of which contribute to higher postsecondary success.

Remediation: Many students enroll in college academically unprepared for college-level work. This makes the need for remediation a major barrier for students and suggests the successful completion of remediation as a possible indicator of momentum. Some students who need extra help do not enroll in the appropriate remedial courses, which complicates efforts to evaluate the effectiveness of specific remedial programs. Some research has found that students who successfully complete remedial coursework have persistence and success rates similar to those who start directly in college-level courses, while other studies find little evidence that remediation improves rates of success. A number of researchers have found that students who enroll in remedial coursework immediately upon entering college have better outcomes than those who delay needed remediation (Advancing by Degrees).

Selection of a well-matched postsecondary institution *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

- Integrate regular, structured college exposure experiences — such as campus field trips — into student programming to build knowledge, confidence and persistence in pursuing postsecondary education (Swanson, E., Kopotic, K., Zamarro, G., Mills, J. N., Greene, J. P., & Ritter, G. W. (2021). An evaluation of the educational impact of college campus visits: A randomized experiment).
- College-level mathematics: There is a quantitative theme to the curriculum story that illustrates how students cross the bridge onto and through the postsecondary landscape successfully. The highest level of mathematics reached in high school continues to be a key marker in pre-collegiate momentum, with the tipping point of momentum toward a bachelor's degree now firmly above Algebra 2. By the end of the second calendar year of enrollment, the gap in credit generation in college-level mathematics between those who eventually earned bachelor's degrees and those who didn't is 71 to 38% (The Toolbox Revisited).
- 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).

Postsecondary persistence

Key source: E-W Framework

Indicators

Contributing indicators

- Student persistence and retention: Students are considered persisted if they remain enrolled at any institution and retained if they remain at their starting institution — either in the spring term following initial enrollment (first spring) or in the fall of their second academic year (second year). In both timeframes, students who complete a credential before the applicable term are also included in the corresponding rates (National Student Clearinghouse Research Center).
- Persistence Rate: The percentage of students in a cohort remaining enrolled or earning a credential at their initial or subsequent institution, measured annually up to 200 percent of program length. Measures twelve-month incoming student cohorts by credential level and student enrollment status and attendance intensity (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (at entry) (IHEP, Toward Convergence).
- Other metrics related to persistence rate: Stopout or consecutive enrollment rates; Academic standing (e.g., GPA, credits) on transfer or dropout; Number of credits and degree conferral at transfer out; Near completion (e.g., fewer than 15 credits) on transfer or dropout; Major/degree at subsequent institution compared with initial institution; Withdrawal rate (percentage of all enrolled students who leave in one year) (IHEP, Toward Convergence).
- Persistence quality: We falsely believe that beginning students drop out of higher education in appalling numbers by the end of their scheduled first academic year of attendance. In fact, about 90 percent of traditional-age beginning students turn up somewhere (maybe not at the first school attended) and at some time (maybe not in the fall term) during the subsequent calendar academic year (measured as July 1 through June 30). However impressive this percentage, the quality of persistence counts more and, for a third of these students, the quality of persistence (e.g., number of credits earned, GPA achieved) leaves much to be desired. Institutions should monitor and report the quality (as much as the fact) of persistence (The Toolbox Revisited).

System indicators

- Retention rate: The percentage of students in a cohort who are either enrolled at their initial institution or transfer to a longer program at the initial or subsequent institution, calculated annually up to 200 percent of program length. Measures twelve-month incoming student cohorts by credential level and student enrollment status and attendance intensity (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender,

age, first-generation status and program of study (at entry) (IHEP, Toward Convergence).

- Other metrics related to retention rate: Timely registration for classes; Term-to-term retention rates; Retention with advanced class standing (e.g., credits); Stopout or consecutive enrollment rates; Academic standing (e.g., GPA, credits) on transfer or dropout; Number of credits and degree conferral at transfer out; Near completion (e.g., fewer than 15 credits) on transfer or dropout; Major/degree at subsequent institution compared with initial institution; Withdrawal rate (percentage of all enrolled students who leave in one year) (IHEP, Toward Convergence).
- While largely used as an institutional improvement measure, retention rates can also serve as important signals for both prospective students, who can use retention to select institutions where they have the best chance of persisting and policymakers, who can design policies and programs that promote higher retention rates (IHEP, Toward Convergence).
- Change in Revenue from Change in Retention: The impact of changes in first-year retention rates from one cohort to another on tuition revenue available to the institution. Measures twelve-month cohorts of students (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by credential level, enrollment status, attendance intensity, academic preparation, economic status, race/ethnicity, gender, age, first-generation status and program of study. The change in revenue from change in retention metric compares first-year retention rates for two cohorts and evaluates how that change impacts net tuition revenue for an institution (IHEP, Toward Convergence).
- Additional metrics related to Change in Revenue from Change in Retention include: Change in first-year retention rates over time; Change in net tuition per student over time; Change in net tuition revenue per student due to change in retention; Change in subsidy revenue due to change in retention (total and per student); Change in net tuition plus subsidy revenue due to change in retention (total and per student) (IHEP, Toward Convergence).

Practices and Policies

Policies

- Measuring retention across years enables an institution to decipher when and which students stop out and dropout and, through subsequent investigation of submetrics, determine why. For example, a student dropping out after one year is very different from a student dropping out just short of a credential. Parsing the different times for stopout and dropout, especially for different student populations such as underrepresented minorities, allows institutions to target interventions to address students' specific barriers or needs (IHEP, Toward Convergence).
- Along with retention and outcome rates, institutions, prospective students and policymakers can use persistence rates to better understand the full range of outcomes for college students. For institutions, for instance, the persistence rate signals a credible target for improving their success rates, because students who are persisting elsewhere might have graduated from their initial institution instead. The persistence rate is also useful for institutions that aim to prepare many of their students for transfer, so they can demonstrate their progress and success (IHEP, Toward Convergence).
- By highlighting the possibility for increased revenue generation resulting from retention rate increases, the results of the metric can support institutions advocating for additional funding for student support services that improve retention. The metric also can quantify the return on investment of those support services, which can ultimately offset some of their costs. Considering the investment of the state and federal governments in higher education, these data can help policymakers to understand and support efforts to increase student retention because of the impact these efforts have on institutional, state and federal budgets (IHEP, Toward Convergence).

Indicators

Contributing indicators

- Students begin remedial coursework in the first term, if needed (Advancing by Degrees).
- Percent of students entering a 2-year college enrolled in remediation, disaggregated by race, ethnicity, age and low-income status (Remediation: Higher Education's Bridge to Nowhere).
- Percent of freshmen at 2-year colleges who enrolled in remediation and who completed remediation, disaggregated by race, ethnicity, age and low-income status (Remediation: Higher Education's Bridge to Nowhere).
- Percent of freshmen at 2-year colleges who enrolled in remediation and who completed remediation and associated college-level courses in two years, disaggregated by race, ethnicity, age and low-income status (Remediation: Higher Education's Bridge to Nowhere).
- Percent of freshmen at 2-year colleges who enrolled in remediation and who graduate within three years (Remediation: Higher Education's Bridge to Nowhere).
- Percent of students entering a 4-year college enrolled in remediation, disaggregated by race, ethnicity, age and low-income status (Remediation: Higher Education's Bridge to Nowhere).
- Percent of freshmen at 4-year colleges who enrolled in remediation and who completed remediation, disaggregated by race, ethnicity, age and low-income status (Remediation: Higher Education's Bridge to Nowhere).
- Percent of freshmen at 4-year colleges who enrolled in remediation and who completed remediation and associated college-level courses in two years, disaggregated by race, ethnicity, age and low-income status (Remediation: Higher Education's Bridge to Nowhere).
- Percent of freshmen at 4-year colleges who enrolled in remediation and who graduate within six years (Remediation: Higher Education's Bridge to Nowhere).

Practices and Policies

Practices

- Ensure that policies support innovative practices such as intensive summer-orientation programs for new remedial students (Advancing by Degrees).
- Contextualize basic-skills instruction into content courses (Advancing by Degrees).
- Implement learning communities for developmental students (Advancing by Degrees).
- Adopt systemwide definitions of college readiness (Advancing by Degrees).
- Incorporate incentives for institutions to increase success in remedial coursework (Advancing by Degrees).
- Redesign developmental courses into modules so students only repeat needed sections (Advancing by Degrees).
- Require early completion of remedial coursework (Advancing by Degrees).
- Provide brief brush-up courses for students who test near proficiency levels (Advancing by Degrees).
- Enroll students in college-level courses; provide supplementary instruction and/or summer sessions for nearly proficient students (Advancing by Degrees).
- Instead of traditional remediation, use co-requisite models instead. For students with few academic deficiencies, place them into redesigned first-year, full credit courses with co-requisite built-in support, just-in-time tutoring, self-paced computer labs with required attendance and the like. The length of these courses should mirror the ordinary gateway courses so students stay on track for on-time graduation. For students needing more help, lengthen redesigned full-credit courses and consider providing built-in, co-requisite support for two semesters instead of one. Students get the same content but more time on task. For

students with the most significant academic needs, provide alternate pathways to high-quality career certificates by embedding remediation and adult basic skills development into their instruction (Remediation: Higher Education's Bridge to Nowhere).

- Get students to commit to programs of study ASAP . Using placement scores, high school transcripts and predictive tools to determine student aptitude, guide all students to choose among a limited number of first-year pathways — for example, health, business, liberal arts, or STEM — as soon as possible. Students should make the big choices of programs of study informed with an understanding of program requirements and available supports to achieve their career goals. Once they do, place them into structured program pathways constructed of relevant, sequenced courses chosen for them (Remediation: Higher Education's Bridge to Nowhere).
- Establish "default" programs for students not ready to commit. No longer allow students to be considered "unclassified." Upon enrollment, nudge them into first-year pathways — for example, health, business, liberal arts, or STEM. This ensures a coherent pathway from the beginning, with core college-level credits that will count toward certificates and degrees. By doing so, students avoid excessive course-taking while wandering the curriculum, shortening the time it takes to graduate (Remediation: Higher Education's Bridge to Nowhere).
- Place students in the right math. Most students are placed in algebra pathways when statistics or quantitative math would be most appropriate to prepare them for their chosen programs of study and careers (Remediation: Higher Education's Bridge to Nowhere).
- Expand co-requisite supports for additional college-level courses. Additional introductory courses serve as gateway classes for programs of study, not just English and math. Given high failure rates, they have become gatekeeper courses instead, too often blocking students' entry into their chosen fields. To help unprepared students get a strong, early start, build extra supports around introductory courses necessary for success like entry-level anatomy, biology, physiology, physics, accounting and drafting (Remediation: Higher Education's Bridge to Nowhere).
- Align requirements for entry-level college courses with requirements for high school diplomas. Academic requirements for a high school diploma should be the floor for entry into postsecondary education. K–12 and higher education course-taking requirements should be aligned. Provide 12th grade courses designed to prepare students for college-level math and English (Remediation: Higher Education's Bridge to Nowhere).
- Administer college-ready anchor assessments in high school. These tests give students, teachers and parents a clear understanding about whether a student is on track for college. Giving these assessments as early as 10th grade enables juniors and seniors to address academic deficiencies before college (Remediation: Higher Education's Bridge to Nowhere).
- Use these on-track assessments to develop targeted interventions. K–12 systems and local community colleges or universities can develop programs that guarantee that successful students are truly college ready and exempt from remedial education as freshmen (Remediation: Higher Education's Bridge to Nowhere).
- Use multiple measures of student readiness for college. Recognize that current college placement assessments are not predictive and should be supplemented with high school transcripts to make recommendations for appropriate first year courses. Have all students taking placement exams receive a testing guide and practice test and time to brush up on their skills before testing (Remediation: Higher Education's Bridge to Nowhere).
- Corequisite support, which allows students who need additional support in college-level math and English to enroll in these credit bearing courses and receive extra help (Complete College America).

Policies

- Strengthen high school preparation. Reduce the need for college remediation altogether by adopting and implementing the new voluntary

Common Core State Standards in reading, writing and math. Align requirements for entry-level college courses with requirements for high school graduation. Administer college-ready anchor assessments in high school and use them to develop targeted interventions before students fall too far behind. That way, high school graduates are ready for credit-bearing college courses from Day One (Remediation: Higher Education's Bridge to Nowhere).

- Have students start in college-level courses with built-in, co-requisite support. Immediately place freshmen with basic needs into entry-level, credit-bearing college courses with co-requisite support. That is, make this co-requisite model the default. For students needing more support, offer two-semester courses of the same content with built-in tutoring. Meanwhile, offer students with significant academic challenges skill certificate programs with embedded remediation (Remediation: Higher Education's Bridge to Nowhere).
- Embed needed academic help in multiple gateway courses. To help unprepared students get a strong, early start, build extra supports around all of the early gateway courses that are necessary for success in students' fields of study. For students to succeed in these courses, they should have built-in tutoring and/or additional instruction time (Remediation: Higher Education's Bridge to Nowhere).
- Encourage students to enter programs of study when they first enroll. Students are twice as likely to graduate if they complete at least three courses in their chosen programs of study in their first year on campus. Create clear, limited and structured program pathways containing core college-level courses. Then require students to choose a pathway. Unprepared students can achieve this significant milestone for success if the early college-level courses required in their programs of study have embedded help (Remediation: Higher Education's Bridge to Nowhere).
- Community College of Baltimore County's Accelerated Learning Project (ALP) enrolls remedial English students in a regular, credit-bearing English 101 course and a companion course that meets immediately afterward. The companion course provides in a small group targeted reinforcement of topics from the mainstream course that enables intensive faculty and peer support. Early results show that ALP students pass English 101 with a grade of C or better at more than twice the rate of the control group — and do so in just one semester, as opposed to the two semesters required to complete a remedial course before moving on to the credit-bearing course (Remediation: Higher Education's Bridge to Nowhere).
- The California State University (CSU) system added a series of college readiness questions to the state's 11th grade exam. After students take the test, they are told whether they are on track for college-level classes in the CSU system. Plus, CSU is helping high school teachers work with unprepared students and is developing a 12th grade transitional curriculum (Remediation: Higher Education's Bridge to Nowhere).
- Since 2005, Indiana's Core 40 graduation requirements have been the required high school curriculum and the minimum admissions requirement for the state's four-year public universities. Developed jointly by the K–12 and higher education systems, they ensure that high school graduates are prepared for college and careers (Remediation: Higher Education's Bridge to Nowhere).
- Virginia is one of several states (including Texas, Florida and Kentucky) creating 12th grade transitional courses and end-of-course tests based on college readiness standards and first-year courses. Students who earn high enough scores can bypass additional placement tests and proceed directly into full-credit college courses (Remediation: Higher Education's Bridge to Nowhere).
- The University of Maryland at College Park identifies about 20 percent of incoming students as unprepared for college-level math and enrolls the top 60 percent of them, based on placement test scores, in a co-requisite math course. Scheduled five days a week, students receive

accelerated remedial instruction for the first five weeks. After being retested with the same placement exam, passing students complete the remaining college-level class by attending five days a week for the remaining 10 weeks of the semester. More than 80 percent pass the retest and continue with the college-level course, ultimately matching the overall success rate for the course as nonremedial students (Remediation: Higher Education's Bridge to Nowhere).

- Tennessee: Austin Peay State University in Tennessee eliminated remedial math courses and places students in redesigned credit-bearing courses that include extra workshops and specialized help. Initial assessments are given to determine specific knowledge gaps, then the workshops are used to provide additional instruction on key math concepts with special emphasis on individual areas of weakness. As a result, twice as many remedial students are passing their initial college-level math courses (Remediation: Higher Education's Bridge to Nowhere).
- Texas: Texas State UniversitySan Marcos enrolls students who need extra math help in concurrent remedial and college-level algebra and statistics courses and it requires additional weekly tutoring, for which students earn credit. Seventy-four percent of participants in the program earn a grade of C or better in algebra during their first semester. This is more than twice the percentage rate of all remedial students at Texas State-San Marcos who earn similar grades in their first two years (Remediation: Higher Education's Bridge to Nowhere).
- 50-state comparison on Developmental Education policies provides a national overview of how states structure, implement and report on developmental education. Drawing from state statutes and higher education system policies across all 50 states and the District of Columbia, it outlines key policy areas, including assessment and placement, instructional methods, corequisite support and reporting requirements (Strong Start to Finish).

English learner progress

Key source: E-W Framework

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).
- Levels of prior educational attainment or academic preparation. Lower levels of educational attainment may result from a lack of access to education in ELs' home countries or from their experience in the U.S. K-12 system. For example, English only policies in K-12 schools can interrupt EL students' learning and cause them to be tracked into lower levels of coursework or barred from college preparatory coursework altogether (Flores & Drake, 2014; Ortiz & Hernandez, 2011). (English Learner's College Persistence and Completion).
- Percentage of English learners placed in remedial coursework. Improper placement into remedial coursework is a factor that affects ELs' persistence (Hodara, 2015; Raufman et al., 2019). A single placement test is not an effective means of identifying how many extra terms of coursework students may need before enrolling in credit coursework and many students arrive at community colleges unsure of whether they should take the ESL placement test or the general placement test (Raufman et al., 2019) (English Learner's College Persistence and Completion).
- Students' identities, sense of belonging and

support networks can impact their persistence as well (Kanno & Harklau, 2012; Núñez et al., 2016; Raufman et al., 2019). Those who see themselves as deficient or less capable than expert speakers or those who believe they cannot go to college because they are ELs may persist less readily than those with more agency and self-efficacy (cf. Kanno & Harklau, 2012). Students' linguistic and academic identities as well as cultural and racial identities can affect their sense of belonging in the classroom (Núñez et al., 2016) as racism and stereotype threat are significant issues that ELs regularly face on campus (Ortiz & Hernandez, 2011; Steele, 2011). Nevertheless, ELs who have a strong network of supportive family members, friends and on-campus advocates persist longer than those without these networks (Janis, 2013; Kanno & Harklau, 2012) (English Learner's College Persistence and Completion).

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).

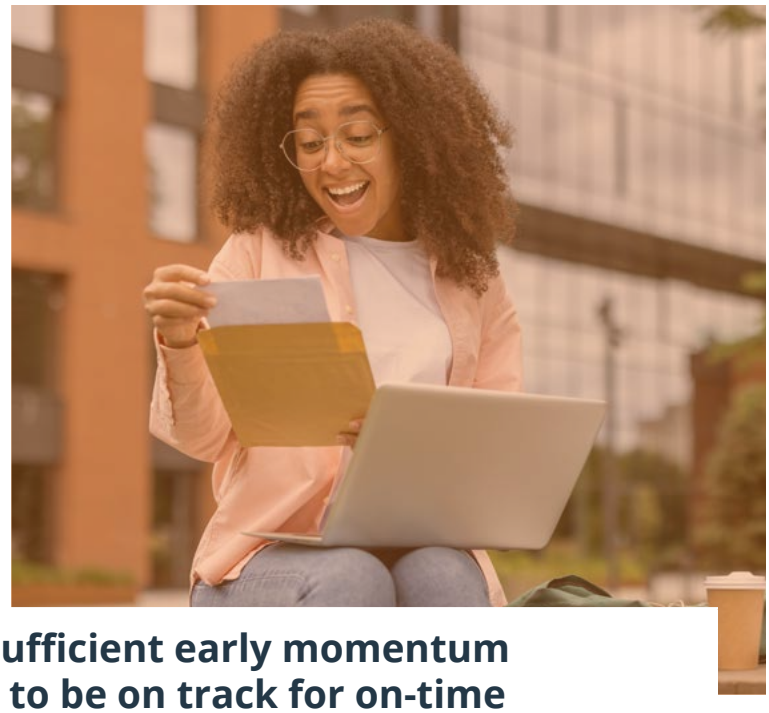
- Differentiating to meet ELL's diverse needs: Allowing educators to more easily differentiate instruction based on assessment of students' skills, needs and goals will result in more personalized learning for ELLs. Teachers working with ELLs must address a wide range of backgrounds and needs within 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 improves 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).

Postsecondary Persistence

Postsecondary persistence refers to a student's continued enrollment in a college, university or other postsecondary pathway from one academic term to the next. Persistence matters because it strongly predicts whether a student will ultimately complete a degree or credential, which is linked to greater career opportunities, economic mobility and long-term stability.



4 **Are students experiencing sufficient early momentum in postsecondary education to be on track for on-time completion?**

Why this matters

First-year credit accumulation: Research points to the importance of early accumulation of credits as a means of creating momentum toward degree completion. Research on students in both two-year and four-year institutions indicates that earning fewer than a particular number of college-level credits in the first year (typically, 20 to 30) is negatively related to completion. Accumulating additional credits during summer terms is associated with increasing the likelihood of degree completion. This may reflect an impact of summer school attendance or the fact that summer provides an opportunity for students to make up for low credits in an earlier term or to retake failed courses. There are also patterns of enrollment that make it difficult to accumulate credits, most notably part-time attendance and stopping out, both of which are consistently found to reduce the likelihood of retention and degree completion. These momentum metrics matter even more for students historically underserved by higher education. Research shows that students of color and first-generation students are more likely to experience structural barriers — such as part-time status, unclear pathways and late advising — that stall progress early (Advancing by Degrees).

Guided Pathways and Meta-Majors: A growing body of evidence reveals that a central factor in low completion rates for community college students is the "cafeteria" style approach to college, which provides entering students with a dizzying array of choices and little guidance on navigating those choices. Without structured guidance, community college students often make course choices that delay or derail completion. Meta-majors and guided pathways simplify decisions, align courses with goals and help students stay on track. Designed with the end (college completion) in mind and using student's interests as a starting point, meta-majors provide structure and narrow choices to support student success (Jobs for the Future, Meta-Majors).

Gateway Course Completion: Research in both two-year and four-year colleges points to the importance of enrolling in and completing college-level math early in a student's college career. Some studies also suggest that early completion of science courses can serve as an indicator of likely success. The importance of college-level English courses as an indicator is not as clear: Some studies find a positive relationship between completing college-level English early and degree completion; other studies show no effect (Advancing by Degrees).

Academic performance: Academic performance in college, usually measured as GPA, provides an important indicator of progress. Studies find substantial increases in the chance of retention and degree completion with every one-grade increase in college GPA, after controlling for high school preparation and other factors. Other research has emphasized the importance of the trend in a student's GPA. Students with rising GPAs over some number of terms are more likely to earn a degree than students with GPAs that either remain constant or decline over time (Advancing by Degrees).

Excessive course withdrawal: Studies also have found that students who withdraw from a substantial share of courses (with common measures being 10% or 20%) reduce their chances of degree completion. This holds true for students in two-year and four-year institutions alike. And in community colleges, research on the impact of registering late for classes has generally concluded that late registrants have higher course-withdrawal rates, lower grade-point averages (GPA) and lower retention rates (Advancing by Degrees).

First-year credit accumulation

Key source: E-W Framework

Indicators

Contributing indicators

- Students complete a high percentage of courses attempted (that is, with a low rate of course dropping and/or failure) (Advancing by Degrees).
- Students complete gateway math in first year. Students who completed a college-level math course within two years of initial enrollment were nearly three times as likely to complete as students who did not finish college-level math in that time (Steps to Success).
- Students complete 20-30 credits in the first year (Advancing by Degrees).
- Students earn summer credits (Advancing by Degrees).
- % of first-year students enrolling in 15 credits (How Many Credits Should an Undergraduate Take?)
- Students enroll continuously, without stop-outs (Advancing by Degrees).
- Students register on time for courses (Advancing by Degrees).
- Students maintain an adequate grade-point average. Studies find substantial increases in

the chance of retention and degree completion with every one-grade increase in college GPA, after controlling for high school preparation and other factors.

- Students achieve a rising GPA over time. Research has emphasized the importance of the trend in a student's GPA, finding students with rising GPAs over some number of terms being more likely to earn a degree than students with GPAs that either remain constant or decline over time. (Advancing by Degrees).
- First-Year Credits Earned. A 2009 study of California Community College student outcomes by C. Moore et al. found that the probability of completion rises with the number of credits earned in the first year, with a fairly linear relationship between the two measures. Researchers found a similar relationship with the probability of completion if they limited the credits earned to only college-level (non-remedial) credits rather than all credits, although the percentage of degree seekers who completed was somewhat higher at each level of college-level credits earned in the first year. Given the large number of CCC students who enroll in college with remedial needs, researchers chose to include all credits and selected 20 credits in the first year as a reasonable threshold indicator of success (other research has used a range of first-year credits, generally from 20 to 30). Fifty eight percent of degree seekers who earned at least 20 credits in the first year completed – three times as many as those who did not earn that threshold level of credits (Steps to Success).
- Credit Completion Ratio. To accumulate credits and build momentum toward completion, students need to complete the courses in which they enroll. In a 2009 study of California Community College student outcomes, researchers found that the rate of earning a certificate or degree or transferring was 24% points higher among students who completed at least 80% of the credits they enrolled in during the first year compared to those who completed a smaller percentage of first-year credits. They calculated the first-year credit completion ratio as the number of credits earned divided by the number of credits attempted, so that either failing or withdrawing from a course led to non-completion of credits (Steps to Success).
- Student Attendance Patterns. Students who attend full time and enroll continuously can accumulate credits faster than students who enroll part time and stop out. A 2009 study of California Community College student outcomes by C. Moore et al. found that students who enrolled full time in their first term were almost twice as likely to complete as students who began as part-time students. Continuously enrolled students had a completion rate that was 7 percentage points higher than students who stopped out. Continuous enrollment did not correlate with completion for older students (age 25+), who may be better able to use periods of stopping out to manage job and family responsibilities without getting off track in their pursuit of a college credential (Steps to Success).
- Student on-time course registration. A 2009 study of California Community College student outcomes by C. Moore et al. found that late registration for courses affects the probability of completion, with the likelihood of completion declining as the share of courses in which students enroll late increased. "Late" registration was defined as enrolling in a course after the start date of the term. Among students who registered late for no more than one in five of their courses, the completion rate was 32%, compared to 24% for students who registered late more often. Late registration affected completion for all student groups. Nearly half (47%) of degree seekers registered late for at least one in five of their courses (Steps to Success).
- % of students receiving proactive advising in the first year. Proactive advising is a holistic approach where advisors initiate contact with students early and consistently to build

a connection with the student and engage in discussions around their academic and personal success. Common topics covered in proactive advising meetings include academic goals, career paths, time management, emotional needs, personal wellness, course planning and strategies and resources for achieving success (Proactive advising practice guide).

- Academic momentum – A 15-Credit First-Semester: A study by Paul Attewell and David Monaghan found that academically and socially similar students who attempt 15 rather than 12 credits in their first semester graduate at significantly higher rates within 6 years of initial enrollment. They also find that students who increase their credit load from below fifteen to fifteen or more credits in their second semester are more likely to complete a degree within 6 years than similar students who stay below this threshold. Our evidence suggests that stressing a norm that full time enrollment should be 15 credits per semester would improve graduation rates for most kinds of students. However, an important caveat is that those undergraduates whose paid work exceeds 30 hours per week do not appear to benefit from taking a higher course load (How Many Credits Should an Undergraduate Take?)
- Academic momentum – A 15-Credit First-Semester: A study by Clive Belfield et al. found that over their time in college, students who take 15 credits in their first semester pay 4–14 percent less per credit and 9–19 percent less per degree in tuition and fees than students who only take 12 credits in their first semester. These savings also produce gains for colleges, because more tuition revenue is generated as more students persist. The academic and economic effects are even stronger for students who sustain momentum through the first year (Momentum: The Academic and Economic Value of a 15-Credit First-Semester Course Load for College Students in Tennessee).
- Academic momentum: Academic advisors and counselors have to target every first-time student for at least 20 additive credits by the end of the first calendar year of enrollment. The chances of making up for anything less than 20 credits diminish rapidly in the second year. Community colleges have some special challenges here, given increasing rates of transfer among traditional-age students. With 6 credits of dual-enrollment course work, even part-time students can reach 20 credits in the first calendar year and community colleges enroll the bulk of traditional-age part-time students (The Toolbox Revisited).
- Advanced coursework in high school: The first year of postsecondary education has to begin in high school, if not by AP then by the growing dual enrollment movement or other, more structured current efforts (for examples, see Hughes, Karp, Fermin and Bailey 2005). If all traditional-age students entered college or community college with a minimum of 6 credits of "real stuff," not fluff, their adaptation in the critical first year will not be short-circuited by either poor placement or credit overload (The Toolbox Revisited).
- Quantitative literacy: It's not merely getting beyond Algebra 2 in high school any more: The world demands advanced quantitative literacy and no matter what a student's postsecondary field of study — from occupationally-oriented programs through traditional liberal arts — more than a ceremonial visit to college-level mathematics is called for (The Toolbox Revisited).
- First-year credit generation: Less than 20 credits by the end of the first calendar year of enrollment (no matter in what term one started, whether summer, fall, winter, spring) is a serious drag on degree completion. It is all the more reason to begin the transition process in high school with expanded dual enrollment programs offering true postsecondary course work so that students enter higher education with a minimum of 6 additive credits to help them cross that 20-credit line. Six is good, 9 is

better and 12 is a guarantee of momentum (The Toolbox Revisited).

- Summer terms: More than 60% of the students in the sample under investigation enrolled during summer terms. Undergraduates are not only more geographically mobile, but have shattered observance of the traditional academic calendar. Summer term credits are more than metaphors for high octane persistence: Earning more than 4 credits during those terms held a consistently positive relationship to degree completion and gave African-American students, in particular, a significant boost in hypothetical graduation rates (table 32). College and community college administrators can be very creative in expanding the use of summer terms (The Toolbox Revisited).
- First-year credit generation, i.e., the goal of making sure that postsecondary students end their first calendar year of enrollment with 20 or more additive credits (The Toolbox Revisited).
- Student academic performance: Earning grades that place one in the top 40 percent of first-year GPA for the whole cohort is a strong — and positive — contributor to academic momentum (The Toolbox Revisited).
- Success in First-Year College Courses. Annual number and percentage of entering first-time degree- or certificate-seeking undergraduate students who complete entry college-level math and English courses within the first two consecutive academic years; by race/ethnicity, gender, age groups, Pell status (at time of entry) and remedial status (at time of entry). Measures the proportion of undergraduate students completing entry, college-level math and English courses within the first two academic years at public institutions of higher education (Complete to Compete).
- Credit Accumulation. Number and percentage of first-time degree- or certificate-seeking undergraduate students completing 24 credit hours (for full-time students) or 12 credit hours (for part-time students) within their first academic year by student entry status, race/ethnicity, gender, age groups, Pell status (at entry) and remedial status (at time of entry). Measures the proportion of undergraduate students making steady academic progress during one academic year at public institutions of higher education (Complete to Compete).
- Retention Rates. Number and percentage of entering degree- or certificate-seeking undergraduate students enrolling from fall to spring and from fall to fall at an institution of higher education by student entry status, race/ethnicity, gender, age groups, Pell status (at time of entry) and remedial status (at time of entry). Measures the rate at which undergraduate students return to a public institution of higher education from fall to the following spring and from fall to the consecutive fall (Complete to Compete).
- Course Completion. Percentage of credit hours completed out of those attempted by entering degree- or certificate seeking undergraduate students, by semester and annually, by student entry status, race/ethnicity, gender, age groups, Pell status (at time of entry) and remedial status (at time of entry). Measures the proportion of attempted credit hours completed by undergraduate students at public institutions of higher education (Complete to Compete).
- % 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).
- % of students who enroll within 12 months of high school graduation (NCAN, Common Measures for Success).
- % of students placed into remedial courses

(English/Math) (NCAN, Common Measures for Success).

- % of students completing remedial coursework within one academic year (NCAN, Common Measures for Success).
- % of students completing college level math course (NCAN, Common Measures for Success).
- % of courses attempted to courses successfully completed (NCAN, Common Measures for Success).
- % 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).
- % of students who complete and submit renewal FAFSA form (NCAN, Common Measures for Success).
- % of students awarded financial aid (NCAN, Common Measures for Success).

System indicators

- % of institutions offering meta-majors or guided pathways (CCRC, What We Know About Guided Pathways).
- Use of summer terms as standard offering (The Toolbox Revisited).
- Rigorous high school curriculum and instruction: Secondary schools must provide maximum opportunity-to-learn, by which we mean not merely course titles, but course substance. If we seek better preparation for any kind of postsecondary education — occupational, professional or traditional arts and sciences — we have to ratchet up the challenge of content (The Toolbox Revisited).
- Engagement with high schoolers: Postsecondary institutions have got to be active players and reinforcers at the secondary school level — particularly in partnership with schools that are not providing or inspiring students — with opportunity to learn at those ratcheted-up levels of content. Pep talks, family visits, recruitment tours and guidance in filling out application and financial aid forms are not enough (The Toolbox Revisited).
- Reducing time-to-degree: Excessive no-penalty withdrawals and no-credit repeats appear to do irreparable damage to the chances of completing degrees. Institutions might think very seriously about tightening up, with bonuses of increased access and lower time-to-degree (The Toolbox Revisited).
- Use of summer terms: More than incidental use of summer terms has proven to be a degree-completion lever with convincing fulcrum. It's part of the calendar-year frame in which students are increasingly participating. Four-year and community colleges can entice students into fuller use of summer terms with creative scheduling (The Toolbox Revisited).
- Rigorous curriculum starting in high school: The academic intensity of the student's high school curriculum counts more than anything else in precollegiate history in providing momentum toward completing a bachelor's degree. Provided that high schools offer [rigorous] courses, students are encouraged or required to take them and, in the case of electives, students choose to take them, just about everybody could accumulate this portfolio. Unfortunately, not all high schools present adequate opportunity-to-learn and some groups of students are excluded more than others. Latino students, for example, are far less likely to attend high schools offering trigonometry (let alone calculus) than white or Asian students (The Toolbox Revisited).

Practices and Policies

Practices

- Increase use of college success courses, early advising and similar programs to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- Improve financial aid counseling to emphasize

benefits of full-time enrollment to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).

- Charge lower per-credit fees for enrolling with a full-time credit load to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- Encourage full-time attendance by providing financial aid and other incentives to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- Provide financial aid for enrollment in summer terms to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- For four-year students, facilitate summer enrollment in community college "back home" to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- Offer online summer courses to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- Require enrollment in at least one summer term to address needs of students who do not reach a threshold of credit accumulation in their first year (20 - 30 semester credits) (Advancing by Degrees).
- Use "early alert" systems and improved tutoring services to provide more academic assistance to assist students with low credit-completion ratio in first year (Advancing by Degrees).
- Limit course drops and repeats or impose extra fee for course withdrawal past a certain date or for repeating a course to address students with low credit-completion ratio in first year (Advancing by Degrees).
- Limit late registration or impose an extra fee for registering late (Advancing by Degrees).
- Use success courses to teach students effective enrollment patterns (Advancing by Degrees).
- The problem of excessive no-penalty withdrawals and no-credit repeats, which affect 10% of the cohort. One of the most degree-crippling features of undergraduate histories is an excessive volume of courses from which the student withdrew without penalty and those the student repeated. Institutional policy and advising can cut the incidence of withdrawals and repeats in half (The Toolbox Revisited).
- Use of summer terms. Strategic enrollment management can move more sections of high demand courses into summer terms, offer credit-bearing internships in summer terms and engage in other creative initiatives that will also smooth out the utilization of institutional resources over what has become an "academic calendar year" (The Toolbox Revisited).
- No delay of entry. This is a matter of recruitment strategy among high school students whose commitment to postsecondary education is less than fervid. The later they show up, the more their postsecondary fate is in jeopardy (The Toolbox Revisited).
- First-year grade point average: Grade point average (GPA) for courses taken in the first academic year of postsecondary education. First academic year defined as all terms across all institutions with start months between TRUMO and the following May (inclusive). Excludes noncredit courses, courses on GED-level transcripts, pass/fail courses and courses credited by examination or transfer (Credit Production and Progress Toward the Bachelor's Degree).
- Number of months to bachelor's degree: Number of months between the date of first enrollment and the date the bachelor's degree was awarded, as shown on transcripts. NOTE: This is a measure of elapsed time, not enrolled

time (Credit Production and Progress Toward the Bachelor's Degree).

- Rigorous high school curriculum: Identifies students whose high school transcript indicates at least four Carnegie units of English and at least three Carnegie units each of mathematics, science and social studies (Credit Production and Progress Toward the Bachelor's Degree).
- Enrollment continuity: Continuity of enrollment in postsecondary education. If there was a gap of two or more semesters (or three or more quarters) in term dates, then student enrollment was deemed noncontinuous (Credit Production and Progress Toward the Bachelor's Degree).
- Number of credits completed and bachelor's degree attainment: Combines degree attainment with the number of semester credits completed at qualifying institutions (2- or 4-year institutions with Carnegie Classification 11–59). Excludes credits by examination, transfer credits not earned at qualifying institutions, courses taken while in high school, courses on GED-level transcripts, clock-hour courses and graduate level courses. Number of credits is rounded to the nearest tenth (Credit Production and Progress Toward the Bachelor's Degree).
- Academic momentum: A study by A. C. McCormick and C. D. Carroll found that first-year credit production was positively related to total credit production: students who completed fewer than 20 credits in the first year (but at least 10 credits over the period of study) averaged 86 credits overall, while those who completed at least 30 credits in the first year averaged 128 credits over the full period studied. These differences are also reflected in the proportion of students who completed a bachelor's degree: from 45 percent among those with fewer than 20 credits in the first year to 91 percent among those who completed at least 30 credits in the first year (Credit Production and Progress Toward the Bachelor's Degree).
- Enrollment continuity: A study by A. C. McCormick and C. D. Carroll found students who interrupted their enrollment (defined as those whose enrollment history includes a gap of two or more semesters, 19 percent of students in the analysis) were half as likely to complete a bachelor's degree as those who were continuously enrolled. Timing of the interruption also made a difference: students who interrupted during or immediately after the first year were least likely to have completed the degree (27 percent), while those who interrupted during or after the third year were most likely to do so (43 percent) (Credit Production and Progress Toward the Bachelor's Degree).
- First-year GPA: A study by A. C. McCormick and C. D. Carroll found academic performance in the first year to be strongly correlated with degree completion: the higher a student's first-year GPA, the more likely that student was to have received a bachelor's degree (Credit Production and Progress Toward the Bachelor's Degree).
- Remedial coursetaking: In a study of the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88), X. Chen found that a majority of first-generation students (55 percent) took some remedial courses during their college years, compared with 27 percent of students whose parents held a bachelor's or advanced degree (table 3). In particular, 40 percent of first-generation students took remedial mathematics courses and 13 percent took remedial reading courses, compared with 16 and 6 percent, respectively, of students whose parents had a bachelor's degree or higher (First-Generation Students in Postsecondary Education).
- In a study of the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88), X. Chen found one-in-three first-generation students (33 percent) had not identified a major after entering postsecondary education, compared with 13 percent of students whose parents had a bachelor's or advanced degree (First-Generation Students in Postsecondary Education).

- In a study of the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88), X. Chen found first-generation students earned an average of 18 credits in their first year, compared with 25 credits earned by students whose parents had a bachelor's degree or higher. First-year credit accumulation bears an important relationship to long-term postsecondary outcomes. For example, earning fewer credits in the first year may not only prolong the time to degree, but is strongly associated with leaving postsecondary education without earning a degree (First-Generation Students in Postsecondary Education).
- In a study of the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88), X. Chen found first-generation students were less likely than their peers whose parents were college graduates to take courses in various academic areas, including mathematics, science, computer science, social studies, humanities, history and foreign languages. They also tended to earn fewer credits if they took courses in these areas (First-Generation Students in Postsecondary Education).
- In a study of the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88), X. Chen found first-generation students were more likely than other students to withdraw or repeat courses they attempted (First-Generation Students in Postsecondary Education).
- In a study of the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88), X. Chen found first-generation students were less likely than students with college-educated parents to earn a bachelor's degree even after taking into account many related factors, including students' demographic backgrounds, academic preparation, enrollment characteristics, credit production and performance (First-Generation Students in Postsecondary Education).
- Credit Accumulation: The percentage of students earning sufficient credits toward on-time completion in their first year: 30 credits for full-time and 15-credits for part-time students. Prior credits from Advanced Placement (AP), International Baccalaureate (IB), dual enrollment and transfer are not counted, nor are noncredit remedial courses. Credit is earned based on institutional standards. Measures twelve-month cohorts by credential level and student enrollment status and attendance intensity (e.g., first-time full-time [FTFT], transfer full-time [TFT], first-time part-time [FTPT], transfer part-time [TPT]). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (at entry) (IHEP, Toward Convergence).
- Other metrics related to credit accumulation: Remedial course enrollment and completion (if applicable); Average credit load per term or year; Summer or intersession credits earned; Enrolled at least half time (for part-time students); Continuous enrollment (IHEP, Toward Convergence).
- Credit accumulation indicators have been incorporated into early warning systems and advising technology, like Civitas and Starfish, to make the data useful for students and advisors. Policymakers also have incorporated credit-based momentum measures into many outcome-based funding models to shape state funding (IHEP, Toward Convergence).
- Credit Completion Ratio: The number of credits completed, divided by the number of credits attempted by first-year students. Prior credits from AP, IB, dual enrollment and transfer are not counted. Credit is earned based on institutional standards. Measures twelve-month incoming cohorts by credential level and student enrollment status and attendance intensity (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status

and program of study (at entry) (IHEP, Toward Convergence).

- Other metrics related to credit completion ratio: Percentages of remedial courses among uncompleted credits; Percentage of D's, F's, W', I's among uncompleted credits; Percentage of uncompleted credits that were retakes; Percentage of D's, F's, W's, I's in high-enrollment courses; Grade point average by term and year; Course engagement/interaction by course completion; Course format/modality by course completion (IHEP, Toward Convergence).
- The credit completion ratio improves institutional understanding of credit accumulation and student academic momentum in the first year by focusing in on courses passed versus courses attempted. For policymakers, both the credit completion and accumulation metrics are primary tools to show academic progression and help design and shape policy and funding decisions and are incorporated in some Outcomes Based Funding (OBF) formulas (IHEP, Toward Convergence).
- Program of study selection: The percentage of students in a cohort who demonstrate a program of study selection by taking nine credits (or three courses) in a meta-major in the first year. Meta-majors include: education; arts and humanities; social and behavioral sciences and human services; science, technology, engineering and math; business and communication; health; trades. Measures twelve-month incoming cohorts by credential level and student enrollment and attendance intensity (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (at entry) (IHEP, Toward Convergence).
- Other metrics related to program of study selection: Percentage of students undeclared at entry; Number of major changes; Likelihood of meeting requirements for entry to intended major; Availability of intended major (e.g., wait lists); Availability of detailed degree maps for intended major; Availability of prerequisite courses in sequence for intended major (IHEP, Toward Convergence).
- Concentration in a program of study is an early indicator of student progression through higher education, offering more information about how and why some students falter. If an institution finds that large proportions of their students are not concentrating in a major early in their collegiate careers, then the institution can adjust advising, course registration and scheduling practices to encourage students to concentrate earlier and build momentum toward their degrees. While not specifically geared toward students for consumer purposes, program of study selection is another progression metric that can enhance academic advising and course selection (IHEP, Toward Convergence).
- Collect data on students' course enrollments. Course-enrollment data are necessary to analyze the milestones and on-track indicators discussed in this report. Some higher education systems may only be collecting information on whether particular students enrolled in a specifi ed term, how many units they completed, their grade-point average, or other aggregated information about their experiences. Such data are not suffi cient for monitoring the progress and behaviors that our framework comprises. Term-by-term information on individual course enrollments adds a level of detail about students' patterns of enrollment that is very useful for diagnosing where students are falling off track, which in turn points to ways to target changes to policies and practices. (Advancing by Degrees).
- Institutions ask key questions during planning programs:What is the full scope of programmatic offerings at this college? Do the college's programs align to the local labor market and/or four year transfer partner? Has the college validated its program offerings with employers? What are the high-level program groupings? Which general education courses

align best to each meta-major? How can the college integrate developmental education to ensure it serves as an on-ramp into meta-majors for students? (Jobs for the Future, Meta-Majors).

- Institutions ask key questions about student intake: How will the college place students into meta-majors? How does the college communicate meta-majors to prospective students? How does the college help students make informed choices about meta-majors? Are there self-serve resources for students that are aligned with and complement advising services? What type of staff education, training and documentation is required to ensure consistency? (Jobs for the Future, Meta-Majors).
- Guided Pathways academic program structure: Programs are fully mapped out and aligned with further education and career advancement (CCRC, What We Know About Guided Pathways).
- Guided Pathways academic program structure: Critical courses and other milestones are clearly identified on program maps (CCRC, What We Know About Guided Pathways).
- Guided Pathways academic program structure: Student learning outcomes are specified across programs (CCRC, What We Know About Guided Pathways).
- Guided Pathways academic program structure: High school and other feeder curriculum is designed to prepare students to enter college programs in particular fields (CCRC, What We Know About Guided Pathways).
- Guided Pathways new student intake: Academic plans, based on program maps, are required (CCRC, What We Know About Guided Pathways).
- Guided Pathways new student intake: Students are required to enter exploratory majors and choose specific programs on a specified timeline (CCRC, What We Know About Guided Pathways).
- Guided Pathways new student intake: Assessment is used to diagnose areas where students need support instead of being used to sort students into remediation or college-level courses (CCRC, What We Know About Guided Pathways).
- Guided Pathways new student intake: Instruction in foundation skills is integrated into and contextualized with critical program courses instead of being narrowly focused on college algebra and English composition (CCRC, What We Know About Guided Pathways).
- Guided Pathways instruction: Faculty collaborate to define and assess learning outcomes for entire programs rather than on individual courses (CCRC, What We Know About Guided Pathways).
- Guided Pathways instruction: Faculty are trained and supported to assess program learning outcomes and use results to improve instruction (CCRC, What We Know About Guided Pathways).
- Guided Pathways instruction: Supporting motivation and metacognition is an explicit instructional goal across programs (CCRC, What We Know About Guided Pathways).
- Guided Pathways progress monitoring and support: Student progress on academic plans is closely monitored, with frequent feedback (CCRC, What We Know About Guided Pathways).
- Guided Pathways progress monitoring and support: Students can see how far they have come and what they need to do to complete programs (CCRC, What We Know About Guided Pathways).
- Guided Pathways progress monitoring and support: Early warning systems identify students at risk of failing critical courses and initiate timely interventions (CCRC, What We Know About Guided Pathways).
- Guided Pathways progress monitoring and support: Advisors work closely with program faculty, with a clear division of labor for monitoring student progress (CCRC, What We Know About Guided Pathways).
- Cost for Credits Not Completed: The per-student expenditures by the institution for credits

attempted but not completed by first-year students. Disaggregated by credential level, academic preparation, economic status, race/ethnicity, gender, age, first-generation status and program of study (IHEP, Toward Convergence).

- Additional metrics related to Cost for Credits Not Completed include: Number of credits attempted, not completed; E&R per credit; Total E&R for credits attempted, not completed; Total and average net tuition paid by students for uncompleted credits (IHEP, Toward Convergence).
- Time to credential: The average time accumulated from first date of entry to the institution to date of completion for all completers in a given year. Measures all completers in a given year by credential level attained. Disaggregated by race/ethnicity, gender, age, academic preparation (at any time), economic status (at any time), first-generation status, program of study (at exit) and part-time (at any time) and transfer status (IHEP, Toward Convergence).
- Credits to credential: The average credits accumulated from first date of entry to the institution to date of completion for all completers in a given year. Measures all completers in a given year by credential level attained. Disaggregated by race/ethnicity, gender, age, academic preparation (at any time), economic status (at any time), first-generation status, program of study (at exit) and part-time (at any time) and transfer status (IHEP, Toward Convergence).
- Other metrics related to Time and Credits to Credential: Average number and percentage of transfer credits accepted (if applicable); Number of course D's, F's, W's, I's or retakes; Major declaration/major changes; Stopout or continuous enrollment rates; Cumulative debt by time or credits to credential (IHEP, Toward Convergence).
- Assign students to advisors with mandatory monthly check-ins in the first year. (Proactive Advising)
- Use behavioral "nudges" (texts/emails) to encourage registration, advising and milestone course completion (Community College Daily)
- Establish rapid-response microgrants for students facing financial emergencies (HELPS Grants)
- Train faculty on culturally responsive pedagogy, metacognition strategies and inclusive course design (STEM Faculty)

Practices and Policies

Practices

- Guided Pathways: A growing number of community colleges and four-year universities are adopting a guided pathways approach, which presents courses in the context of highly structured, educationally coherent program maps that align with students' goals for careers and further education. Incoming students are given support to explore careers, choose a program of study and develop an academic plan based on program maps created by faculty and advisors. This approach simplifies student decision-making and allows colleges to provide predictable schedules and frequent feedback so students can complete programs more efficiently (CCRC, What We Know About Guided Pathways).
- Designing meta-majors: Transforming the "cafeteria" style approach to college into a "prix fixe menu": Meta-majors are the prix fixe alternative to the cafeteria style approach to college. Designed with the end (college completion) in mind and using student's interests as a starting point, meta-majors provide structure and narrow choices to support student success. They are designed to help students choose a program of study within the first year of attendance, which increases completion rates significantly. Sometimes also referred to as "career clusters" or "communities of interest," meta-majors refers to the creation of broad program streams such as allied health or business

as a key component of guided pathways reforms. Meta-majors have emerged as a viable way for a student to enter a general major or area of interest and complete coursework in this interest area before deciding on a more specific major or program of study (Jobs for the Future, Meta-Majors).

- A key design principle of guided pathways is that academic programs of study be structured to provide students with guidance and clear routes to completion. Guided pathways aim to reduce student meandering caused by an overwhelming array of course options, unclear program requirements and a lack of guidance. Meta-majors provide this structure from a student's entry to college all the way through completion (Jobs for the Future, Meta-Majors).
- Common elements of meta-majors include: alignment with local labor market demand; a clear program map; general education courses and electives that are aligned with each meta-major; advising and student services that are aligned with the student's meta-major (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Faculty-driven leadership. Faculty buy-in is crucial to the process of analyzing and mapping program areas for meta-majors. Involve faculty from the beginning so they can play a strong leadership role throughout the process (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Design with the end in mind. Meta-majors are a key component of guided or structured pathways and it is important to think through the complete pathway from connection all the way through to completion and into employment. Consider the institutional context — what courses and credentials have to be aligned within the college to create a coherent pathway with stackable certificates and degrees that students can move in and out of? (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Dissect and map out courses. Begin by mapping out existing courses to identify degree requirements and common courses shared across programs. This will help to identify potential areas of interest for creating meta-majors. Once areas of interest are identified, start mapping out the flow of courses beginning with the common courses across the meta-major; think of this like a funnel that starts very broad and narrows over time as students refine their area of interest (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Involve employers, community partners, alumni and other key stakeholders. Consider the community context — which external stakeholders need to know about the college's pathway efforts? How are educational opportunities aligned with key stakeholders so that an individual can access next steps in a pathway at multiple places, including the workplace? (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Align to high-demand jobs. Community colleges are for the most part educating students who want career opportunities in their town or their region. Use local labor market information on in-demand industries and occupations to shape meta-majors and support students in training for available careers (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Clear communication to students. Clear communication is essential! Make information about meta-majors and their course progressions into specific programs of study accessible to students from the point of entry in the college all the way to completion. Information on advising, student services and career counseling, including labor market information on earnings data and career ladders, can be linked to each meta-major and easily accessible to students (Jobs for the Future, Meta-Majors).
- Meta-major design principles – Data transparency. Data allows colleges to examine student progress and success and whether programs are able to meet local labor market needs. Analyzing data allows colleges to assess performance, set goals

for improvement and examine the impact of interventions to determine if adjustments need to be made (Jobs for the Future, Meta-Majors).

- Guided Pathways: College students are more likely to complete a degree in a timely fashion if they choose a program and develop an academic plan early on, have a clear road map of the courses they need to take to complete a credential and receive guidance and support to help them stay on plan (CCRC, What We Know About Guided Pathways).
- Guided pathways entail a whole-college reform; improvements to discrete programs are shaped by broader institutional reform goals. Research on organizational effectiveness suggests that scaling discrete "best practices" is not sufficient to achieve substantial improvements in outcomes (CCRC, What We Know About Guided Pathways).
- Colleges use measures of student progress into and through programs (and on to further education and employment) to evaluate and improve programs and services (CCRC, What We Know About Guided Pathways).
- Exploratory majors break down decision-making. First, students select from a small set of broad program streams; then they choose from a selection of majors within the broader field. Having too many choices leads to indecision, procrastination, self-doubt and decision paralysis; people handle complex decisions better if they are helped to think through options hierarchically, in manageable sets (CCRC, What We Know About Guided Pathways).
- Academic plans with defaults help students make course choices that will move them toward their goals, while still permitting students to customize their schedules. A simplified set of options that includes clear information on costs and benefits — or the provision of a "default option" — can help people make more optimal decisions (CCRC, What We Know About Guided Pathways).
- Monitoring student progress and giving frequent feedback about next steps helps students make choices (CCRC, What We Know About Guided Pathways).
- Program maps created by faculty and advisors make learning outcomes explicit so that students can see how they are progressing toward them (CCRC, What We Know About Guided Pathways).
- Course syllabi and program maps show students how the components of their program fit together to build skills relevant to their goals; the process of program mapping allows faculty to work together to create instructional program coherence (CCRC, What We Know About Guided Pathways).
- Guided Pathways in Practice – Florida State University: In the early 2000s, to address the problem of students graduating with excess credits, Florida State University implemented default academic program maps, required students to enroll in exploratory majors and provided proactive advising to help ensure that students stay on path. Between 2000 and 2009, the year-to-year retention rate for first-time-in-college freshmen increased from 86 to 92 percent, the four-year graduation rate increased from 44 to 61 percent and the percentage of students graduating with excess credits dropped from 30 to 5 percent (CCRC, What We Know About Guided Pathways).
- Guided Pathways in Practice – Guttman Community College: CUNY At Guttman, a new CUNY college designed around guided pathways principles, all first-time students are required to attend a summer bridge program, to enroll full-time and to follow a common first-year curriculum intended to help them explore careers and choose a major. Remedial instruction is embedded into college-credit coursework. In their second year, students are required to choose a program of study in a limited number of fields identified as promising based on New York City labor market data. By August 2014, 28 percent of Guttman's inaugural 2012 entering class had completed an associate degree and the college reported that it is on track to meet its three-year goal of graduating 35 percent of its students. In

contrast, the median three-year graduation rate for community colleges in large cities is 13 percent (CCRC, What We Know About Guided Pathways).

- Guided Pathways in Practice – Queensborough Community College: CUNY In 2009, Queensborough Community College began requiring all first-time, full-time students to choose one of five "freshman academies" in business; visual and performing arts; science, technology, engineering and mathematics; health-related science; or liberal arts before they enrolled. Each academy has a faculty coordinator who works with faculty and student affairs staff to implement high-impact practices and build a sense of community among students and faculty within the academy. Since implementation, first-year retention rates at the college have increased and the college's three-year graduation rate rose from 12 percent for the 2006 first-time, full-time cohort to 16 percent for the 2009 cohort (CCRC, What We Know About Guided Pathways).
- Institutions waste money and students lose money when students attempt credits but do not complete them — whether they withdraw from the course or receive failing grades. Institutions may be able to save or at least better allocate scarce resources by improving student course completion. To interpret the metric's results, institutions should also consider the recommended submetrics, which indicate whether the metric is changing over time because of changes in the number of uncompleted credits, the expenditures per credit, the number of students attempting credits, or all of these factors. This metric may also be of interest to state and federal policymakers concerned with whether public funds are being used to subsidize multiple course repeats (IHEP, Toward Convergence).
- Measuring Time and Credits to Credential allows institutions to analyze how efficiently students complete credentials, flagging potential inefficiencies to be addressed. First, institution and department leaders can use these data to understand which programs take longer to complete and thus may be more costly options for students, as well as programs that need curricular review to determine if degree requirements are set appropriately. Some credential requirements may be outdated and could be streamlined to reduce the number of credits required for completion while still maintaining quality. In some cases, students may be taking unnecessary courses because credential pathways are not communicated clearly or because the courses they need for their credential are unavailable, which can be addressed in the academic advising and scheduling process (IHEP, Toward Convergence).
- If certain student populations tend to take more courses than needed or take a long time to complete, corrected pathways and additional supports can be implemented at the college or department level to intervene with additional advising for students at risk of extended time to credential. Additionally, those institutions with favorable transfer policies should show lower rates of time and credits to degree because acceptance of transfer credits enhances efficiency. In cases where the opposite is true, transfer policies could be reevaluated to decrease time to credential (IHEP, Toward Convergence).
- Students also can use an institution's Time and Credits to Credential Measure to inform college decision-making. Because time and credits to credential directly affect college affordability for many students, knowing these outcomes manages expectations for personal finance and time that should be dedicated to higher education. For policymakers, longer-than-average time to completion can signal inefficient use of federal or state funds (IHEP, Toward Convergence).
- A federal student-level data network that addresses policy recommendations found in the

Gateway course completion

Indicators

Contributing indicators

- Students complete college-level math and/or English in the first or second year (Advancing by Degrees).
- Students complete a college-success course or other first-year experience program (Advancing by Degrees).
- Student completion of college-level math and English. A 2009 study of California Community College student outcomes by C. Moore et al. showed that degree-seeking students were more likely to complete (i.e., earn a certificate, degree, or transfer) if they completed college-level math and English, with a grade of C or better, early in their enrollment. Students who completed a college-level math course within two years of initial enrollment were nearly three times as likely to complete as students who did not finish college-level math in that time period. Students who completed a college-level English course within the first two years were more than twice as likely to complete as those who did not (Steps to Success).
- Student completion of Success Courses. Many colleges offer courses designed to help students succeed in college and in their careers. These courses are often called college orientation or college success courses. A 2009 study of California Community College student outcomes by C. Moore et al. showed that completing such a course appears to help some students earn a degree or certificate or to transfer. Older students and traditional-age, part-time students who completed a success course had higher completion rates. Completing a success course did not appear to make a difference for full-time, traditional-age students. The study found that black students in the CCC who finished a success course were less likely to complete than black students who did not take such a course and that taking a success course was unrelated to completion for Asian students. It may be the case that success courses in the CCC are aimed at students with more risk factors rather than being more widely available to all students, complicating the relationship of taking a success course and completion (Steps to Success).
- Gateway course pass rates disaggregated by race, Pell status and first-gen status (Toward Convergence).
- Gateway course completion disaggregated by instructional modality (in-person, online, hybrid) (Institute for Higher Education Policy).

System indicators

- Gateway courses: A dominant feature of academic histories that cannot really be assessed until the end of the second year following college entry is the extent to which students successfully completed credits in a range of "gateway" courses. It is at this point that the postsecondary curricular story line fully emerges, with ratios of participation in the "gateways" between those who ultimately earned degrees and those who did not running 6:1 in American literature, 4:1 in general chemistry and more than 3:1 in precalculus, micro/macroeconomics, introduction to philosophy and world civilization. These gaps in curricular participation argue for academic administrators to identify their key gateway courses and regularly monitor participation (The Toolbox Revisited).
- Gateway courses: College and community college expectations for their first-year students in those gateway courses — expressed through examinations, paper and laboratory assignments — need to be more public. Examples such as those offered by the American Diploma Project in its report, Ready or Not: Creating a High School Diploma That Counts (2004), should be shared with larger audiences than policymakers and others who habitually read such reports. Parents should see those assignments even if they don't understand them; high school teachers should ponder them to assess whether their exiting students are likely to be prepared; and, most importantly, high school students have got to see them as road signs to their next education destination. The Toolbox Revisited advocates making these

examples part and parcel of admissions packets, publicity brochures and Web sites. There is risk in this: Some students may be scared away. But there is no better way to enhance articulation and preparedness than to display what students can expect (The Toolbox Revisited).

- Gateway Course Completion: The percentage of students completing college-level, introductory math and English courses tracked separately in their first year. Prior credits from AP, IB, dual enrollment, transfer and College Level Examination Program (CLEP) do count. Credit is earned based on institutional standards. Measures twelve-month incoming cohorts by credential level and student enrollment status and attendance intensity (e.g., FTFT, FTPT, TFT, TPT). Disaggregated by academic preparation, economic status (at entry), race/ ethnicity, gender, age, first-generation status and program of study (at entry) (IHEP, Toward Convergence).
- Other metrics related to gateway course completion: Enrollment in prerequisite remedial courses by subject (if applicable); Completion of prerequisite remedial courses by subject (if applicable); Enrollment in gateway courses by subject; Number of attempts to complete gateway courses by subject; Average time to complete gateway courses by subject; Completion of both gateway courses; Availability of remedial and gateway courses in sequence; Percentages of D's, F's, W's, I's in gateway courses by subject; Course engagement/ interaction by gateway course completion; Course format/modality by gateway course completion (IHEP, Toward Convergence).
- Cost for Completing Gateway Courses: For all gateway course completers in a given year, the per-student expenditures associated with all developmental and gateway courses attempted before gateway course completion, tracking English and math courses separately. Disaggregated by credential level, academic preparation (at any time), enrollment status, attendance intensity (at any time), economic status (at any time), race/ethnicity, gender, age, first-generation status and program of study (IHEP, Toward Convergence).
- Additional metrics related to Cost for Completing Gateway Courses include: Net tuition cost to students to complete gateway courses; Enrollment in developmental courses (if applicable); Completion of developmental courses (if applicable); Number of developmental course attempts (if applicable); Enrollment in gateway courses; Number of attempts to complete gateway courses; Completion of both gateway courses; Availability of developmental and gateway courses in sequence; Percentage of D's, F's, W's, I's in gateway courses; E&R expenditures per credit (IHEP, Toward Convergence).

Practices and Policies

Practices

- Better align curriculum and assessment with high schools to improve college readiness and help students who struggle to complete college-level math courses in their first year (Advancing by Degrees).
- Require entering students to take first credit-bearing math and English courses immediately (after completing any required developmental courses) — or at least ensure that early advising stresses the importance of taking a math course early in the college career (Advancing by Degrees).
- Ensure adequate course offerings and flexible scheduling to address needs of part-time and older students who struggle to complete a "success" course in the first year (a course designed to help students achieve in college and in their careers) (Advancing by Degrees).
- Better advising for new students about the advantages of such "success" courses (Advancing by Degrees).
- Require degree-seeking, nontraditional students to enroll in a success course (Advancing by Degrees).
- As colleges encounter new degree-seeking students who need remediation but who do not enroll in basic skills courses (or at least do not

enroll in the first term), administrators can adopt system-wide definitions of college readiness and standardized procedures for assessment and placement across the colleges (Steps to Success).

- As colleges encounter new degree-seeking students who need remediation but who do not enroll in basic skills courses (or at least do not enroll in the first term), administrators can ensure that all degree-seeking students are assessed for college readiness and directed to appropriate courses (Steps to Success).
- As colleges encounter new degree-seeking students who need remediation but who do not enroll in basic skills courses (or at least do not enroll in the first term), administrators can use results of the Early Assessment Program to give students the senior year to remedy identified deficiencies in college readiness (Steps to Success).
- As colleges encounter new degree-seeking students who need remediation but who do not enroll in basic skills courses (or at least do not enroll in the first term), administrators can require early enrollment and completion of basic skills course work (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, administrators can ensure that policies support innovative practices such as intensive summer orientation programs for new developmental students (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, instructors can contextualize basic skills instruction into content courses (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, administrators can implement learning communities for developmental students (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, administrators and policymakers can incorporate incentives for colleges to increase success in basic skills courses (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, instructors can redesign developmental courses into modules so students only repeat needed sections (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, instructors can provide brief brush-up courses for students who test near proficiency levels (Steps to Success).
- As colleges encounter a low percentage of basic skills students completing needed remediation, instructors can enroll students in college-level courses and provide supplementary instruction/ summer sessions for nearly-proficient students (Steps to Success).
- As colleges encounter low percentages of students completing college-level math in first two years, administrators can better align curriculum and assessment with high schools to improve college readiness and use the Early Assessment Program to send early signals about college readiness to high school students (Steps to Success).
- As colleges encounter low percentages of students completing college-level math in their first two years, administrators can ensure early advising that focuses on the importance of taking math early in college career (Steps to Success).
- As colleges encounter a low percentage of students completing college success courses administrators can ensure adequate course offerings and flexible scheduling
- As colleges encounter a low percentage of students completing college success courses administrators can improve advising for new students about advantages of such courses (Steps to Success).
- As colleges encounter a low percentage of students completing college success courses administrators can require degree-seeking, non-traditional students to enroll in a success course (Steps to Success).

- As colleges encounter a low percentage of first-year degree-seeking students reaching a threshold of credit accumulation, administrators can increase use of college success courses, early advising, etc. (Steps to Success).
- As colleges encounter a low percentage of first-year degree-seeking students reaching a threshold of credit accumulation, administrators can improve financial aid counseling to emphasize benefits of full-time enrollment (Steps to Success).
- As colleges encounter a low percentage of first-year degree-seeking students reaching a threshold of credit accumulation, administrators and policy makers can consider lower per-credit fees for enrolling in a full-time credit load (state action required) (Steps to Success).
- As colleges encounter a low percentage of first-year degree-seeking students reaching a threshold of credit accumulation, administrators and policy makers can encourage full-time attendance through provision of financial aid and other incentives (state action required) (Steps to Success).
- As colleges encounter a low percentage of first-year degree-seeking students reaching a threshold of credit accumulation, administrators and policy makers can provide financial aid for enrollment in summer terms (state action required) (Steps to Success).
- As colleges encounter a low percentage of first-year degree-seeking students reaching a threshold of credit accumulation, administrators can offer on-line summer courses (Steps to Success).
- As colleges encounter students attaining a low credit completion ratio in first year, administrators can use early alert systems and improved tutoring services to provide more academic assistance (Steps to Success).
- As colleges encounter students attaining a low credit completion ratio in first year, administrators can limit course drops and repeats or impose extra fee for course withdrawal past a certain date or for repeating a course (state action required to allow campus-based fees) (Steps to Success).
- As colleges encounter a high percentage of course enrollments for which students registered late, administrators can limit late registration or impose extra fee for registering late (state action required to allow campus-based fees) (Steps to Success).
- As colleges encounter a high percentage of course enrollments for which students registered late, administrators can use college success courses to teach students about more effective enrollment patterns (Steps to Success).
- First year "Gateway Course Completion" dashboards show how many students have successful completed their required math and English gateway courses in their first academic year (National Student Clearing House).

Policies

- Gateway course completion in the first year is a key momentum point that predicts student success and the proportion of students meeting this momentum point indicates to an institution whether students began their college careers on the right track. In one respect, it is the best measure of true college readiness. For this reason, policymakers too must be keenly aware of and aim to use this and other completion measures when they are designing and shaping programming, policy and funding. Performance on this metric also can inform institutional efforts to help students build academic momentum early through counseling and technology-enabled advisory systems (IHEP, Toward Convergence).

Frequent failed attempts at prerequisite remediation or gateway courses require institutions to spend money delivering courses that do not result in credit accumulation and this decreases institutional efficiency. These failed attempts also require students to spend money and financial aid that does not help them progress toward a degree. Quantifying the cost of the various steps toward completing a gateway

course can help institutions focus on ways to increase efficiency and decrease both student and institutional expenses. Federal and state policymakers, who subsidize developmental and gateway course attempts, also have a vested interest in students progressing toward completion in an efficient manner, especially in light of time limits on Pell Grant and Direct Loan eligibility (IHEP, Toward Convergence)

First-year program of study concentration

Key source: E-W Framework

Indicators

Contributing indicators

- % of students enrolled in default meta-major course sequences. Evidence of inefficient course-taking patterns at community colleges has spurred policy conversations about how to ensure effective course sequences. Structural reforms, like guided pathways, seek to reduce major switching as a means to streamline student course taking and eliminate unnecessary credits (Shuddle, Lauren T, Ryu, Ronson, Brown, Stanley Raymond).

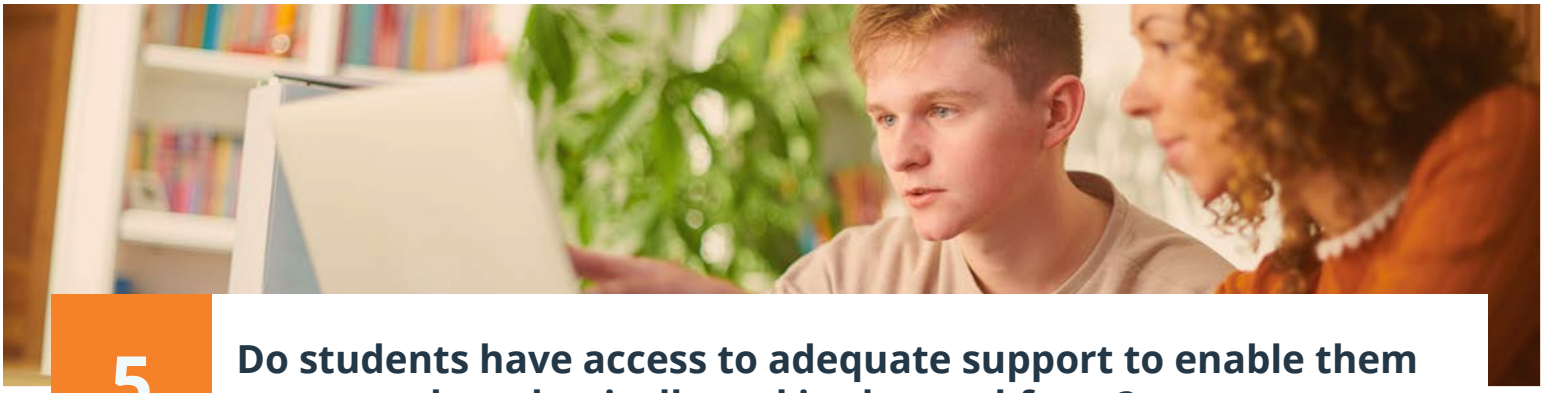
System indicators

- % of gateway courses offered with program-specific contextualization (e.g., statistics for health) (Jobs for the Future, Meta-Majors).
- Institutions ask key questions during planning: Does the college want to implement meta-majors? What are the college's goals? What building blocks are already in place (e.g., first-year experience, orientation, mapped pathways)? What related technical software and hardware infrastructure is currently in place (e.g., SIS, LMS, early alert, course dev, placement and scheduling)? Who will lead this implementation? Which other stakeholders need to know about this? What is the communications strategy? How much will it cost to implement? (Jobs for the Future, Meta-Majors).

Practices and Policies

Practices

- Clear program maps exist and include term-by-term course recommendations for each program or meta-major (Jobs for the Future, Meta-Majors).
- Existence of clearly defined meta-majors that align with labor market demand and institutional offerings (Jobs for the Future, Meta-Majors).
- Integrated planning tools (SIS, LMS, early alert, degree audit, etc.) exist and are used to support student progression (Jobs for the Future, Meta-Majors).
- Institutional communications strategy for explaining pathways/meta-majors to students and families. Make information about meta-majors and their course progressions into specific programs of study accessible to students from the point of entry in the college all the way to completion. Information on advising, student services and career counseling, including labor market information on earnings data and career ladders, can be linked to each meta-major and easily accessible to students (Jobs for the Future, Meta-Majors).
- Faculty and advisors are trained on how to use degree maps to support student decisions making (Jobs for the Future, Meta-Majors).



5 Do students have access to adequate support to enable them to succeed academically and in the workforce?

Why this matters

To succeed academically and complete a postsecondary degree or work-based credential, students need a combination of academic, career and financial support. Research from the *Community College Research Center* at Columbia University and *Institute for College Access & Success* highlights that strong academic and career advising helps students choose the right programs, stay on track and connect learning to future goals. Equally important is support with financial and basic needs — including access to affordable housing, transportation, childcare and part-time jobs — which reduce non-academic barriers that often derail progress. When these supports are integrated and accessible, especially for low-income and first-generation students, completion rates rise significantly.

Access to college and career advising: Effective college and career advising helps students navigate complex postsecondary pathways and persist to degree completion. Research from the *National Postsecondary Strategy Institute* and *Harvard's Center for Education Policy Research* shows that well-designed advising — particularly when it includes personalized guidance, goal-setting and support with financial aid and course planning — significantly increases enrollment, retention and graduation rates. Students who receive strong advising are more likely to choose programs that fit their goals, stay on track academically and complete credentials that lead to meaningful careers and economic mobility.

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).

- Students meet with an academic advisor before registration and at least once per term. Advisors should with students before each registration period and interact with them multiple times each term, especially during students' first year (Community College Research Center).

System indicators

- Cost of Excess Credits to Credential: The per-student expenditures for excess credits to credential for all completers with excess credits in a given year. Measures all completers in a given year by credential level. Disaggregated by enrollment status, attendance intensity (at any time), academic preparation (at any time), race/ethnicity, economic status (at any time), age, gender, program of study (at exit) (IHEP, Toward Convergence).
- Additional metrics related to Cost of Excess Credits to Credential include: Excess credits earned by transfers by number/percentage of prior credits accepted; Total (instead of average) cost of excess credits to credential; Total and average net tuition cost to student of excess credits to credential (IHEP, Toward Convergence).
- 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).
- 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).
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- 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).
- Ratio of advisors (including success coaches, academic advisors, peer mentors, support staff, etc.) to students. Effective advising offers: ongoing guidance across a student's college journey; tailored services that align with individual levels of need; coordination of both academic and nonacademic resources; intentional, timely outreach; and support that is customized to each student's unique circumstances (Community College Research Center).

Practices and Policies

Practices

- The metric Cost of Excess Credits to Credential measures the financial outlay by the institution for students taking excess credit hours to credential. Because of the multitude of factors affecting this metric, it is imperative to determine whether efficiency is changing due to more students taking more excess credits, the expenditures per credit, or both over time. Changes in expenditures per credit over time can be controlled for by using the expenditures per credit in the year the credit was taken, instead of the year the student completed, for more precision. If costs increase largely due to excess course taking, institutions can proactively address degree pathways and academic advising to improve efficiency and help students complete more quickly and at a lower cost. The metric also provides institutions and policymakers with another piece of the cost–of-college puzzle, identifying a possible intervention strategy to reduce costs for both students and taxpayers. By creating efficient pathways to a credential, institutions and students can minimize excess credits to credential, lessening the cost per completer for the institution, student and taxpayer (IHEP, Toward Convergence).
- Collect data on student use of campus services and participation in special programs. Many institutions implement special programs or services to help students, but they fail to collect student-level data associated with those programs and services or to integrate that information with other data. Without such data, it is impossible to evaluate the effectiveness of programs and services in improving student outcomes (Advancing by Degrees).
- 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).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).
- Implement credit transfer "comeback" programs, which can forgive institutional debt and unlock transcripts for stopped out students, improving re-enrollment and degree attainment (Removing the Institutional Debt Hurdle).

Health insurance coverage (including mental health care coverage) *Key source: E-W Framework*

Indicators

Contributing indicators

- Rates of anxiety and/or depression among students, disaggregated by race (The Hope Center).
- Percentage of students indicated experiencing clinically significant symptoms of anxiety and depression in the previous two weeks (The Hope Center).
- Percentage of students stopping out of college who report that mental health was one of their reasons for stopping out (The Hope Center).
- Percentage of students reporting barriers to getting mental health support (e.g., availability, affordability or lack of insurance coverage, lack of awareness, fit, social stigma) (The Hope Center).

System indicators

- State-level insurance expansion policies (The State of Medicaid Expansion Decisions).
- Availability of campus-based health plans (U.S. Government Accountability Office)

Practices and Policies

Practices

- Campus health fairs and enrollment assistance for Medicaid/Marketplace (Health Insurance Marketplace).
- Embedded academic advising on health insurance usage (Health Insurance Marketplace).

Policies

- Federal laws currently allow full-time students to remain on parental plans through age 26 (Healthcare.gov).
- Institutional mandate for campus-wide health plan availability (American Council on Education).

Food security

Key source: E-W Framework

Indicators

Contributing indicators

- % of households or students experiencing food insecurity (Food Systems Journal).
- Food pantry utilization rates. Pace University's pantry, Provisions, allows students to swipe their student ID card at each visit. This enables the university to collect usage data — recording who uses the pantry, how often and demographic information. This information is then used to assess how effectively the pantry supports students facing food insecurity (Pace University).
- SNAP enrollment among college students. The State Council of Higher Education for Virginia (SCHEV) provides public dashboards showing both student enrollment in SNAP and estimates of potential eligibility (based on FAFSA income ≤ 200% of the federal poverty level) across institutions, genders and racial groups (Virginia State Council of Higher Education).
- Rates of food insecurity among college students. According to a survey administered by The Hope Center for Student Basic Needs, two-in-five survey respondents reported experiencing food insecurity. "Food insecurity" is categorized using USDA measures as having low, or very-low food security (The Hope Center).

System indicators

- Campus basic-needs center presence, such as Pace University's food pantry, Provisions (Pace University).

Practices and Policies

Practices

- Students running Campus Kitchens or food pantries (Campus Kitchens Project)
- Partnerships that make donated food accessible to students, like MarketBoxx at HBCUs (MarketBoxx).
- Many institutions now have a food pantry, but that often is not enough to significantly reduce food insecurity on campus. As noted in Use of Public Resources and Campus Supports, awareness is a major barrier to students accessing support. To effectively reduce food insecurity on campus, colleges should ensure that their resources are robust and promoted widely. Bunker Hill Community College's DISH Food Pantry provides an excellent example of both. The DISH Food Pantry provides students with refrigerated lockers, increasing accessibility for students who cannot visit during operating hours. The pantry also partners with Food for Free to provide students with microwavable meals to make the resource accessible to students without

a kitchen (The Hope Center).

Policies

- Advocate for SNAP eligibility expansions for students (The Hope Center).
- Remove Student Barriers to SNAP. Due in part to the complex requirements and administrative burdens created by the program, the U.S. Government Accountability Office (GAO) recently found that two-thirds of students who are likely eligible for SNAP and 6-in-10 students who are both food-insecure and likely eligible for the program, do not report receiving benefits. Federal policymakers should overhaul and simplify SNAP eligibility rules and ensure that all students with low incomes (who are at high risk of food insecurity) are able to seamlessly qualify for benefits. Congress should streamline SNAP eligibility by allowing enrollment in higher education to satisfy activity and participation requirements and putting students with low incomes on equal footing with other individuals who are eligible for SNAP, or by simplifying the student exemptions to ensure all groups of low-income students at risk of food insecurity can qualify without needing to satisfy the 20-hour-per-week work rule (The Hope Center).
- Improve Outreach to Students About Public Benefits. Federal policymakers should expand awareness, outreach and enrollment in SNAP and other support programs that could reduce basic needs insecurity among students who qualify under the current rules. For example, federal agencies should build on a recent interagency Memorandum of Understanding between the U.S. Departments of Education and Agriculture to strengthen SNAP outreach and issue additional guidance clarifying that many students with low incomes could be eligible for SNAP under the current exemptions without needing to qualify through the 20 hour-per-week work exemption, such as students enrolled in community college and other career-focused programs that result in high employability, as well as those who are anticipating receiving federal work-study (The Hope Center).
- The USDA, in partnership with the U.S. Department of Education, should issue regular guidance and resources that promote data-sharing and outreach strategies to reach students who may be eligible for benefits but are unaware that they may qualify (The Hope Center).
- State/federal funding that can be used for campus food security programs, such as the Community Food Project Competitive Grant Program (National Institute of Food and Agriculture).

Access to affordable housing

Key source: E-W Framework

Indicators

Contributing indicators

- % of students experiencing housing instability or homelessness. Housing insecurity is defined by challenges that prevent someone from having a safe, affordable and consistent place to live. Homelessness is the most severe form of housing insecurity — not having a fixed, regular and adequate place to live (The Hope Center).
- Housing cost burden (% of income spent on housing). The already high (and increasing) cost of housing — primarily rent and related fees — is one of the more difficult student basic needs to address. When a student faces housing insecurity, they are more likely to experience other insecurities, such as lack of adequate food, transportation and health care access (The Hope Center).
- Student mobility rate due to housing

System indicators

- Number of affordable units per low-income household (National League of Cities).

- Percent of students experiencing housing insecurity and/or homelessness (campus data) (The Hope Center).
- Presence of a high-functioning Basic Needs Task Force on a campus to create an ecosystem of supports to address students' basic needs (The Hope Center).

Practices and Policies

Practices

- Emergency housing funds and rental assistance for students (Bipartisan Policy Center).
- Proactive healthy housing inspections in neighborhoods (National Center for Healthy Housing).
- Basic Needs Hub: One of the best ways to target the interconnected nature of basic needs insecurity is by creating a comprehensive, coordinated office (a "basic needs hub") to help students navigate the wide variety of programs and ensure they receive all possible support. Lee College's Student Resource and Advocacy Center provides a good model for other institutions to start this work (The Hope Center).

Policies

- Remove Student Restrictions to Federal Housing Supports. Students are often subject to severe federal restrictions that limit them from most federal and state housing assistance. Since 2005, U.S. Housing and Urban Development (HUD) public and assisted housing programs and the Low-Income Housing Tax Credit (LIHTC) have contained rules that prevent the vast majority of college students under age 24 from receiving support, based on the mistaken assumption that all college students have access to on-campus housing or are otherwise financially supported by their family. Congress should remove a damaging policy routinely included in the HUD appropriations bill, which denies housing access to students and also pass the Housing for Homeless Students Act, which would allow students to live in LIHTC housing if they've experienced homelessness within the last seven years (The Hope Center).
- Financial aid received by students for non-tuition costs is generally counted as "income" for determining a family's HUD program eligibility, which significantly and unfairly disincentivizes students in supported families from seeking higher education. Congress should remove these restrictions in HUD programs and exclude all financial aid from being counted as income (The Hope Center).
- Rent regulation / eviction protection for student tenants (Freedom for All Americans).
- Incentives for affordable housing near campuses (Freedom for All Americans).
- Allow emergency aid from the Federal Supplemental Educational Opportunity Grant (FSEOG) to be used to help students stay in school during critical periods. The FSEOG is a federal grant, administered by the Department of Education, used to provide extra financial assistance to students with demonstrated exceptional financial need. Evidence suggests emergency micro-grants are efficient temporary measures in cases where students experience housing instability and can contribute to the increased rate of college graduation. BPC has previously recommended allowing institutions to use a portion of their funds for micro-grant programs and recommends changes to the FSEOG allocation formula to increase support for low-income students. Rather than distributing FSEOG funds to institutions based on previous award amounts and cost of attendance, as under the current formula, BPC's proposal prioritizes institutions that effectively serve large numbers of low-income students (Bipartisan Policy Center).
- Use the Moving to Work (MTW) demonstration to target Housing Choice Vouchers for community college students. Public housing authorities (PHAs) like the Tacoma PHA in Washington have used the flexibility permitted under MTW to prioritize federal HCV funding for community

college students experiencing housing insecurity. Other MTW PHAs in jurisdictions with large low-income student communities could consider implementing similar pilot programs. BPC's J. Ronald Terwilliger Center for Housing Policy has recommended expanding HUD's MTW demonstration to a full program to allow more widespread use of innovations like this one (Bipartisan Policy Center).

- Support reforms to allow students to live in Housing Credit-financed units under certain conditions. The bipartisan Affordable Housing Credit Improvement Act includes provisions to ensure that formerly homeless youth and residents of Housing Credit properties seeking to further their education are not prevented from living in tax-credit subsidized units. While there would still be restrictions on student eligibility under the program, these proposed reforms acknowledge the need for greater flexibility to meet the needs of people experiencing housing insecurity who want to further their education (Bipartisan Policy Center).
- Add questions about Postsecondary Completion status to the American Housing Survey. Originally recommended by HUD's Office of Policy Development and Research, this reform would help ensure data visibility to properly track housing insecurity and homelessness among the college student population using the country's most important instrument for gathering housing data (Bipartisan Policy Center).
- Collaborate with universities and community colleges to achieve housing and zoning reforms. Most higher education institutions have a vested interest in ensuring the affordability of their nearby housing markets, since most of their students will require off-campus housing. State and local jurisdictions seeking competitive grants such as HUD's new PRO Housing grants can work with colleges and universities to conceptualize inclusionary zoning and land use reforms that will ultimately increase the supply of affordable housing (Bipartisan Policy Center).

Access to technology

Key source: E-W Framework

Indicators

Contributing indicators

- % of households with broadband + device (computer/laptop) access (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students with no internet access at home, by family income and race/ethnicity (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students with no internet access by main reason for not having access (i.e. too expensive, the home lacked a computer or a computer adequate for internet use) (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students who use the internet at home, disaggregated by sex, race/ethnicity, age, family income and parent educational attainment (Student Access to Digital Learning Resources Outside the Classroom).
- Among students who use the internet anywhere, those reporting using it at home, at school, at a library or community center, or at someone else's home (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students who use the internet at home by means of internet access (i.e. through a high-speed internet service installed at home, mobile internet service or data plan, satellite internet service, dial-up service, or some other service) (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students who used spreadsheet

or word processing software every day (Student Access to Digital Learning Resources Outside the Classroom).

- Percentage of students who used email every day (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students who participated in real-time discussions on the internet every day (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students who used the internet to understand issues such as health/illness, financial matters, or environmental issues every day (Student Access to Digital Learning Resources Outside the Classroom).
- Student reports of connectivity issues affecting coursework (Student Access to Digital Learning Resources Outside the Classroom).
- Campus device-lending service usage (Student Access to Digital Learning Resources Outside the Classroom).
- Percentage of students who reported that they had missed assignments or been unable to fully participate in academic activities due to a lack of internet or technology access during the current academic term (The Hope Center).

Practices and Policies

Practices

- Internet equity programs (state broadband subsidies). For example, the Student Freedom Initiative is helping Historically Black Colleges and Universities and other community institutions access funds made available through the Broadband Equity Access and Deployment (BEAD, $42.45 Billion) and Digital Equity (DE, $2.75 Billion) programs implemented by the Department of Commerce / National Telecommunications and Information Administration (NTIA) (Student Freedom Initiative).
- Presence of campus tech support centers (CSUCCESS Program).
- Device loan programs by libraries or IT services (e.g., Wi-Fi hotspot lending) (CSUCCESS Program).
- Digital literacy workshops for students and families (CSUCCESS Program).
- The nonprofit organization EducationSuperHighway aims to provide high-speed internet access to all U.S. public school students. In the 2015 State of the States report, EducationSuperHighway (2015) stated that an additional 20 million students were connected to high-speed internet over the past 2 years and that 38 governors had committed to the initiative of connecting their states' classrooms to high-speed broadband (Student Access to Digital Learning Resources Outside the Classroom).
- The State Educational Technology Directors Association (SETDA) works to ensure that students have equitable access to DLR, both inside and outside of the classroom. In the 2016 report The Broadband Imperative II: Equitable Access for Learning, SETDA identified three strategies that policymakers and educators can use to improve equity of access outside of school: reaching out to families about the necessity of out-of-school access, leveraging community partnerships and sharing out-of-school access options (Fox and Jones 2016). These strategies rely on community buy-in, such as local businesses offering internet access on their premises to students (Student Access to Digital Learning Resources Outside the Classroom).
- Some school districts are putting wireless routers on buses or providing mobile Wi-Fi hotspots so that students can access the Internet outside of the classroom. In California, the Coachella Valley Unified School District helped low-income residents obtain access by outfitting school buses with high-speed internet for use by students on the way to and from school and in the evening hours for homes near the parked buses (U.S. Department of Education n.d.). The Vail School District in Arizona implemented a similar initiative (Fox and Jones 2016) (Student Access to Digital Learning Resources Outside the Classroom).

- When Cincinnati Public Schools decided to offer partially-online advanced placement courses, the school system provided mobile hotspots, called Kajeet SmartSpots, to students who did not have home broadband access (Meyer 2016). These hotspots not only allowed students to attend their AP classes, but also to complete homework.
- Forsyth County Schools in Georgia partnered with the Cumming-Forsyth County (Student Access to Digital Learning Resources Outside the Classroom).
- Chamber of Commerce to disseminate a list of organizations and businesses in the community that offered free Wi-Fi hotspots (Fox and Jones 2016) (Student Access to Digital Learning Resources Outside the Classroom).
- Funding programs and providing devices for students are local-level strategies to increase student internet access to DLR outside the classroom. School District 87 of Bloomington, Illinois provided sixth- through eighth-graders with a digital learning device to use at both school and home (Fox and Jones 2016). Since over half of the students did not have athome internet access, the district also decided to allocate funding to provide low-income households with access to the district's internet connection (Student Access to Digital Learning Resources Outside the Classroom).
- Cincinnati's Kajeet SmartSpots program caught the interest of Green Bay Area Public Schools in Wisconsin. Instead of supplying mobile hotspots, however, the school district allowed students to "check-out" a SmartSpot laptop or other device, similar to borrowing a book from the library (Meyer 2016) (Student Access to Digital Learning Resources Outside the Classroom).
- The national nonprofit organization EveryoneOn works as a liaison between internet service providers and families that cannot afford broadband internet (Meyer 2016). The organization negotiates with internet service providers for more affordable prices for high-speed internet service and computers and then helps inform families about these opportunities in their areas (Student Access to Digital Learning Resources Outside the Classroom).

Policies

- State broadband funding/subsidies for low-income households (Student Access to Digital Learning Resources Outside the Classroom).
- Institutional regulations requiring inclusive technology access (Student Access to Digital Learning Resources Outside the Classroom).
- North Carolina launched the Wireless Networking Initiative, a statewide procurement effort that resulted in 95 percent of participating school districts having Wi-Fi access points in every classroom (Student Access to Digital Learning Resources Outside the Classroom).
- New Jersey formed a statewide buying consortium for broadband services in schools that resulted in 16 percent savings on monthly costs and an average internet access bandwidth increase of 152 percent (Student Access to Digital Learning Resources Outside the Classroom).

Access to transportation

Key source: E-W Framework

Indicators

Contributing indicators

- Transportation costs for an average commuter postsecondary student as a percent of their total living expenses (D. Price and D. Curtis).
- Percentage of community college students who commute to campus (The Hope Center).
- Percentage of community college campuses that have transit stops within walking distance (The Hope Center).
- Percentage of two-year and four-year students who rely on a vehicle or public transportation to get to class (versus walking or riding a bike) (The

Hope Center).

- % of students driving, using public transit, biking, or walking to get to campus (The Hope Center).
- Percentage of students who reported that they had missed class or work because of a transportation problem during the current academic term (The Hope Center).

System indicators

- Route convenience, frequency and schedules. Inconvenient routes, infrequent trips and limited trip scheduling also pose a problem for college students. Transit is often planned with the work commuter in mind and college students' schedules may not align with frequent ride times. Students may not be served by transit which seeks to transport to business hubs and central business districts (Trellis Strategies and D. Price and D. Curtis).
- Affordability. Public transportation is expensive, especially for low-income students who may not be able to afford the up-front costs of monthly or term-length transit passes and thus pay the most expensive "per-ride" fees to get from home to college (Trellis Strategies and D. Price and D. Curtis).
- Housing and work proximity. In many communities, it is too expensive to live near transit lines, especially rail and students get pushed further away from the most desirable transit lines, having to rely on buses with multiple transfers to get from home to school (Trellis Strategies and D. Price and D. Curtis).
- Transportation reliability and quality. The reliability and quality of public transit is undermined by operational deficits faced by transit systems, leading to over-crowded trains and buses and to loewe quality rides without space to sit and without acces to Wi-Fi that could enable transit times to be productive for school work (Trellis Strategies and D. Price and D. Curtis).

Practices and Policies

Practices

- Complete Streets" collaboration to build streets that enable safer access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Typical elements that make up a Complete Street include sidewalks, bicycle lanes (or wide, paved shoulders), Shared-use paths, Designated bus lanes, Safe and accessible transit stops, Frequent and safe crossings for pedestrians, including median islands, Comfortable and accessible public transportation stops, Accessible pedestrian signals, Curb extensions, Narrower travel lanes, Roundabouts and more (Smart Growth America).
- University Transit Passes: Most research on university transit passes has identified benefits of offering free or reduced cost transit passes to students. A 2001 study found that offering transit passes to students may reduce the cost of attending college by $2,000 and only cost the university $30 per student, on average (Trellis Strategies).
- Public transit coverage & service frequency near campus (The Ithacan).
- Student transit subsidy availability (The Ithacan).

Policies

- Fare-free transit zones for students. In 2024, Tufts University began piloting a free MBTA pass, providing transit across the Boston region, for students enrolled at its fine arts school. George Washington University trialed subsidized WMATA transit passes for students in 2021 and has continued that partnership (Streetsblog USA).
- Zoning policy promoting affordable housing near transit hubs. Investing in quality transit-oriented development (TOD) and locating it in previously segregated areas could help connect people to much-needed services and advance access to equitable opportunities (Urban Institute).
- Allow for mixed-use developments near existing bus stops and transit hubs. Many zoning laws only allow for buildings to have one use, like single-family housing or retail. By raising building heights and expanding land uses, developers can help increase density and ridership in nearby stations and bring folks closer to transit to limit car use. Paired with incentives for affordable housing, local leaders can bring those with lower incomes closer to urban centers, rather than

pushing them away (Urban Institute).

- Reduce parking minimums for new developments. This can reduce asphalt, leading to lower surface temperatures and perhaps disincentivizing car dependency. It can also free space for housing units or green space. To increase ridership, transit agencies can consider expanding access to public transportation by adding stops along sparse lines, building more bus and train shelters and adding bus lanes to potentially lower travel times (Urban Institute).
- Use existing federal dollars to fund projects. Local policymakers can draw on federal supports for these multistep, multistakeholder TOD projects. The Federal Transit Administration offers grants for transportation planning and capital investments that can help local governments address both public transit and housing needs in their development plans. The Biden administration has invested billions in improving public transit and climate-friendly infrastructure to support local governments in this work. For instance, the plan included $213 billion to produce and preserve affordable housing units in traditional homes and commercial buildings while working to eliminate exclusionary zoning laws. The administration also hopes to invest $85 billion to modernize existing transit systems (Urban Institute).
- Include residents from the start. Involving residents in the design process, understanding the affordability implications of development in a neighborhood and advocating for the needs of long-time, lower-income residents to developers and other stakeholders are important to avoid displacement and to champion community interests (Urban Institute).
- Establish community-benefit agreements. When projects are meant to protect communities from issues like gentrification, these agreements can promote benefits for existing residents, like rent control or good-paying jobs (Urban Institute).

Access to child care subsidies

Key source: E-W Framework

Indicators

Contributing indicators

- % of student-parent families receiving subsidies (NCSL, Double Duties).
- Child care accessibility (spots per child enrolled student) (NCSL, Double Duties).
- Usage of campus-based child care centers (NCSL, Double Duties).
- Reports of student-parent dropouts due to care barriers (NCSL, Double Duties).
- Among parenting students, percent who reported they had missed three or more days of class in the previous term because of problems with childcare arrangements (The Hope Center).

System indicators

- State funding policies for student-parent child care grants (EdNC).
- Regulations supporting on-campus childcare facilities (EdNC).

Practices and Policies

Practices

- On-site campus child care with sliding-scale fees (Community College Daily).
- Partnerships with local child care providers offering student discounts (Community College Daily).
- Institutional budgeting to support campus-based child care centers. Child care profit margins are tight and public subsidies aren't meeting needs to ensure child care providers earn a living wage and that families can afford care. If a college wants to prioritize retention and graduation of its student parent population, it's worth considering whether its budget can support center operations rather than expecting a child care center to break even on its own (New America, Funding for Campus Based Child Care for Student Parents).
- Partnering with Head Start and Early Head Start

Programs. More than 1.5 million student parents are enrolled in community colleges and around half of them have at least one child under age 6. Many student parent families qualify for Head Start, which is why the Kids on Campus initiative was created to help co-locate more Head Start programs at community colleges. Head Start provides families with free access to high-quality early childhood education and other services. For colleges that don't have the resources or experience to run a child care center, but want to meet the child care needs of their student parents, partnering with Head Start is a smart option. When colleges have space to lend to a Head Start program, they can help Head Start reduce or eliminate rent costs, allowing them to focus on critical services for student parent families. In turn, colleges can support access to high quality care for some of their student parents via connecting them to Head Start (New America, Funding for Campus Based Child Care for Student Parents).

- Child Care and Development Fund Subsidies. The Child Care and Development Fund (CCDF) helps families afford child care. The federal program provides funding to states, who then provide subsidies to eligible families with children under 13. States design their subsidy programs within federal guidelines and make a variety of choices about eligibility that can impact how accessible subsidies are to those enrolled in postsecondary education. Campuses with child care centers should explore if and how they can accept state subsidy dollars so that eligible student parents can use them on campus (New America, Funding for Campus Based Child Care for Student Parents).
- Contracts for State Funded Preschool Spots. Some states offer free preschool for all families or families that meet income eligibility criteria. Campuses can explore entering agreements with state programs to offer preschool spots on campus (New America, Funding for Campus Based Child Care for Student Parents).
- College Foundation Support. Some campuses raise funds for child care for student parents through their foundations. For example, Utah Valley University received a large donation to help them construct a child care center that expanded capacity to serve student parents. College foundations can help support child care on campus by creating and marketing funds that donors can contribute to in support of basic center operating costs, facilities, or subsidies for student parent families (New America, Funding for Campus Based Child Care for Student Parents).
- Bond financing to build or renovate spaces used as child care facilities. Linn Benton Community College in Oregon dealt with this challenge by financing renovations to a building through a bond. They worked to bring a local ballot measure that ultimately allowed them to finance renovations to a building to bring it to current child care center standards (New America, Funding for Campus Based Child Care for Student Parents).
- Work study opportunities. Some campuses hire federal work study students to help in campus child care centers as assistants. This can help offset staffing costs where appropriate and sometimes allow for Early Childhood Education students to get practical experience in their field of study (New America, Funding for Campus Based Child Care for Student Parents).

Policies

- State/federal subsidy eligibility for student-parents (Raising Expectations for Institutional Intervention).
- Institutional policy granting schedule flexibility for student-parents (Raising Expectations for Institutional Intervention).
- Community college child care grants. For example, the North Carolina Community College Child Care Grant is state aid directed to help student parents at North Carolina community colleges pay for child care. The North Carolina General Assembly (NCGA) has allocated this funding to North Carolina's 58 community colleges since 1993 and it is administered through the North Carolina Community College System (NCCCS). Financial aid teams at each college are tasked with getting their student parents

connected with the funding (EdNC).

- Policies making it easier for student-parents to receive child care assistance. Georgia, Oregon and Washington amended their subsidy policies to make it easier for student parents to receive child care assistance. As of 2022, the Georgia Department of Early Care and Learning considers student parents a priority group among applicants to the state's subsidy program. Oregon's HB 3073 (2021) eliminated the required work hours for student parents receiving child care subsidies. The bill also allowed for additional paid hours of care so parents can study. Washington's HB 5237 (2021) removes a requirement that parents must be enrolled full-time and work a minimum number of hours. It also added pursuit of an associate degree as an approved educational activity for eligibility (NCSL, Double Duties).
- Policies providing student-parents additional financial support for child care. Legislatures in Minnesota and North Carolina appropriated funds for additional financial support for child care to student parents. North Carolina community college students who have completed at least 50% of their credential can apply for a $1,000 Finish Line Grant to put towards child care or other living expenses. Student parents in Minnesota can qualify for $6,500 per child each academic year through the state's Postsecondary Child Care Grant Program (NCSL, Double Duties).
- Policies improving data collection on students who are also parents. Connecticut and Illinois passed legislation to help lawmakers better understand the number of postsecondary students who are also parents and their ability to find on-campus child care. Connecticut's HB 6565 (2023) requires the state's Department of Education to conduct an assessment of child care needs of the student body and existing child care services and facilities on community colleges, technical colleges and state university campuses. Illinois SB 267 (2021) requires public institutions of higher education to annually collect data on students' parental status. Furthermore, institutions that operate on-campus child care centers must report the total number of children served each semester specifying how many are children of students (NCSL, Double Duties).

6 Are students attending institutions (either 2-year colleges, 4-year colleges or career training) offering quality pathways that lead to employment in quality jobs?

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).

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), health care, IT, advanced manufacturing, etc.

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 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).

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 Completion: 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).

Work-based learning for specific youth populations

Key source: E-W Framework

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 under way. 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."

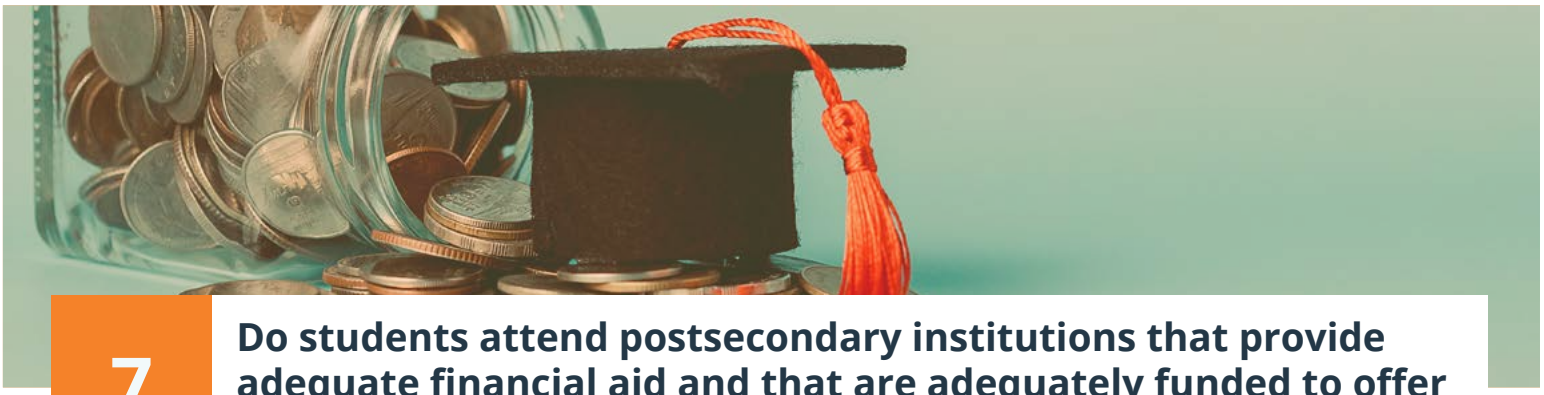
- To create a more equitable workforce, policymakers must boldly shift away from presumptions based on the skills narrative to facilitate conditions in which employment risks and insecurities generated during economic change are shared equitably by everyone who has a stake in the economy (CAP, A Design 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).



7 Do students attend postsecondary institutions that provide adequate financial aid and that are adequately funded to offer a quality educational experience?

Why this matters

Adequate financial aid: Adequate financial aid is essential for student success, particularly for those from low-income households, as it reduces the need to work excessive hours, lowers debt burden and increases the likelihood of staying enrolled through graduation. Research from the *Urban Institute* and *National College Attainment Network* shows that when financial aid covers a greater share of total college costs — including tuition, housing and basic needs — students are more likely to persist and earn a credential. Equally important, institutions must be adequately funded to provide the advising, mental health services, academic support and career preparation students need. According to the *Century Foundation*, underfunded institutions — especially public and

community colleges — struggle to offer these services, leading to lower completion rates and widened equity gaps. Investing in both students and institutions is key to closing attainment gaps and ensuring postsecondary pathways deliver economic mobility.

Student loan repayment: Student loan default has serious negative consequences, including restricted access to other loans, increased repayment amounts due to collection costs and damaged credit. Among borrowers, loan delinquency and default disproportionately impact Black and Latine students. Within six years of starting college, 32% of Black borrowers who had begun repayment defaulted on their loans, compared to 20% of Latine borrowers and 13% of White borrowers. First-generation college students are also more than twice as likely to experience delinquency than students with at least one parent who has earned a bachelor's degree (EW Framework).

Expenditures per student: School funding has been shown to contribute to better outcomes for students. In the postsecondary context, increases in per-student spending result in increased persistence and degree completion in both two- and four-year colleges. Increases in state appropriations for higher education spending also have been shown to result in increased educational attainment and shorter time to degree completion. In addition to instructional expenditures per student, increases in student service expenditures can also lead to increases in persistence and graduation rates, particularly for students from low-income households (EW Framework).

Unmet financial need: Higher levels of unmet financial need are likely to lead to more student loan debt or require students to work while enrolled in college, thus affecting their progression through college. In fact, students with more unmet need are less likely to graduate. At least in some states, it is the students with the lowest incomes who tend to have the highest levels of unmet financial need. In addition, Black students are less likely to receive nonfederal grant aid and receive lower average amounts than their peers. The Postsecondary Value Commission shows that Black students are, on average, burdened with approximately $8,300 in unmet financial need, whereas the average unmet need of White students is approximately $1,500 per year of attendance (EW Framework).

Cumulative student debt: Higher student loan debt is associated with decreased rates of home ownership and worse mental health outcomes. Compared to their peers, Black students take out loans more often than other racial and ethnic groups and have more debt on average. Though the amount of debt students accumulate during college is affected by student-level factors such as their expected family contribution (EFC), system-level factors such as the tuition and fees charged by institutions and the amount of grant aid made available to students are the largest contributors to rising student debt. Several factors, including the sector of the institution the student attended, the student's grade point average (GPA) in college, whether the student attained a degree and their labor market outcomes, also predict the probability of loan default. In particular, students attending for-profit institutions, who tend to be Black at disproportionately high rates, are at especially high risk for loan default (EW Framework).

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. For example, 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 (EW Framework).

Indicators

Contributing indicators

- Percentage of student borrowers in the following repayment categories, as defined on the College Scorecard — making progress, paid in full and deferment — 1, 2, 3, 5 and 10 years into the repayment phase of the loans (Education to Workforce).
- Average number of student loans. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average number of open student loans reported in the last 6 months. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average number of open student loans opened in the last 6 months. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average number of student loans, including deferred student loans, never delinquent or derogatory. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average number of student loans, including deferred student loans, ever 60 or more days delinquent or derogatory in the last 24 months. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average number of student loans, including deferred student loans, ever 90 or more days delinquent or derogatory in the last 24 months. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average balance on open student loans reported in the last 6 months. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Average monthly payment on open student loans reported in the last 6 months. (Data source: Credit reporting data on student debt from Experian) (Washington Center for Equitable Growth).
- Rate of loan default, disaggregated by race and type of institution. In 2017, the U.S. Department of Education released groundbreaking data showing that half of Black or African American borrowers who first entered college in the 2003-04 academic year defaulted on their student loans within 12 years. Black or African American borrowers who started college in 2011-12, almost a decade later, have continued to face high default rates (Center for American Progress).
- Rate of loan default among borrowers who do not finish college, disaggregated by race (Center for American Progress).

System indicators

- Geographic distribution of average household student loan balances and average loan delinquency compared to median income (Washington Center for Equitable Growth).
- A zip code's percentage of minority population compared to its loan delinquency rate. A study by the Washington Center for Equitable Growth found that in the Washington, D.C. metro region, for example, zip codes in the northeastern part of the District of Columbia and east of the Anacostia River and adjacent suburbs — all of which have the largest shares of African Americans and Latinos — also have delinquency rates that range from somewhat high to extremely high. The same pattern holds in Los Angeles, where areas with large African American or Latino populations, such as Compton, Linwood and Huntington Park, are also where delinquency is highest (Washington Center for Equitable Growth).

- A zip code's loan delinquency rate compared to its median income levels. A study by the Washington Center for Equitable Growth found a positive correlation between the share of minorities in a zip code and loan delinquency rates is highest for the middle of the income distribution. Among zip codes with a median income of about $20,000, for example, zip codes with a large share of Latinos and those without have approximately the same rates of delinquency. But among zip codes with a median income of around $60,000, those with large Latino share have much higher rates of loan delinquency than those without (Washington Center for Equitable Growth).
- Percent of adults who currently have education-related debt. A May 2015 report by the Federal Reserve found that twenty-three percent of adults have education debt of some kind, with 15 percent of all respondents having such debt for their own education, 6 percent for their spouse's/ partner's education and 6 percent for their child's or grandchild's education (Federal Reserve, Economic Well Being).
- Method of financing student loans: Education debt is not exclusively financed through student loans, as 14 percent of respondents with education debt report that they have credit card debt from educational expenses, 5 percent used a home equity loan to pay for education and 11 percent have some other non-student loan debt that was used to pay for education (Federal Reserve, Economic Well Being).
- Payment delinquency: Among respondents who borrowed for their own education, those who failed to complete an associate degree or bachelor's degree, those who attended for-profit institutions and those who were first-generation college students are more likely to be behind on their payments than others.
- Type of loans (e.g., Direct Subsidized Loans, Direct Unsubsidized Loans, Perkins Loans, Private Loans, Direct PLUS Loans to Parents or Guardians) borrowed by undergraduate students, by race and ethnicity. Data reveal disparities in how students from different racial and ethnic backgrounds financed their postsecondary education, with Black or African American students being more likely than those from other groups to incur large amounts of educational debt. (Race and Ethnicity in Higher Education).

Practices and Policies

Practices

- Advocate for more federal level support. Pew research points to three actions that the Department of Education and Congress could take to boost repayment success among struggling borrowers: (1) Identify at-risk borrowers before they are in distress — in particular, by using risk indicators such as borrowers missing payments early, repeatedly suspending payments and having previously defaulted; (2) Provide loan servicers with resources and comprehensive guidance on how to prioritize interactions and engagement with high-risk borrowers; (3) Continue to eliminate barriers to enrollment in affordable repayment plans to build upon the Fostering Undergraduate Talent by Unlocking Resources for Education (FUTURE) Act. The act authorizes data sharing between the Internal Revenue Service and the Department of Education to streamline burdensome and duplicative income verification requirements for enrolling in income-driven plans. If effectively implemented, the act is a step in the right direction, but policymakers can do more to restructure the student loan repayment system, such as simplifying the process for direct and targeted outreach to those borrowers most at risk for — or already facing problems with — delinquency and default. These changes should be implemented in conjunction with clear and consistent repayment-management rules for servicers and other Department of Education contractors and with oversight mechanisms to ensure that those rules are successfully applied (Pew, Student Loan Default).

- A study by the Washington Center for Equitable Growth found that middle-class minorities are hurt the most by student loan delinquency. With respect to longstanding group and individual income and wealth gaps between minorities and the overall population, debt-financed higher education is not the solution and may even be contributing to the problem. The fact that, among minorities, the middle class is most strongly affected implies the problem is structural racism, not poverty (Washington Center for Equitable Growth).

Policies

- To address structural barriers and improve financial security for older borrowers struggling with student loan debt, federal policymakers could consider canceling debt for long-term borrowers. As Urban research has shown, canceling debt for older borrowers who have been in repayment or default for more than two decades would provide significant relief for those most harmed by structural racism. Finalizing a new rule proposed by the Department of Education would provide such relief for these borrowers (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).
- Establish fair repayment terms. Currently, defaulted borrowers must pay more per month to exit default than they would under income-driven repayment plans and they may also face wage garnishments that exceed this amount. New America and Urban research suggests the Department of Education could ensure defaulted borrowers don't pay more monthly than they would in repayment plans to prevent further financial strain (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).
- Encourage employers to match contributions to student loan payments. As outlined in the Secure 2.0 Act (PDF), employers can treat student loan payments as contributions to retirement savings and match these payments as contributions to employees' retirement accounts. Recent research projects that this Secure 2.0 provision could enable employees with student loans to spend about 3 percent more on everyday needs during their working years while earning a matching contribution from their employer to their 401(k) retirement account (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).
- Let older borrowers keep their Social Security benefits. To protect the financial well-being of older borrowers, especially those with the lowest incomes, federal policymakers could stop the garnishment of Social Security benefits (PDF) when a student loan is in default (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).
- Policymakers could also consider ways to prevent new borrowers from accumulating unaffordable debt, including reshaping parent PLUS loans, so parents don't borrow more than they can repay (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).
- Provide more grant aid for higher education. Policymakers could reduce reliance on student loans in communities most affected by structural barriers to wealth-building by increasing Pell grant amounts and establishing a need-based living stipend (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).
- Require degree programs to set students up for gainful employment. Establishing guardrails could help prevent students from taking on federal loans for programs that don't pay off. These guardrails could mirror the Department of Education's new standards for for-profit and career-oriented programs, which include debt-to-earnings ratios and a minimum earnings threshold. Federal policymakers could also consider setting tuition-to-earnings ratios or rules that combine multiple metrics (Urban Institute, Ensuring Americans Can Retire Free from Student Loan Debt).

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).
- Expenditures per Completion: Education and Related (E&R) expenditures divided by the number of completions in a fiscal year. Measures all credentials conferred in a given year. Additional related metrics include: Distribution of completions by award level and program of study; Change in number of completions over time; Change in E&R over time (IHEP, Toward Convergence).
- The Expenditures per Completion metric is a proxy for the resources required to educate students through to credential completion. It is a proxy because the data are not readily available to assign actual costs to individual students as they progress (or do not progress) toward completion. As such, this metric captures the costs associated with both completers but also non-completers, by comparing the resources spent to educate all students in a given year with the number of credentials awarded by the institution in that same year. Initiatives like CBD and the Voluntary Institutional Metrics Project already use the expenditures per completion metric to measure the cost associated with achieving the ultimate goal of degree completion (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).
- Financial incentives for students: Performance-based incentives are monetary awards disbursed to students based on meeting specific academic benchmarks and are intended to supplement (not replace) students' financial aid packages. By identifying and incentivizing short-term goals (such as maintaining a minimum level of enrollment, successfully completing coursework, or participating in advising programs), these initiatives support students' progression through college (EW Framework).

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

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

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).
- Implement Credit Transfer "Comeback" Programs. Programs like the Ohio College Comeback Compact have forgiven institutional debts and unlocked transcripts for stopped-out students, significantly improving re-enrollment and degree attainment (Ohio College Comeback Compact).
- 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).

Indicators

System indicators

- Cumulative Debt: The median amount of debt student borrowers incur while attending an institution or program. Includes all sources of student debt — federal, state, institutional and private loans. Measures all undergraduate borrowers who leave the institution in a given year (completers and non-completers, but disaggregated). Disaggregated by credential level, completion status, economic status (at any time), enrollment status, attendance intensity (at any time), program of study (at exit), race/ethnicity, academic preparation (at any time), age, gender, first-generation status (IHEP, Toward Convergence).
- Other metrics related to cumulative debt include: Percentage of students borrowing overall and by type of loan; Loan debt by type of loan; Loan debt by dependency status; Cumulative loan debt across all institutions attended for transfer students (if available) (IHEP, Toward Convergence).
- Loan repayment rate: The percentage of borrowers in a cohort who make at least $1 of progress on their loan principal in a fiscal year, measured at one, three, five and 10 years into repayment. Measured as the share of all borrowers entering repayment who have either paid in full or are in active repayment. Disaggregated by undergraduate versus graduate status, completion status, economic status (at any time while enrolled), program of study (at exit), race/ethnicity, enrollment status, attendance intensity (at any time while enrolled), academic preparation (at any time while enrolled), age, gender, first-generation status (IHEP, Toward Convergence).
- Cohort default rate (CDR- federal three-year rate): The percentage of borrowers who enter repayment in a fiscal year and default in three fiscal years. Disaggregated by undergraduate versus graduate status, completion status, economic status (at any time while enrolled), program of study (at exit), race/ethnicity, enrollment status, attendance intensity (at any time while enrolled), academic preparation (at any time while enrolled), age, gender, first-generation status (IHEP, Toward Convergence).
- Other metrics related to loan repayment and default rates include: Incidence of deferment, forbearance and delinquency; Use of income-driven repayment plans; Average amount of defaulted loan; Loan repayment and cohort default rates by loan type; Student Default Risk Index (IHEP, Toward Convergence).

Practices and Policies

Practices

- Debt data can be used to inform student decisions in the same way as net price, providing prospective students with a better understanding of how students in similar situations fare at the institution. Median cumulative debt seeks to quantify both affordability and financing methods used by typical students at each institution. While total loan volume across an entire institution, available on the Federal Student Aid Data Center, is a useful data point for evaluating broader trends regarding student loans, the median cumulative debt better demonstrates what is required financially of a typical student (IHEP, Toward Convergence).
- Understanding student loan debt is a necessary component to measuring institutional performance for policymakers and institutions alike, as financing can impact student access, progression and completion. Specifically for cost metrics, the distinction among median debt among students of different economic statuses is essential, as high costs limit access to low-income students and further stratify higher education. With the disaggregates and submetrics, especially specific to low- and moderate-income students, institutions can use

these data to develop better, more targeted counseling and services for populations who may be at risk of high student loan debt. Institutions and policymakers also can use the disaggregated debt data to help craft financial aid policies to reduce debt, especially for the most economically vulnerable students, as they are more likely to take on loan debt (IHEP, Toward Convergence).

- To build on current practice, institutions are encouraged to integrate the Cohort Default Rate data they receive from the Department of Education with student-level data in their student information systems in order to conduct additional analysis. With this integration, institutions can disaggregate default rates by completion, economic status and credential level — including by graduate and undergraduate student status — to determine which students default. With additional support from ED, institutions also can attempt to extend the CDR time frame beyond three years, disaggregate by loan type and recalculate CDRs based only on debt accumulated at their institutions. CDRs are also an important consumer information tool for prospective students and families because a high cohort default rate signals that students may have a difficult time repaying their loans and default has serious credit consequences for students. Policymakers also use CDRs to set basic standards that institutions must meet to receive federal financial aid dollars (IHEP, Toward Convergence).
- Implement Credit Transfer "Comeback" Programs. Programs like the Ohio College Comeback Compact have forgiven institutional debts and unlocked transcripts for stopped-out students, significantly improving re-enrollment and degree attainment (Ohio College Comeback Compact).

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 Completion 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 Completion 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 Completion 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).

- uAspire helps underrepresented students access capital from which they can build a better future through financial aid advising, training counselors and policy (uAspire).

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)
- LEARN MORE 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).
- Advocate for extending Pell grant eligibility to short-term, for-credit certification programs. Reducing financial barriers to accessing postsecondary certificate programs is critical to improving financial security for vulnerable segments of the population. Because available evidence does not support the current threshold of 600 hours for Pell eligibility, there is a strong case for extending Pell grant eligibility to students in short-term, for-credit certificate programs that require at least 150 hours (Urban Institute).

Support networks that build social capital

Students with strong relationships — such as mentors, peers, advisors and supportive adults — are more likely to stay motivated, navigate challenges and persist to completion. For first-generation and students from low-income households especially, these social connections provide critical social capital, bridging gaps in knowledge and confidence, fostering a sense of belonging and increasing the likelihood of earning a degree or credential.

8 **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

Key source: E-W Framework

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

- 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).
- 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).

- 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-semester scholarship 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

Key source: E-W Framework

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 Completion of mentees (The Mentor Collaborative).

Student perceptions of teaching

Key source: E-W Framework

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 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 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 meditational 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

Key source: E-W Framework

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).

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).

9 Do students have access to paid, relevant internships, work-study programs, apprenticeship programs or other work-based learning opportunities?

Why this matters

Access to paid internships while pursuing a college degree or industry-based credential allows students to gain real-world experience, build professional networks and develop career-ready skills without sacrificing financial stability. Research from the *National Association of Colleges and Employers (NACE)* shows that students who complete paid internships are more likely to secure full-time employment after graduation and earn higher starting salaries. According to the NACE 2022 Student Survey, students who complete paid internships earn a median starting salary of $62,500, compared to just $42,500 for their unpaid counterparts (NACE). Paid interns also receive more job offers on average (1.61 vs. 0.94). For students from low-income households and first-generation students, paid internships are especially important, as they provide both income and access to career-building opportunities that unpaid positions often exclude.

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

- Internship programs for youth and young adults also have shown encouraging findings. A study of the Young Adult Internship Program (now known as Intern & Earn), which offers disconnected youth a 10- to 12-week paid internship, along with job readiness workshops and individualized supports, found that the program increased earnings for participants a year after completing their internship (EW Framework).
- YearUp — which offers six months of intensive training followed by paid six-month internships in the fields of information technology and financial operations to youth from low-income households — improved earnings measured three years after participation (though not after four years) (EW Framework).
- The Workforce Innovation and Opportunity Act (WIOA) recommends that youth programs include multiple elements, including education and other supportive services, work experience,

occupational skills training, mentoring, leadership development opportunities and follow-up support (EW Framework).

- Sector-oriented training programs are designed to prepare workers for a particular industry or sector in demand by local employers. There are several examples of sector-oriented training programs that have proven effective in improving long-term employment, earnings and educational attainment outcomes for participants. For example, the WorkAdvance model, which provides employee assessments, career readiness services, occupational skills training and job development and placement services in different sectors, led to higher rates of credential attainment of 26 percentage points and increased earnings by an average of almost $3,000 several years after participation in the program (EW Framework).
- The Wisconsin Regional Training Partnership's sectoral employment program provides training lasting two to eight weeks, along with case management and job placement assistance. It has been shown to increase earnings by more than $6,000, on average, over two years after acceptance into the program (EW Framework).
- Common industries targeted by sector-oriented training programs include health care, information technology, manufacturing and transportation. Research suggests that key aspects of effective sector-oriented job training programs are on-the-job training and technical instruction that lead to an industry-recognized credential in demand by local employers, job search assistance and placement supports and post-employment job retention services (EW Framework).
- 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 supports 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 supports 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).

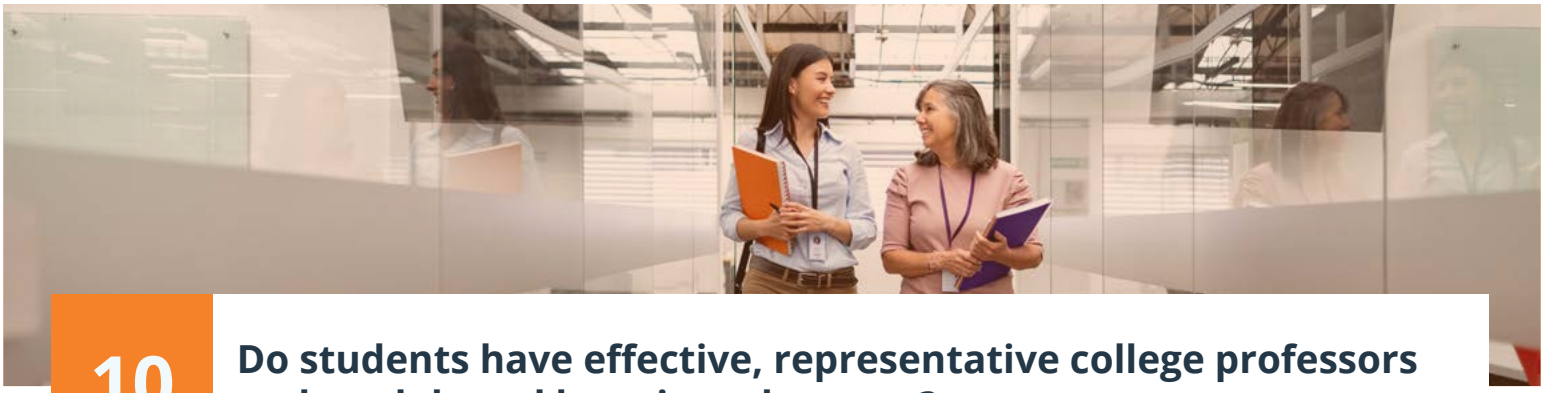
- Sector-oriented training programs are related to career pathways programs and aim to provide training that produce workers with the skills needed by groups of employers in a particular industry or sector that has strong local demand and offers the opportunity for career advancement (Schaberg and Greenberg 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).



10 Do students have effective, representative college professors and work-based learning educators?

Why this matters

Having effective and representative educators — those who are both skilled in instruction and share students' racial, ethnic or cultural backgrounds — plays a critical role in supporting students to not only access but complete postsecondary education. Research consistently shows that teacher effectiveness is one of the most powerful learning experience-based factors influencing long-term academic success and its impact is amplified when students of color are taught by educators who reflect their identities. In postsecondary education, studies show that Black college students, particularly Black men, are more likely to persist and succeed academically when taught by Black faculty (Enhancing Black Student Success at HBCUs: The Impact of Black Faculty Representation on Graduation Rates by Brandon A. Purnsley).

Representational racial and ethnic diversity of educators *Key source: E-W Framework*

Indicators

System indicators

- Full-time faculty across race and ethnicity, disaggregated by faculty rank (e.g., full professor, associate professor, assistant professor, instructor/lecturer, no academic rank) (Race and Ethnicity in Higher Education).
- Representational racial and ethnic diversity of instructors. Studies show students assigned to a teacher with similar demographic characteristics experience positive benefits in terms of academic perceptions and attitudes. A study of a large and diverse community college shows that performance gaps in terms of class dropout rates and grade performance between white and underrepresented minority students falls by 20 to 50 percent when taught by an underrepresented minority instructor (Egalite, Anna et al.; Fairlie, Robert et al.).
- Students under- or overrepresented by faculty by race and ethnicity. Measured by comparing percent of undergraduates and postsecondary faculty by race and ethnicity (Pew Research).
- Percent of undergraduates who are nonwhite compared to percent of postsecondary faculty who are nonwhite (Pew Research).
- Percent of postsecondary faculty by academic rank disaggregated by race and ethnicity. That is, the percent of faculty who are professors, associate professors, assistant professors, instructors, lecturers and other faculty (Pew Research).
- Diversity in higher education between faculty in STEM and non-STEM fields. Measured by faculty race and gender representation within academic

disciplines (Biology, Chemistry, English, etc.) (Brookings).

- Potential wage gaps in higher education based on race, ethnicity, gender (rather than, say, academic field, experience and research productivity) (Li, Diyi and Cory Koedel).
- Total full-time faculty by race and ethnicity (Race and Ethnicity in Higher Education).
- Percentage distribution of institution presidents by race, ethnicity and gender (Race and Ethnicity in Higher Education).
- College and University administrators by position, race and ethnicity (Race and Ethnicity in Higher Education).

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 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 (%) (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).
- Student enrollment per institution by race and ethnicity (Race and Ethnicity in Higher Education).
- Percentage of 18- to 24-year-olds enrolled in college by race and ethnicity
- Degree attainment by race and ethnicity (Race and Ethnicity in Higher Education).
- Immediate college enrollment of recent high school or equivalent graduates ages 16 to 24, by race and ethnicity (Race and Ethnicity in Higher Education).
- Undergraduate enrollment across institution sector (i.e. public four-year, private nonprofit four-year, public two-year, for-profit) by race and ethnicity (Race and Ethnicity in Higher Education).
- Graduate enrollment across institution sector by race and ethnicity (Race and Ethnicity in Higher Education).
- First-year persistence rates of bachelor's degree-seeking students by institution sector (i.e. public four-year, private nonprofit four-year, public two-year, for-profit) and by race and ethnicity (Race and Ethnicity in Higher Education).
- Patterns of borrowing, measured by cumulative debt by sector (i.e. public four-year, private nonprofit four-year, public two-year, for-profit), by degree level (undergraduate, graduate) and by race and ethnicity (Race and Ethnicity in Higher Education).
- Patterns of borrowing, measured by % who borrowed for their education, average amount borrowed per student, disaggregated by race, ethnicity and degree level received (Race and Ethnicity in Higher Education).
- Unemployment rate for degree holders by race and ethnicity (Race and Ethnicity in Higher Education).
- Median annual earnings of adults ages 25 and older by educational attainment and race and ethnicity (Race and Ethnicity in Higher Education).
- Field of study for bachelor's degree recipients (e.g., STEM fields, business, education, health care fields, social sciences, humanities, general studies) by race and ethnicity (Race and Ethnicity in Higher Education).
- Field of study for associate's degree recipients by race and ethnicity (Race and Ethnicity in Higher Education).

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 is 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

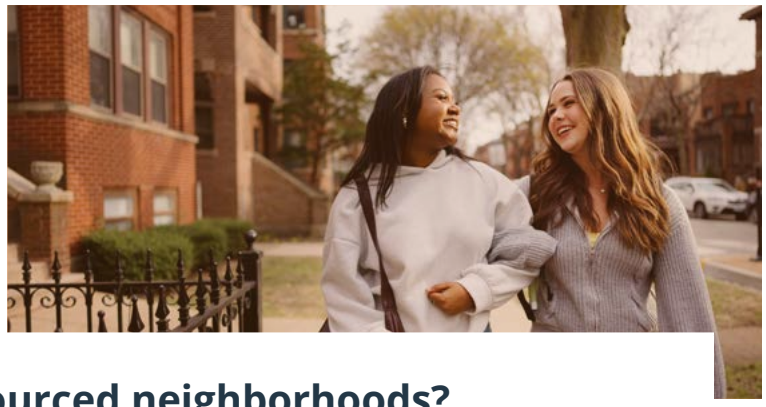
- Use of research and data tools to understand school and workplace socioeconomic diversity to understand equity issues and trends (National Equity Atlas).
- Frequent student interactions with diverse peers. A study by N.A. Bowman found that rare or moderate diversity interactions in college are associated with virtually no growth (and sometimes even slight declines) in leadership skills, psychological well-being and intellectual engagement, whereas very frequent diversity interactions are associated with considerable growth. The results are similar regardless of students' race, institutional characteristics and whether the interactions are interracial or across multiple forms of difference (The Curvilinear Relationship between College Diversity Interactions and First-Year Student Outcomes).

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).

Experiences and neighborhood conditions

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



11 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 peers in stable environments 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).

Access to affordable housing

Key source: E-W Framework

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).
- 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).
- Percentage of eligible households receiving federal rental assistance (Education-to-Workforce Framework).
- Living arrangements: Types of household living arrangements reported (i.e. living with spouse/partner, with adult children under age 18, with adult children, with parents, with brothers or sisters, with other relatives, with other non-relatives, living with someone else) (Survey of Household Economics and Decisionmaking).
- Neighborhood satisfaction: Percent of adults who were either somewhat or very satisfied with the overall quality of their neighborhood (Survey of Household Economics and Decisionmaking).
- Neighborhood satisfaction: Percent of adults who were satisfied with characteristics of their neighborhood: quality of local schools, crime risk, natural disaster and severe weather risk, cost of housing (Survey of Household Economics and Decisionmaking).
- Natural disaster risks: Percent of adults reporting being financially affected by natural disasters or severe weather events such as flooding, hurricanes, wildfires, or extreme temperatures (Survey of Household Economics and Decisionmaking).

System indicators

- There is sufficient availability of affordable housing for the number of families with low incomes in an area (city or county). (Education-to-Workforce).
- Percentage of eligible households receiving federal rental assistance. (Education-to-Workforce).
- % 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).
- 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).
- 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: Initiatives focused on maintaining safe and healthy housing typically engage both property owners and tenants and in many cases, housing inspectors. These programs intend to ensure that existing affordable homes remain safe, healthy and high-quality. They typically address common home health hazards, which often fall into one of two major categories: physical injury/safety risks (i.e. unstable staircases or broken handrails) and illness-inducing hazards (such as lead paint, mold, pests, carbon monoxide, etc.). (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).
- 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 income 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

- Transit connectivity index (Data source: Center for Neighborhood Technology) (StriveTogether 2021).
- 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).
- Transportation access: Transit trips index and low transportation cost index (Urban Institute, Boosting Upward Mobility).

System indicators

- Transit trips index. This metric reflects a community's access to public transportation. It is file-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).
- 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).

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).
- Build housing development near transit, including affordable housing and housing for people with disabilities. Coordinate transportation and housing policy in a manner that simultaneously: (a) increases the number of residents living in close proximity to public transit; (b) fosters walkable communities centered around new and existing transit stations; and (c) preserves and expands affordable housing near these stations. By acting early, local jurisdictions can make the most of opportunities to preserve and create affordable housing as part of the development that takes place around new or planned transit stations. (Urban Institute and Local Housing Solutions).
- 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

- Share of people experiencing poverty who live in high-poverty neighborhoods. A high-poverty neighborhood is where more than 40 percent of residents are experiencing poverty. This metric reflects the extent of economic segregation in a community (Urban Institute, Upward Mobility Initiative).
- 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).
- Economic inclusion: Share of residents experiencing poverty living in high-poverty neighborhoods (Urban Institute, Boosting Upward Mobility).

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

- Expanding affordable housing in resource-rich neighborhoods (Urban Institute, Upward Mobility Initiative).
- Supporting community development in high-poverty neighborhoods, including by addressing vacancy and blight; and investing in schools, transportation and job creation (Urban Institute, Upward Mobility Initiative).
- Balancing community development with creating opportunities for residents with low incomes to move to more resource-rich communities (Urban Institute, Upward Mobility Initiative).
- Enforcing fair housing laws (Urban Institute, Upward Mobility Initiative).
- 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).
- Restorative justice practices engage youth in repairing harm to victims, communities, or both, through actions such as restitution, community service, victim mediation and family conferencing (The Justice Center: Council of State Governments).

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 % 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).
- 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).
- 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

- The 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

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

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

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) (StriveTogether 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).
- Numbers of reported property crimes and reported violent crimes per 100,000 people. This metric uses the numbers of reported property and violent crimes to measure community safety levels (Urban Institute, Upward Mobility Initiative).

Practices and Policies

Practices

- Shifting toward evidence-based policing, in partnership with communities (Urban Institute, Upward Mobility Initiative).
- Promoting community-led violence prevention initiatives, which identify residents at highest risk and intervene before conflict occurs (Urban Institute, Upward Mobility Initiative).
- Preventing gun violence by limiting access to firearms and raising awareness of gun safety best practices (Urban Institute, Upward Mobility Initiative).
- Creating reentry supports for those recently released from jail or prison (Urban Institute, Upward Mobility Initiative).
- Improving neighborhoods by redeveloping vacant or abandoned properties, installing street lighting and supporting community-development activities (Urban Institute, Upward Mobility Initiative).
- Improving residents' financial security, including by strengthening the social safety net and reducing obstacles to accessing public benefits (Urban Institute, Upward Mobility Initiative).
- Implementing restorative justice approaches, which can help reduce recidivism (Urban Institute, Upward Mobility Initiative).

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).
- 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, Upward Mobility Initiative).
- Racial diversity: Neighborhood exposure index, or share of a person's neighbors who are people of other races and ethnicities (Urban Institute, Boosting Upward Mobility).

Practices and Policies

Practices

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

Adjustment Environmental quality

Key source: E-W Framework

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

- 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, Upward Mobility Initiative).
- Incentivizing private-sector actors to reduce their carbon footprints, including by leveraging government procurement and contracting procedures (Urban Institute, Upward Mobility Initiative).
- Improving the quality and frequency of public transportation and encouraging housing development near transit to reduce reliance on personal vehicles (Urban Institute, Upward Mobility Initiative).
- Developing parks and other green spaces to absorb carbon and improve air quality (Urban Institute, Upward Mobility Initiative).
- Investing in green infrastructure, such as permeable pavements, that can help mitigate exposure to environmental stressors like extreme heat (Urban Institute, Upward Mobility Initiative).
- Addressing home health hazards, such as lead paint and pipes, to foster safe and healthy home environments (Urban Institute, Upward Mobility Initiative).

Just policing

Key source: E-W Framework

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

Key source: E-W Framework

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 *Key source: E-W Framework*

Practices and Policies

Practices

- Creating local community resource maps, such as The Commit Partnership's Community Resource and Asset Map (The Commit Partnership).
- United Way 211, a free help line for people to find resources, support and services in their local community (United Way).
- Promotoras are community health workers who serve as liaisons between their communities and health and social providers, particularly with Hispanic/Latino communities. They are trusted members of the community who share common language, culture and lived experiences to those they serve (MHP Salud).
- 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).

12 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 college 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 completion, 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).
- Reduced exposure of children to adverse childhood experiences (ACES) (Campaign for Grade-Level Reading).
- 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).
- 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).
- Training for parents and caregivers in building nurturing relationships with children. For instance, Promoting First Relationships (PFR) is a comprehensive training program designed to support professionals who work with caregivers and young children (birth to 5 years). The program equips professionals with the knowledge, tools and strategies needed to help caregivers build nurturing and responsive relationships with children. The Child Development Institute provides training that helps parents and caregivers learn how to support their children's healthy growth and development (Promoting First Relationships Program and Child Development Institute).

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

- 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).
- Number and % 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 participating in SNAP. (Education-to-Workforce).
- Percentage of eligible units with children under age 18 not receiving SNAP (Prenatal to 3 Policy Impact Center).
- 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).
- Percentage of eligible individuals receiving WIC benefits (U.S. Department of Agriculture).
- 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).
- Number of food-insecure children in the U.S. (Campaign for Grade-Level Reading).
- Percentage of households reporting child food insecurity (Prenatal to 3 Policy Impact Center).
- 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).
- Number of children who receive free lunch during the summer (Campaign for Grade-Level Reading).

System indicators

- 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).

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 eligible individuals (children or adults) enrolled in Medicaid or CHIP (Education-to-Workforce Framework).
- % of uninsured U.S. children overall and % of uninsured U.S. children who are living in poverty (Campaign for Grade-Level Reading).
- % 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).
- The Hope Center Student Basic Needs Survey aims to understand the prevalence of student basic needs in securities on campuses and to provide actionable data for partner institutions (The Hope Center Student Basic Needs Survey).

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 improved 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

Key source: E-W Framework

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).
- Findings from student financial wellness surveys. For example,Trellis Strategies' Student Financial Wellness Survey offers insights into how student's financial wellness influences success at postsecondary institutions. The survey covers topics including basic needs, financial behaviors, paying for college, perceptions of institutional support and mental health (Student Financial Wellness Survey).

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, ability to overcome obstacles and succeed across all areas of learning.

13 Do students attend postsecondary institutions and programs with safe and inclusive environments?

Why this matters

Research shows that creating safe, inclusive and accessible campus environments directly boosts student success, making it a critical priority for postsecondary institutions. When students feel they belong and their identities are respected, they are more likely to stay enrolled and succeed academically. Inclusive teaching practices that value cultural and learning differences improve learning outcomes, while targeted supports — such as advising, mentorship and mental health services — strengthen retention. Campus climate efforts like anti-discrimination policies, bias reporting systems and diversity training foster a sense of safety and opportunities for community engagement, from student governance to peer networks, deepen commitment and persistence through graduation.

School safety *Key source: E-W Framework*

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 indicating they feel safe and cared for at their school (National Education

Association).

- Percent of students with mental health challenges and/or life stressors (i.e.: financial) (Cost of College: Stress Pushes Students to Consider Stopping).

System indicators

- 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

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 that enhance positive social attitudes and effective interpersonal skills. 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).

Policies

- Institutions 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

- % 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).

System indicators

- Diversity of faculty (National Education Association).
- Percentage of faculty who have received professional development in culturally-responsive pedagogy (National Education Association).
- Percentage of faculty who have received professional learning time in equity and racial and social justice (National Education Association).
- Percentage of faculty who have received professional learning time in implicit bias (National Education Association).
- Percentage of faculty 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).

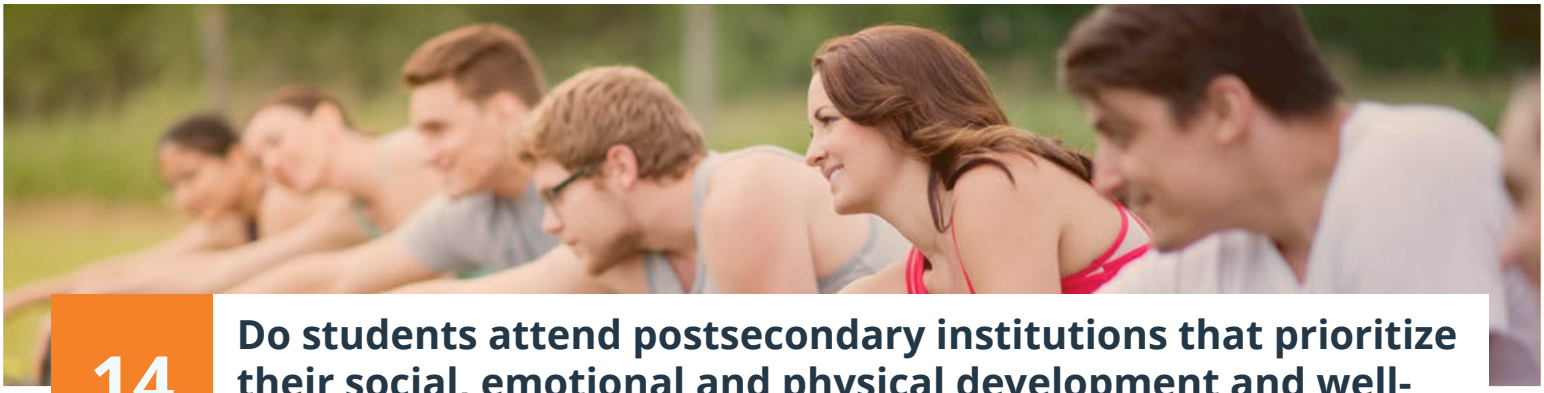
Practices and Policies

Practices

- Institutions create inclusive environments through an intentional, comprehensive approach that includes access to basic needs and services, embracing flexibility in the delivery of courses, building relationships with community and industry partners and cultivating anchoring relationships with students (The Lumina Foundation).
- Institutions implement effective practices to support part-time students in completing their degrees, such as developing and sustaining collaboration across campus departments, partnering with employers, recognizing and valuing lived experiences and providing comprehensive student support services (MDRC).
- Schools dedicate professional learning time to culturally-responsive pedagogy (National Education Association).
- Schools dedicate professional learning time to equity and racial and social justice (National Education Association).
- Schools dedicate professional learning time to implicit bias (National Education Association).
- Schools 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).
- State develops a policy that requires annual reporting by institutions on school climate and student engagement (National Education Association).



14 Do students attend postsecondary institutions 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 and work-based programs 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 students (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

- Availability and usage of services, as reported by students (New America).
- Campus 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); 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

Practices

- Mentoring and coaching strengthen the role advisors play in helping students achieve their educational and career goals. Mentoring is an informal, supportive relationship with someone like a faculty member, peer, or professional in the student's field of interest. Coaching is a more formal, structured relationship with a trained coach, such as a student success coach, focused on specific goals. Both approaches motivate students and help them set and reach their goals (Education-to-Workforce Framework).

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. This section includes indicators, practices and policies in the K-12 space that connect to postsecondary completion.*

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: 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 (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).

- Promoting personal interaction to build trust and relationships, for example by greeting students by name and shaking hands at the beginning of 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).
- 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).
- 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).
- Strategies for managing emotions, such as permitting students to redo 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).
- 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).
- 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 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 training 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 and student-led lessons on respect (PACE, Students with Growth Mindset Learn More in School).
- To advance social-emotional learning, schools

need to invest in relevant staff positions and adult learning activities. 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).

- Campuses can integrate social-emotional learning and racial equity efforts. While many of the educators in the study cited 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 (PACE, Students with Growth Mindset Learn More in School).

Policies

- Faculty training in how to integrate social emotional learning, such as self-regulation, growth mindset and progress monitoring, into coursework approaches (Education-to-Workforce Framework).
- K-12 systems 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. 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).

Social capital

Key source: E-W Framework

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, 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, managers and other campus staff (e.g., asks for information, guidance and other forms of instrumental support) (Leveraging Social Capital to Broaden Participation in STEM).
- Number of membership associations per 100,000 people. Membership associations provide opportunities for people to form robust social networks in a community (Urban Institute, Boosting Upward Mobility).
- Economic connectedness index. This metric reflects the extent to which people with low socioeconomic status and people with high socioeconomic status are friends, as measured through connections on Facebook (Urban Institute, Boosting Upward Mobility).

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 and mentoring programs are some promising approaches that can enhance STEM social capital and outcomes of underrepresented students, particularly women, Blacks/Hispanics/Native Americans, youth with low socioeconomic status and persons with disabilities (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).

- 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).
- Encouraging the formation of neighborhood associations (Urban Institute, Boosting Upward Mobility).
- Promoting civic engagement and participation, including by creating connections between neighborhood residents and city leaders (Urban Institute, Boosting Upward Mobility).
- Creating and maintaining parks and other public spaces such as libraries that give residents the opportunity to interact with one another (Urban Institute, Boosting Upward Mobility).
- Encouraging socializing across socioeconomic groups, including by designing public spaces intentionally and fostering connections across neighborhoods (Urban Institute, Boosting Upward Mobility).
- Supporting labor unions and the right to organize (Urban Institute, Boosting Upward Mobility).

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).
- 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 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 HEIghten Outcomes Assessment for Written Communication (Education-to-Workforce Framework).

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).

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 CTE	Achieving Inclusive CTE: Companion Manual	A report on the effort of Advance CTE and Education Strategy Group to support the expansion and acceleration of high-quality and equitable career pathways.	Link
American Council on Education	Race and Ethnicity in Higher Education	Race and Ethnicity in Higher Education: A Status Report and its accompanying microsite provide a data-informed foundation for those working to close persistent equity gaps by providing a comprehensive review of the educational pathways of today's college students and the educators who serve them.	Link
American Council on Education	Redoubling Our Efforts: How Institutions Can Affect Faculty Diversity	Discusses strategies institutions can deploy to improve faculty racial diversity in alignment with student demographic profiles. Race and Ethnicity in Higher Education	Link
American Institutes for Research	Serving English Language Learners in Higher Education	A study exploring access, support structures and outcomes for English learners in college environments	Link
Annie E. Casey Foundation	Who are Opportunity Youth?	The KIDS COUNT® Data Center, which tracks trends among youth ages 16 to 19, indicates that 7% of the nation's older teens — more than 1.1 million young people — are neither working or in school, according to the latest data from 2022.	Link
Annie E. Casey Foundation	Early Warning! Why Reading by the End of Third Grade Matters	Emphasizes the link between third-grade reading skills and later academic outcomes, advocating early interventions and policymaking.	Link

Organization	Publication	Description	Source
Arizona State University (ASU)	The Role of Peer Relationships in College Adjustment	Research on how peer social support influences students' academic adaptation and success during the transition to college.	Link
Bipartisan Policy Center	Housing Insecurity and Homelessness Among College Students	Highlights the rising challenge of housing instability on college campuses and advocates for coordinated policies to support affected students.	Link
Brown's Promise	Fulfilling Brown's Promise: A State Policy Agenda	Proposes policies aimed at ensuring access, affordability and support to achieve socioeconomic diversity.	Link
Campaign for Grade-Level Reading	Toward Bigger Outcomes (2024)	A strategic roadmap that connects children's early literacy outcomes to their broader health and well-being, with recommendations for cross-sector investment.	Link
Center for American Progress	Apprenticeship Wage Participation Gap	Analyzes how demographic disparities influence wage and employment access in registered apprenticeship programs.	Link
Center for Early Learning Success	Birth Through Eight State Policy Framework	A comprehensive policy and practice framework guiding early childhood systems to advance learning equity and readiness from birth through third grade.	Link
Center for Research on College-Workforce Transitions (UW–Madison)	National Survey of College Internships (NSCI) 2021 Report	Finds that only 21.5% of students had internships, with disparities by race, first-gen status and limited distance traveled; also highlights supervision quality issues.	Link
CLASP / Alliance for Quality Career Pathways	A Framework for Measuring Career Pathways Innovation (2013)	Provides a working framework and shared performance metrics to assess high-quality career pathway systems across contexts.	Link
College Board / AP Central	Broadening Access to Advanced Placement®: A Toolkit for Educators and School Leaders	Offers seven research-based strategies for expanding equitable AP access, including outreach, scheduling and preparatory support.	Link
Community College Research Center (CCRC)	What we know about guided pathways	College students are more likely to complete a degree in a timely fashion if they choose a program and develop an academic plan early on, have a clear road map of the courses they need to take to complete a credential and receive guidance and support to help them stay on plan	Link
Community College Research Center (CCRC)	Get With the Program: Accelerating Community College Student Program Entry and Completion	Demonstrates that helping students enter academic programs promptly increases completion rates, suggesting structured pathways as a solution.	Link

Organization	Publication	Description	Source
Complete College America	Remediation: Higher Education's Bridge to Nowhere	Report proposing that instead of wasting valuable time and money in remedial classes for no credit, students should be provided redesigned first-year classes with built-in, just-in-time tutoring and support	Link
Consortium on Chicago School Research (CCSR)	From High School to the Future: Potholes on the Road to College (2008)	Examines urban students' lived experiences transitioning from high school to college to improve support systems.	Link
Council for Community and Economic Research (C2ER)	State Investment in Workforce Development (2019)	Shows increasing state commitments toward workforce development, particularly in credentialing and employer partnerships.	Link
Council for Community and Economic Research (C2ER)	Powering Industry Growth Through Workforce Investment	Reviews federal initiatives like registered apprenticeship and policies to cultivate skilled labor in manufacturing and STEM-heavy industries.	Link
David, Nick and Yasuko Kanno	ESL programs at U.S. community colleges: A multistate analysis of placement tests, course offerings and course content	Study that argues that community college ESL programs implement valid placement procedures, award college credit for ESL coursework and streamline student access to discipline-specific academic and vocational content.	Link
Education Northwest	Improving Credit Mobility for Community College Transfer Students	Examines state-level barriers and improvements to credit transfer for community college students in 10 states.	Link
Education Strategy Group	From Tails to Heads: Building Momentum for Postsecondary Success	Advocates for tracking predictive "momentum metrics" (like 9th-grade GPA, FAFSA, gateway course completion) to flip inequitable postsecondary outcomes.	Link
Education Strategy Group & Advance CTE	Credential Currency Report	Provides guidance for states and systems to identify and prioritize high-value, industry-recognized credentials that support workforce success.	Link
Education-to-Workforce	Education-to-Workforce	Offers an indicator framework aligning education and workforce systems through metrics that track student progress and outcomes.	Link
Education-to-Workforce	Education-to-Workforce Indicator Framework (Final PDF)	An indicator framework mapping education and workforce systems with equity-focused metrics to inform policy and progress.	Link
Education-to-Workforce	Education-to-Workforce Indicator Framework (PDF)	A finalized indicator framework to help states align education stages with workforce outcomes and track equitable progress.	Link

Organization	Publication	Description	Source
Equity in Higher Education	Race & Ethnicity in Higher Ed 2024 Executive Summary	Summarizes disparities in student, faculty and leadership representation and recommends institutional strategies for racial equity.	Link
Gallup & Strada Education	2017 Gallup–Strada College Student Survey	Captures U.S. college students' attitudes, well-being, engagement and alignment with career goals nationwide.	Link
HeadStart	Trauma and Adverse Childhood Experiences	Outlines how toxic stress and trauma affect child development and how early interventions in Head Start programs can promote resilience.	Link
Healthy Minds Network	National Data Report 2023–24	A report offering national statistics on college students' mental health, including prevalence, service use and demographic trends.	Link
IES REL Appalachia	Aligning career and technical education with high- wage and high-demand occupations in Tennessee	This study examines the availability of career and technical education program areas in Tennessee high schools, concentrations completed by high school graduates and how these concentrations align with jobs in the labor market.	Link
Institute for Higher Education Leadership & Policy at California State University, Sacramento	Steps to Success: Analyzing Milestone Achievement to Improve Community College Student Outcomes (2009)	Offers a framework using milestones and success indicators to diagnose community college progression barriers and inform policy.	Link
Institute for Higher Education Policy (IHEP)	Toward Convergence: A Technical Guide for the Postsecondary Metrics Framework (2016)	Presents a standardized set of performance, efficiency and equity metrics for assessing postsecondary institutions and policy alignment.	Link
Institute of Education Sciences (WWC)	Designing and Delivering Career Pathways at Community Colleges	Summarizes evidence-based recommendations for creating structured career pathway programs at community colleges.	Link
Institute of Education Sciences (WWC)	Helping Students Navigate the Path to College: What High Schools Can Do (2009)	Offers high schools research-based practices to prepare students academically, support college entry and increase aid awareness.	Link
Jobs for the Future (JFF)	Meta-Majors: An Essential First Step on the Path to College Completion	Advocates structured program categories ("meta-majors") to reduce choice overload and improve community college student completion rates.	Link
Jobs for the Future (JFF)	Making Higher Education Policy Work for Opportunity Youth	Highlights the economic cost of unmet opportunity youth and argues for federal policies to reintegrate them through postsecondary education.	Link

Organization	Publication	Description	Source
Jobs for the Future (JFF)	Pathway to Recovery (duplicate confirmation)	Restates the Back on Track model for reengaging off-track youth toward stronger postsecondary success.	Link
Jobs for the Future (JFF)	Promising Credentials: Aligning Dual Enrollment with Healthcare Labor Market Needs (Rockford)	Describes how high schools and postsecondary partners co-design dual enrollment courses to prepare students for in-demand healthcare credentials.	Link
Jobs for the Future (JFF)	Unveiling Disparities: Racial, Ethnic and Gender Gaps in Student Financial Insecurity and Proposed Solutions	Reveals that Black, Latine, women and student-parent populations face significantly higher financial insecurity, calling for holistic basic needs support.	Link
Jobs for the Future (JFF)	Supporting Dropout Recovery Programs to Focus on Postsecondary Success	Details JFF's Back on Track model being piloted in Texas, using enriched prep and instructional coaching to support students returning to school post-dropout.	Link
Jobs for the Future (JFF)	Blueprint to Modernize and Expand Apprenticeship Nationwide	Offers policy recommendations to scale apprenticeship through investments, system alignment and employer engagement.	Link
KIPP	KIPP College & Career Match Playbook	A playbook presenting a structured, data-driven advising approach to help students identify and enroll in postsecondary institutions where they will thrive.	Link
KIPP	College Match Strategies Framework	A playbook detailing how KIPP supports match between students and realistic, high-success college options based on data-informed insights and structured advising.	Link
Kresge Foundation	Overcoming Transportation Barriers to Improve Postsecondary Student Success	Addresses transportation access as a structural barrier to college persistence, calling for cross-sector solutions.	Link
Literacy Texas (via USDOL)	Six Key Elements of Career Pathways	Defines six essential features for effective career pathway programs, including flexible scheduling, contextualized learning and designated support services.	Link
Massachusetts Business Alliance for Education (MBAE)	Industry-Recognized Credentials: Best Practices for Massachusetts	Applies national best practices to expand high-quality, broadly accepted credentials in MA to boost workforce alignment.	Link
Mathematica	Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States (2012)	Evaluates the effectiveness and economic returns of registered apprenticeship programs across ten states.	Link

Organization	Publication	Description	Source
Mathematica / U.S. Dept. of Labor	The Workforce Innovation and Opportunity Act (WIOA) Research Portfolio	Reviews evidence on effective strategies related to WIOA programs including case management, service integration and workforce training.	Link
Measure of America	Youth Disconnection in America	Interactive mapping platform revealing disparities in income, health and opportunity across U.S. communities via the distressed communities index.	Link
NACADA Journal	Revisiting the Role of Academic Advising in Equitably Serving Diverse College Students (Museus, 2021)	Emphasizes culturally engaging advising—humanized, proactive, holistic—as critical to supporting academic success for students of color.	Link
National Bureau of Economic Research (NBER)	Dropout Prevention and College Prep (Chapter, c11729)	Evaluates effective intervention strategies to reduce high-school dropouts and improve college readiness in low-resource settings.	Link
National Center for Education Statistics	Career and Technical Education (CTE) Statistics	National portal offering data and reports on CTE across secondary, postsecondary and adult education, including program types, participation and credentials.	Link
National Center for Education Statistics	Trends in Undergraduate Nonfederal Grant and Scholarship Aid (2019)	Detailed data tables tracking trends in non-federal undergraduate grants and scholarships by demographic and institutional characteristics from 2003–04 to 2015–16.	Link
National Center for Education Statistics	Credit Production and Progress Toward the Bachelor's Degree (1999)	Longitudinal analysis of credit accumulation among college entrants, examining credit patterns that lead to bachelor's degree completion.	Link
National Center for Education Statistics	First-Generation Students in Postsecondary Education: Transcript Study (2005)	Examines the academic records of first-gen college students to understand progression patterns and challenges in postsecondary success.	Link
National College Attainment Network (NCAN)	Common Measures for Success	A set of research-backed, member-developed metrics for college access organizations to consistently track student progress and equity.	Link
National College Attainment Network (NCAN)	Building Momentum at the State Level	Shares state-level policy actions and advocacy tools used to expand college access and equity for low-income students.	Link
National Conference of State Legislatures (NCSL)	Double Duties: Student Parents' Struggle to Find Child Care and How State Policy Can Help	Highlights the child care barriers that postpartum college students face and describes state policy approaches to support them.	Link

Organization	Publication	Description	Source
National Education Association (NEA)	GPS (Great Public Schools) Indicators Framework	Proposes a comprehensive framework of resources, policies and outcomes to evaluate state and district performance across seven school quality dimensions.	Link
National Student Clearinghouse	Baccalaureate Attainment: Transfer Student Outcomes	Presents longitudinal data on bachelor's degree outcomes among students transferring from two-year to four-year institutions.	Link
National Student Clearinghouse	Tracking Transfer: Measures of Effectiveness in Helping Community College Students to Complete Bachelor's Degrees	This report focuses on the transfer and bachelor's degree completion outcomes of students who started at two-year institutions.	Link
New America / EdCentral	Beyond Tuition: Funding for Campus-Based Child Care for Student Parents	Analyzes declining availability of campus child care and offers strategies to sustainably fund services that support student parents.	Link
Perkins V – Federal CTE Legislation	Perkins V Overview	Outlines the federal legislation framework funding CTE programs, supporting equity, local decision-making and labor-aligned training.	Link
Policy Analysis for California Education	Students with Growth Mindset Learn More in School: Evidence from California's CORE School Districts	Shows that students with growth mindsets gain approximately 35–48 more days of learning in math and ELA.	Link
Search Institute / SCALE	SCALE Measures User Guide	Offers validated tools and instructions for measuring youth social capital and support systems in programs. Institute for Healthcare Improvement	Link
StriveTogether	A Guide to Racial and Ethnic Equity Systems Indicators (2021)	Offers cradle-to-career equity indicators across systems like funding, access, discipline and community context to measure racial justice.	Link
Temple University	The Hope Center for Student Basic Needs	The Hope Center for Student Basic Needs at the Lewis Katz School of Medicine at Temple University is an action-oriented research, policy and capacity-building center removing barriers to college student success and well-being	Link

Organization	Publication	Description	Source
The Campaign for College Opportunity	Chutes or Ladders: Strengthening California Community College Tansfer	Multiple barriers, including duplicative, ever-changing coursework requirements and a lack of unified, systemwide, transferrable course agreements between colleges and universities, have resulted in a complex transfer system. The Associate Degree for Transfer is a critical ladder to transfer and earning a bachelor's degree.	Link
The Education Trust / IHEP	Advancing by Degrees: A Framework for Increasing College Completion (2010)	Encourages higher ed leaders to monitor timely, on-track milestones beyond graduation rates to improve student success.	Link
The National Governors Association (NGA)	Complete to Compete: Common College Completion Metrics	The purpose of this accompanying technical guide is to increase consistency and commonality across states in reporting benchmark data and measuring future progress in improving college completion and efficiency in higher education.	Link
Trellis Strategies	Toolkit: Transportation & Postsecondary Access	Offers resources and strategies for colleges and systems to reduce transportation challenges hindering student access and retention.	Link
U.S. Department of Education	Student Access to Digital Learning Resources Outside of the Classroom (2018)	Offers national data on students' access to computers and the internet outside school, highlighting disparities in out-of-school digital equity.	Link
U.S. Department of Education	The Toolbox Revisited: Paths to Degree Completion from High School Through College (2006)	Analyzes longitudinal patterns from HS to college to identify academic behaviors predictive of completing a degree.	Link
U.S. Department of Education	FAFSA Toolkit for Educators & Counselors	A practical guide offering educators strategies to support students and families through the FAFSA completion and financial aid process.	Link
University of Massachusetts	Characteristics of Academic Advising That Contribute to Racial and Ethnic Minority Student Success at Predominantly White Institutions	Explores how leveraging family and community networks can support Latina/o/x college success and retention.	Link
Urban Institute	Upward Mobility Initiative	Provides communities with the Upward Mobility Framework, local data dashboards, toolkits and workshops to equitably improve economic mobility.	Link

Organization	Publication	Description	Source
Urban Institute	Robust and Equitable Measures to Identify Quality Schools (Logic Model)	Logic model outlining contextual factors, inputs and activities used to measure school quality and equity.	Link
Urban Institute	Boosting Upward Mobility: Metrics to Inform Local Action, Second Edition (2022)	Presents a concise set of evidence-based metrics communities can use to track and advance upward economic mobility and close racial/ethnic wealth gaps.	Link
Urban Institute	Promise Neighborhoods (Project description)	Explains Urban's role in advancing community-based cradle-to-career Promise Neighborhoods through evidence, evaluation and technical assistance.	Link
Urban Institute	Public Sector Apprenticeship: Improving Work for Governments and Residents	Argues that public-sector apprenticeships provide high-value career opportunities, increase retention and benefit both apprentices and community services.	Link
Urban Institute	Ensuring Americans Can Retire Free from Student Loan Debt	Discusses policy options and strategies to alleviate student loan burdens so that retirement isn't compromised by unpaid debt.	Link
Urban Institute	How Transit-Oriented Housing Can Advance Access & Curb Climate Change	Explores how strategic development of housing near transit hubs improves access to opportunities and reduces carbon emissions.	Link
Urban Institute	Local Workforce System Guide	Urban Institute scholars created this Guide to Local Workforce Systems to help people understand what local workforce systems are, what they do, the strategies they use and how stakeholders connect and collaborate.	Link
Wasthington Center for Equitable Growth	An Introduction to the Geography of Student Debt	Discusses how student debt burdens differ across regions, with low-income areas facing disproportionately worse outcomes. Equitable Growth	Link
What Works Clearinghouse	Strategies for Postsecondary Students in Developmental Education (Practice Guide Summary)	Synthesizes six evidence-backed recommendations to help underprepared college students navigate developmental education and succeed in credit accumulation.	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
AAC&U	VALUE (Valid Assessment of Learning in Undergraduate Education)	Promotes frameworks and rubrics for assessing student learning in key skill areas.	Link
ACAMH (Wiley)	Child Health and Environmental Exposure Study (2004)	Research linking environmental factors like lead exposure to negative developmental health outcomes.	Link
Accelerate Equity	Self-Efficacy Practices	A curated set of evidence-based practices designed to boost student self-efficacy, especially among marginalized learners.	Link
ACF / OPRE	Evaluation of Employment Coaching for TANF and Related Populations	Evaluates the effectiveness of employment coaching models for Temporary Assistance for Needy Families (TANF) recipients.	Link
ACT	ACT Learning Resources	Offers free ACT study guides, video lessons and a full-length official online practice exam for students and educators.	Link
Active Trans	Transit-Oriented Development Near Bus Routes	Argues that bus-centric TOD should be matched with improved service quality and frequency.	Link
Activetrans (Others)	Bus Stop Safety Guide (Omnitrans)	Framework for assessing and improving transit stop safety and infrastructure.	Link
AHRQ / MEPS	Medical Expenditure Panel Survey	National data on healthcare use, expenditures and insurance coverage.	Link
AIBM	HBCUs at a Crossroads	Addresses the significant decline in Black male enrollment at HBCUs and outlines potential remedies.	Link
AIR	ECHSI Impact Study Report	Evaluates the Early College High School Initiative, showing positive effects on student achievement and access to college.	Link
American Council on Education	ACE Health Care Policy Resources	Provides resources and policy guidance for colleges on healthcare-related issues.	Link
American Council on Education	Raising Expectations: Student Parent Success	Examines strategies to support student parents through policy reform and institutional initiatives.	Link
American Institutes for Research (AIR)	Opportunity Youth Brief	Summarizes data and strategies to reconnect young people who are disconnected from school and work.	Link
American Institutes for Research (AIR)	Delta Cost Project	Provides institutional-level data on higher education costs and spending patterns.	Link

Organization	Publication	Description	Source
American Journal of Preventive Medicine	Subsidized Housing & Family Health (1998)	Research connecting access to subsidized housing with improved family health and reduced stress.	Link
American Progress	State Divestment Case Study	Examines state disinvestment from public higher education and consequences for students.	Link
American School Counselor Association (ASCA)	SchoolCounselor.org	Provides resources, advocacy materials and professional development for school counselors nationwide.	Link
Annie E. Casey Foundation	Positive Youth Development	Provides research, strategies and case studies to support youth development and well-being.	Link
AP News	Editorial on Expanding Pell Grants to Short-Term Training	Advocacy piece urging Congress to include short-term programs in Pell eligibility for workforce access AP News.	Link
APA PsycNet	Parenting and Child Behavior Study (2014)	Examines how parental mental health influences behavioral issues in children.	Link
Apprenticeship.gov	Pathways for Career Seekers & Employers	Guides for individuals and employers on finding and offering registered apprenticeships.	Link
Apprenticeship.gov	Registered Apprenticeship Program Info	Central hub for employers and learners to access resources on registered apprenticeships.	Link
Arizona Commerce Authority	Rapid Employment & Job Training Grants	Offers tax credits and funding to build workforce capacity and support local hiring.	Link
Aspen Institute	Expanding Economic Opportunity: What Works in Career and Technical Education	Highlights evidence-based strategies for strengthening and scaling high-quality CTE programs.	Link
Attendance Works	Monitoring Attendance in Distance Learning	Offers tools and guidance to track absenteeism in remote instruction settings.	Link
Boston OWD	New EMT Apprenticeship Provides Career Path to Boston EMS	Paid pre-apprenticeship EMT training program designed to recruit and train Boston residents for skilled EMS careers.	Link
British Journal of Educational Psychology	School Belonging and Academic Outcomes	Investigates the critical role of belonging in improving academic performance and retention.	Link
Brookings Institution	Faculty Diversity at Top Public Universities	Analysis revealing persistent diversity gaps among faculty at leading public institutions.	Link
Brookings Institution	Police Reform Policy Paths	Offers a strategic framework for advancing equitable and effective criminal justice reform.	Link

Organization	Publication	Description	Source
Brookings Institution	Hoxby Report on Education and Economic Mobility	Provides evidence on how selective college attendance impacts economic mobility.	Link
Brookings Institution	Policies to Reduce Intergenerational Poverty	Explores multifaceted policy solutions to disrupt cycles of intergenerational poverty.	Link
Bunker Hill Community College (BHCC)	DISH Food Pantry	On-campus food pantry supporting students' basic needs and academic persistence.	Link
C2ER	State Investment in Workforce Development (2020)	Summarizes state-level trends in funding workforce development initiatives to meet evolving labor market needs.	Link
C40 Cities	Implementing Transit-Oriented Development	Offers global best practices for effective, equitable TOD implementation in cities.	Link
CA Data System / WestEd	Cradle-to-Career Data Point Definitions	Defines key data points to track educational and workforce outcomes across California's cradle-to-career system.	Link
California Budget Center	Medi-Cal Expansion Benefits for Undocumented Residents	Analyzes increased health access for undocumented Californians following Medi-Cal policy changes.	Link
California Department of Education	Social and Emotional Learning Competencies	Outlines competencies and guidance for integrating SEL into California schools.	Link
California EDD	Workforce Training Funding Report (WSD17-07)	Overview of state funding sources and strategies to support workforce development programs.	Link
CalJAC (California Juvenile Advisory Council)	CalJAC Homepage	State council that advises on juvenile justice policy and provides resources to support equitable outcomes.	Link
CASEL	Collaborative for Academic, Social and Emotional Learning	A leading organization supporting SEL integration in education systems to improve student outcomes.	Link
CBPP	State Higher Ed Cuts Report	Examines unintended economic and student-access consequences from state funding reductions.	Link
Community College Research Center (CCRC)	Dual Enrollment Research Overview	Summarizes evidence showing the benefits of dual enrollment for high school students' academic outcomes.	Link
Community College Research Center (CCRC)	Momentum of 15-Credit Course Load	Demonstrates that students who complete 15+ credits per semester have significantly higher completion rates.	Link
Community College Research Center (CCRC)	CCRC Main Page	Research center focused on community college outcomes, policy and student success.	Link

Organization	Publication	Description	Source
Community College Research Center (CCRC)	Framework for Advising Reform	A structured guide for overhauling advising systems in community colleges to support student success.	Link
Community College Research Center (CCRC)	Advising and Student Supports Study	Examines how advising practices and support services affect student outcomes in community colleges.	Link
CCSSO	Birth to Grade 3 Indicator Framework	Framework for states to align PreK–3 policy under ESSA, focusing on early learning outcomes New America.	Link
CDC / NCHS	National Health Interview Survey (NHIS)	Collects comprehensive health, access and behavior data to monitor population health.	Link
CdiKids	Parent Training Programs	Offers professional development courses to train providers in effective parent education strategies.	Link
CensusScope	About Exposure	Describes how Census data are used to compute geographic exposure to various social and environmental factors.	Link
Center for American Progress	Designing Workforce Equity	Offers policy recommendations to build more equitable workforce development systems.	Link
Center for American Progress	The Continued Student Loan Crisis for Black Borrowers	Examines disproportionate debt burdens faced by Black borrowers and recommends systemic reforms.	Link
Center for American Progress	Better Training, Better Jobs	Advocates for enhanced training programs to prepare workers for the evolving labor market.	Link
CEWD	High-Hazard Work Toolkit	A toolkit offering guidance for workforce planning and hazard training in high-risk industries.	Link
Civic & Character Measures	Youth Civic Toolkit	Research instrument designed to evaluate youth engagement in civic and ethical behavior.	Link
Civic Engagement Research	Guide to Civic Engagement Index	DOI-guided toolkit for measuring youth engagement in civic and political processes.	Link
CLANEIL	Campus Kitchens Project	Highlights campus-based food recovery and meal-sharing programs supporting food-insecure students.	Link
CLASP	The AQCP Approach	Provides an approach for aligning credentials and pathways to improve education-to-employment pipelines.	Link
College Advising Corps	About Us / Mission & Impact	A national nonprofit placing near-peer advisers in under-resourced high schools to expand access to postsecondary education; tens of thousands served.	Link

Organization	Publication	Description	Source
College Board	Measuring the Impact of High School Counselors on College Enrollment	Details research showing that strong counseling programs are directly linked to higher college enrollment rates.	Link
College Board	SAT Report on College and Career Readiness (2013)	Provides data on how SAT scores align with college and career readiness benchmarks.	Link
College Transition Collaborative	Navigator Manual (2015)	Practical guide offering strategies for college access advisors to support student transitions effectively.	Link
Colorado Department of Higher Education	Postsecondary Degree Earnings Outcomes Tool	An interactive portal that displays post-graduation earnings by institution, program and time elapsed since graduation.	Link
Colorado DHE	School-Based Health Centers (SBHC)	Information on Colorado's SBHCs providing on-site health services in schools.	Link
Commit Partnership	North Texas Community Resource Map	Visual dashboard of social services and educational assets across North Texas counties.	Link
Community College Daily	Campus Child Care Helps Student Parents	Highlights the importance of on-campus child care centers in improving retention and graduation for student parents.	Link
Community College Daily	Behavioral Science Nudges for Student Success	Explores how behavioral nudges can help students make more effective academic decisions to improve persistence.	Link
Complete College America	Corequisite Support Strategy	Advocates for scaling corequisite support models in remedial college courses to improve equity and completion.	Link
Complete Streets Coalition	Structure of a Complete Street	Defines the design principles required for streets that prioritize pedestrians, cyclists, transit riders and drivers equally.	Link
Congress.gov	House Bill H.R.7278 (118th Congress)	Text and details of a federal bill (HR 7278) introduced in the 118th Congress.	Link
Congressional Budget Office (CBO)	Federal Pell Grant Trends and Costs	Offers a detailed analysis of Pell Grant funding trends, recipients and cost implications from 1994–2012.	Link
Connected Nation	Broadband Leadership & Economics	Highlights the economic imperative for universal broadband access led by state broadband leaders.	Link
Council for Adult Education (CAE)	CAE Solutions	Offers adult education and literacy policy recommendations and programmatic support.	Link
CSG Justice Center	Restorative Justice Practices and Credible Messengers	Outlines innovative approaches using restorative justice and mentorship in juvenile justice systems.	Link
Demos	Myth vs Reality of College Affordability	Debunks misconceptions about barriers to college and outlines policy solutions.	Link

Organization	Publication	Description	Source
DOL	Training and Employment Notice 17-15 Attachment	Federal advisory detailing updated guidance for workforce training programs.	Link
DOL / CLEAR	Sustained Earnings Gains Study	A longitudinal evaluation demonstrating lasting income improvements following targeted workforce interventions.	Link
DOL / CLEAR	Sector-Focused Advancement Evidence (Hendra, 2016)	Strong evidence that sector-specific workforce initiatives boost career advancement.	Link
DOL / CLEAR	Sectoral Employment Impact (Maguire, 2010)	Longitudinal study showing local labor market alignment with sector-based training improves placement.	Link
Economic Mobility Systems	Research and Initiatives	Focuses on strategies to improve economic mobility through data-driven education and workforce partnerships.	Link
ECS	Education-Workforce Development Connections Report	Analyzes how states connect education systems with workforce requirements and economic development goals.	Link
EdNC	NC Community College Child Care Grant Program	Examines how grants can help student-parents access affordable child care to persist in their education.	Link
Education Data Initiative	Student Loan Debt by Race	Highlights disparities in student debt burdens and repayment outcomes by racial and ethnic group in the U.	Link
Education Next	Better School Counselors, Better Outcomes	Discusses how high-quality counseling, like high-quality teaching, leads to better academic and postsecondary outcomes for students.	Link
Education Super Highway	K–12 Broadband Connectivity Mission	A nonprofit that has closed the classroom broadband gap by ensuring nearly 100% of U.	Link
Education-to-Workforce	Industry-Recognized Credential (Indicator)	Provides a framework to measure and track attainment of high-value, industry-recognized credentials by students.	Link
Education-to-Workforce	Neighborhood Juvenile Arrests (Indicator)	Provides localized data to measure juvenile arrest rates as an indicator of community safety and youth well-being.	Link
Education-to-Workforce	CTE Pathways Access vs Demand Indicator	Tracks local alignment between student access to CTE programs and regional labor market needs.	Link
Education-to-Workforce	Student Loan Repayment Indicator	Tracks how well borrowers repay student loans after entering the workforce.	Link
Education-to-Workforce	Financial Incentives for Students Evidence	Aggregates research showing cash incentives can boost persistence and academic outcomes.	Link

Organization	Publication	Description	Source
Education-to-Workforce	Mentoring & Coaching Evidence	Summarizes evidence that structured mentoring and coaching support improve student persistence and success.	Link
Education-to-Workforce	SEL Curricula & Self-Regulated Learning	Highlights evidence showing SEL programs enhance both socioemotional skills and academic outcomes.	Link
Edutopia	Education Innovation Resource Hub	An open platform sharing best practices and research-based strategies for improving teaching and learning.	Link
FAFSA Science Note	Improving FAFSA Outreach (NCES 2018-061)	Brief highlighting intervention strategies to boost FAFSA completion and access Most Policy Initiative.	Link
FAFSA4caster	FAFSA4caster Website	A tool created by the Dept.	Link
Fastweb	Fastweb Scholarship Platform	Online resource offering students access to scholarships, internships and financial planning tools.	Link
FBI	Uniform Crime Reporting (UCR)	Official database of national crime statistics compiled by the FBI for public safety analysis.	Link
FCC	Affordable Connectivity Program (ACP)	Federal program providing discounted internet access for low-income households.	Link
Federal Register	IPEDS Data Collection Notice (2016)	Announces public data collection for integrated postsecondary education datasets such as IPEDS.	Link
Federal Reserve	2014 Report on the Economic Well-Being of U.S. Households	Provides an annual analysis of financial security, credit access and economic challenges for U.	Link
Federal Student Aid (FSA)	FAFSA Completion Dashboard	High-school-level interactive data tool tracking FAFSA application volume and completion rates ERIC.	Link
FEMA / DHS	Smart Cities Archive	Explores technology initiatives in urban planning, safety and infrastructure from a prior DHS program.	Link
Food Systems Journal	FSJ Article Download	Peer-reviewed research on food system dynamics and related policymaking impact.	Link
Freedom for All Americans	Affordable Housing Laws Resource	Provides state-by-state legal guidance on affordable housing rights and protections.	Link
GAO	GAO-25-107024 Report	Specific federal audit or evaluation report (GAO title placeholder); exact content not accessible.	Link
GAO	GAO-24-107074 Report	Another federal audit or evaluation report (title placeholder); details not accessible.	Link

Organization	Publication	Description	Source
Georgetown University CEW	Center on Education and the Workforce	Provides research and analysis on education, workforce trends and economic opportunity.	Link
Georgia Governor's Office	Hyundai Training Thousands of Georgians	Describes a workforce training partnership between Georgia and Hyundai's new EV plant.	Link
Golden Leaf Foundation	Opportunities for Work	Grants focused on workforce development in rural and economically distressed communities.	Link
Hanushek & Woessmann	Education and Economic Growth (2012)	Shows the powerful long-run impact of education quality on economic development via PISA performance.	Link
Healthcare.gov	Federal Health Insurance Marketplace	Federal portal offering health insurance enrollment, plan comparisons and financial assistance.	Link
Hello Family Spartanburg	Parent Support & Education Resources	Provides community-based programs and resources tailored to support families and caregivers.	Link
HOPE Center (Temple University)	Basic Needs Survey Data	Ongoing national data collection on postsecondary students' access to housing, food and mental health support.	Link
Hope Center (Temple)	Closing College SNAP Gap	Advocates for policy solutions to increase SNAP access among food-insecure college students.	Link
Hope Community	Triple P — Positive Parenting Program	Offers evidence-informed parenting support to enhance child development and family dynamics.	Link
Houston Chronicle	HISD AP Test Rates	Reports on trends and disparities in Advanced Placement test participation and success in Houston ISD.	Link
HUD GIS	Low Transportation Cost Index	Interactive map showing U.	Link
ICAN Go To College	Associate Degree for Transfer	Explains pathways for California students to seamlessly transfer from community colleges to four-year universities.	Link
Idaho Ed News	Near-Peer Mentoring Programs	Reports on the success of near-peer mentoring programs in supporting students' academic and career readiness.	Link
Idaho Ed News	Target 2025 Task Force	Covers Idaho's push to revisit and reset its statewide goal of 60% postsecondary attainment by 2025.	Link
IDI Inventory	Intercultural Development Inventory (IDI)	A self-assessment tool to measure intercultural competence and guide diversity and inclusion efforts.	Link
IES REL	Resource on Transportation & Education Access	Examines how transportation infrastructure impacts education accessibility.	Link

Organization	Publication	Description	Source
IES WWC	Intervention Report 722	Synopsis of a high-quality educational intervention verified by the What Works Clearinghouse.	Link
IHEP	Toward Convergence Press Release	Introduces the Postsecondary Metrics Framework aimed at aligning higher education data consistently across institutions.	Link
IHEP	IHEP Homepage	The central hub for higher education policy analysis, data and advocacy.	Link
IHEP	Student Experience & Belonging	Demonstrates that a sense of belonging correlates with stronger academic performance and retention outcomes.	Link
IHEP (Higher Education Policy Institute)	A Blueprint for Better Postsecondary Information	Summarizes a framework for improving transparency and comparability of postsecondary data for decision-making.	Link
Illinois DHS	State Health Portal	Access point for state Medicaid and health coverage programs.	Link
Impact Tulsa	Impact Tulsa Report, 2019	Highlights Tulsa's equity-driven strategies to improve community outcomes, particularly in education and economic mobility.	Link
Inclusive STEM Teaching Network	Inclusive Teaching Case Studies (2025)	Showcases case studies that highlight inclusive practices in STEM instruction in postsecondary settings.	Link
Inside Higher Ed	Why Students Drop Out: Finances & Wellness	Identifies financial challenges, mental health and lack of motivation as top reasons students consider leaving college Inside Higher Ed.	Link
Institute of Education Sciences (IES)	Assessing Alignment Between West Virginia's High School CTE Programs and Workforce Needs	Evaluates how well West Virginia's high school CTE programs align with state labor market demands.	Link
Ithaka S+R	Removing the Institutional Debt Hurdle – Ohio College Compact	Analyzes strategies Ohio colleges use to address and forgive institutional debt to re-engage stopped-out students.	Link
Jobs for the Future (JFF)	Apprenticeship and Work-Based Learning	Offers insights and tools for expanding apprenticeship and work-based learning pathways to improve workforce readiness.	Link
Jobsohio	Ohio–Anduril Partnership	Announces Anduril's new 5M sq ft Arsenal-1 advanced manufacturing facility bringing 4,000+ jobs and $1B GDP growth to Ohio by 2035.	Link
JSTOR	Research on Counseling and Student Achievement	Reviews foundational studies linking school counseling services to positive academic trajectories.	Link

Organization	Publication	Description	Source
Kaiser Family Foundation (KFF)	State Medicaid Expansion Decisions Status	Maintains an up-to-date map showing which U.	Link
Latino College Dollars	Latino College Dollars Portal	Resource designed to help Latino students find college scholarships and financial aid opportunities.	Link
LED FastStart	Louisiana Wins Again	Highlights Louisiana's successful negotiation of a $5.	Link
Lee College	SRAC Services	Student support resources including academic counseling, retention and success services.	Link
Local Housing Solutions	Expanding Access to Public Transit	Outlines policy strategies for increasing housing access through improved transit infrastructure.	Link
Louisiana Department of Health	SNAP Benefits to Medicaid Enrollment Strategy	Highlights Louisiana's innovative approach to auto-enroll SNAP beneficiaries into Medicaid expansion programs Louisiana Department of Health.	Link
LSU Online	Health and Academic Success Link	Explores how physical and mental health are tied to academic outcomes and retention.	Link
Lumina Foundation	Higher Education Earnings Premium	Examines variations in the earnings premium associated with higher education credentials across demographics.	Link
Lumina Foundation	Degree Qualifications Profile (DQP)	Defines competencies students should demonstrate upon earning associate, bachelor's, or master's degrees.	Link
Lumina Foundation	Employing Postsecondary Data Effectively	Encourages states to prioritize metrics on completion, equity and quality over simple enrollment counts in policymaking.	Link
Lumina Foundation	Trends in College Spending (2003–2013)	Analyzes shifts in public and institutional investments in postsecondary education.	Link
Lumina Foundation	Moments of Insight (2024 Update)	Shares insights and strategies for advancing equity in higher education.	Link
Lumina Foundation	Defining the Part-Time Student (2025 Practices)	Offers best practices for structuring support systems for part-time college students.	Link
Manufacturing USA	Manufacturing Workforce Development Initiatives	Highlights institutes and efforts to build STEM and manufacturing talent pipelines.	Link
MarketBoxx	MarketBoxx Homepage	Organization addressing student access to affordable, healthy food on campus.	Link
Maryland Public Schools	SBHC Information	State page describing similar school-based health services in Maryland.	Link

Organization	Publication	Description	Source
MassLife Sciences Center	Advanced Analytics/ Data Science Internship Challenge	Connects students with life-science analytics internships to build industry-aligned skills.	Link
MDRC	Long-Term Effects of Sectoral Advancement Strategy	Finds significant earnings and employment gains for participants in sector-based training programs.	Link
MDRC	WorkAdvance Program Evaluation	Finds that sector-based job training programs significantly improve employment and earnings outcomes for participants.	Link
MDRC	Sector-Focused Advancement Publications	Collection of studies showing workforce programs aligned with industry needs enhance long-term earnings.	Link
Mentor Collective	The Impact of Peer Mentorship on College Enrollment	Peer mentorship programs reduce "summer melt" by nearly 30%, particularly benefiting first-generation and socioeconomically disadvantaged students.	Link
MHPSalud	Promotoras de Salud Program	Community health worker initiative leveraging peer networks to improve Latino health equity.	Link
MiCollegeAccess	AdviSeMI Initiative	Offers peer advising programs to support Michigan students through their postsecondary access path.	Link
Minnesota DEED	Automation Training Incentive Pilot Program (ATIPP)	A grant supporting businesses to train existing employees on automated manufacturing processes.	Link
Missouri DED	Missouri 'Prepared' to Support Schneider Electric	State readiness to support Schneider Electric's potential Boone County campus with workforce development efforts.	Link
NACE	Internship Position Statement	Defines best practices and ethical standards for U.	Link
National College Attainment Network (NCAN)	NCAN.org	A national network supporting organizations that help students navigate postsecondary pathways and financial aid.	Link
National Equity Atlas	Research	Provides data and analysis to track racial and economic equity indicators across U.	Link
National League of Cities	Communities and Colleges Partnering for Housing	Highlights local-government and college collaborations to address student housing shortages.	Link
National Student Clearinghouse (via College Planner)	First-Year Gateway Course Completion Dashboard	A tool enabling institutions to track student performance in critical gateway courses using Clearinghouse data.	Link

Organization	Publication	Description	Source
National Student Clearinghouse Research Center	Persistence & Retention Report Series	Provides interactive data and analysis on college student persistence and retention rates, including spring and fall continuing-enrollment metrics.	Link
NBER	W19102 – Intergenerational Mobility Study	National Bureau of Economic Research paper examining neighborhood-level influence on intergenerational inequality.	Link
NCAN	Using Data to Lift Completion Rates	Offers guidance on leveraging data to drive higher college completion rates, especially for underrepresented students.	Link
NCAN	Survey Data on FAFSA Completion and Enrollment	Demonstrates how FAFSA completion strongly correlates with higher rates of college enrollment.	Link
NCAN	State Funding Resources	Offers state-level data and analysis on funding policies supporting postsecondary access.	Link
NCAN	Federal-State Partnership Model	Case studies of how federal and state entities collaborate to expand college access.	Link
NCAN	Pell Grant Data Portal	Resources tracking Pell Grant eligibility, usage and funding across states.	Link
NCAN	College Savings Tools	Tools and resources for students and families to save for college responsibly.	Link
NCAN	Need-based Aid Resources	Explains different forms of need-based aid and their role in improving access.	Link
NCAN	Equitable Free College Policy	Toolkit for designing free college eligibility and implementation grounded in equity.	Link
NCAN	Access for Undocumented Students	Highlights policies that expand college access for undocumented learners.	Link
NCAN	Support All Our Students Campaign	Advocacy effort to ensure inclusive aid and policy for students of all backgrounds.	Link
NCAN	Award Letters for Students	Guidance on interpreting and comparing financial aid offer letters.	Link
NCAN	Loan Counseling Tools	Resources to support schools in providing federal student loan counseling.	Link
NCAN	Improve Federal Work-Study	Recommendations to modernize federal work-study for better student participation.	Link
NCAN	AmeriCorps Opportunities	Info about AmeriCorps grants and partnerships to aid student success and service.	Link

Organization	Publication	Description	Source
NCAN	Fix FAFSA Initiative	NCAN campaign aiming to streamline and simplify the FAFSA process for students and families.	Link
NCAN	Universal FAFSA Initiative	Advocates for states and institutions to adopt a single streamlined FAFSA-based application process.	Link
NCAN	FAFSA Data Sharing Resources	Offers frameworks for safely sharing FAFSA completion data across stakeholders to improve outreach.	Link
NCAN	Food Security Resources	Offers tools and guidance to help schools support students and families facing food insecurity.	Link
NCAN	State Policy Priorities	Enumerates NCAN's priorities for state-level policies to boost college completion and equity.	Link
NCBI / Early Education and Development	Self-Regulation and Math Readiness (2018) (Ref R6)	Demonstrates that enhanced self-regulation in children significantly boosts math learning and readiness at school entry.	Link
NCBI / Early Education and Development	Study on Self-Regulation and Academic Readiness (2018)	A comprehensive study establishing that self-regulation skills are a key predictor of academic success in early grades.	Link
NCBI / Pediatrics	Study on Positive Parenting and Self-Regulation (2003) (Ref R30)	Highlights how early positive parenting interventions can improve children's self-regulation, leading to long-term emotional and educational benefits.	Link
NCCP	Child Poverty Policy Paper	Explores the impacts of poverty on child development and outlines policy approaches to support economic stability.	Link
NCES	Digest of Education Statistics (2013-001)	Comprehensive statistical tables covering all levels of education in the U.	Link
NCES	Projections of Education Statistics (2013-002)	Offers projections for student enrollment, graduation rates and education spending through 2023.	Link
NCES	Digest of Education Statistics 2018	Comprehensive data tables on U.	Link
NCES	Why Didn't Students Complete a FAFSA? (NCES 2018-061)	Stats-in-Brief report analyzing factors that prevent high school students from completing college financial aid applications assets.	Link
NCES	NCES Overview	The federal agency responsible for collecting, analyzing and disseminating U.	Link
NCES	Performing financial aid impact analysis	Provides relevant data for educational stakeholders to inform policy and improve access.	Link

Organization	Publication	Description	Source
NCES	National Postsecondary Student Aid Study (NPSAS)	A comprehensive, quadrennial survey analyzing how students and families pay for postsecondary education nces.	Link
NCHH	Proactive Rental Inspection Policy Resource	Resources explaining how proactive rental inspections improve housing conditions and public health.	Link
NCSL	State Broadband Task Forces, Commissions, or Authorities	Lists and analyzes state-level broadband task forces and commissions working to expand internet access.	Link
NCTM	Asking Questions & Promoting Discourse	Guidance on using strategic questioning to foster meaningful mathematical discussions in classrooms.	Link
NDPC/N	Effective Strategies for Dropout Prevention	Identifies 15 proven strategies to reduce dropout rates and support student persistence.	Link
New America	School Funding Equity Factor	Examines how Title I and other federal funding is distributed and its impact on school equity.	Link
New America	CC Support Services Awareness	Reveals that many community college students are unaware of available support services, limiting their impact.	Link
New Mexico HCA	Turquoise Care Program	State-level initiative offering integrated behavioral and physical healthcare in Colorado.	Link
No Kid Hungry	Afterschool Meals Program Resources	Promotes programs that supply nutritious meals to children during afterschool hours.	Link
North Carolina Community Colleges	Updated Advising Framework	Provides updated guidance to strengthen academic advising and student services across the NC community college system.	Link
NPR	HBCU Enrollment for Black Men	Highlights enrollment challenges and opportunities for Black men at HBCUs, with recent trends and stories.	Link
NPR / KSL	TOD Parking and Transit News Coverage	Articles highlighting public debates and local policies on TOD and parking in specific cities.	Link
NSC Research Center	2024 Snapshot Report (SCNC)	Analyzes current trends in student persistence, stop-outs and re-enrollment patterns across U.	Link
NWRC	National Work Readiness Credential (NWRC)	Describes a portable certification intended to signal job readiness across industries.	Link
NYC DYCD	Intern & Earn Program	A city-run opportunity offering paid internships to young residents to build skills and workforce readiness.	Link

Organization	Publication	Description	Source
Opportunity Insights	Social Capital Report	Analyzes community-level data on social capital and its impact on economic mobility.	Link
Opportunity Insights	Research and Data Portal	Provides cutting-edge data tools and research on economic mobility and policy impacts.	Link
Oregon Health Authority	Oregon Health Plan (OHP)	Portal access for Medicaid (OHP) enrollment and coverage details in Oregon.	Link
Pace University	Accessing Food on the NYC Campus	Provides details on campus-based programs and partnerships addressing food insecurity for students in New York City.	Link
PASS Project, USC	Proactive Advising Guide	Outlines a holistic, advisor-initiated approach that supports students' academic and personal success via regular outreach.	Link
Pearson Clinical	Social Skills Improvement System (SSIS)	A standardized tool to assess and improve students' social and emotional competencies.	Link
Pew Research Center	U.S. College Faculty and Student Diversity	Provides data on trends in diversity among college faculty and students across the U.	Link
Pew Research Center	Student Loan Default Consequences	Analyzes how defaulting on student loans inflicts long-term credit and financial harm.	Link
PFR Program	Training Resources	Offers training materials and support for programs focused on family resilience and early learning.	Link
Philadelphia 3.0	Transit-Oriented Development (TOD) Policy Recommendation	Advocates for zoning overlays around transit stations to expand walkable housing and reduce parking requirements.	Link
PN3 Policy	Evidence-Based Home Visiting Programs Resource	A clearinghouse of high-quality research on home visiting interventions that support early child health and development.	Link
Policy Analysis for California Education (PACE)	SEL Practices Brief	Examines evidence-based social and emotional learning practices to improve student engagement and outcomes.	Link
Posse Foundation	Posse Scholars Program	Describes the Posse Foundation's model of group-based college scholarships and leadership training.	Link
Postsecondary Value Commission	Postsecondary Value Commission Final Report	Explores how postsecondary education translates into economic and social value, with equity-focused recommendations.	Link

Organization	Publication	Description	Source
Prairie View A&M University	Dissertation on Advising Models	In-depth academic research exploring the impact of advising frameworks in higher education.	Link
Prenatal-to-3 Policy Impact Center	2022 Perinatal Telehealth Services	Reviews evidence-based telehealth models that improve prenatal and early childhood health outcomes.	Link
Promise Partnership	Promise Partnership Homepage	Supports communities seeking cradle-to-career systems by connecting needs and solutions.	Link
PubMed	College Student Mental Health Meta-Analysis (2023)	Medical study analyzing mental health trends among college students, including prevalence and patterns.	Link
Results for America	Safe & Healthy Housing Strategy	Details community strategies for improving housing safety and stability to support child and family well-being.	Link
Results for America	Housing & Community Development Issue Page	Offers data-driven insights and strategies to address equitable housing and community development.	Link
Results for America	Healthy Home Environment Assessments	Evaluated interventions that examine and improve home environments to reduce asthma triggers and improve health outcomes NCHH+12Economic Mobility Catalog+12NCHH+12New AmericaCritical Care Services Ontario.	Link
Results for America	Housing Rehabilitation Grants & Loans	Catalogs robust programs assisting low-income homeowners with repairs and upgrades.	Link
Results for America	Lead Paint Abatement Programs	Highlights interventions focused on reducing childhood exposure to lead hazards.	Link
Results for America	ParentCorps Program	School and community-based family intervention enhancing early academic and social-emotional outcomes.	Link
RI Kids Count	Getting Ready (2005)	A report highlighting the importance of early childhood education and readiness in Rhode Island.	Link
Sage Journals	Educational Leadership and Student Outcomes	Analyzes how effective leadership contributes to improved student academic and social outcomes.	Link
SAGE Journals	Educational Equity and Outcomes Study	Investigates how educational policies impact equity in learning and attainment.	Link
SAGE Journals	Equity in Academic Policies (2019)	A study in American Sociological Review exploring how education policies affect equity in schooling systems.	Link
San Jose State University	Technology Loaning Program (CSUCCESS)	Describes a program providing technology resources to bridge the digital divide for students.	Link

Organization	Publication	Description	Source
SCHEV (Virginia)	College Students on SNAP Dashboard	Tracks SNAP benefits participation among college students in Virginia.	Link
ScienceDirect	Education and Socioeconomic Mobility	Research article examining links between education access and upward economic mobility.	Link
ScienceDirect	Self-Regulated Learning in Early Grades	Finds that early self-regulation is predictive of long-term academic achievement and mastery.	Link
SciTE	Effects of College Access Program	Research report on the impact of a college access intervention on student outcomes.	Link
Search Institute	Developmental Relationships Framework	Provides research and strategies to build strong, supportive relationships to foster youth success.	Link
Search Institute	Social Capital Assessment and Learning for Equity (SCALE)	Offers tools and surveys to measure students' access to relationships and networks critical for success.	Link
Search Institute	Developmental Relationships Framework	A resource hub offering tools and research to help educators and youth-program leaders foster strong, supportive relationships that promote learning and growth.	Link
Semantics Scholar	Community-Based Civic Measures	Introduces key metrics for assessing civic engagement in community settings.	Link
SETDA (State Educational Technology Directors Association)	Technology Policy & Leadership Support	Builds capacity of state education leaders to drive equitable digital learning through policy, advocacy and innovation.	Link
Smart Growth America	Complete Streets Coalition	Advocates for street design that supports safe access for all users—pedestrians, cyclists, transit riders and drivers.	Link
Smart Growth America	Complete Streets Policy Atlas	Interactive map showcasing U.	Link
SPARQ Tools	Shift-and-Persist Scale	A validated tool measuring students' adaptive resilience in adversity.	Link
SPARQ Tools	General Self-Efficacy Scale (Revised)	Offers a standardized measure to assess individuals' confidence in meeting challenges.	Link
SPARQTools	Growth Mindset Scale	Provides a validated tool to assess growth mindset in individuals and organizations for research and practice.	Link
Springer	Counselor Influence and College Enrollment Decisions	Explores how the quality and availability of school counseling significantly affect students' college choices and enrollment.	Link

Organization	Publication	Description	Source
Springer	Global Patterns in Higher Education	Analyzes international trends in higher education systems, focusing on access, quality and mobility.	Link
SSTI	Measuring Accessibility	Analyzes tools and metrics to assess equitable access to innovation and research infrastructure.	Link
STEM Education Journal	Role of Math Identity on Student Outcomes (2017)	Research examining how students' identification with mathematics influences their performance and persistence in STEM.	Link
StriveTogether	StriveTogether Homepage	A nationwide network using data and collective action to drive cradle-to-career equity initiatives.	Link
Strong Start to Finish	Strong Start to Finish Overview	Serves as a national initiative promoting practices and policies that improve student success in early college courses.	Link
Student Athlete Scholars	Sense of Belonging Programs	Highlights how mentorship and engagement programs for athletes improve retention and success rates.	Link
Student Freedom Initiative	HELPS Program Microgrant	Details a microgrant program empowering high school students to help peers overcome barriers to college access.	Link
Student Freedom Initiative	Broadband Access Initiative	Focuses on improving Internet infrastructure, affordability and access for Minority Serving Institutions and underserved communities.	Link
Student Leadership Network	College Access and Success Programs (CBI)	Describes the structure and outcomes of programs helping first-generation and low-income students access and succeed in college.	Link
Temple University Hope Center	Institutional Basic Needs Taskforce Report	Provides recommendations for addressing students' basic needs to improve academic success and retention.	Link
Territorium	Assessment Services – Heighten	Details services to measure college and career readiness through digital assessments and analytics.	Link
Texas Education Agency (TEA)	Dual Credit Programs	Provides information on Texas dual credit programs that allow high school students to earn college credits.	Link
The Education Trust	The Pell Partnership (2015)	Examines the graduation rate gap between Pell and non-Pell recipients while highlighting variability across institutions NCES Surveys.	Link
The Ithacan	Commentary: Students Need Free Public Transportation	Advocates for free public transportation to help students reduce commuting costs and improve academic access.	Link

Organization	Publication	Description	Source
TICAS	TICAS Homepage	Organization focused on making college affordable and advancing postsecondary equity.	Link
Trellis Strategies	Student Financial Wellness Survey	A research initiative that tracks how financial hardship, basic needs insecurity and well-being impact student success and academic persistence Trellis Strategies.	Link
U.S. Census Bureau	Housing Vacancy Survey (Current)	Provides up-to-date national data on housing vacancies and related trends.	Link
U.S. Census Bureau	Year Built – ACS FAQ	Explains why the year built is collected and how it's used in community and housing research.	Link
U.S. Census Bureau	Current Population Survey (CPS)	A national survey providing employment, income and demographic data, including indicators like health insurance and poverty.	Link
U.S. Census Bureau	Survey of Income and Program Participation (SIPP)	Panel survey analyzing economic well-being, program participation and income trends.	Link
U.S. Census Bureau	P60-238 Report	A report analyzing long-term trends in poverty and income demographics.	Link
U.S. Census Bureau	P20-566 Report	Offers demographic trends with a focus on children and families for policymaking insights.	Link
U.S. Department of Education	Better FAFSA Initiative	Campaign to promote a more student-friendly FAFSA with fewer questions and enhanced support.	Link
U.S. DOL	WIOA Program Overview	Federal portal detailing workforce and apprenticeship programs under the Workforce Innovation and Opportunity Act.	Link
uAspire	uAspire Mission Statement	Nonprofit dedicated to increasing equitable college access by improving student financial aid understanding.	Link
United Way	United Way Homepage	Community-centered nonprofit focusing on education, financial stability and health.	Link
University of North Carolina Charlotte	NILOA Transparency Framework	Provides a framework for colleges to communicate assessment processes and outcomes effectively.	Link
Urban Institute	Effects of the Back on Track Model on College Persistence and Completion	Evaluates the effectiveness of the Back on Track model in supporting college success for students who fell off traditional academic pathways.	Link

Organization	Publication	Description	Source
Urban Institute	Pursuing Housing Justice Tool	Interactive platform exploring the impacts of various housing interventions on equity and access.	Link
Urban Institute	Growing Youth Apprenticeship in Greater DC	Examines the expansion and outcomes of youth apprenticeship programs in the DC area.	Link
Urban Institute	Urban.org Homepage	A leading research organization housing hundreds of reports on social and economic policy.	Link
Urban Institute	Should the Federal Government Fund Short-Term Certificate Programs?	Research report advocating for Pell eligibility for short-term credential programs, noting limitations of current cutoffs Urban Institute+1.	Link
Urban Institute	Getting the Most Out of Short-Term CTE Credentials	Analyzes how field of study and credential provider quality influence debt and earnings Urban Institute.	Link
Urban Institute	TOD and Parking Minimums	Explores how parking minimums constrain transit-oriented development and limit housing accessibility near transit.	Link
Urban Institute	Taxonomy Workforce Topics	Categorized policy research spanning sectors like apprenticeships, CTE, equity, displacement and more.	Link
USDA / ERS	Food Security Survey Tools	Provides survey instruments to measure household food insecurity across populations.	Link
USDA / NIFA	Hunger & Food Security Programs	Lists grants and programs supporting hunger alleviation and food access via federal agricultural funding.	Link
USDA / WIC	WIC Program Information	Describes the mission, services and impact of the WIC nutrition assistance program.	Link
UW-Superior	ACA-101 Health Insurance Marketplace Outreach and Enrollment Toolkit	Offers guidance for colleges to support students in accessing and enrolling in affordable health insurance.	Link
Virginia Department of Taxation	Worker Training Tax Credit	Offers a nonrefundable tax credit up to 35% for employer-provided training for employees or students in manufacturing.	Link
Washington State Health Care Authority	Noncitizens – Apple Health	Describes Washington's health care coverage—medical, dental, vision—for noncitizens, including services under Apple Health programs Inside Higher Ed+3Washington State Health Care Authority+3Louisiana Department of Health+3.	Link
White House	American Jobs Plan - Transportation Focus	Includes funding for transit infrastructure and TOD as part of the broader economic recovery plan.	Link

Organization	Publication	Description	Source
Wichita State University	Counseling Research Report	Presents findings on innovative counseling interventions and their impact on student achievement.	Link
Wired	Genesys Works Employer Partnership	Case study showcasing how employer-student partnerships build professional skills and pipelines for underserved youth.	Link
Year Up	Year Up Programs	Provides workforce development programs connecting young adults to career pathways through training and internships.	Link
Youthprise	MinneKids	Focuses on youth development and leadership programs for marginalized youth in Minnesota.	Link
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
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

Organization	Publication	Description	Source
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
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

Organization	Publication	Description	Source
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
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

Organization	Publication	Description	Source
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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