Prepared for the FUTURE:

Policy recommendations to increase access for students to Pennsylvania's dual enrollment, early college high school, and pre-apprenticeship programs

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Letter from the co-chairs

As co-chairs of the University of Pittsburgh Institute of Politics Workforce Development Committee, we are pleased to present our latest report, *Prepared for the Future*, a report that offers policy recommendations to increase access to and equity in Pennsylvania's dual enrollment, early college high school, and pre-apprenticeships programs.

Our committee commissioned the report with the intent of calling attention to the impressive results that these programs have had nationwide in reducing achievement gaps and encouraging more individuals to pursue and be successful in postsecondary training and credentialing.

As we were preparing this publication for release, the COVID-19 pandemic struck. The closure of both secondary and postsecondary institutions, as well as many employers, has significantly impacted the ability of many dual enrollment and pre-apprenticeship programs to continue. While many states have issued guidance for currently operating programs, challenges persist, including determining how to proceed with enrollment and recruitment for the fall, as well as the continued operation of courses and pre-apprenticeships that require an in-person presence.

For student across our region, the inequities that were present prior to the pandemic will only be exacerbated due to schools' widely different abilities to provide remote instruction. These inequities are likely to grow at an alarming pace as long as schools remain closed and persist for long after they reopen. In addition, access to career exploration opportunities is in short supply, as schools focus primarily on traditional academic subjects and are without resources to meet career standards remotely, and as entire industries remain shuttered or severely limited.

While there are many unknowns, we do know that increasing access to and equity in dual enrollment, early college high school, and pre-apprenticeship programs can help level the playing field, close achievement gaps, and prepare students for the careers of tomorrow, regardless of what the future might bring. Our region has several examples of secondary, postsecondary, and industry partnerships, but while the efforts of individual colleges, high schools, and businesses are laudable, we need to explore the policy and funding opportunities that can move the best partnerships to scale, so that early college and apprenticeship experiences are available to all students. Over the past year, the committee has examined practices that help students achieve postsecondary success and has discovered that dual enrollment, early college high school, and pre-apprenticeship programs demonstrate the potential to provide students with the preparation that they need to pursue a career and, in most cases, continued education and lifelong learning. As a result, within this report are recommendations for action at the state level that would expand existing efforts and allow for the creation of new programs where access is currently limited.

Not without precedent, this report follows a body of work released by the Institute of Politics Workforce Development and Education Committees over the past decade. Each committee has issued a report addressing reform of the career & technical education system. The January 2011 *Governance and Funding Reform for Career and Technical Centers in PA* and the 2017 *Emerging Trends in CTE and Project-based Learning* call for great integration of high school and postsecondary courses of study.

This is an obvious direction, given that the majority of new jobs will require at least a postsecondary credential. The closer we get to a basic education system that reflects the reality that most, if not all, students will need education beyond the 12th grade, the more we will successfully prepare students for the workforce. The 2017 Institute of Politics report, in particular, focused on early college high schools which integrate college course work high school requirements, in some cases allowing students to earn a high school diploma and associate's degree at the same time. The model has been around in one form or another for decades, but the Bill & Melinda Gates Foundation helped to evolve and scale this hybrid secondary/postsecondary approach to workforce preparation through its 2002 Early College High School Initiative. Since 2002, more than 240 early colleges have opened nationwide.

In addition to high schools and postsecondary institutions, the third obvious partner for career readiness is industry. With ever changing technologies in the workplace, K-12 schools and institutions of higher education must forge closer ties to business and be ready to adjust instructional content as workplace skill requirements change. Recent studies by the Allegheny Conference on Community Development, RAND, and Boston Consulting point to recurring disconnects between public school objectives and employment demand. Similarly, industry needs to invest in preparing its workforce, and recent trends in hybrid training programs co-located at educational institutions indicate that they are taking steps to close the gap between school and work.

This publication takes a deeper dive into the policy changes necessary to advance a more accessible, equitable, and integrated secondary/postsecondary/industry system. It also identifies potential partners in this work going forward, even as we navigate the current environment under the threat of COVID-19. In fact, as a result of COVID-19, we cannot afford to lose any more time in ensuring that all of our students have access to programs that will strengthen their ability to pursue a high-priority occupation while developing the skills and resiliency necessary to adapt and adjust to whatever future opportunities are available. Maximizing access to these programs will not only cut costs for students during a financially difficult time, but it will also provide industries with the workforce they need to regroup and recover.

This report is not the end of the committee's efforts; on the heels of this report's release, the committee will be continuing its work by establishing a task force that will dig deeper into the recommendations and provide more specific action steps for stakeholders. We hope this report and the future work of the committee will be useful to policymakers as they continue to take steps to align education and workforce needs, provide for the direction of limited resources, and work to ensure that all students have access to a pathway toward success.

Sincerely,

Jim Denova

Ami Gatts

Background

Southwestern Pennsylvania is fortunate to be home to a diverse array of K-12 schools, postsecondary institutions, and employers, who, in collaboration with the area's rich landscape of nonprofits and foundations, have developed or are in the process of developing programs designed to help students bridge the gap between secondary and postsecondary education and careers.

These efforts are taking place in the midst of a major shift in the nature and future of work in Pennsylvania and beyond that necessitates preparing today's graduates for a lifetime of learning. Employers have jobs that they need to fill, but those seeking employment do not have the skills that employers are looking for. Simultaneously, jobs that have existed for many years that require performance based on a static skill set are disappearing quickly and may not exist in the future.

As policy makers take steps to address these challenges, a few policy options offer evidence-based solutions to help students prepare for the jobs of the future and help employers close critical skills gaps that are negatively impacting Pennsylvania businesses and industry. **Dual enrollment**, **early college high school**, and **pre-apprenticeship** programs have all demonstrated a unique ability to provide students with an experience that prepares them for continued studies, a future career, and, in many cases, both. Dual enrollment can be difficult to define, but, for the purposes of this report, it will be defined as courses that are taken for postsecondary credit during a student's time in high school. Dual enrollment courses differ from AP courses in that there is no test at the end of the course that enables the students to earn credit; they earn the credits simply by passing the class. Concurrent enrollment or dual credit is a subset of dual enrollment that allows the student to earn high school credit and college credit simultaneously.

Dual Enrollment ▪ Any courses that are taken for postsecondary credit while a student is enrolled in high school

Early College High School ▪ a subset of dual enrollment that frequently offers a more structured program that may include a cohort model, a sequence of courses along a path to a degree, and/or supports like counseling or tutoring

Pre-apprenticeship ▪ A program designed to prepare students for a career in a registered apprenticeship through a combination of hands-on training and classroom instruction

Early college high school is another subset of dual enrollment that often provides a more structured set of courses for students that can lead to a both a high school diploma and an associate's degree or up to 60 credits towards any postsecondary degree or credential.[1] The College and Career Readiness and Success Center at American Institutes for Research goes on to say "the ECHS model is known for providing a small learning environment to enhance the student's education experience and is generally structured to provide students the academic and social preparation needed for college and beyond."[2] The data that will be provided later in this report are inclusive of early college high school programs, as well as concurrent enrollment programs, in references to dual enrollment.
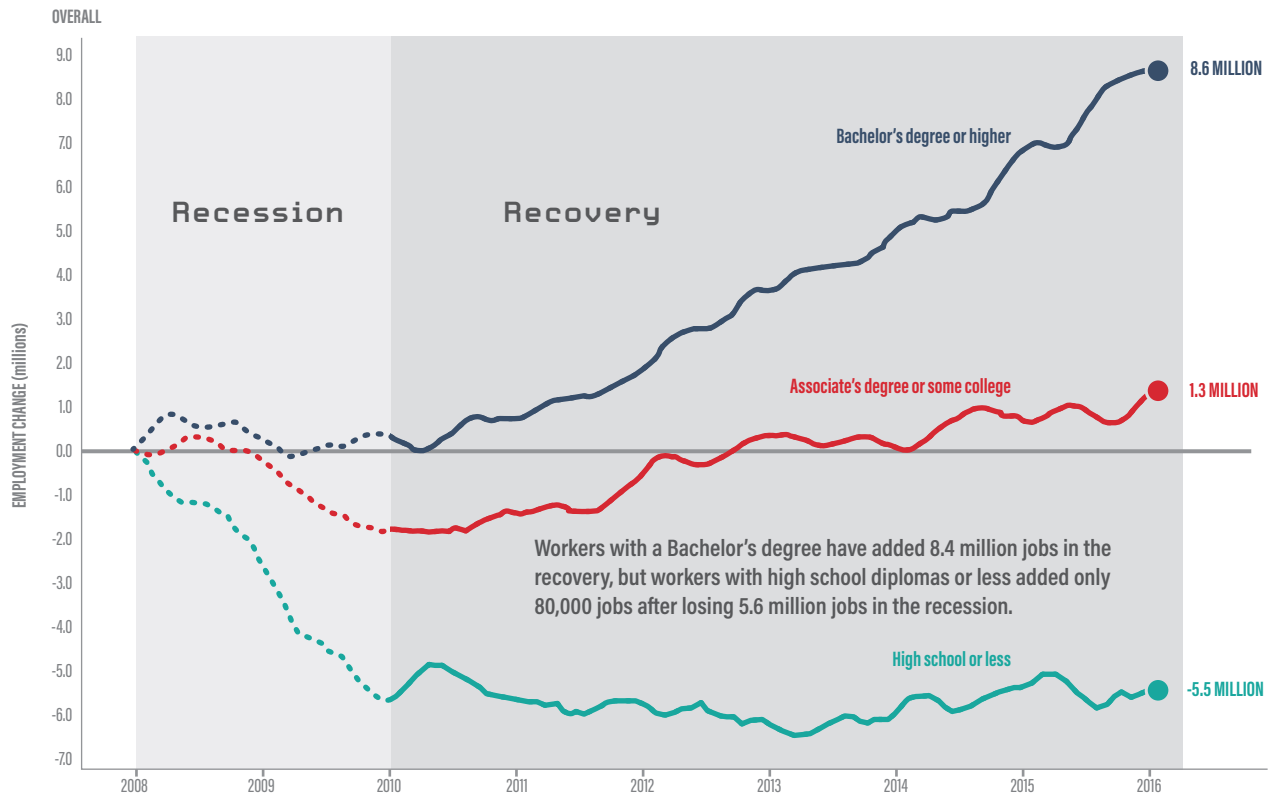
Pre-apprenticeships are defined by the U.S. Department of Labor as "services and programs…designed to prepare individuals to succeed in registered apprenticeship programs. These programs have a documented partnership with at least one registered apprenticeship program sponsor and together they expand the participant's career pathway opportunities with industry-based training coupled with classroom instruction."[3] For purposes of this report, the term pre-apprenticeships will apply specifically to those opportunities available to students in grades 9 through 12.

For a variety of reasons, these programs have historically been underutilized in Pennsylvania. Current dual enrollment opportunities are often not available to those students who would benefit the most from a structured college experience: namely, students from low-income families, students who would be first-generation college attendees, and students who are on the margins in terms of academic eligibility for postsecondary education. Early college high schools, which often target students who might need extra support, are expensive and difficult to run, and therefore only reach a limited number of students. And it is only in the past few years that the commonwealth has begun to give greater attention to providing support for the development of registered pre-apprenticeships, which also involve complex arrangements and serve a limited number of students, based on the opportunities available at the companies that host them.

In recent years, champions for education and workforce development within the region have put forth a number of broad-based bipartisan efforts that have increased access to career and technical education and have led to programming that encourages greater alignment between the business and education sectors. Given this favorable climate, there has never been a more suitable time to cultivate state-level policy concerning dual enrollment, early-college high school, and pre-apprenticeship programs.

A changing landscape

Over the past decade, the nation has witnessed significant changes in the landscape of work. Following the 2008 recession, the economy recovered to full employment levels prior to the COVID-19 pandemic. However, that recovery was markedly uneven. For example, individuals with a high school degree or less lost 74 percent of jobs in the recession but have gained only 1 percent back in today's economy.[4] The chart below provides a more comprehensive picture of the jobs lost and gained since 2008.[5]

OVERALL

EMPLOYMENT CHANGE (millions)

Recession

Recovery

Bachelor's degree or higher — 8.6 MILLION

Associate's degree or some college — 1.3 MILLION

Workers with a Bachelor's degree have added 8.4 million jobs in the recovery, but workers with high school diplomas or less added only 80,000 jobs after losing 5.6 million jobs in the recession.

High school or less — -5.5 MILLION

Source: Georgetown University Center on Education and the Workforce analysis of Current Population Survey (CPS) data, 2007-2016.

Note: Employment numbers include all workers age 18 and older. The monthly employment numbers are seasonally adjusted using the U.S. Census Bureau X-12 procedure and smoothed using a four-month moving average.[6]

In the 2016 Inflection Point report commissioned by the Allegheny Conference on Community Development, findings for the southwestern Pennsylvania region specifically include:

- A projected worker shortage of 80,000 people by 2025,
- The need for continuous learning and frequent upskilling for workers, and
- An inequity in connectivity to the opportunities of the future that needs to be addressed.[7]

Inflection Point's recommendations for action include finding ways to more actively engage the employer community in education and workforce training, allowing them to "shift from being consumers of talent to becoming investors in the labor marketplace."[8] Specifically with regard to equity, the recommendations that are possible to implement immediately include:

- Investing in training and career pathways to upskill existing employees,
- Ensuring that job postings do not have inflated requirements,
- Examining new pathways to employment for those re-entering the workforce or those who are underemployed, and
- Expanding internship opportunities that connect students at the secondary and postsecondary levels with potential future employers.[9]

Additionally, the report identified a shortage of workers in the pipeline who are preparing for the highest-priority occupations. High priority occupations in southwestern Pennsylvania include a variety of highly skilled positions that require a postsecondary degree, such as software developers, engineers, and registered nurses, as well as positions that require short-term or moderate-term on-the-job training, such as construction laborers and maintenance and repair workers. As jobs continue to evolve, more and more positions that previously required a high school diploma only now require some form of postsecondary training, or would require that as a condition of advancement.

> " ... more and more positions that previously required a high school diploma only now require some form of postsecondary training

According to "The Undereducated American," a report produced by the Georgetown University Public Policy Institute's Center on Education and the Workforce, the United States will need an additional 20 million workers with a postsecondary degree by the year 2025.[10] In the manufacturing industry alone, the skills shortage is expected to cost the US $454 billion in lost GDP in the year 2028.[11] Locally, in a 2018 survey of local manufacturers, Catalyst Connection found that many companies are looking to hire new employees, but the talent pipeline in the region is not currently sufficient to fill their needs. 92 percent of the manufacturers who responded to the survey reported that the skilled worker shortage is having a negative impact on their productivity, and 60 percent report that the impact is "significant or critical."[12] In addition, the report notes that "approximately one third of hiring needs are in entry level production, which do not require a degree, but do require basic employability and mechanical skills."[13]

Pennsylvania's Every Student Succeeds Act (ESSA) plan also sets postsecondary attainment goals as a percentage of the commonwealth's total population; by 2025, the commonwealth aims to have 60 percent of Pennsylvanians in possession of a postsecondary degree or credential.[14] Below is a chart showing the anticipated levels of education needed to properly supply Pennsylvania's workforce by 2025.[15] However, these targets do not address the number of postsecondary graduates needed — only the percent of the commonwealth's total population ages 25-64.

Anticipated Levels of Education to Meet Pennsylvania's Workforce Needs by 2025

Level of Education	% of Current Pennsylvania Residents*	% of Residents Needed for 2025 Workforce
Certificate/Associate's Degree	12%	33%
Bachelor's Degree	20%	22%
Master's Degree	12%	11%

Source: Pennsylvania's Every Student Succeeds Act, May 2019, 95.

* ages 25-64

The type of skills prioritized by employers has changed as well; many employers have identified 'soft skills' such as communication and being able to work well in teams as critical to future success. Other employability skills, such as regular attendance, timeliness, and an individual's work ethic, have been identified as critically lacking.[16] Finally, as the risk of automation increases, having human-specific skills such as creativity, emotional intelligence, and flexibility will become increasingly important.[17]

In response to these challenges, a 2017 report from the Partnership for 21st Century Learning (now part of Battelle for Kids) argues that competence for the future should be built around the four Cs: "critical thinking in complex situations, collaboration, communication, and creativity." Dr. Alan Lesgold takes this a step further in his recent work, identifying eight competences that students will need going forward, and that schools will need to be prepared to teach. They include:

- The ability to learn efficiently and quickly,
- Socioemotional skills,
- Skills of civic participation,
- Ability to evaluate information,
- Facility in collaborative activity,
- Management of personal finances,
- Confidence, and
- Physical and mental health.[18]

> " ... in Pittsburgh, less than 10 percent of employers work with the K-12 system to keep educators abreast of their needs.

While recognizing the need for a changing skill set, employers have not always effectively communicated these changes to the education community. A RAND brief entitled "How Educators and Employers Can Align Efforts to Fill Middle-Skills STEM Jobs" acknowledges that while employers still value the "traditional academic knowledge" that institutions of higher education provide, most college-level programs do not include all of the training and skills that employers require.[19] In many cases, systems are in place for "an industrial age economy where postsecondary education is a privilege instead of a prerequisite for economic success."[20]

Employers also need to step up their engagement with K-12 schools, especially in light of Pennsylvania's new career standards. In the recent report "Still Hiring Humans," it is noted that "in Pittsburgh, less than 10 percent of employers work with the K-12 system to keep educators abreast of their needs."[21]

Taken together, these changes in the landscape of work will require policymakers, employers, and educators to work quickly to ensure that no one is left behind. One of the ways in which Pennsylvania can expedite these efforts is by providing additional support to increase access to and equity in dual enrollment, early college high school, and pre-apprenticeship programs.

Opportunities for a Few:
Dual Enrollment and Early College High School

Dual Enrollment

Dual enrollment programs give students who are still enrolled in the K-12 system the opportunity to take postsecondary courses with college professors or high school teachers certified as adjunct professors.[22] Classes are either taken onsite at the high school, or students travel to or take courses online directly through the institution of higher education. These courses can provide motivated students with a challenging academic experience as well as an opportunity to begin earning credits toward a postsecondary certificate or degree. Dual enrollment courses can be taken in addition to a full high school course load, or they can be taken for dual credit, where the students receive both high school and college credit for the same course.

Early College High School

Early College High Schools (ECHSs) are specialized dual enrollment programs that can take different forms. Some offer a specially structured curriculum that give students the opportunity to accumulate college credit in a specific program or subject area, in some cases allowing the student to graduate with a certificate or even an associate's degree along with their high school diploma. In the ECHS model, students replace some of their traditional high school classes with eligible college credit-bearing courses. CHS programs can vary from a small, siloed cohort on a specialized, accelerated path within a typical public high school, to an entire school, operating within its own building, where every enrolled student participates in the programming. ECHS programs may also offer various supports to students, especially those who are underrepresented traditionally in dual enrollment programming.

Pennsylvania's dual enrollment program grant application guidelines from 2006 suggest that the commonwealth's program was originally designed to benefit "the capable, not just the exceptional student," and that "[a] successful local dual enrollment program will increase the rigor of the high school experience for students as well as invite a broader range of students to think of themselves as 'college material'".[23] However, under the current system, which offers no state funding to cover program costs, there is some evidence to indicate that many students, even those who may later go on to college, are not participating in dual enrollment programming at their schools. This is related to a number of factors, including the availability of programming at schools, generally, but also the demographics of the students themselves.

For example, in 2019, the U.S. Department of Education found that 42 percent of students whose parents had earned a bachelor's degree or higher participated in dual enrollment programming, compared to 26 percent of students whose parents had not completed high school.[24]

42% **26%**
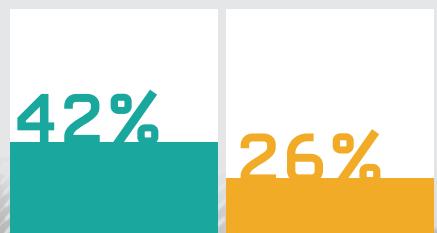
Benefits of Dual Enrollment and ECHS

High school students who participate in dual enrollment programs benefit from:

- A reduction in college costs,
- A smoother transition to the rigor of the postsecondary educational environment,
- Increased academic motivation,
- Higher likelihood of high school graduation and postsecondary matriculation, and
- A greater chance of postsecondary success (i.e. graduation from college).[25]

In addition, students in Pennsylvania who participated in dual enrollment programming reported having a better understanding of how to navigate the postsecondary environment, including program and course selection, as well as more developed time management skills.[26]

ECHS programs are especially beneficial to students from underserved populations who traditionally face various barriers to even attaining a high school diploma, let alone a postsecondary degree. This is often due to the innovative support structures that are provided in structured ECHS programs. A review of research conducted around ECHS shows that such programs "improve student outcomes in high school and postsecondary education," and result in improved outcomes for first-generation postsecondary students, low-income students, English language learners, and students of color.[27] The American Institutes for Research identified benefits of ECHS that are similar to those for dual enrollment and also include:

- An increased likelihood of reaching proficiency on state assessments,
- Increased rigor within coursework,
- Better attendance and fewer suspensions while enrolled in high school, and
- An increased likelihood of earning a postsecondary degree.

One unique aspect of both dual enrollment programs generally and early college high school programs specifically is their propensity to benefit students who 1) might not otherwise be college ready academically, 2) might not be visualizing themselves as on track for college, and/or 3) might be pursuing a career-based path at a career and technical center. With the correct programs and support structure, dual enrollment could provide an opportunity to ensure that these students graduate from high school college and career-ready. The chart below demonstrates effective dual enrollment and pre-college interventions for students who are at different levels academically, and offers a glimpse of some of the support structures that might be effective in enhancing dual enrollment/ECHS coursework.

Dual Enrollment and Pre-College Programs

Student's Academic record	General Education-based Programs	Career-based Programs
Most Academically Advanced	- Dual Enrollment	- CTE Dual Enrollment
Mid-Range	- Developmental coursework via dual enrollment - Dual enrollment with a seminar or concurrent course to provide support - Transition courses	- CTE dual enrollment (less selective) - Career pathways program
Least Academically Advanced	- Student Success or College Ready Program - Summer bridge program - College Readiness Brush-Up Program - On-campus experiences, including tours, clubs, etc.	- On-campus experiences

Source: "Evidence-Based Practices Supporting College and Career Readiness," College & Career Readiness & Success Center, American Institutes for Research, https://ccrscenter.org/products-resources/evidence-based-practices-supporting-college-and-career-readiness-high-school

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Highlight

CCBC's High School Academies

In 2016, the Community College of Beaver County received a Pell Grant waiver from the federal government to participate in a pilot program that would allow Pell funds to pay for tuition and other costs for students attending a dual enrollment program that meets certain early college criteria. As a result of that funding, regional high school students receive an early college experience at CCBC through enrollment in one of five High School Academies.

Students that participate in the program for two years can graduate school with one year of credits toward one of the following programs:

- Aviation
- Health
- STEM
- Criminal Justice
- Construction (in partnership with Mascaro Construction)

Current status of Dual Enrollment/ECHS in Pennsylvania

The Public School Code in Pennsylvania permits high schools to form partnerships with institutions of higher education in order to create dual credit* programs for their students. Employees of the institution are required to obtain the necessary clearances in order to work with students under the age of 18 in Pennsylvania. Institutions that partner with secondary schools for dual enrollment purposes must be accredited by an authority recognized by the U.S. Department of Education, when the program is being delivered in the high school.[29]

Public school students in grades 11 and 12 also have the option to enroll in college courses at a local institution. These institutions can include public or private two- and four-year colleges and universities. Interested students must meet the entrance requirements for the postsecondary institution and may earn no more than 24 credits per school year.† Courses may be taught at either the high school or the postsecondary institution.[30]

The agreements made between a school district and postsecondary institution must describe why the courses offered for dual enrollment are chosen, and that the courses are identical to the equivalent offered when high school students are not enrolled. A teacher in the school district who meets all the postsecondary institution's qualifications for an adjunct faculty member may teach a dual enrollment course onsite at the secondary school. While public postsecondary institutions are not required to accept the students' credits for transfer, they are not allowed to refuse them specifically because they were earned via a dual enrollment program.[31]

Charter schools are unable to form such partnerships with higher education institutions due to limitations in the Charter School Law. Charter students still have the ability to earn college credit independently, but are responsible for all expenses and unable to count the credits toward their high school credit requirements.[32]

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* *Pennsylvania refers to any programs that award students high school and postsecondary credits for the same course as "dual credit". This includes both dual enrollment and early college programming.*

† *24 P.S. Sections 16-1615-B(e)*

Pitt-Assisted Communities and Schools Justice Scholars

In conjunction with the University of Pittsburgh College in High School program, which trains high school teachers to offer one or more college-level courses within a high school, the Justice Scholars program offers students at Pittsburgh Public Schools' Westinghouse Academy a "college-oriented" experience. The goals of the program are as follows:

- **Educate** students about the concept of educational opportunity as a *social justice* priority
- **Enhance** students' *writing skills* through a cross-content literacy focus
- **Enrich** students' educational prospects by providing a framework for academic achievement and skills for *college success*
- **Equip** students with tools to become change agents in their school, community, and the broader world through *project-based action research*[33]

For students in grades 9 and 10, this involves participating in workshops designed to begin to prepare them for what to expect in college. Also, they will engage in community service activities and be assigned a college mentor. In grades 11 and 12, students will continue to receive supports and take college-level courses offered at Westinghouse through Pitt's College in High Schools program: U.S. History (11th grade), Introduction to Social Justice (12th grade), and Argument (12th grade).[34]

Current and Historical Data

Nationwide

Overall, participation in and access to dual enrollment is increasing over time. In a 2013 report by the National Center for Education Statistics (NCES), 96 percent of two-year institutions, 75 percent of public four-year institutions and 35 percent of private nonprofit four-year institutions reported having students who were enrolled in K-12 schools at the time of their attendance at the institution. Across all institution types, NCES reported 1,227,100 students participating in dual enrollment programs in the US in 2013.

State interest in dual enrollment policies has also been increasing in recent years. Since 2017, 35 states plus the District of Columbia have taken some type of legislative action in relation to dual enrollment and/or early college high school programming. The states that have taken action are highlighted in the map below. Please note that this map represents legislative action only and does not include regulatory actions taken in relation to dual enrollment. For a comprehensive list of the states and the legislation enacted, please see Appendix A.

| # of State Policies | 5+ | 4 | 3 | 2 | 1 | 0 |
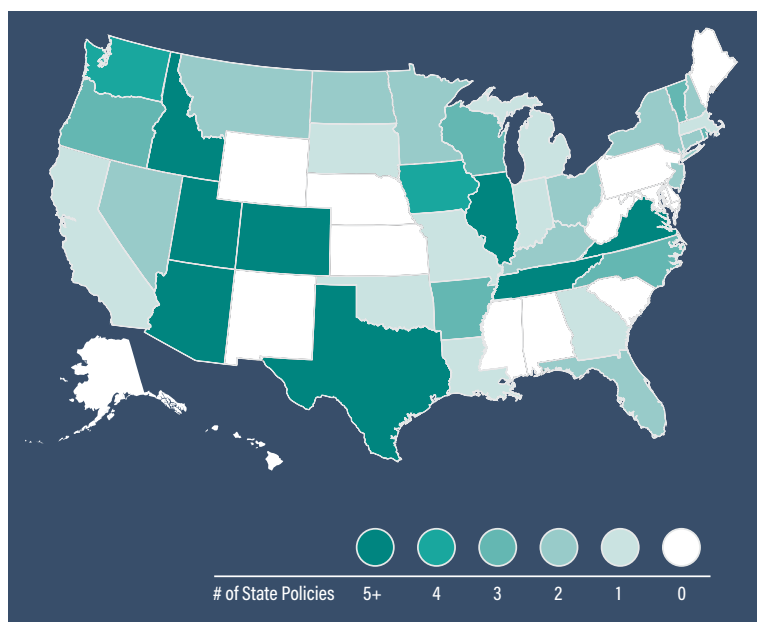
Source: State Education Policy Tracking, Education Commission of the States
https://www.ecs.org/state-education-policy-tracking/

In spite of increasing enrollment, racial/ethnic disparities continue to be a concern. An October 2019 study examined data on dual enrollment participation by race/ethnicity across all 50 states and found significant gaps in enrollment for Black students and Hispanic students. In comparison to other states, Pennsylvania's gap was the 15th smallest in the nation for Black students and the 14th smallest for Hispanic students.[35]

CollegeCredit PLUS

Ohio's College Credit Plus

In order to envision Pennsylvania's future with a more robust and equitable dual enrollment/early college high school program, one need only to look west to Ohio, where the creation of its College Credit Plus program has resulted in significant increases in participation rates in dual enrollment programming throughout the state. Prior to 2015, only 5 percent of Ohio's 9th through 12th graders participated in dual enrollment. In response to a legislative request contained in the 2013-2014 budget (H.B. 59), the Chancellor of Ohio's Board of Regents worked with stakeholders in higher education and K-12 schools to craft a plan for the creation of College Credit Plus.

The new program established a statewide system for dual enrollment that would create "equitable pathways for qualified high school students across all demographic populations" and "a collaborative culture between K-12 and higher education."[36] The system is comprehensive in that:

- All public schools and public higher education institutions across the state are required to participate.

- The program is open to students in grades 7 – 12 who are admitted into the college program of their choosing.

- Dual enrollment options include structured 15- or 30-credit pathways, college in high school programs, or courses that students choose to take independently.

In its third year of implementation (2018), student participation in College Credit Plus had more than doubled, with 12 percent of the total population of students in grades 9 through 12 enrolled.[37] Other notable accomplishments of the program include:

- Enabling a growing percentage of economically disadvantaged students to participate (*from 14.3 percent of the total CCP group in 2015-2016 to 21.8 percent of the total CCP group in 2017-2018*),

- Providing students and their families with a total cost savings of $416,510,367 over three years,

- Ensuring students who enrolled in college remained in college past their first year (83.05 percent of students registered for their second year), and

- Offering over 2,400 students the opportunity to earn an associate degree while still in high school.

Pennsylvania

In Pennsylvania, all community colleges, state system universities, and state-related universities offer some form of dual enrollment programming. Private colleges, universities, and technical schools are also eligible to craft dual enrollment agreements with secondary schools, and many do. However, the programs at each institution have different parameters, making it difficult for both students and K-12 schools to navigate the system.

In the 2005-2006 budget, for the first time in Pennsylvania, a line item was created specifically to fund dual enrollment programming and funded in the amount of $5 million. The Pennsylvania Department of Education released guidelines that provided for the distribution of funding through grants to school districts. The purpose of the grants was to defray the costs (tuition, books, transportation provided by the school entity, and other fees) of participating in a dual enrollment program. While basic grants covered most of the students' expenses, supplemental grants were provided to school districts for qualified low-income students to cover the entirety of those students' tuition, books, and fees.

The chart below shows funding over the history of the line item. State funding for dual enrollment was provided until 2011-2012, when the line item was removed from the budget. Currently, Pennsylvania is one of only four states that do not have a statewide dual enrollment program. The chart also details dual credit/dual enrollment participation in Pennsylvania over the past 10 years. Both student enrollment and school participation has increased at a relatively even pace over the past decade, except for the years immediately following the removal of the dual enrollment line item from the state budget (2011-2012 and 2012-2013). Although specific data on the reasons for the increased interest among students and schools are not available, the numbers may reflect both the level of interest among students and school leaders and the successful development of agreements between school districts and institutions of higher education as awareness of the opportunity grew.

PA Dual Enrollment: Funding and Enrollment History[38]

Year	Budgeted Funding	Schools Offering Dual Enrollment[1]	# of Students participating[2]	Discreet Enrollments[3]
2005-06	$5,000,000	data not available		
2006-07	$8,000,000	data not available		
2007-08	$10,000,000	data not available		
2008-09	$10,000,000	data not available		
2009-10	$8,000,000	242	14,407	24,306
2010-11	$6,959,000	241	15,156	25,646
2011-12	$0	227	13,883	23,908
2012-13	$0	240	14,749	25,773
2013-14	$0	299	18,365	31,522
2014-15	$0	310	22,320	38,586
2015-16	$0	344	26,018*	44,279
2016-17	$0	374	29,948	53,264
2017-18	$0	391	34,166	59,673
2018-19	$0	436	37,662	66,472

[1] School in which at least one student is enrolled in a course reported as a dual credit course

[2] Distinct students enrolled in one or more dual credit courses. A student is counted only once regardless of the number of courses in which the student is enrolled.

[3] Student enrollments in dual credit courses. A student is counted once for each course in which the student is enrolled.

* The Commonwealth's 2015-2016 figure is different from total student participation figure cited in next section on race and gender, where the data were taken from the National Civil Rights Database housed within the U.S. Department of Education.

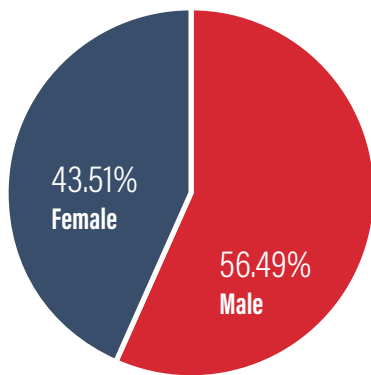*Source: PA Department of Education and PA Budgets, 2005-2018)*

Pennsylvania

The demographic composition of students participating in dual enrollment in Pennsylvania shows a divide by gender and race. In 2015-2016, female students comprised 56.49 percent of total participants (25,327, according to the national data). In addition, the number of white females participating in dual enrollment programming surpassed the total number of males of any race who participated.

Dual Enrollment Participation

By Gender
2015-2016

43.51% **Female**

56.49% **Male**

Source: Civil Rights Data Collection, U.S. Department of Education

By Race
2015-2016

Race	Count
Two or More Races	353
White	22,010
Black	1,062
Hispanic	978
Asian	853
Hawaiian/Pacific Islander	31
American Indian/Alaskan	30

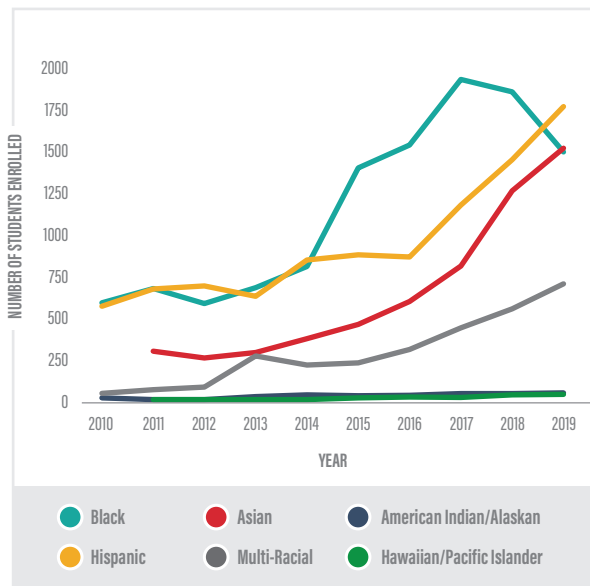**25,327 Total Enrollment**
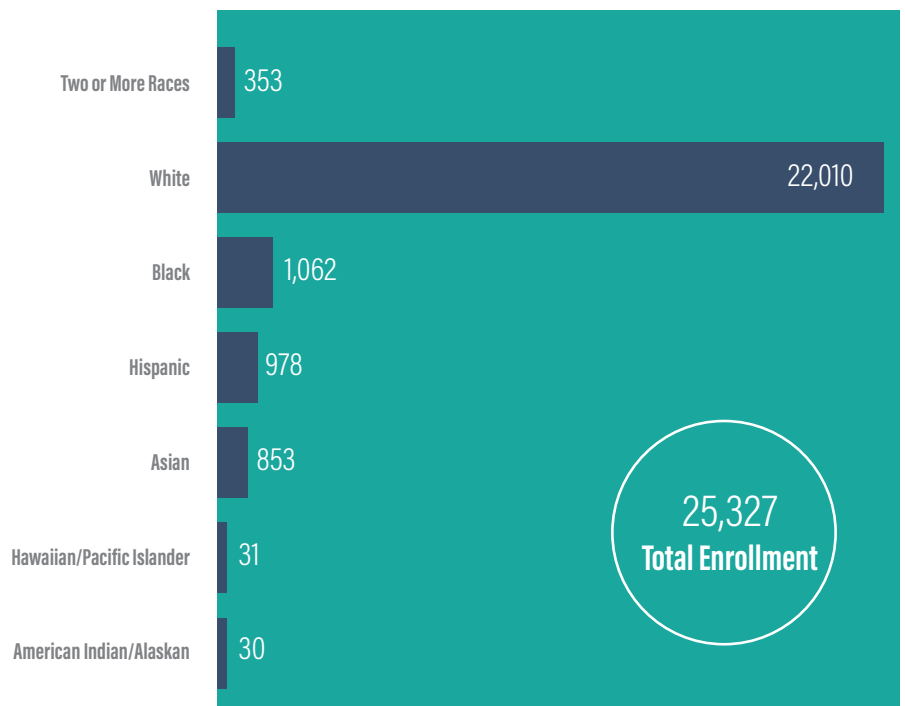
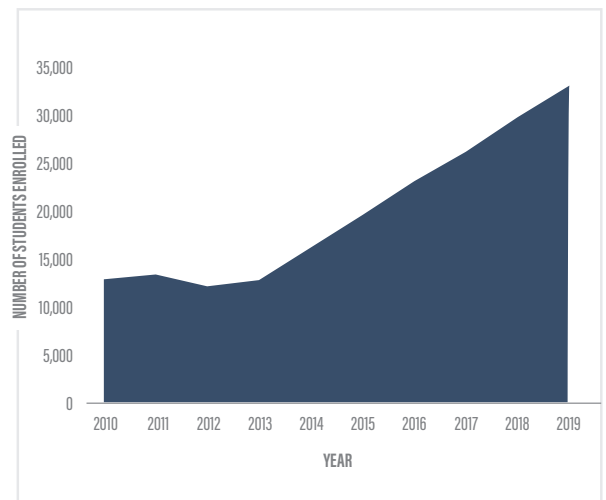*Source: Civil Rights Data Collection, U.S. Department of Education*

The data from both the U.S. Civil Rights Data Collection and the PA Department of Education show a gap in participation of students of color in dual enrollment programming. For example, in 2015-2016, white students are overrepresented (76.0 percent of the total student body, but 86.9 percent of dual enrollment participants). However, black students comprise just 4.2 percent of the students who participated in dual enrollment programming in 2015-2016, although they comprise 10.9 percent of the total student body in Pennsylvania for that year. Further research would need to be done to determine if the schools that offer dual enrollment programming are less diverse than the schools that don't participate, and if there were other factors or barriers to entry contributing to the racial gap.

Dual Enrollment by Race over Time

Non-White Students

Legend:
- Black
- Asian
- American Indian/Alaskan
- Hispanic
- Multi-Racial
- Hawaiian/Pacific Islander

White Students

Source: PA Department of Education

The chart to the right displays dual enrollment participation rates for economically disadvantaged students compared to rates for students who do not fall into that category. Both groups demonstrated growth over the past decade; however, the growth rate for non-economically disadvantaged students is markedly higher than the growth rate for students facing economic disadvantages.

Dual Enrollment Rates

Based on Economic Status over Time

Legend:
- Non Economically Disadvantaged
- Economically Disadvantaged
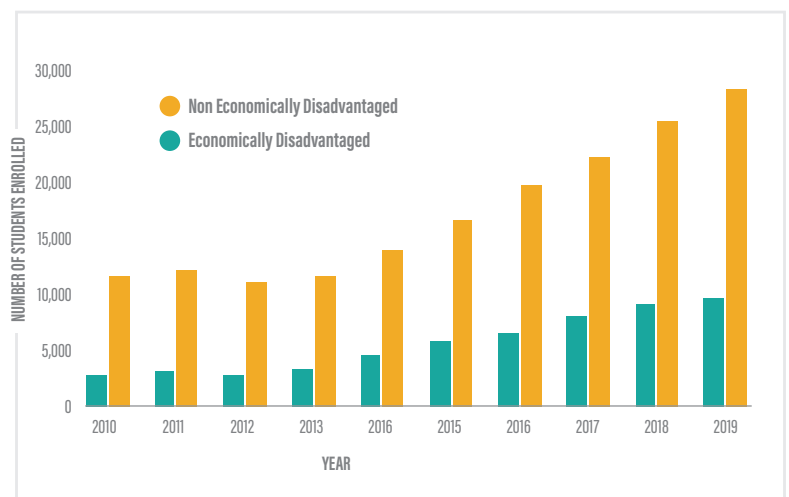
Source: PA Department of Education

The table below shows the ten schools in Pennsylvania that had the highest dual enrollment participation rates in 2015-2016. Eight out of the ten schools are located in Western Pennsylvania, and the percentage of economically disadvantaged students at each school ranges from 27.3 percent to 54 percent. The percentage of racial diversity in the schools listed ranges from a high of 18.19 percent to a low of 1.95 percent. More information about the racial composition of each of these schools is available in Appendix D. Determining what has enabled these schools to provide this opportunity for students and encourage such a high rate of participation should be the subject of future research. The geography of dual enrollment participation should also be marked for future study. For a geographic distribution of the schools that offered dual enrollment programming in 2015-2016, please visit Appendix C.

Early Adopters: Schools with the Highest Percentage of Students Participating in Dual Enrollment (DE)

2015-2016*

School	Total # of students	# of students participating in dual enrollment	% of student body participating in dual enrollment	Economically disadvantaged students as a percent of total**	Nonwhite students as a percent of total
LIGONIER VALLEY HS	519	352	67.82%	27.30%	2.12%
RICHLAND HS	797	440	55.21%	29.70%	6.90%
GREATER LATROBE SHS	1003	551	54.94%	31.80%	4.79%
AMBRIDGE AREA HS	852	458	53.76%	45%	18.19%
UPPER PERKIOMEN HS	915	387	42.30%	30.90%	9.07%
BELLE VERNON AREA HS	751	312	41.54%	37.50%	7.19%
CENTRAL CAMBRIA HS	579	235	40.59%	32.40%	2.94%
BRANDYWINE HEIGHTS HS	530	213	40.19%	31.60%	5.85%
CLAYSBURG-KIMMEL HS	411	161	39.17%	54%	1.95%
CHARTIERS VALLEY HS	1079	416	38.55%	30.70%	12.05%

* More recent data on dual enrollment participation rates for high schools in Pennsylvania are available through the Future Ready PA Index, available at futureadypa.org. However, demographic information for the participating students is not currently available through that site.

**The percent of students who are considered economically disadvantaged in the district equals the number of students identified as economically disadvantaged in the school or district divided by total school or district enrollment. It is at the discretion of the District to determine if a student is economically disadvantaged. Poverty data sources that may be used include the following; Temporary Assistance for Needy Families cases, census poor, Medicaid, children living in institutions that are neglected or delinquent, those supported in foster homes or free/reduced price lunch eligibility. Source: Pennsylvania Department of Education, Pennsylvania Information Management System (PIMS)

It is important to note that neither the Civil Rights Data Collection (U.S. Department of Education) nor the PA Department of Education distinguishes between early college high school programs and other dual enrollment programs in their data collection. Therefore, the dual enrollment programming referenced in the charts in this report would include early college programming but not identify it as such.

One particular disincentive towards school district participation is built into the program guidelines in Pennsylvania. According to the commonwealth's Dual Enrollment Toolkit, released in December 2016, K-12 schools are required to pay for each student's tuition, fees, and textbooks for dual enrollment programming in order to count them toward their average daily membership, which is used to calculate the district's basic education subsidy.[39] This is in accordance with Pa. Code Title 22 Section 11.5(b). As a result, in order for secondary schools to offer dual enrollment opportunities for their students, they must either find room in their budget to cover these costs or come up with creative solutions to charge fees to students for this programming.

Highlight · The SOAR Program

The SOAR (Students Occupationally and Academically Ready) program offers students in certain career and technical education programs in Pennsylvania the opportunity to earn postsecondary credentials alongside their high school degree. Through a statewide articulation agreement with institutions of higher education (both in-state and out-of-state), the SOAR program works within existing CTCs and CTE programs at high schools to allow competencies mastered in high school to translate into postsecondary credits.

To do this, CTE programs of study are approved by the commonwealth. In order to be approved, programs of study must include a career pathway to High Priority Occupations as identified by the Pennsylvania Department of Labor and Industry, the integration of appropriate academic standards, industry-recognized credentials, and end-of-program assessments.[40] As of 2015, there were over 1500 programs approved for CTE study generally, and 403 articulations between programs at the secondary and the postsecondary levels had been established.[41]

Pre-apprenticeships

Dual enrollment and early college high school programs provide opportunities for students who are intent on pursuing a college degree, but another alternative open to students is a pre-apprenticeship. The high cost of obtaining a college degree, combined with the impending baby boomer retirement and subsequent anticipated spike in employment for skilled workers, has resulted in a surge of interest in apprenticeship programs as a viable alternative or supplement to early college and/or dual enrollment opportunities.[42]

Pre-apprenticeships provide exposure to skills and careers prior to students' choosing a particular pathway upon graduation, thus giving them an opportunity to determine a fit for themselves before making a commitment to a more structured college degree program or registered apprenticeship. In addition, pre-apprenticeships offer employers the opportunity to identify candidates early on who might be a good fit for their companies, without the obligation to hire that comes with registered apprenticeships.

While an apprenticeship is a paid training program that provides participants with the opportunity to become skilled in a specific area of work, a pre-apprenticeship combines classroom education with on-the-job training to allow individuals gain familiarity with a particular industry or occupation. It can also include college-level courses, similar to dual enrollment programs. Pre-apprenticeships are often available to adults, but many provide opportunities for students who are still in high school. The recommendations contained in this report address only pre-apprenticeships that are available to K-12 students.

Unlike apprentices, pre-apprentices do not need to be formally employed, but their sponsor must be associated with a registered apprenticeship program. Their curriculum must be aligned with that of the registered program as well.[43] Pre-apprenticeships can also offer enhanced academic instruction through coursework that, upon completion, allows students to earn credits toward industry credentials or toward college degree-granting programs, thereby combining technical skills with academic mastery in one program. Programs can also be combined with early college high schools.

While there are numerous benefits to pre-apprenticeships for both employers and students, many of which are outlined below, there are also challenges. For employers to establish programming, they need to find multiple partners, including but not limited to one or more high schools that would provide the students; one or more postsecondary institutions to provide academic content; and potentially one or more workforce organizations, such as a workforce development board, to provide funding or other assistance. To organize a program with these disparate components is time-intensive, which is why many pre-apprenticeships are coordinated by an outside organization.

In addition, similar to early college high schools, pre-apprenticeships, by their nature, only permit a limited number of students to participate. In part because the programs are often very specific in terms of occupation, it can be difficult to attract more than a few students from each participating school. Also, because of the intensity of the program, it can be difficult for all but the largest employers to train large numbers of students at once.

Benefits of Pre-apprenticeships

The intention of a pre-apprenticeship is to give participants the opportunity to develop employability and technical skills in addition to the knowledge gained through traditional coursework. As a result, it can prepare students either to enter a regular apprenticeship upon graduation or pursue postsecondary education. Unlike an apprenticeship program, pre-apprenticeships do not guarantee a job placement upon completion of the program; however, they do offer the participants the opportunity to explore potential careers, build familiarity with employers, and visualize pathways to meaningful employment.[44] They also are connected to postsecondary educational opportunities at community colleges and/or technical schools.

Benefits to employers include the creation of a locally-based talent pool from which to select entry-level employees and a pipeline of qualified candidates for existing registered apprenticeship programs.[45] In addition, with proper recruitment strategies and support structures in place, pre-apprenticeship programs can be a useful tool in driving more nontraditional students into careers where those populations are underrepresented.

Highlight

PENN UNITED
TECHNOLOGIES INC.
EMPLOYEE OWNED

Penn United Technologies Pre-Apprenticeship Program

For the past two years, Penn United Technologies has worked with Butler County Community College, Butler Area High School, and several other high schools in the surrounding area to offer a CNC Operator — Milling and Turning Machinist pre-apprenticeship program to students. The program will allow students to earn up to two NIMS (National Institute for Metalworking Skills) and up to three NTMA (National Tooling & Machining Association) credentials. Students who complete the pre-apprenticeship can then go on to the community college to complete the Basic Manufacturing Workplace Certificate. Eight Butler Area High School students completed the program in 2018-2019, and 18 have enrolled for the 2019-2020 school year. The pre-apprenticeship program has been underwritten by the local workforce development board (Tri-County Workforce Investment Board).

Current Status of Pre-apprenticeships in Pennsylvania

The Pennsylvania Department of Labor and Industry offers technical assistance and sponsorship for employers and partners who are seeking to create a formalized pre-apprenticeship program in Pennsylvania. As of January 2019, there were 14 pre-apprenticeship programs registered in Pennsylvania.[46] Approximately two-thirds of the active pre-apprenticeships in Pennsylvania are affiliated with the manufacturing and/or construction industries; fewer (less than a quarter) are affiliated with the maintenance, healthcare and hospitality industries.[47]

Pre-apprenticeships in Pennsylvania must be affiliated with a sponsoring entity; these can include:

- Industry organizations
- Individual manufacturers
- Colleges
- Union/trade associations
- Nonprofit community-based organizations
- Career and technical centers (CTCs)[48]

As part of the efforts of the Wolf administration to expand apprenticeships, the Pennsylvania Workforce Development Board commissioned the Keystone Research Center to take inventory of pre-apprenticeship programs in the commonwealth. The resulting report, released in January 2019, highlighted the types of pre-apprenticeships, classified as both registered and not-yet-registered, that are available.

Funding sources for pre-apprenticeships vary, but frequently partnerships are formed through postsecondary institutions or training providers, businesses, and high schools. Those partnerships can be funded through grants, and, in some instances, Workforce Investment and Opportunity Act (WIOA) funding can also be used.

CCAC Health Careers Academy

Sponsors of registered pre-apprenticeships in Western Pennsylvania and their partner schools are listed below. Most sponsors work with more than one high school, and many partner with other organizations as well.
(Note: RA indicates the registered apprenticeship sponsor)

Butler County Community College
(RA sponsor: Penn United Technologies)
- Mercer County Career Center
- Lawrence County Career and Technical Center

Energy Innovation Center Institute
(RA sponsor: Allegheny Care Building Trade Unions)
- No specific schools listed

German American Chamber of Commerce, Pittsburgh Chapter
(RA sponsor: Mechatronics Technician/Process Mechanic in Polymer)
- Washington School District
- Riverside High School
- Nazareth Prep
- California High School
- Western Area Career & Technology Center
- South Fayette School District
- Ambridge Area High School
- Trinity High School
- Westmoreland CTC
- Belle Vernon School District
- Greensburg Salem School District
- West Allegheny School District
- Quaker Valley School District
- Montour School District

Goodwill of Southwestern Pennsylvania
- (no schools listed)

New Century Careers
(RA sponsor: New Century Careers and Pittsburgh Chapter NTMA)
- Agora Cyber School
- Allegheny Intermediate Unit
- Armstrong School District
- Avonworth School District
- Arlington School - Pittsburgh
- Baldwin High School
- Beth Center
- Brashear - Pittsburgh City
- Brentwood High School
- Butler Area and Butler CTC
- Carlynton
- Canon McMillan
- Central Valley
- City Charter School
- Char Houston
- Char Valley
- Clairton
- East Allegheny
- Elizabeth Forward
- Fox Chapel School District
- Frazier
- Friendship Academy
- Hempfield
- Holy Family Institute
- Intermediate Unit 1
- Jeanette
- McKeesport
- Moon Area
- Mount Pleasant High School
- Northgate
- Norwin

- PA Distance Learning Charter School
- Pine Richland
- Pittsburgh Public Schools
- Plum
- Propel School
- Propel School - Andrew Street
- Propel School - Braddock Hills
- Propel School - Montour
- Riverview
- Seneca Valley
- Serra Catholic
- Shaler Area School District
- South Allegheny School District
- South Side Area
- Spectrum Schools
- Steel Valley
- Sto Rox School District
- Washington High School
- West Allegheny School District
- West Greene
- West Mifflin School District
- Woodland Hills School District
- Western PA School for the Deaf
- Yough High School

Oberg Industries
(RA sponsor: Oberg Industries)
- Lenape Technical School
- Butler County Area Vocational Training School
- Northern Westmoreland CTC
- Deer Lakes High School
- Freeport High School
- Highlands High School
- Knoch High School
- Butler County Community College
- New Century Careers
- University of Pittsburgh MAC Center
- Catalyst Connections
- BotsIQ
- CareerLink
- Butler County Manufacturing Consortium

Penn United Technologies, Inc.
(RA Sponsor: Penn United Technologies)
- Butler Area High School
- Center Avenue Community School (Butler School District)
- Knoch High School
- Karns City High School
- Freeport High School
- Slippery Rock High School
- Apollo Ridge High School
- Butler County Community College

Pitt MAC (Manufacturing Assistance Center)
(Multiple RA Sponsors)
- Admiral Peary
- Beaver County CTC
- Brashear HS
- East Westmoreland CTC
- Greene County CTC
- Highlands High School
- North Westmoreland CTC
- South Fayette HS
- Western Area CTC

Policy Actions at the National and State Levels

Responding to these challenges and changes, policymakers at the federal and state levels have taken some actions to strengthen the ties between secondary and postsecondary education and employment. It is with this context in mind that changes to dual enrollment, early college high school, and pre-apprenticeships are proposed in this report.

Federal legislation

The following three pieces of federal legislation have the opportunity to impact students' pathways between secondary and postsecondary education and careers.

Every Student Succeeds Act

In December 2015, the Elementary and Secondary Education Act was reauthorized as the Every Student Succeeds Act (ESSA). According to the U.S. Department of Education, the goal of the ESSA was to update parts of No Child Left Behind to fix what wasn't working for schools, teachers, and parents, and to incorporate additional parameters that would help students leave K-12 education more prepared for postsecondary education and/or careers.[49]

Pennsylvania's ESSA plan, which was approved by the U.S. government in January 2018, specifies that Title IV, Part A funds may be used to support dual or concurrent enrollment programs and/or early college high schools. Importantly, the guidance also permits the use of funds to provide support services to students "who have been identified as low achieving or at risk."[50] (Title IV Part A funds are typically used to support student enrichment for the purpose of increasing academic achievement.) Also, Title II funds (typically used for professional development) may also be used to support educators in obtaining "skills and credentials needed to teach as part of a dual/concurrent enrollment program."[51]

Perkins V

In July 2018, the Carl D. Perkins Career and Technical Education Act of 2006, which provides funding to approved career and technical education programs throughout the U.S., was reauthorized by the federal government. Now known as Perkins V, the legislation required each state to develop a plan for improving CTE offerings by July 2019. Pennsylvania's one-year transition plan, developed by a statewide committee and submitted to the federal government in May 2019, includes provisions for:

- Ensuring that programs of study are aligned with anticipated workforce needs

- Enabling students to earn postsecondary credentials through participation in CTE programming (see description of the SOAR program on page 16), and

- Developing additional articulation agreements between secondary and postsecondary institutions.[52]

Higher Education Act

In early 2019, a number of factors led to a concerted effort to reauthorize the Higher Education Act — broad legislation that governs a wide array of factors covering higher education in the United States. The long-serving chair of the U.S. Senate Committee on Health, Education, Labor, and Pensions (HELP), Lamar Alexander (R-Tennessee), announced that he would be retiring at the end of 2019, which set in motion a series of discussions to attempt to reauthorize the Higher Education Act, the current version of which was passed in 2008 and expired in 2013. The Senate HELP Committee held a hearing on this issue in April 2019, but as of this time it is acknowledged that a reauthorization is unlikely to happen.

State-level executive and legislative initiatives

In February 2019, Governor Wolf announced in his budget address a goal of "Building the Strongest Workforce in the Nation."[53] To support this goal, the administration announced SWEAP (Statewide Workforce, Education, and Accountability Program), a plan to increase investments in education and workforce development; highlights of this program include the creation of the Keystone Economic Development and Workforce Command Center, and a $10 million expansion of the PAsmart program (on top of the original $30 million). In addition, the commonwealth has established a goal of having 60 percent of Pennsylvanians earn a postsecondary degree or credential by 2025.[54]

Keystone Economic Development and Workforce Command Center

On February 19, 2019, Governor Wolf announced the creation of the Keystone Economic Development and Workforce Command Center. The center is comprised of three private sector individuals and three state cabinet members, and will:

- Identify ways to address workforce shortages that negatively affect Pennsylvania's competitiveness,
- Recommend ways to coordinate workforce and economic development programs across state agencies,
- Determine barriers that prevent individuals from participating in the workforce and make recommendations to other departments to help address those barriers,
- Review recommendations from the Auditor General and determine ways to implement those recommendations, and
- Monitor the commonwealth's implementation of the SWEAP proposal.[55]

PAsmart

PAsmart is an initiative that came out of recommendations by the Governor's Middle-Class Task Force.[56] Ultimately, the program aims to train Pennsylvania's workforce for the jobs of the future through computer science and STEM education. To do this, PAsmart invests in both education and training opportunities through two types of grants: targeted grants and advancing grants. Targeted grants ($35,000 or less) are meant to assist educational entities in providing computer
science programming. Advancing grants (up to $500,000 each) support entities with more than 50 students participating in computer science and/or STEM programming. Pre-apprenticeship programs in the commonwealth are eligible to apply for a portion of $7 million, out of the total $30 million in grant funding.

Related legislation

In 2019, as part of a vocalized commitment by the legislature to address workforce development in the commonwealth, a bipartisan group of legislators introduced a package of career and technical education bills. The language of most of these bills was amended into **House Bill 265**, which passed unanimously in both the House and Senate in September 2019 and was subsequently signed into law as Act 76 of 2019. The legislation:

- Requires all schools (K-12 and postsecondary) to submit articulation agreements to the Pennsylvania Department of Education, for the purpose of allowing students to better understand where credits earned will/will not transfer,
- Permits skilled trades, representatives from priority occupations, career and technical schools, community colleges, and institutions of higher education to recruit on school campuses,
- Establishes the Schools-to-Work program to award grants on a competitive basis to support partnerships between schools, employers, and/or organizations to create employment and training pathways,
- Directs the Pennsylvania Department of Education to work with the Department of Labor and Industry to collect information relating to regional workforce needs and disseminate it to students in 4th through 12th grades,
- Requires the Pennsylvania Department of Education to issue guidelines that indicate when it is permissible for a student to apply credits from the completion of a STEM-related course to a program of study offered at a career and technical school,
- Establishes the PAsmart online career resource center for students and parents to find information on: postsecondary and career pathways, CTE opportunities, employment data, articulation agreements, and other relevant career information, and
- Establishes a clearinghouse of career and workforce development opportunities for students statewide.

In the Senate, **Senate Bill 384** would, if passed, offer tax credits to businesses that create programs that offer job training and education in growing industries and that cover the students' cost of the postsecondary credits earned through these programs.

In addition, the 2019-2020 budget included a $10 million increase to career and technical education line items. An additional $7 million was allocated for career and technical education generally, while an additional $3 million was allocated for CTE equipment grants.

Policy Options for Moving Pennsylvania Forward

To enhance the availability of and access to critical programming that would improve the success rate for students transitioning to the workforce, the committee proposes the following recommendations.

1

Improve data collection and reporting at the state level to ensure that Pennsylvania policymakers are able to determine who has access to dual enrollment, early college, and pre-apprenticeship programming, including the race, gender, and socioeconomic status of students participating, how many students per year are participating, and their postsecondary choices following graduation from high school. This will help the commonwealth assess its ability to meet its future workforce targets, as well as ensure that everyone has an opportunity to access quality postsecondary education and pre-apprenticeship programs. As a next step, the commonwealth should consider setting specific targets for participation in and completion of dual enrollment and pre-apprenticeship programs.

North Carolina

North Carolina's College and Career Promise (CCP) program offers dual enrollment and dual credit coursework at community colleges and universities to eligible high school students across the state. Under requirements set by state law, the State Board of Community Colleges, the State Board of Education, and the Board of Governors of the University of North Carolina are required to compile data on CCP and present it annually in a report to the North Carolina General Assembly. The report outlines the history of the CCP program and includes data on, among other things:

- The percentage of students across the state who earned college credit prior to graduating from high school
- Overall program enrollment by gender and ethnicity
- Enrollment numbers in various institutions of higher education
- Post-graduation results[i]

[i] (North Carolina State Board of Community Colleges, State Board of Education, and the Board of Governors of the University of North Carolina 2018)

Texas

Passed in 2019, HB 1638 required collaboration between the Texas Education Agency and the Texas Higher Education Coordinating Board for the development of statewide goals regarding dual enrollment programs, specifically on academic advising, increasing enrollment, student performance and more. Such goals are intended to clarify components and requirements of such programs for school districts and postsecondary institutions in order to maintain program quality.

The established statewide goals for dual enrollment programs address:

1. The implementation of collaborative outreach aimed to inform families of programs, their benefits, and their costs,
2. Assistance to high school students in their transition to postsecondary education,
3. Access to advising and student support services to ensure course completion, and
4. Sufficient quality of dual credit courses in order to continue students' success in future courses.

The goals include specific metrics for purposes of evaluating the effectiveness of the state's efforts.

2

Conduct further research to determine best practices in schools that demonstrate high dual enrollment/early college high school participation. Similarly, identify barriers to access in schools with high rates of poverty or high populations of minority students. Based on the available data, there is a wide variation in participation rates for dual enrollment programming even among schools that offer the programs, and not all schools offer the programs. Further research is necessary to determine the best practices and resources that are allowing schools to achieve relatively high participation rates. Such research may reveal both quantitative and qualitative factors that contribute to the success of these schools, some of which could include funding from outside sources such as grants from foundations or corporations, or school leadership from the administration or the board. Further research would also help policymakers to better understand and subsequently address the factors that contribute to the racial gap in program participation.

Colorado

Colorado's SB 19-176, entitled Expanding Concurrent Enrollment Opportunities, makes several changes to existing laws government dual enrollment policies in the state in order to expand access. These include:

- Requiring all schools to offer dual enrollment opportunities to students
- Prohibiting schools from setting arbitrary limits on the number of dual enrollment courses that students can pursue
- Requiring schools to take additional measures to make students and parents aware of available dual enrollment opportunities
- Providing grant funding to local schools to enable them to begin or expand existing opportunities

Ohio

SB 299 of 2018 established the OhioCorps College Pathway Pilot Program, which provides supports to targeted groups of at-risk youth to enable them to pursue postsecondary education and career opportunities. Briefly, the legislation establishes and funds mentorship programs for at-risk middle and high school students (including those from low socio-economic backgrounds and those who have been impacted by opioid addiction and/or abuse) to help them pursue a pathway to college readiness. The mentorship programs will be administered by eligible institutions of higher education and will also provide scholarship funds to the at-risk students once they graduate from high school.

3 **Examine new funding mechanisms that would support schools' expansion of and participation in dual enrollment programs.** Such mechanisms could be built upon Pennsylvania's previously existing method for distributing funds to schools for dual enrollment, or a new method could be devised using the systems developed more recently by other states as models. Special consideration should be given to models that will increase access for students who may be less likely to pursue postsecondary education or training in the absence of this opportunity. Additional funding, along with recruitment and retention efforts aimed at disadvantaged students will support the Commonwealth's postsecondary education attainment goals.

Kentucky

In 2017, the Kentucky General Assembly passed HB 206, which created a new section in already existing KRS 164 to establish the Dual Credit Scholarship Program and move it under the purview of the Kentucky Higher Education Assistance Agency. HB 206 also created provisions for scholarships to be used for students participating in apprenticeship programs.

In 2019, the scholarship program was expanded further into the Work Ready Kentucky scholarship program through the passage of SB 98. The program continues to offer scholarships to eligible high school students enrolled in courses for dual credit, and also provides scholarships to students post-graduation who are pursuing associate's degrees in high priority occupations. Additionally, the legislation provides for the establishment of a trust fund for the scholarships, and requires annual reports on key program metrics to be issued to the General Assembly.

Montana

In 2019, Montana passed two landmark bills that advanced personalized learning in that state. While the bills increase the flexibility in a number of state requirements that will enable personalized learning to occur more readily, the Advanced Opportunity Act contains specific provisions designed to:

- "accelerate career and college readiness,
- reduce out-of-pockets costs for families, and
- Empower students to actively engage in forming successful postsecondary pathways."[ii]

Program guidelines also offer funding for both college programming and career and technical education while students are in high school, and specify that schools must ensure that all students have equal opportunity to participate in programming.

[ii] Montana Office of Public Instruction, "Advanced Opportunity Act Funding Application," http://opi.mt.gov/Leadership/Academic-Success/Montana-Advanced-Opportunity-Act

4 **Explore ways to incentivize industry and corporate participation in the creation and expansion of pre-apprenticeship programs.** The Pennsylvania Department of Labor and Industry is already working to provide technical assistance and resources to industries through its registered pre-apprenticeship and apprenticeship programs. Other strategies to support their efforts could include: 1) addressing capacity issues for small to medium-sized businesses, 2) expanding existing tax credit programs or creating a new tax credit program to provide financial support toward program start-up costs, and/or 3) creating a new program that focuses on building capacity in certain areas, such as encouraging participation for underrepresented populations or expanding programming in emerging/high-need industries.

Washington

For the purpose of promoting pre-apprenticeship opportunities in the state, the Washington General Assembly passed legislation (HB 2685) in the summer of 2018 that outlined a process for the collection and distribution of information relating to:

- Improving the alignment between relevant college-level technical courses and high school curriculum and graduation requirements, and identifying courses that could be taken for dual credit
- Identifying and removing barriers to high school students' exploration of and participation in registered pre-apprenticeship programs
- Increasing awareness of pre-apprenticeship programs among teachers, counselors, and school administrators

Iowa

HF 2458, passed in 2018, establishes the Future Ready Iowa program, which includes an apprenticeship development program, a volunteer mentoring program, a youth intern program, summer postsecondary courses for high schoolers, an employer innovation fund, and scholarship and grants funds. The apprenticeship program offers financial assistance to apprenticeship mentors ("sponsors") in order to provide work-based learning to students (at least 16 years old) in high-demand fields in Iowa. The volunteer mentor program is intended to support the grant programs and introduce students to certain careers and connections within such fields. The bill also calls for the use of an updated list of high-demand jobs and an annual report of the bill's implemented programs. The youth internships are designed to target low-income, underrepresented students at risk of not graduating from high school. The innovation fund is intended to provide opportunities for education and field training that would otherwise be economically infeasible. The scholarship and grant programs (based on an application process) would be implemented to support students in the affordability of workforce preparedness (internships, apprenticeships, etc.)

Through the implementation of these recommendations, the commonwealth can expect to see an expansion in the availability of skilled workers, as more students will be able to enter and complete certificate, degree, and pre-apprenticeship programs. In addition, by ensuring business involvement through the provision of tax credits, and their involvement in the creation of pre-apprenticeship programs, the commonwealth can anticipate greater alignment between programs and current workforce needs Similarly, more students will have the skills and the preparation necessary to succeed in an economy that will continue to change rapidly.

Next Steps

Process and Partners

In order to arrive at these policy options, the Institute of Politics Workforce Development Policy Committee participated in three meetings over the span of eight months (Sept. 2018 – April 2019). Meetings featured lengthy discussions on existing dual enrollment and early college high school programs at the secondary and postsecondary levels, information about how to fund and structure pre-apprenticeship programs, as well as how to ensure that equity is considered as these programs expand. Additionally, the Institute conducted interviews with a number of community stakeholders involved in early college high schools and pre-apprenticeship programs within the commonwealth.

Throughout this process, the committee members learned that the Institute is not alone in this endeavor. Below are just a few of the regional and statewide organizations who have advanced this issue in the past year.

- The **PA Commission for Community Colleges**, in their 2018 report, recommends that Pennsylvania 'implement a statewide, state-supported, dual enrollment program.'[57] In addition, the report calls for a growth in apprenticeship and pre-apprenticeship programs affiliated with community colleges.

- The **Greater Pittsburgh Chamber of Commerce** continues to make strengthening connections between secondary and postsecondary education and the workforce a priority, in part by advocating for the passage of HB 265 and other CTE-related legislation. More broadly, the **Allegheny Conference on Community Development** has worked with regional partners on a CEO in the Classroom program that helps to establish connections between businesses and K-12 schools.

- The **Consortium for Public Education's Future Ready Partnerships** program facilitates collaboration between educators and employers around work-based experiences, which are an important part of the commonwealth's college and career readiness standards for K-12 students. Also, the Consortium facilitates communication between schools and businesses through events and other structured programming.

- In the summer of 2019, **Allies for Children** released "A Snapshot of Career and Technical Education in Allegheny County". The report offers a number of insights on strengthening CTE in the county, and specifically calls out the importance of increasing opportunities for students to be exposed to business and career opportunities throughout middle and high school.

- In light of the additional questions raised through the research of the report, the **Institute of Politics** will continue to work with to-be-identified partners to further examine the data around equity in and access to dual enrollment programming.

Other Considerations

The focus of this report lies in strengthening existing dual enrollment, early college high school, and pre-apprenticeships in Pennsylvania by increasing funding for these programs through the statewide implementation of tax credits and other supports. However, other changes will need to be made in the system to promote greater equity and access among populations that are underrepresented in postsecondary education and apprenticeship programs currently.

Broadly, these changes may include:

- Actively recruiting diverse candidates

- Examining ways to ensure access to programs across geographical barriers (including in areas with fewer post-secondary educational opportunities), such as increasing the availability of online courses or providing more training opportunities for high school teachers

- Providing extra support services to students who were academically on the margins of being eligible to participate or who may be the first in their families to attend college

At the ground level, this will mean ensuring that secondary and postsecondary institutions have the time and the tools they need to properly administer the program and market it to students who may be facing barriers to pursuing this type of coursework.

Strategies should include:

- Using multiple eligibility criteria instead of a specific cut-off GPA or test score

- Actively reaching out to families and the community to share the opportunities and benefits of participation in dual enrollment

- Providing academic counseling to students who are considering participation.[58]

Also, as dual enrollment, ECHS, and pre-apprenticeship programs develop and become more complex, the state will need to give additional thought to the structure of these programs and how they fit together. The chart on page 12 describes some of the ways that differentiation within and among programs could occur, but other factors need to be taken into consideration as well.

These include:

- Determining how to encourage completion of courses (as opposed to just enrollment),

- Determining how to classify, categorize, and weight the various course offerings, and

- Building out a system of supports that will be present for those who need them.[59]

As these systems become more robust, the Pennsylvania Department of Education and other entities responsible for data will need to ensure that data collection keeps up with the changes, in order to evaluate access to and the success or programs. Both nationally and within the commonwealth, access to accurate and timely data about who is participating in the patchwork of dual enrollment programming that exists is difficult to obtain. As articulated by the College in High School Alliance in a recent report, actions taken by states should include "defining the state's dual enrollment equity goal, and annually collecting, reporting, and analyzing accurate state-level data on dual enrollment access and coursetaking, disaggregated by student and school characteristics."[60]

Conclusion

Dual enrollment, early college high school, and pre-apprenticeship programs can help narrow the skills as well as the equity gap in Pennsylvania, ensuring that our businesses and communities are able to grow and thrive through the development of and investment in the region's graduates. Taken together, the recommendations advanced by this report have the potential to:

- Reach students at the margins who are at risk of not pursuing postsecondary education or of not succeeding once they begin a program

- Provide a more direct pathway for students from secondary education to postsecondary education and careers

- Offer employers a more robust pipeline of talent in order to fill current vacancies and those predicted to be caused by baby boomer retirement

- Grow the region's economy through increased productivity

- Enable the commonwealth to accurately understand who is benefiting from dual enrollment programming, and how the program should be adjusted going forward to ensure access for all.

However, the efforts cannot stop there. In remarks delivered at the AspenBrainLab conference earlier this year, Aspen Institute President Dan Porterfield argued that colleges offer more than just a place for students to build knowledge and skills; rather, it is the mindsets that they help to nurture that are important for students' future success.[61] He states, "Today's shape shifting society can't thrive without people everywhere who can learn fast and often, who can handle disruption and sometimes lead it, and who embrace change in how, where, and with whom they work. In other words, America needs strivers — and thinkers and creators and teammates and mentors. And college campuses...are resourced and organized with a mission of promoting exactly those mindsets..."[62]

It is those mindsets that the commonwealth needs to encourage and advance, not just in students but in all residents. The future of our workforce depends on it.

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Appendix A

Dual Enrollment Policies by State (2017, 18, and 19)[63]

State	Bill No.	Last Action	Title
AR	SB 343	3/13/2019	Concurrent Enrollment Scholarship
	HB 1413	3/12/2019	Concurrent Enrollment Fees
	SB 673	4/10/2017	Concurrent Enrollment Course Costs
AZ	HB 2036	4/30/2019	Dual Enrollment Reporting
	HB 2176	4/17/2019	College Credit by Examination Development Fund
	SB 1346	4/11/2019	Accountability, Assessments, Curriculum & Dual Enrollment
	HB 2663	5/3/2018	Omnibus Budget Bill
	HB 2536	3/29/2018	Dual Enrollment for Homeschooled Students
	HB 2078	4/17/2017	Concurrent Enrollment Program Amendments
	HB 2248	3/21/2017	Joint Technical Education District (JTED) Programs
CA	AB 1809	6/27/2018	Higher Education trailer bill
CO	SB 19/189	6/3/2019	Concurrent Enrollment Advisory Board Extension
	SB 19-176	5/20/2019	Expanding Concurrent Enrollment Opportunities
	SB 18-225	6/6/2018	Early College Amendments
	HB 18-1019	5/29/2018	Measures of College and Career Readiness in School Performance Rating
	HB 18-1005	3/22/2018	Changes to Notification of Concurrent Enrollment Options
	HB 1052	3/22/2019	Concurrent Enrollment-Service Area Rules
	HB 17-1294	5/5/2017	Graduation Rate Calculations
CT	SB 1018	7/12/2019	Validates Use of Certain Grants for Chronically Absent Child Support and Chronic Absenteeism Rate Reduction Efforts
DC	B 22-0776	3/28/2019	Education Research Practice Partnership and Data-Management Audit
FL	HB 7071	6/24/2019	Education Omnibus
	HB 7055	3/12/2018	Education Omnibus Bill
GA	SB 401	7/2/2019	School Counselors, School Safety Requirements and Data Collection for Dual Enrollment Program
IA	SF 603	5/23/2019	Concurrent Enrollment Program Changes and CTE Agreements
	SF 2415	6/1/2018	Appropriations Bill
	SF 475	4/17/2019	Online Education, Concurrent Enrollment and Graduation Requirements
	HF 2458	4/3/2018	Future Ready Iowa Act Financial Aid and Internships
ID	H 672	3/26/2018	APPROPRIATIONS_ OFFICE OF THE STATE BOARD OF EDUCATION
	S 1292	3/15/2018	Scholarship for Dual Credits, Postsecondary Credit-Bearing Examinations and Career Technical Certificate Examinations
	H 287	4/4/2017	Omnibus Education Bill
	S 1029	3/20/2017	Academic or Career Technical for Dual Credit
	S 1030	3/16/2017	Charter and Private School Student Access to Dual Enrollment Program
IL	HB 35	7/26/2019	Grow Your Own and Dual Credit Students
vetoed	HB 4882	11/28/2018	Dual Credit Amendments to Teacher Education Act
	SB 2838	8/23/2018	Dual Credit Program
	SB 2905	8/14/2028	Community College Amendments
	SB 2527	8/10/2028	Removing Dual Enrollment Course and Credit Limits
	HB 2794	8/18/2017	Dual Enrollment Opportunity Notification

State	Bill No.	Last Action	Title
IN	SB 438	5/6/2019	Workplace Specialist License, Evaluation Plan, and Dual Credit Council
KY	SB 98	3/26/2019	Scholarship for Workforce and Dual Enrollment Students
	HB 206	4/10/2017	Dual Credit Scholarship Program
LA	SB 243	6/6/2019	Dual Enrollment Framework Task Force
MI	HB 4735	2/6/2018	Dual Enrollment Out-of-State Institutions
MN	HF 1	5/30/2019	Omnibus Education Finance Bill
	HF 2	5/30/2017	Omnibus Education Finance Bill
vetoed	HF 890	5/12/2017	Omnibus Education Bill
MO	HB 604	7/11/2019	Education Omnibus
MT	HB 387	5/6/2019	Aid to Districts for Advanced Career and College Opportunities
	HB 232	3/13/2017	Dual Enrollment for Advanced Career and College Opportunities
NC	SB 366	8/1/2019	Additional Grade Levels for Academic Transition Pathways
	SB 343	7/26/2019	Diploma Endorsements and Dual Enrollment Program Reporting
	SB 257	6/28/2017	Omnibus Education Bill
ND	SB 2013	5/7/2019	Continuing Education Funding for School Counselor Credential
	SB 2244	4/13/2017	Dual Enrollment Teacher Incentives
NH	SB 276	8/13/2019	relative to career readiness credentials for high school students
	SB 1018	7/12/2017	Establishes Dual and Concurrent Enrollment Program
NJ	S 870	12/17/2018	Dual Enrollment Study Commission
	S02019	7/1/2018	Appropriations Bill
NV	SB 5442	6/5/2017	Omnibus Education Bill
	SN 19	5/14/2017	Dual Enrollment Program requirements
NY	A 2006	4/12/2019	Education Omnibus
	S 1506	4/12/2019	Education Omnibus
OH	HB 166	7/18/2019	Education Omnibus
	SB 299	10/10/2018	OhioCorps College Pathway Pilot Program
OK	SB 1196	5/7/2018	Concurrent Enrollment Program Amendments
OR	HB 2263	6/10/2019	Accelerated College Credit Grant Programs
	HB 4053	4/18/2018	Accelerated College Credit Annual Report
	SB 1522	3/19/2018	Modified Diploma for Students Receiving Special Education Services
RI	HB 6240	7/15/2019	PE Exemption for Dual Enrollment Twelfth Graders
	SB 755	7/15/2019	PE Exemption for Dual Enrollment Twelfth Graders
	SB 863	7/8/2019	CTE and Dual Enrollment Curriculum Alignment with Postsecondary
SD	HB 1099	2/22/2019	Dual Enrollment Credit Revisions
TN	HB 1425	5/29/2019	Tennessee HOP Scholarship Grant Changes
	SB 764	5/29/2019	Tennessee HOP Scholarship Grant Changes
	HB 949	5/1/2019	Dual Enrollment Grants Pilot Program
	SB 805	5/1/2019	Dual Enrollment Grants Pilot Program
	HB 2324	5//8/19	Uniform grading System for Early Postsecondary Courses
	SB 2314	5//8/19	Uniform grading System for Early Postsecondary Courses

State	Bill No.	Last Action	Title
	HB 335	6/1/2019	Dual Enrollment Grants for Students
	SB 585	6/1/2019	Dual Enrollment Grants for Students
TX	HB 1	6/15/2019	General Appropriations Bill
	SB 25	6/14/2019	Junior College Provisions
	SB 502	6/14/2019	Postsecondary Reporting
	HB 3650	6/10/2019	Dual Credit Agreement Requirement
	SB 1324	6/4/2019	Degree Plan Filing for Dual Credit Students
	SB 1276	5/28/2019	Establishes Criteria for Dual Enrollment Agreements
	HB 3	6/12/2019	Public School Finance
	SB 1	6/12/2019	Omnibus Education Bill
	SB 1091	6/12/2019	Limits of Dual Credit Courses
	HB 2937	6/9/2017	Medical Dual Credit Program
	SB 802	5/29/2017	Study Identifying Best Practices in Credit Transfer
	SB 2244	5/27/2017	Pathways in Technology Early College High School Program
	HB 1638	5/23/2017	Statewide Goals for Dual Credit Programs
UT	HB 250	3/25/2019	Advanced Placement/Concurrent Enrollment Fees
	HB 146	3/22/2019	Concurrent Enrollment Eligibility
	HB 291	3/22/2019	Concurrent Enrollment Partnerships
	HB 237	3/22/2019	Eligible Concurrent Enrollment Instructor Amendments
	HB 11	1/24/2018	Digital Teaching and Learning Grant Program and Math Teacher Training Programs
VA	HB 2123	3/18/2019	College and Career Access Pathways Partnerships
	HB 919	4/18/2018	Dual Enrollment, Transfer and Postsecondary Governance Changes
	SB 631	4/18/2018	Dual Enrollment, Transfer and Postsecondary Governance Changes
	HB 3	4/6/2018	Dual Enrollment Course Quality and Transferability
	SB 747	3/30/2018	Guaranteed Admission for Dual Enrollment Associate Degree Earners
	HB 329	3/29/2018	Career and technical education course load and graduation requirements
	HB 1662	3/13/2017	Postsecondary Course Credit Requirements for Dual Enrollment
VT	H 533	6/20/2019	Postsecondary Course Credit Requirements for Dual Enrollment
	H 542	6/18/2019	Budget Bill Including Need-based Stipend for Dual Enrolment and Early College
	H 16	7/1/2018	(Act 11)
WA	HB 2158	5/21/2019	Omnibus Education Bill
	HB 1973	4/29/2019	Dual Enrollment Scholarship Pilot Program
	HB 2685	3/22/2018	Examination of Pre-apprenticeship Opportunities for High School Students
	HB 2686	3/22/2018	High School and Beyond Plans
WI	AB 64	5/8/2018	Education Omnibus Budget Bill
	AB 805	4/17/2018	excluding certain college credit in high school programs from the Early College Credit Program
	SB 711	4/3/2018	Dual Enrollment Credential Grants

### The Educational Improvement Tax Credit Program

The EITC Program has been in existence since 2001. Operated through the Pennsylvania Department of Community and Economic Development, the program provides tax credits to businesses who donate to one or more of three categories of eligible nonprofit organizations: organizations that provide scholarships to K-12 students to enable them to attend a private or parochial school; organizations that provide scholarships to allow students to attend qualified Pre-K programs; and organizations that fund innovative educational programming at qualified public schools across the commonwealth.

EITC tax credit program	Percentage of donation eligible for a tax credit	Maximum tax credit (per year)	Total amount eligible for tax credits in 2019-2020
Scholarship Organization	75% for a one-year commitment; 90% for a two-year commitment	$750,000	$135,000,000
Educational Improvement Organization	75% for a one-year commitment; 90% for a two-year commitment	$750,000	$37,500,000
Pre-Kindergarten Scholarship Organization	100% of first $10,000 (annually); 90% of the remainder	$200,000	$12,500,000
Total across all programs			$185,000,000

Source: Educational Improvement Tax Credit guidelines, PA Department of Community and Economic Development

Appendix C

Location of Schools Offering Dual Enrollment Programming as of 2015-2016 (441 schools)
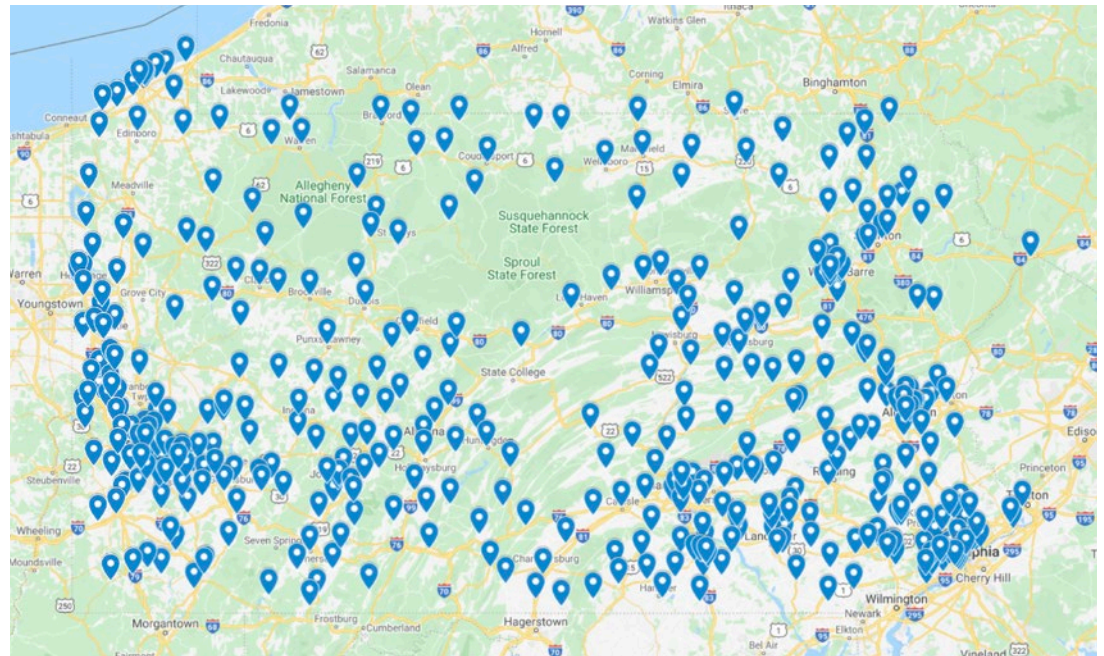
Source: Civil Rights Data Collection, U.S. Department of Education
For an interactive map, please visit: https://ccrc.tc.columbia.edu/easyblog/mapping-racial-equity-ap-dual-enrollment.html

Appendix D

Schools with the highest percentage of the student body participating in dual enrollment, 2015-16

School	Total # of students	DE Total	DE Male	DE Female	DE Hispanic	DE American Indian	DE Asian	DE Hawaiian Pacific Islander	DE Black	DE White	DE Two or More Races
LIGONIER VALLEY HS	519	352	163	189	4	0	5	0	0	343	0
RICHLAND HS	797	440	196	244	7	0	10	0	7	412	4
GREATER LATROBE SHS	1003	551	247	304	7	0	7	0	4	526	7
AMBRIDGE AREA HS	852	458	226	232	7	0	2	2	55	379	13
UPPER PERKIOMEN HS	915	387	198	189	16	4	4	0	10	349	4
BELLE VERNON AREA HS	751	312	169	143	2	0	4	0	5	289	10
CENTRAL CAMBRIA HS	579	235	115	120	0	0	2	0	4	229	0
BRANDYWINE HEIGHTS HS	530	213	118	95	2	0	4	0	0	205	2
CLAYSBURG-KIMMEL HS	411	161	64	97	4	0	0	0	0	157	0
CHARTIERS VALLEY HS	1079	416	226	190	7	0	19	0	10	370	10

Source: National Civil Rights Data, 2015-2016

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