

Career and Technical Education: A Pathway to Success for PA Students and Economy

Introduction

Career-related learning that better connects graduates to future employment and higher education is growing in respect and demand in Pennsylvania. Economists predict the majority of future job growth in the Commonwealth will be in fields that do not require an advanced college degree, so students enrolled in career and technical education (CTE) are the emerging winners. But problems within the system – teacher shortages, enrollment waitlists, administrative challenges, and insufficient funding – create barriers for students wanting to get the skills to jumpstart their careers and financial security.



The data indicate:

- + Nearly every (96%) PA student who completes at least two CTE courses graduates high school on time and 90% go on to postsecondary education.¹
- + Seven out of ten Pennsylvania jobs in 2025 will not require a college degree.
- + Three-quarters of employers nationwide consistently find a disconnect between the skills their workers have and the skills they need.²
- + Hundreds of career technical education teachers are needed to meet the 2025 job demand.

Current CTE availability is just too small to address workforce needs with less than 7% of Pennsylvania's high school students enrolled in CTE. A bold plan to expand robust, modern CTE programs will boost the Commonwealth's economic future and deliver satisfying jobs for hundreds of thousands of residents.

To meet Pennsylvania’s workforce demands and give every young person their best future, CTE stakeholders will have to:

- + Develop a robust career pathway system that substantially increases the share of high school students who graduate with a career-related credential, earn college credits, or complete an apprenticeship.
- + Eliminate unnecessary and costly certification policies that prevent CTE teacher recruitment.
- + Invest in modern materials and equipment that prepares students for today’s industry standards.
- + Streamline existing data collection practices and ensure that stakeholders have access to the data they need.



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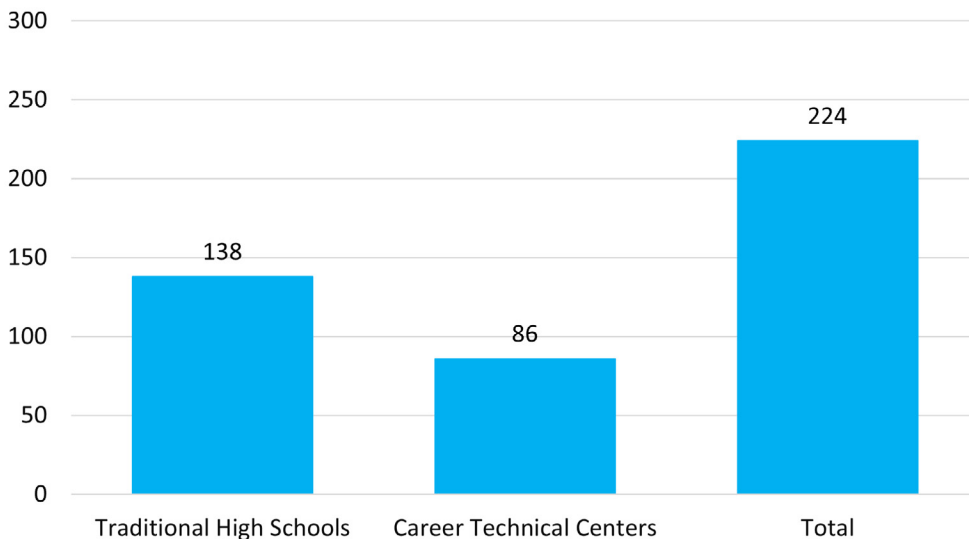
The Value of Career and Technical Education

CTE programs help students see the relevance between their studies and future careers. By teaching job specific skills related to future livelihoods, CTE programs increase student motivation and improve their chances at success. CTE courses are designed to prepare students with the relevant skills and content for careers within rapidly growing specific fields.

Pennsylvania’s CTE Delivery System

Pennsylvania’s CTE framework includes 14 career clusters (i.e., health sciences, manufacturing) offering 85 programs of study. High school students can access these programs in more than 135 traditional high schools or 86 occupational career technical centers (CTC) statewide. Sixteen of the CTCs are comprehensive, providing both academic and technical skills instruction in one location.

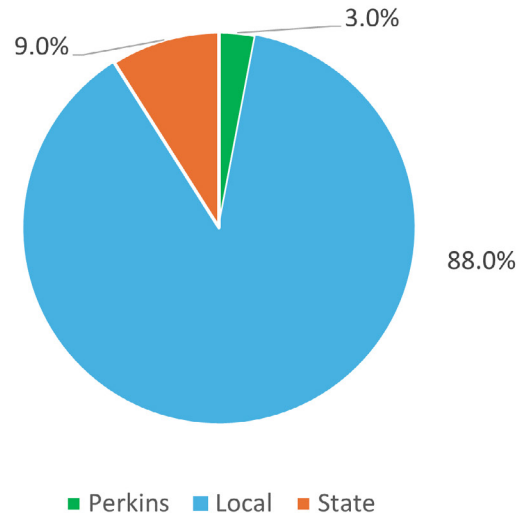
Chart 1: Career Technical Education Delivery System



CTE Funding

Local school districts shoulder 88% of CTE costs, the state covers 9%, and 3% is covered by the Perkins V grant. Pennsylvania's CTE centers are funded by local school districts based on average daily membership.

Chart 2: Career Technical Education Funding Sources in Pennsylvania



Growing Waitlists

School administrators report hundreds of students on waitlists for Career Training Centers, a sure sign that students and their families see the value of a career technical education.

In a Children First survey, six school administrators reported a combined 1,975 students on their CTE waitlists, averaging 329 students per school. Extrapolating that average across all 86 career training centers in Pennsylvania, more than 27,000 students are missing out on the best education for them.

Snapshot: Carbon County Technical Institute (CCTI)

In rural communities with limited post-secondary opportunities, schools like the Carbon County Technical Institute (CCTI) are a critical option for success. CCTI graduates an impressive 98.9% of students, as opposed to the feeder schools' 86% average graduation rate.

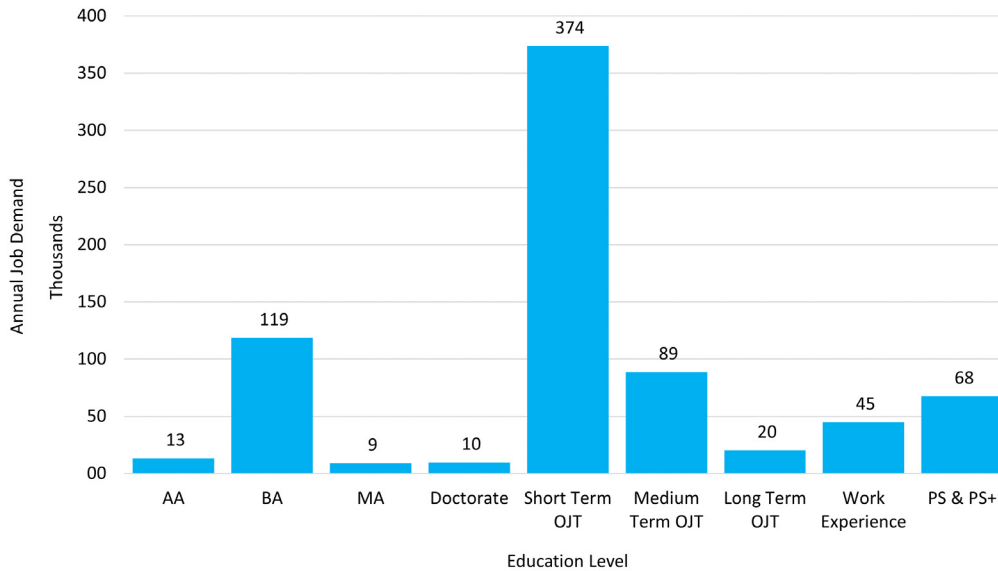
The students at CCTI are putting in the work for their success. Nearly 95% of them are enrolled in rigorous courses of study like CTE concentrators and AP classes, every eligible student participates in work-based learning, and 88% earn industry-recognized credentials before they graduate.³

CCTI graduates – 42% of whom are economically disadvantaged and 25% have learning needs requiring an IEP – are in high demand with great job opportunities that pay well above the minimum wage.

Workforce Demands

Of the 750,000 new jobs expected in PA in 2025, more than 525,000 are jobs which require work experience or short, medium, or long-term on-the-job training, not a college degree.⁴

Chart 3: PA Occupational Employment 2023-2025 Short-Term Forecast



Great CTE Teachers are Essential

Pennsylvania's CTE administrators are increasingly challenged to attract the industry professionals needed to teach students, citing uncompetitive pay and a costly and lengthy teacher certification process. Of the 3,637 secondary school teachers needed to meet PA's 2025 job demand, at least 236 of them are CTE teachers.⁵

Ironically, the education sector that promotes hand-on learning is bound by the general teacher certification rules that require advanced degrees, like a bachelor's degree in education. As a result, it's hard to attract skilled instructors to teach CTE courses.

To attract more industry professionals to the classroom, the state must support local school districts' ability to offer competitive wages and an array of well-coordinated services and support, including alternate pathways to teacher credentialing.

The Pennsylvania Association of Career and Technical Administrators (PACTA) offers the following as key solutions for a robust CTE teacher pipeline in Pennsylvania:

- + Ensure CTE professionals are well compensated for their critical roles in the workforce eco system.
- + Provide additional pathways to certification and streamline the existing CTE teacher certification process.
- + Recognize industry credentials as valid qualifications for new CTE educators.
- + Alleviate the burden of educational expenses by providing tuition assistance to aspiring CTE educators.

Snapshot: Western Montgomery Career Technical Center (WMCTC)

Aspiring to be a teacher one day and be part of the solution for PA's critical teacher shortage, Elizabeth* and her family agreed that enrolling in the early childhood education program at Western Montgomery Career Technical Center (WMCTC) would build the foundation she needs to prepare for the rigorous demands of college and the teacher certification process.

WMCTC, located in Royersford, PA, boasts a 98% graduation rate and is an important contributor to the regional workforce.

In her state-approved CTE course, Elizabeth studies developmental and teaching theory, observes and interacts with teachers in childcare facilities, and learns from a curriculum developed to provide high-quality care for young children – a solid introduction to the world of teaching. To reinforce her learning with hands-on experience, she teaches toddlers and preschoolers at the Little Buckaroo Childcare Center. The learning and doing model complements Elizabeth's learning style.

Elizabeth is one of over 600 WMCTC students who have access to dual enrollment opportunities that offer up to 30 college credits while in high school, which not only jumpstarts their college career, but also defrays some of the rising college tuition costs.

*Not student's real name

Ready Access to State-of-the-Art Equipment and Materials

Access to modern industry standard equipment and materials is essential in CTE learning, but schools struggle to afford them.

Just like everything else, the costs of equipment and materials are affected by inflation. For example, the price tag for medical equipment in health sciences, computers for graphic design, semiconductor devices and lasers used in advanced manufacturing, and welding equipment (PA has a demand for 2,000 welders every year⁶) have all reached unprecedented levels in the CTE world.

Pennsylvania school administrators report annual equipment requests from teachers totaling as high as \$1 million, forcing them to choose from among dozens of programs to determine which will get updated equipment and which will fall behind.

Classroom materials too are a considerable expense and are also on the rise. For example, an administrator reported that a single piece of sheet metal used in their welding class increased from \$200 to \$700 post-pandemic. Another reported that his annual \$18K inventory list from two years ago now costs \$30K.

For the past two years, state funding for equipment grants has remained at \$15 million. For comparison, Ohio allocated up to \$100M in equipment grants, with a \$2.5M per application cap in FY 23/24.⁷

For Pennsylvania to stay competitive and prepare students for 21st century jobs, lawmakers must boost funding.

Lack of System Alignment

Pennsylvania’s CTE system is hampered by the lack of departmental integration and cohesion across the state’s various education and workforce institutions. Compounding this issue is the lack of funding needed to promote alignment and strategies to build cross-sector collaboration. Addressing these barriers would improve the state’s ability to scale workforce pathways that boost students’ success and satisfy Pennsylvania’s growing workforce needs.

As noted in the chart below, modern-day career learning systems have four essential elements:

1. Infrastructure and resource alignment
2. High-school embedded CTE that leads to industry certification
3. College credit options in high school that lead to industry certification
4. High school pre-apprenticeship and apprenticeship options

A central office would coordinate the CTE stakeholders at the state, regional, and local levels to operate from a common framework and align CTE system priorities. Unfortunately, the burden currently falls to local school districts to navigate the Commonwealth’s siloed career-related learning bureaus.

Infrastructure and Resource Alignment	High School-Embedded Career/Tech Education that Leads to Industry Certifications	College Credit High Schools Options that Lead to Industry Credentials	High School Pre-apprenticeship and Apprenticeship Options
State infrastructure – funding, centralized program support (e.g., on career pathways, curricula), and state support for business/industry partnerships	Traditional CTE programming intensively connected to employers offered in traditional high schools or regional training centers	Dual enrollment programs that focus on degree completion upon or near graduation and that align with a robust articulation system	Pre-apprenticeships connected to apprenticeships and to post-high school employment that are offered to high school students beginning in 11th grade

The Commonwealth must synchronize its efforts to convene crucial state agencies and external collaborators to construct a fully aligned secondary and postsecondary college and career pathways system. Its efforts should capitalize on the capabilities and resources of high schools, regional vocational training institutions, private businesses, community colleges, and apprenticeship and training programs to design an office vested with the power to link and enhance the existing expertise in the Departments of Labor and Industry, Education, and Community and Economic Development.

CTE Data System

As the demand, and hopefully state funding, for CTE grows, it will be necessary to document the impact of career-related learning. The state Department of Education uses PIMS, a statewide longitudinal data system with student-level data reporting. Yet 45% of state CTE directors report that PIMS doesn't provide the information they need to make decisions about CTE program quality and initiatives at both the secondary and postsecondary levels. Nearly nine out of ten directors say that improving their data systems is a top priority.⁸

For CTE stakeholders to make informed decisions about program needs that address workforce demand, Pennsylvania must forge and fund strong cross-agency partnerships to build a public-facing data system that provides pertinent information in real-time. In addition to capturing student performance information, the data system should also inform and drive:

- + Important decisions about funding, program quality and initiatives at every level, including secondary and post-secondary schools.
- + Effective state policy and programming.
- + Detection and closure of racial and economic equity gaps.
- + Institution accountability for learner success.

Conclusion

Pennsylvania has many of the components of a comprehensive career pathway system but, without a centralized office to facilitate collaboration between the state Departments of Education, and Labor and Industry, and other important partners, CTE programs will struggle to meet their full potential.

The substantial task of planning, policy development, and addressing nascent issues in real time will continue to fall on local CTE school administrators and school boards already burdened with day-to-day budgeting and operational dilemmas.

Pennsylvania must move its current CTE system into an exciting and dynamic career-related learning pathway system that is organized, intentional, and offers a comprehensive set of educational opportunities that promote strong academic skills, an awareness of careers and occupations, and the mastery of rigorous and relevant technical skills that prepare students for college, careers, and life.

See recommendations on the back page.



For Pennsylvania to stay competitive and prepare students for 21st century jobs, lawmakers must boost funding... and must move its current CTE system into an exciting and dynamic career-related learning pathway system.



Recommendations:

- + Form a Pennsylvania cabinet comprised of gubernatorial appointees and CTE stakeholders that will develop a plan to boost the percentage of high school students in CTE programs from 7% to 50%.
- + Create a central office that would coordinate the CTE stakeholders at the state, regional, and local levels to operate from a common framework and align CTE system priorities.
- + Eliminate unnecessary and costly certification policies that prevent CTE teacher recruitment.
- + Invest in modern materials and equipment that prepares students for today's industry standards.
- + Increase the state's investment in CTE by increasing the funding needed to meet enrollment demand and end student waitlists.
- + Streamline existing data collection practices and ensure that stakeholders have access to the data they need.

Endnotes:

1. Pennsylvania - Advance CTE (careertech.org)
2. ACTE_CTEWorks_FactSheet_Feb2024.pdf (acteonline.org)
3. According to the Future Ready Index (FRI)
4. Occupational Employment Short Term Forecast
5. Occupational Employment Short Term Forecast
6. <https://www.workstats.dli.pa.gov/pages/default.aspx>
7. <https://education.ohio.gov/Topics/Career-Tech/Programhttps://education.ohio.gov/Topics/Career-Tech/Program-Enhancements/Expanding-Opportunities-for-Workforce-Readiness-Enhancements/Expanding-Opportunities-for-Workforce-Readiness>
8. State_CTE_Data_2019.pdf (careertech.org)

Children First, formerly known as Public Citizens for Children and Youth (PCCY), serves as the leading child advocacy organization that improves the lives and life chances of children in southeastern Pennsylvania.

Children First undertakes specific and focused projects in areas affecting the healthy growth and development of children, including child care, public education, child health, juvenile justice, and child welfare.

childrenfirstpa.org

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Through thoughtful and informed advocacy, community education, targeted service projects, and budget analysis, Children First watches out and speaks out for children and families.

Children First serves the families of Bucks, Chester, Delaware, Montgomery, and Philadelphia counties as well as children across the Commonwealth. We are a committed advocate and an independent watchdog for the well-being of all our children.

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