The promise of Career Technical Education (CTE) is one of economic success, opportunity and personal fulfillment. CTE gives learners the chance to identify and unlock their career passions, develop the academic and technical skills they need for success in the real world, and enter industries in which they can make a family-sustaining wage and have the opportunity for future growth.

The notion that CTE is a pathway for students who lack what it takes to go to and succeed in college is outdated. In fact, learners who complete CTE programs of study are readier for postsecondary success than ever before. A growing body of evidence indicates that CTE students feel better prepared for academic classes,[1] perform better in academic courses,[2,3] are less likely to need remedial education,[4] and are more likely to enroll in a two-year college.[5] And the average high school graduation rate for CTE concentrators is 93 percent[6] — well above the national average of 84 percent.[7]

CTE helps postsecondary students get ahead in their careers as well. More than 30 million jobs in the United States require some postsecondary education — but less than a baccalaureate degree — and pay a family-sustaining median wage of $55,000 a year.[8] CTE can help learners earn the credentials they need to enter these occupations. In certain fields such as health care or engineering, short-term, occupational credentials can lead to higher average wages than some four-year degrees.[9] For many, postsecondary CTE is a certain path to economic prosperity.

The promise of CTE is not just about learner success — it is about macroeconomic growth. When learners succeed, everyone benefits. It is estimated that if the U.S. high school graduation rate reached the national CTE average graduation rate, the economy would experience $5.7 billion in growth, and more than 14,000 new jobs would be created.[10] Expanding CTE access not only connects individuals to opportunity — giving learners an accessible pathway into the middle class and beyond — but also bolsters the economy and improves potential prosperity for all.

> *"Ensuring equity in CTE means reckoning with historic challenges and intentionally implementing policy and programmatic approaches with the goal of upending all facets of bias."*
>
> — *Adenike Huggins, National Urban League*

But while completing high-quality CTE programs of study can prove extremely beneficial to students, not all learners have access to these programs. National and state leaders report that these programs are not consistently rigorous across different locales and zip codes (due to CTE data limitations, determining where these gaps occur is not possible on a national scale). The distribution of high-quality CTE programs of study across zip codes is a legacy of CTE's history. Historically, CTE — once called vocational education — was often the only option for non-college-bound secondary students. High schools used vocational

education to "track" students, sending a disproportionate number of low-income learners, females, learners with disabilities and learners of color into terminal programs leading to jobs with uncertain promise of economic growth and prosperity.[11, 12, 13, 14]
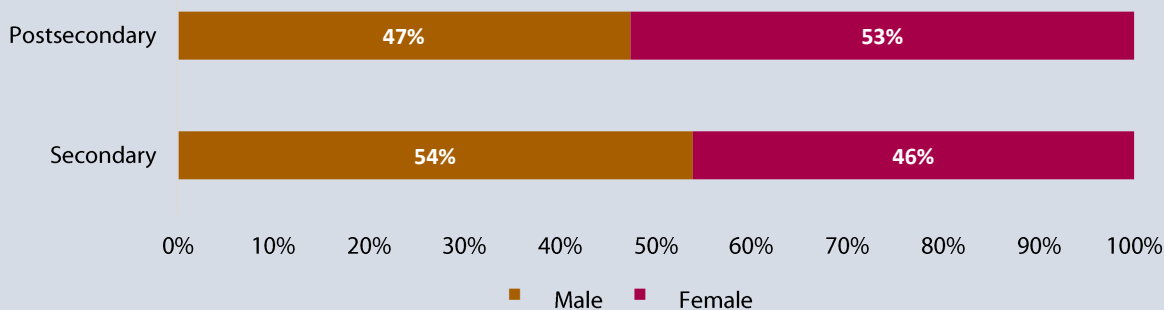
While regrettably the practice of tracking continues today, the nature of the equity challenge in CTE has transformed. Today, states are working hard to improve the quality of CTE, but many learners continue to not have access to such opportunities. Reversing historical trends and expanding access and opportunity for each learner will require tough conversations, humility, and a commitment to both quality and equity.
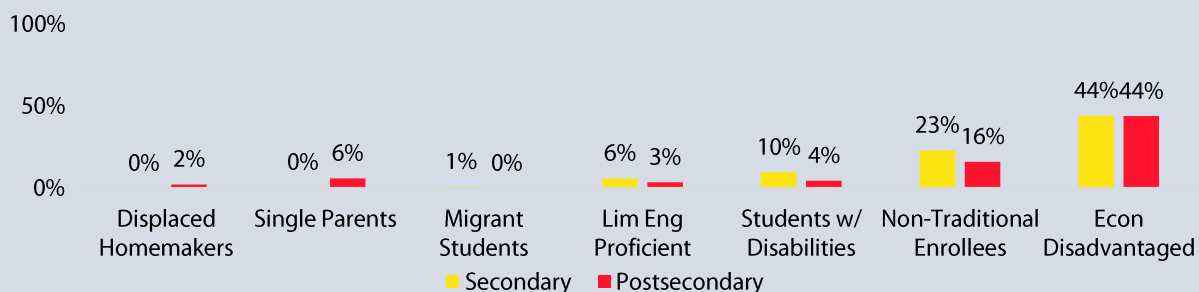
Who Participates in CTE?

CTE Participation by Race/Ethnicity, 2016-17

Secondary

- White
- Hispanic/Latino
- Black/African American
- Asian
- Other

Secondary pie chart: White 50%, Hispanic/Latino 25%, Black/African American 17%, Asian 4%, Other 4%

Postsecondary

Postsecondary pie chart: White 50%, Hispanic/Latino 21%, Black/African American 13%, Asian 6%, Other 10%

CTE Participation by Gender, 2016-17

	Male	Female
Postsecondary	47%	53%
Secondary	54%	46%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- Male
- Female

CTE Participation by Special Population, 2016-17

	Displaced Homemakers	Single Parents	Migrant Students	Lim Eng Proficient	Students w/ Disabilities	Non-Traditional Enrollees	Econ Disadvantaged
Secondary	0%	0%	1%	6%	10%	23%	44%
Postsecondary	2%	6%	0%	3%	4%	16%	44%

- Secondary
- Postsecondary

Source: Perkins Collaborative Resource Network. Perkins Data Explorer. Retrieved from https://perkins.ed.gov/pims/dataexplorer.

What does equity in CTE look like? Equity in education is often defined as each student getting what he or she needs when he or she needs it.[15] High-quality CTE — which provides individualized learning on a flexible schedule to help learners identify and achieve their career goals[16] — is already well positioned to meet this need. But expanding access to all will require identifying and dismantling historical barriers — both overt and implicit — that have had an adverse effect on learners based on their race, socioeconomic background, disability and gender. It will require reimagining and reconstructing systems to support individuals as they progress along their educational and career journeys, ensuring that each learner can identify ambitious postsecondary goals; access and succeed in high-quality CTE programs of study; and acquire the knowledge, skills and abilities to achieve lifelong career success.

> *"Equity is all too often reduced to inputs and outputs about money, teachers, books, curriculum, graduation rates. Schools should be thinking about socio-emotional elements and fostering a sense of belonging. This is where CTE comes in. CTE can help students find relevance and belonging."*
>
> — *Danielle Gonzales, The Aspen Institute*

This brief, the first in a series focused on equity in CTE, attempts to confront the negative aspects of CTE's legacy and define the key challenges learners face today. It draws on research and historical data to paint a picture of CTE's conflicted history and the opportunity it can provide. This brief and those to follow were informed by a broad group of national civil rights organizations, State CTE Directors and local leaders who are each working to confront access and opportunity gaps every day.
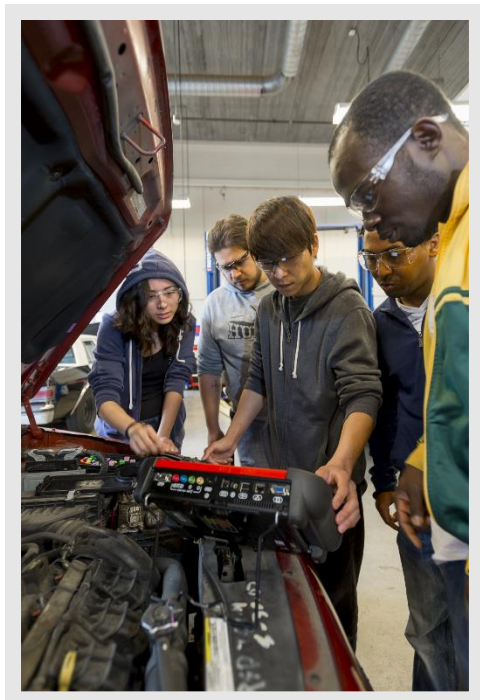
Source: Lake Washington Institute of Technology, Kirkland, WA

Confronting CTE's Legacy

Any conversation about equity in CTE must start with the recognition that not all learners have been served equitably by CTE. This inequity is largely a result of systems and policies that reinforced the practice of tracking, which sent learners into different, isolated educational pathways — one to prepare learners for college and one to prepare learners for immediate entry into blue-collar jobs.

These job-focused pathways were less rigorous than pre-college pathways. Rather than providing a comparable education for learners with different needs, they often housed the students that schools did not consider to be worthy of their full investment. The programs were designed to give learners the specific skills they needed for a job, nothing more. Therefore, learners who found themselves in these programs could expect to receive a less academically rigorous curriculum and, as a result, were less likely to complete high school,[17] earn advanced math credits, and meet preparatory requirements to enter four-year colleges.[18] Programs often de-emphasized

academic learning, college preparedness and higher-order thinking to prepare learners for low-skill, low-wage jobs.[19, 20] Without a rigorous academic foundation, CTE graduates had little opportunity to advance in their careers or pursue additional postsecondary education. For these learners, their economic and social fate was sealed at an early age and often without their input.

Inevitably, this practice had a disproportionate effect on certain populations, resulting in the systemic over-enrollment of learners of color, low-income learners, females and learners with disabilities into low-quality, job-focused programs.[21] Throughout much of the 20th century, systems and policies were stacked against these learners, ensuring that they would not get the access, resources, quality instruction and guidance they needed to achieve lifelong career success in jobs that would allow them to grow and prosper. These systems created an environment in which overt discrimination and implicit bias could gain a foothold in national and state policy as well as local and school-level decisionmaking.

Overt discrimination — no stranger in the U.S. public education system — has manifested itself in systemic ways throughout CTE's history. In the years following the U.S. Supreme Court's historic *Brown v. Board of Education* decision, which called for an end to racial segregation in public schools, a new sorting began to take place in buildings across the country. School districts, which were prohibited from sending black learners to separate institutions, began to practice within-school segregation by tracking learners into different programs and classrooms based on race.[24] Even within programs, black learners were disproportionately sorted into fields of study leading to lower-wage occupations while their peers participated in programs that were more rigorous.[25] In effect, this practice served to hold these individuals in place, denying their true potential and securing opportunity for white students alone.

The same prejudice was exercised to maintain social and economic stratification by sorting low-income learners into low-quality, job-focused programs, often exacerbating the effects of racial discrimination. A report from the National Center for Research in Vocational Education found that, as recently as the late 1980s, schools' efforts to match students with appropriate curriculum and coursework systemically favored learners from high-income families, thus working "to the advantage of the most advantaged students."[26] The authors observed that, while non-white and low-income students were more likely to be tracked into low-level vocational programs than their peers, admission to higher-level academic courses — those more likely to lead to postsecondary opportunities and future career success — was tightly protected.

Gender Equity in Federal Law

Federal CTE law has a long history of requiring states and local communities to address and prioritize gender equity in CTE. Over time, there have been federally mandated positions, funding set asides and accountability requirements. The Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV) — recently reauthorized as the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) — requires states to report data on students enrolling in and completing CTE programs in fields that are non-traditional for their gender.[22] Further, states must dedicate a portion of their state leadership dollars to non-traditional initiatives. Perkins V updates these provisions slightly but retains a focus in terms of both accountability and required funding.[23]

Overt discrimination also played a role in the systemic sorting of females into low-wage occupations such as cosmetology or child care. Female learners who wished to enroll in a program that was non-traditional for their gender had to overcome overt sex discrimination or bias from counselors, teachers, and others from whom they sought advice. Those with the motivation and determination to overcome these barriers and enroll in non-traditional programs often had to endure further discrimination and sexual harassment from their peers.[27] These pressures amounted to a persistent, invisible force preserving historical gender inequities in CTE, inequities that continue today.

The aggregate impact of sex discrimination in education and in the workforce resulted in lower earnings for women. Quite often, fields that traditionally employ more women pay lower wages and have fewer opportunities for advancement than male-dominated fields, reinforcing wage gaps in the labor market.[28]

The collective impact of overt discrimination cannot be overstated, but it is also important to recognize how implicit bias can influence well-intentioned decisions in ways that affect certain learners disproportionately. Implicit bias is the everyday assumptions that individuals make about others that influence the way they interact with other people. All too often, instructors, counselors and education institution-based staff make assumptions about learners' abilities and dispositions based on their race, socioeconomic status, gender or disability that affect these learners' future educational opportunities.

For example, a school counselor or postsecondary adviser may assume that females would be interested only in traditionally female-dominated occupations such as early childhood education or nursing and thus decide to withold information about a welding program at a local career center. Or an instructor may encourage a student with a mild learning disability to pursue a job-focused track on the assumption that he or she is not fit to meet the expectations of a more academically rigorous program. On a wider scale, bias can influence decisions about which programs to create in which schools, limiting opportunity for learners in predominately low-income comunities or communities of color.

Source: Lake Washington Institute of Technology, Kirkland, WA

Ultimately, each learner has aspirations about his or her future and, given the right supports, the potential to unlock and achieve them. The manifestation of overt discrimination and implicit bias in the practice of tracking throughout the 20th century denied learners the opportunity to reach their full potential. Consequently, many communities did not and do not trust CTE as a viable means to help under-represented students achieve their postsecondary education and career goals, according to several of the national civil rights advocates that Advance CTE spoke to for this brief.
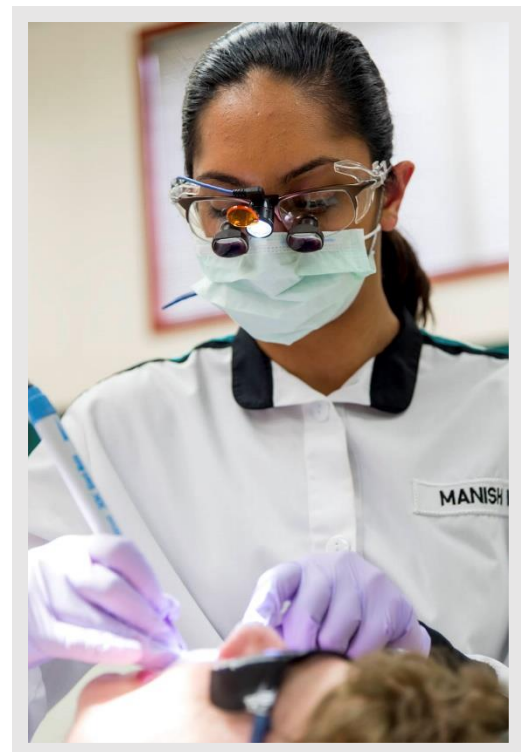
Gaps in Access to High-Quality CTE Persist Today

Overt discrimination and implicit bias persist today, and as the quality of CTE programs of study improves, many learners are barred from accessing these programs by geography, rigorous selection processes and other systemic forces. Over the past decade, the CTE community has made considerable progress on improving the quality of CTE. Policymakers at the national, state, local and institutional levels have recognized the need for a strong, diverse workforce and are working to embed rigorous academics and early postsecondary opportunities into CTE programs of study to ensure that learners, once they graduate high school, can move successfully between postsecondary training and the workforce. Major national initiatives such as New Skills for Youth[29] and Pathways to Prosperity[30] have fueled these efforts, convening groups of states and communities to improve the rigor, quality and viability of CTE programs for each and every learner. These efforts have helped counter the perception and reality that CTE is an alternative to traditional academic education and prevent the tracking of students into low-quality programs.

However, not all students have been able to access high-quality CTE. Despite interventions by the federal government and many reforms to make schools more equal and accessible, research in 2014 found that schools are as segregated as they were in the 1960s, particularly by race and social class.[31] The state and national leaders Advance CTE spoke with for this brief said that, as a result, high-quality CTE programs are often present in areas with more concentrated wealth, where communities can afford to equip classrooms with state-of-the-art equipment and attract experienced teachers with competitive salaries. And despite plenty of research demonstrating that non-white students perform better academically and have lower disciplinary rates when they are taught by educators of the same race,[32, 33] the CTE teacher workforce remains 90 percent white, while the majority of the student population is now students of color.[34]

A recent Education Week article posed the question, "Can a career tech ed. school be too popular?"[35] Its author notes that, with the advent of high-quality career academies and industry-aligned CTE programs of study, competition for these elite programs has, in some states, crowded out learners of color and low-income learners. Having improved the quality and relevance of CTE, policymakers find themselves faced with an entirely new dilemma: ensuring access for all. To make good on the promise of CTE, state and local leaders must commit to holding all programs to high levels of rigor and securing more equitable access.

Diversity in the Workforce

States, schools and institutions must strengthen diversity in CTE programs to bolster pipelines of diverse talent for future careers. While much progress has been made, workers today continue to be sorted into industries and occupations based on their race, socioeconomic status, gender and ability.

According to the Bureau of Labor Statistics, black and Latinx workers are over-represented in service occupations and under-represented in management and professional occupations.[36] Likewise, women are over-represented among nurses, teachers and accountants and under-represented among software developers, chief executives and physicians — occupations that traditionally pay higher

wages.[37] And even within these occupations, women — particularly women of color — face wage inequities on the job, earning lower wages on average than their male counterparts.[38]

For individuals with disabilities, representation in the workforce is even lower. In 2017, the unemployment rate for people with disabilities was more than twice that for people without disabilities, even across education levels.[39]

Lack of diversity in the workforce has a cyclical effect on CTE delivery. When schools and institutions struggle to attract diverse talent to serve as instructors, guest speakers and work-based learning supervisors, this lack reinforces biases about who can and should pursue certain careers. Promoting diversity in the workforce is a critical lever to strengthen the pool of industry experts and create a

Common Ways Bias Can Show Up in CTE

Bias is the everyday assumptions about a person or group of people, which can show up in both one-on-one interactions and institutionalized policy. Bias can affect student success in CTE in a number of ways. State and local leaders should recognize how bias occurs and take measures to curb its impact so that every student can access and succeed in high-quality CTE programs of study. Here are some common ways bias shows up in CTE:

Career and Academic Advising — The area where bias can have the most detrimental impact is in the classroom. All too often, learners are counseled into careers based on assumptions about their abilities and preferences. Counselors, teachers and other school-based staff should be trained to recognize and counteract bias whenever it does show up.

Geography — Where a student lives is a substantial factor in whether he or she can access meaningful CTE opportunities. High-quality CTE programs are often concentrated in areas of affluence, making it harder for certain students to access those opportunities.

Graduation Requirements — Often, learners will need a postsecondary credential to gain entry-level employment in their chosen field. High school graduation requirements that bifurcate, rather than integrate, college and career pathways, with differing levels of rigor in each, can prevent learners from maximizing their career opportunities.

Selection Criteria — As students and families come to understand the value and promise of CTE, demand for seats in high-quality CTE programs grows, requiring schools and districts to enact a selection process to determine who gets to enroll. Without clear guidelines, this process can result in "cream skimming," or selecting only the highest-performing students.

Student Accommodations — Learning should be flexible enough to bend to the needs of the student, allowing the student to maximize his or her learning. This flexibility could mean providing special testing accommodations to learners with disabilities or adjusting the master schedule at a community college to accommodate learners with children at home.

more inclusive CTE system. State CTE leaders must work in concert with workforce development leaders to make this diversity a reality.

Likewise, states have the opportunity and the responsibility to diversify the workforce by strengthening pipelines into non-traditional occupations. By educating and preparing today's learners and supporting students to pursue their career of choice states can ensure that there are pipelines of diverse talent to fill the jobs of tomorrow.

Charting a Path Forward

Throughout much of the 20th century, learners of color, low-income learners, females and learners with disabilities were tracked into low-quality CTE programs. This practice was our nation's harsh reality. It limited opportunity and maintained social and economic "classes," which preserved rigorous educational opportunities and pathways to success for those with affluence and influence. Today, parents and learners across all backgrounds demonstrate interest in high-quality CTE, according to a national survey commissioned by Advance CTE.[40] But while today's CTE programs have undergone a significant transformation, leading to academic and career success for learners, high-quality CTE programs are not universally accessible.

To counteract historical inequities and secure opportunity for each learner, state leaders must confront this legacy and actively work to dismantle policies, practices and traditions that track learners and limit opportunities. This series aims to equip state leaders with strategies and practices to begin this work. Future briefs will explore solutions including how to use data to identify and get to the bottom of access gaps, rebuild trust within under-served communities, expand opportunity for each learner, and put mechanisms in place to secure learner success.

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