

Race and Ethnicity in Higher Education: 2020 Supplement

INVITED ESSAY



Career and Technical Education in the Learning Economy: Toward a Promise of Racial Equity

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This chapter is part of a larger report by the American Council on Education (ACE) titled *Race and Ethnicity in Higher Education: 2020 Supplement*, which follows ACE's 2019 release of *Race and Ethnicity in Higher Education: A Status Report*. These reports, along with their accompanying microsite, provide a data-informed foundation for those working to close persistent equity gaps by providing a comprehensive review of the educational pathways of today's college students and the educators who serve them.

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Visit www.equityinhighered.org to learn more about the project and to download the full report, figures, detailed data tables, and other resources on race and ethnicity in higher education.

The screenshot shows the homepage of the ACE website. At the top left is the ACE logo with the text 'American Council on Education' and 'RACE AND ETHNICITY IN HIGHER EDUCATION'. To the right is a navigation menu with links for HOME, ABOUT, INDICATORS, DATA SOURCES, DATA TABLES, and RESOURCES. Below the navigation is a large hero section featuring a background image of a smiling Black woman. Overlaid on this image is a dark box with the title 'RACE AND ETHNICITY IN HIGHER EDUCATION' and a welcome message. To the right of the welcome message are two 'Featured Findings' statistics: '40.1% of Associate Degrees were Earned by Students of Color' and '31.5% of Bachelor's Degrees were Earned by Students of Color'. Below the hero section are two buttons: 'EXPLORE THE FINDINGS' and 'DOWNLOAD THE REPORT'. At the bottom left, there is a section titled 'Explore the Findings' with a paragraph of text and a 'Download Reports >' link. At the bottom right, there is a blue box titled 'NEW: IDEAS AND INSIGHTS' with a play button icon and the text 'View essays, videos, podcasts, and more >'.

About the American Council on Education

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Career and Technical Education in the Learning Economy: Toward a Promise of Racial Equity

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In the early twenty-first century, economic growth and education scholars have begun to move beyond the concepts of an industrial or knowledge economy toward that of a learning economy—a society in which the capability for all individuals to learn is critical to the economic success of individuals, firms, regions, and national economies (Soares and Perna 2014).

In a learning economy, career and technical education (CTE) has the potential to transform postsecondary education by increasing equity and responding to skill gaps in the workforce by integrating academic and work-based learning. Of the 11.8 million students participating in CTE programs in 2017–18,¹ 5.8 million were persons of color and 5.3 million were economically disadvantaged (U.S. Department of Education 2020). If access to and participation in CTE programs for historically marginalized students continues to increase, CTE can have a substantial, measurable impact on closing equity gaps by bringing these individuals into the learning economy.

CTE programs in specialized skilled trades, applied sciences, modern technology, and career preparation operate at the intersection of formal education and experiential learning and, when done well, provide learners with the academic, technical, and employability skills needed for success in their careers and lives. An implicit stigma associated with CTE’s roots in vocational education, however, means that CTE must continue to develop strong pathways to success for its learners, leveraging classroom education with hands-on learning in high-demand fields with opportunities for continued learning and credential attainment.

Learning in Times of Technological Change

At certain times in economic history, this mix of academic and work-based learning has shifted, with one type of learning having a greater impact on people’s lives. We are now in such a time. As new knowledge and technology take hold in industries and the economy as a whole, workplace-based learning becomes a powerful driver of optimizing human capital, especially when coupled with formal education. Economists refer to this phenomenon as “synchronous technological change” (Soares and Taylor 2018).

Some examples of synchronous technological change are electrification, which transformed manufacturing and household production in the early twentieth century, and mechanization, which transformed manufacturing and agriculture in the nineteenth century. Today, the nation’s economic life is being disrupted by synchronous technological change driven by information technology, which is transforming multiple economic sectors (e.g., health care, manufacturing, and logistics) simultaneously. History teaches us that this type of multisector synchronous change is accompanied by a sharp rise in the need to blend academic and applied learning—to connect principles of a discipline with technical and employability skills.

The rise in demand for this blend of academic and work-based learning has surfaced in the relative rise in demand for experienced workers, the increase in demand for applied learning experiences like internships, the emergence of credentials like badges that purport to validate ever-smaller units of learning, competency-based education, and interest in interoperable learning records. Each of these components is visible in robust twenty-first-century career and technical education approaches.

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¹ Includes secondary, postsecondary, and adult learners enrolled in CTE programs in 2017–18.

The promise of CTE in a learning economy is that it can help colleges, universities, and employers to integrate knowledge creation with job creation, and academic teaching with applied learning, in order to create sustainable human capital development systems that promote individual competence, social mobility, and global competitiveness. With regard to social mobility, especially for marginalized groups, CTE must build robust experiences that create pathways for building knowledge and skills foundations for both immediate economic opportunity and long-term career mobility.

The Promise of CTE

The attributes of CTE are aligned with the demands of a learning economy. Fundamentally, CTE provides academic content and technical knowledge and skills to prepare individuals for further education and careers in current or emerging professions (Von Zastrow 2019). Unlike a more traditional degree that is almost entirely campus- or classroom-based, CTE encompasses competency-based, work-based, or other applied learning, all alongside academic learning. This educational training culminates in learners earning industry-recognized credentials, certificates, or postsecondary degrees. CTE implementation is diverse, including both credit and non-credit programs of study. When well designed, earned credentials are stackable along

academic pathways through embedded articulation processes—non-credit to credit, certificate to two-year degree, and associate to bachelor’s degree—affording continuous educational progression via multiple points of entry and exit, and subsequently, opportunities for career advancement.

Broadly speaking, CTE has 16 areas of career focus, often referred to as clusters. These career clusters include agriculture, food, and natural resources; business, management, and administration; health science; information technology; and science, technology, engineering, and mathematics—to name just five. Across all 16 clusters, there are a wide range of in-demand, high-paying occupations both now and in 10-year projections, including jobs like web developers, electricians, HVAC mechanics and installers, radiologic technicians, paralegals and legal assistants, and computer network support specialists (U.S. Bureau of Labor Statistics, n.d.).

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During their selected program, CTE participants contribute to employers and the workforce while earning their degree. Through the application of specialized, experiential learning, students gain real-world skills and earn wages while in school. The ability to learn and earn a living at the same time is critical to many students. The Bureau of Labor Statistics reports that in October 2019 roughly 60 percent of students ages 16 to 24 who were enrolled at two-year colleges were in the labor force (U.S. Bureau of Labor Statistics 2020a). This reality of working while enrolled in school often serves as a significant barrier to college completion, which disproportionately affects racially marginalized learners. Nonacademic determinants of success, like family financial responsibilities, contribute to the entrenched academic gaps observed between Black and Hispanic students and their White counterparts.

However, when occupational engagement is intentionally embedded within educational training and aligned with career pursuits—as is the case with CTE—what would ordinarily serve as a barrier to college completion becomes a facilitator to academic and career success. Considering the importance of earning wages to the livelihood and well-being of many students of color, to learn and earn simultaneously may not only improve individual learner outcomes but could also increase equity in higher education for communities of color, one of the most disenfranchised populations in educational systems. In this way, CTE dually broadens equitable access to educational and workforce opportunities.

Still, in order to be a true engine of equity for marginalized learners, CTE must evolve past the stigma associated with vocational education. Historically, vocational education served as a secondary pathway that targeted students with lower levels of college readiness. Theoretically, this academic trajectory prepared learners for the workforce following high school. In practice, however, this system was often used to inequitably discriminate against marginalized populations, over-assigning communities of color to vocational curriculum tracks (Lewis and Cheng 2006; Williams and Asche 1992). Further, the

quality of vocational curricula was typically inferior to that of traditional liberal arts instruction, speaking again to differential access to learning and social development. Perhaps most disheartening was that there was no true economic security or upward mobility within many of these vocational clusters. Jobs were typically low skill, low pay, and vertically stagnant, thus thwarting those already disenfranchised.

Despite a checkered history, CTE enrollment has recently started to increase, with more developed CTE pathway programs across secondary and postsecondary levels and substantial funding commitments made to this educational sector. Guided by mandates of the recently passed Strengthening Career and Technical Education for the 21st Century Act (also known as Perkins V), CTE programs now better align K–12 school systems, postsecondary institutions, and the workforce. As part of this alignment, CTE programs are oriented toward high-wage, high-demand, and/or high-skill careers. Many in workforce policy also call for CTE programs to advance opportunity and access to career programs, with special consideration for priority populations (e.g., individuals with disabilities or individuals from economically disadvantaged families). With the progress made in Perkins V and the diversity of career clusters, CTE is progressing toward fulfillment of its original vision: a gateway into diverse pathways for academic, career, and lifelong success.

Given the new design parameters described above, in a learning economy, CTE could prove to be a game changer in optimizing the nation’s human capital by creating academic and applied learning pathways that adapt to the needs of marginalized populations while yielding better education and employment outcomes.

With the progress made in Perkins V and the diversity of career clusters, CTE is progressing toward fulfillment of its original vision: a gateway into diverse pathways for academic, career, and lifelong success.

Workforce and Equity Implications of CTE

The American workforce and our global competitiveness are reliant on education that gives learners academic, technical, and employability skills to address immediate, pervasive market needs. According to the Georgetown University Center on Education and the Workforce, 30 million jobs in the United States pay an average of \$55,000 per year and do not require bachelor’s degrees (Carnevale, Strohl, and Ridley 2017)—and many of them remain unfilled due to skills gaps. CTE is an immediate response to these workforce shortages, and the job opportunities it provides can be a pathway to success for communities of color, particularly when CTE programs that meet immediate needs also provide a foundation for further learning.

Still, while CTE has improved in recent years, participation rates in individual career clusters indicate that it continues to struggle with equity, opportunity, and access. Black and Hispanic learners tend to be overrepresented in service-oriented professions such as health sciences or education and training, which have lower wages, and underrepresented in high-tech, high-demand industries such as information technology or STEM fields (Libassi 2018) with higher wages. Disparities in the nature of CTE program participation and related course enrollment can have lasting economic effects in terms of earnings and job stability; in fact, there is a profound relationship between CTE discipline of study and career and wage expectations given historic labor market trends (U.S. Bureau of Labor Statistics 2020b). At the very least, racially marginalized learners should be equally represented across all CTE programs, rather than underrepresented in the most highly demanded and highest-paying clusters or overrepresented in the lowest.

These disparities speak to the need for more research into participation and into the assortment of program offerings available in communities. It is not enough to merely offer CTE programs to diverse learners. Instead, higher education must examine students’ access to and selection of CTE programs of study, experiences during participation, and resultant academic and workforce outcomes—all with disaggregation by race and ethnicity among other characteristics of interest. Uneven and inconsistent access to CTE programs translates to widened opportunity gaps and wealth disparities, inequities that customarily manifest along racial, ethnic, and socioeconomic lines. CTE can be a source of equity in higher education and employment outcomes but not if the career clusters remain segregated.

The Landscape of Career and Technical Education Reimagined: Transformative Industry-Higher Education Partnerships

CTE can be an agent of opportunity and access for learners, but it can also work toward closing the skills gap faced by many employers. According to the U.S. Department of Education, jobs requiring so-called *middle skills* outnumber the adults in the workforce who possess them, presenting a barrier to American economic competitiveness. Concerns of employers continue to grow as they try to overcome the shortage of educated, technically literate workers (Clagett 2015). Analysts projected this skills gap being a substantial obstacle to cultivating a qualified workforce; deficiencies of 3 million workers with associate degrees or higher and 5 million workers with technical certificates and credentials were expected by 2020. Industry-higher education partnerships can increase the number of workers with in-demand skills, but these partnerships must be *intentional, sustainable, and clearly defined*.

Intentional. The best partnerships are designed to benefit learners, employers, and higher education. Learners gain skills for well-paying jobs, employers get needed workers, and higher education increases equitable outcomes. Promises to all three stakeholder groups can be kept by intentionally building programs that meet the following criteria:

- If learners aren't being hired by the sponsoring employer, ask the employer what else the program should cover. The benefit of the partnership is the ability to ask these questions directly.
- If learners aren't taking the jobs offered by the employer, again, ask why. Perhaps the internship wasn't what they expected or the pay isn't what they hoped. In either case, clear communication at the start can better align expectations between learners and employers.
- If students of color aren't enrolling or succeeding at the same rate as White students, investigate the pipeline problem. Industry-higher education partnerships are typically small enough that feedback can be collected easily.

One example of an intentionally designed program is in Newport News, Virginia. Northrop Grumman has developed two workplace-based postsecondary-education programs by partnering with community colleges, apprenticeship groups, and cooperative education programs. Through the intentional design of these programs, which focus on the design, build, overhaul, and repair of cutting-edge naval ships, all stakeholders benefit:

- Learners receive broad support during their education and subsequent job opportunities. Northrop Grumman employs students after graduation and provides them with an average starting salary of \$31,200. Northrop Grumman also provides tuition reimbursement to those students who continue toward a bachelor's degree.
- Community colleges such as Thomas Nelson Community College and Tidewater Community College in the Hampton Roads area of Virginia also benefit from Northrop Grumman's expertise in curriculum development.
- Northrop Grumman has a pipeline of skilled employees. Thousands of apprentice school graduates still work at Northrop Grumman. The program serves the colleges' and company's shared goals of filling a void in the workforce and ensuring that students have employment opportunities after graduation (Soares 2010).

Sustainable. As mentioned above, these partnerships tend to be on a small scale—perhaps hundreds of students each year. On the one hand, the size allows for the programs to be responsive to stakeholder groups. On the other hand, some of these partnerships can fail to take root, missing an opportunity to make a noticeable difference for stakeholders over time and at scale. To foster sustainability, alliances between college stakeholders and local businesses need to be deeply embedded within operational processes and institutional practices. Going beyond just advisory groups or committee meetings, industry and higher education should both have a stake in the game, whether through executive leadership, funding, shared resources, or governance structures.

One example of a program that is fostering sustainability is the Joint Engineering Leadership Development Program (JELDP) at Washington University in St. Louis and University of Missouri–St. Louis (UMSL), which also partners with local community colleges and Boeing to create a variety of pathways to engineering credentials and jobs. JELDP’s philosophy is that students’ most engaging, meaningful learning experiences often take place outside of the classroom. All JELDP courses are in the evenings, allowing for internships, co-ops, and work-based learning experiences during the day. These real-world experiences better prepare students for successful engineering careers. This program also helps Boeing address the company’s need for exceptional and diverse engineering talent. The partnership of a public four-year university, private four-year institution, community college, and major employer developed a regional talent ecosystem that is sustainable and more deeply rooted because of the multiple stakeholders (BHEF 2019).

Clearly defined. When properly formed, community college and industry partnerships benefit the diverse constituent groups served: students earn postsecondary credentials that equip them for skilled work and high pay, local businesses fill pipelines with qualified workers, and regional economies are afforded a competitive edge within the larger market space (Soares and Steigleder 2012). However, unclear expectations can hinder these efforts, as industry expects higher education to move faster, higher education hopes for more funding, or students expect a different type of education. From the start, communicating the responsibilities of each stakeholder is critical.

In one example, to address Arizona’s need for an increased number of trained specialty nurses, the Greater Phoenix Chamber Foundation organized the Hospital Workforce Collaborative (HWC) with nine regional hospitals, in partnership with Maricopa County Community College District (MCCCD). The state expects a 23 percent growth in demand for specialized nursing, with over 20,500 new openings projected by 2025. The challenge of meeting this need is compounded by the high costs of recruiting and training new nurses, as hospitals can spend up to \$170,000 per new nursing hire. The HWC, in partnership with MCCCD, identified and defined six specialty areas where training and retaining nurses was most pressing for the state. With \$5.8 million in support from the state of Arizona, MCCCD expanded its nursing curriculum to meet the future needs of the nursing workforce. HWC and MCCCD estimate they now have the potential to graduate 300 students through this program by 2021, doubling the current number of nursing students in the region. Additionally, this industry-higher education partnership also has plans to increase new programs and multiple tracts for upskilling incumbent working nurses to better meet workforce needs (U.S. Chamber of Commerce Foundation 2020).

Ultimately, in order for a partnership to flourish, it must have multiple roots. In order to be sustainable, partnerships must be contextualized to the needs of the local market and community. While there are trends and best practices, no two ecosystems are identical and all efforts must be tailored. Community colleges and CTE programs have a long history of serving their communities, but such service has not always been in direct partnership with local industry. Today, partnerships among education and industry are core to effective CTE programming, and local implementation of these collaborative approaches can strengthen the entire system’s structure.

Toward Visions of Promise for Career and Technical Education

A learning economy requires a nation to engage all of its human capital in order to maintain its global competitiveness. With the potential of serving over 10 million individuals, quality CTE programs can nurture career aspirations for learners and workforce development within communities by developing academic, technical, and employability skills in participants. In order to do so, however, CTE needs to be more than an alternative to a four-year degree; instead, it must be a genuine career pathway into high-skill, high-demand fields with the opportunity to pursue further learning. Done intentionally and rigorously, CTE programs can increase equity in higher education, social mobility for communities of color, and hiring for business and industry. Equity within CTE also translates to reduced disparities in workforce outcomes, where CTE can serve as a gateway to the middle class for many students of color who would otherwise not be afforded such opportunity. Increased participation of students of color within CTE pathways directly fuels workforce pipelines, positively impacting local and national economies. Amplified access and inclusion of racially marginalized and other underserved groups innately strengthens the system as a whole.

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