

Career and Technical Education

TACKLING OCCUPATIONAL SEGREGATION OF THE SEXES



AS PART OF ITS GENERAL ban on sex discrimination in schools, Title IX outlawed discrimination in career and technical education (CTE) classrooms. Forty years later, male students continue to predominate in courses that lead to many high-skill, high-wage jobs, while female students make up the majority in the low-wage, low-skill programs. These enrollment patterns reflect, at least in part, the persistence of sex stereotyping and discrimination.

Lowering the barriers to female enrollment in CTE is a key step in reducing the wage gap between male and female workers. Given worldwide demand for workers with technical knowledge, increasing female participation in CTE is unlikely to come at the expense of their male counterparts; rather, by increasing the

total pool of skilled workers, it will help keep the United States competitive and benefit the economy as a whole.

Encouraging gender equity in CTE will also reduce barriers for males seeking entry into fields traditionally occupied by female workers, including high-growth areas such as nursing and other medical professions. Thus, ensuring equitable participation in CTE by eliminating discriminatory practices and increasing the engagement of women and girls in STEM has important implications for all students.

A Path to Economic Growth

CTE prepares both youth and adults for a wide range of careers. These careers may require varying levels of education, including industry-recognized credentials, postsecondary certificates, and two- and four-year degrees.

KEY FINDINGS

- 1. Ending sex segregation in career and technical education (CTE) offers the promise of expanding careers for women** in technology and skilled trades, leading to greater wage-earning potential. This potential extends to men working in some nontraditional fields, such as nursing.
- 2. Ensuring gender equity in CTE can expand both access to and success in high-growth fields**, boosting U.S. competitiveness in world markets.
- 3. Although women and girls have made some advances in CTE since Title IX passed, barriers to entry**—including gender stereotypes, implicit bias, unequal treatment, and sexual harassment—remain high.
- 4. Regulation and enforcement of Title IX for CTE have shifted over time.** The relevant law, now under review, needs to offer both incentives and resources for ensuring gender equity, as well as sanctions for discrimination.
- 5. Better tracking and reporting of data, incentives for increasing girls' and women's participation** in high-wage CTE areas, and resources for developing effective recruitment and retention strategies are needed to ensure equal access to CTE for all students.

TRAINING SKILLED PROFESSIONALS

CTE is offered in middle schools, high schools, career and technical centers, community and technical colleges, and other postsecondary institutions. According to the U.S. Department of Education's Office of Vocational and Adult Education, almost all high school students take at least one CTE course, and one in four students take three or more courses in a single program area. One-third of college students are involved in CTE programs, and as many as 40 million adults engage in short-term postsecondary occupational training. CTE is organized around 16 career clusters¹ based on a set of common knowledge and skills that prepare learners for a full range of opportunities.

Currently, 12% of the U.S. population aged 18–24 is enrolled in a two-year college.² Enroll-

ment at these colleges has increased steadily over the past two decades. As of 2011, a record 43% of all college undergraduates were enrolled in community colleges.³ About one-fourth of community college students are parents, and 10% are single mothers.⁴

Interest in postsecondary CTE has grown as a result of the recession, the high cost of four-year colleges, and the Obama Administration's focus on the necessity of a postsecondary degree and industry-recognized credentials to ensure skilled workers for industries needed to expand the U.S. economy.

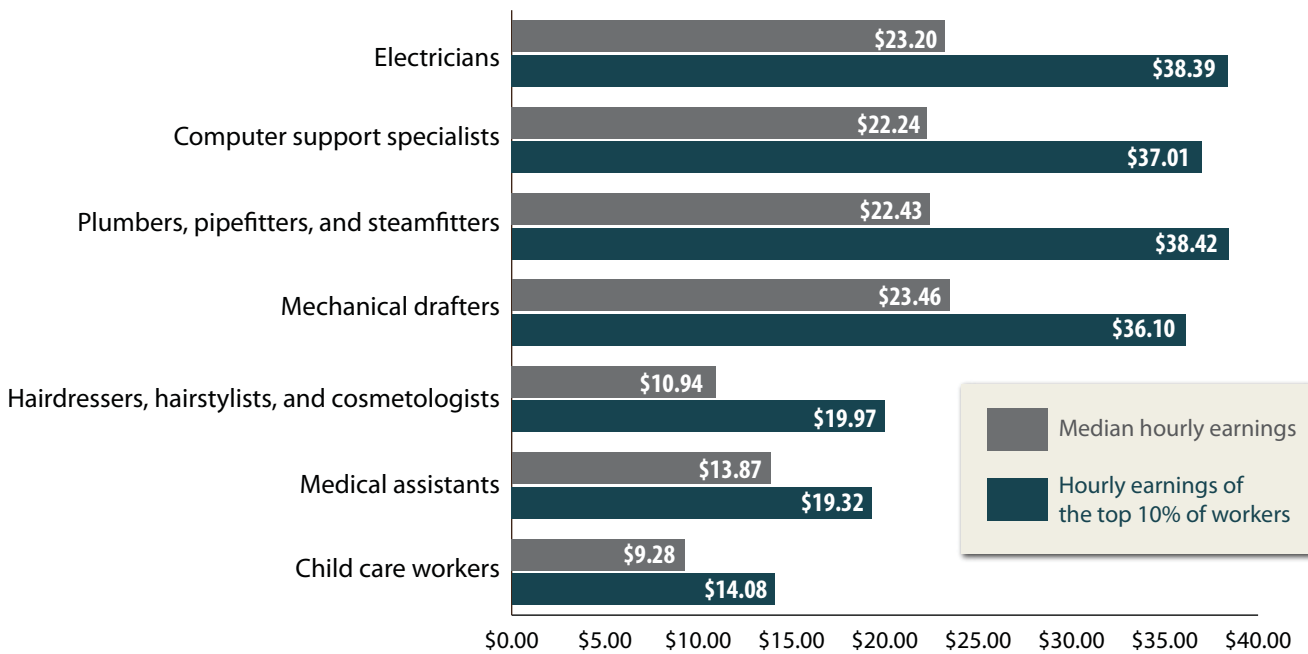
THE WAGE IMPACT OF CTE

Most working women who do not have a four-year college degree are concentrated in relatively few occupations, primarily in retail sales, services, and clerical positions.⁵ As the figure on the next page shows, these female-dominated professions pay considerably less than male-dominated technical professions. With the exception of registered nursing and teaching, the largest traditionally women's occupations do not pay economically secure wages capable of supporting a family.⁶

Today more young women than young men place great importance on their ability to have a high-paying career or profession, according to the Pew Research Center.⁷ Through CTE, women can gain the knowledge and skills required to enter higher-paying, “nontraditional” occupations for women, defined by law as those in which less than 25% of the workforce is of their gender.⁸ For example, a woman working as a surveying technician—a nontraditional field for women—can earn an average annual wage of \$63,000,⁹ while a woman working as an administrative assistant—a traditional field for women—will earn an average annual wage of just \$32,188.¹⁰

Expanding access to high-paid technical occupations can be a major factor in shrinking the gender wage gap. To achieve this end, partici-

Average Earnings for Predominantly Male vs. Predominantly Female Occupations



SOURCE: NWLC interpretation of data from the U.S. Bureau of Labor Statistics, Occupational Employment and Wages, May 2010.

pation and achievement in CTE should not be bound by sex separation in education, gender stereotypes, harassment, or other barriers that prevent girls and women—including single

mothers, pregnant and parenting students, displaced homemakers, and welfare recipients—from becoming economically self-sufficient.

Impact of Title IX on Equity in CTE

Title IX sought to end discrimination in CTE among educational institutions that routinely denied students admission into classes deemed “improper” for their sex.

Historically, vocational classes were restricted by gender. Males took shop and automotive courses, while females took classes in child care, cosmetology, typing, and home economics. Separation by gender reinforced social stereotypes about what was considered “women’s work” and “men’s work.”

Title IX made it unlawful for schools to steer students into career and technical educa-

tion classes based on their gender. Further, it required schools take steps to ensure that disproportionate enrollment of students of one sex in a course was not the result of discrimination. (For more details on the legislation and how it has evolved, see the section beginning on page 31, titled “Title IX Regulation and Enforcement.”)

BARRIERS TO EQUALITY

Although discrimination is unlawful, barriers to equality in CTE remain high. Hurdles range from a lack of role models and information on nontraditional fields to overt discrimination.



Female students also face career counseling biased by gender stereotyping, unequal treatment by teachers, and various types and degrees of sexual harassment.

Girls and women are discouraged from pursuing traditionally male training programs in ways that are both subtle—such as an instructor inadvertently allowing male students to monopolize attention—and not so subtle—such as a guidance counselor telling a student that an electronics course is “not for girls.” Those who brave the barriers to take nontraditional courses often face an unwelcoming atmosphere, and many report harassment by fellow students or even teachers.

Males may be similarly discouraged from taking nontraditional courses, including courses in relatively high-growth, high-wage fields such as nursing, as well as in lower-wage fields like child care. Title IX is gender-neutral and applies to males as well as females, so discrimination in these settings is also unlawful.

OPPORTUNITIES FOR GROWTH

In the 40 years since the passage of Title IX, there has been a slight, gradual increase in the number of women and girls in technical and other occupational programs leading to nontraditional careers. According to an analysis of data from the U.S. Department of Education’s Office of Vocational and Adult Education (OVAE), conducted by the National

Coalition for Women and Girls in Education (NCWGE) CTE task force, women’s participation in CTE programs leading to nontraditional careers has increased from close to 0% in 1972 to over 25% nationally in 2009–2010.¹¹ Because of the lack of uniform definitions and reporting procedures, however, much of the gain may be attributable to female participation in broadly defined categories such as arts, audio-visual technology, and communications. Men have also made gains in nontraditional fields, with those preparing for teaching and nursing careers, relatively high-paying occupations, growing steadily.

The federal statute that funds CTE, the Carl D. Perkins Career and Technical Education Act of 2006 (known as the Perkins Act), requires states to set targets for performance on a measure of nontraditional enrollment and completion by gender. As the following chart indicates, a handful of states have boosted female participation and completion to unprecedented levels. Six report female participation in nontraditional fields of more than 40% at the secondary level, and five report completion rates at the postsecondary level of 45% or more—well above the national average of 28% and 27%, respectively.

Despite women’s gains in nontraditional fields as a whole, the rate of female enrollment in certain career clusters remains at stubbornly low levels, with some well beneath the 25% threshold. As shown in the figure on page 32, females made up less than 25% of participants in science, technology, engineering, and math programs nationally (21% at the secondary level and 24% at the postsecondary level), and much lower numbers in manufacturing (17% and 11%, respectively); architecture and construction (15% and 10%); and transportation, distribution, and logistics (8% and 7%).¹²

Experience shows that obstacles to equity in CTE can be overcome by a commitment to change from the institution’s leadership.

Schools that have taken measures such as assigning staff to monitor and coordinate activities, providing specialized professional development for career counselors and educators, forging partnerships with employers, and

introducing students to role models have had success in enrolling and retaining students in CTE focused on areas that are nontraditional for their gender.¹³

Title IX Regulation and Enforcement

Gender equity in CTE is influenced by the statutes and regulations governing career and technical education. The Perkins Act, the key statute governing equity in CTE, has undergone several iterations, with accompanying shifts in requirements and funding. It is due for reauthorization by Congress in 2013.

EVOLVING LEGISLATION

In 1976, Congress amended the Vocational Education Act to require that each state hire a “sex equity coordinator” and provided \$50,000 for each state to support this position. In 1979, the Office for Civil Rights issued guidelines to reduce discrimination in vocational education. The guidelines required states to collect and report data, conduct compliance reviews, and provide technical assistance.¹⁴

The high water mark for the designation of federal of resources for integrating girls and

women into CTE was arguably attained with passage of the Carl D. Perkins Vocational Education Act of 1984. With that measure, Congress not only retained the required sex equity coordinators but also required states to set aside 3.5% of their funding for programs to eliminate sex bias and stereotyping, plus another 8.5% for serving individuals with significant barriers to occupational skill training, including displaced homemakers returning to the workforce after caring for family members, single parents, and pregnant or parenting teens. From 1984 through 1998, an average of \$100 million a year was spent on programs to eliminate sex bias in career and technical education.¹⁵ By 1997, the number of sex equity programs exceeded 1,400 across the country.¹⁶

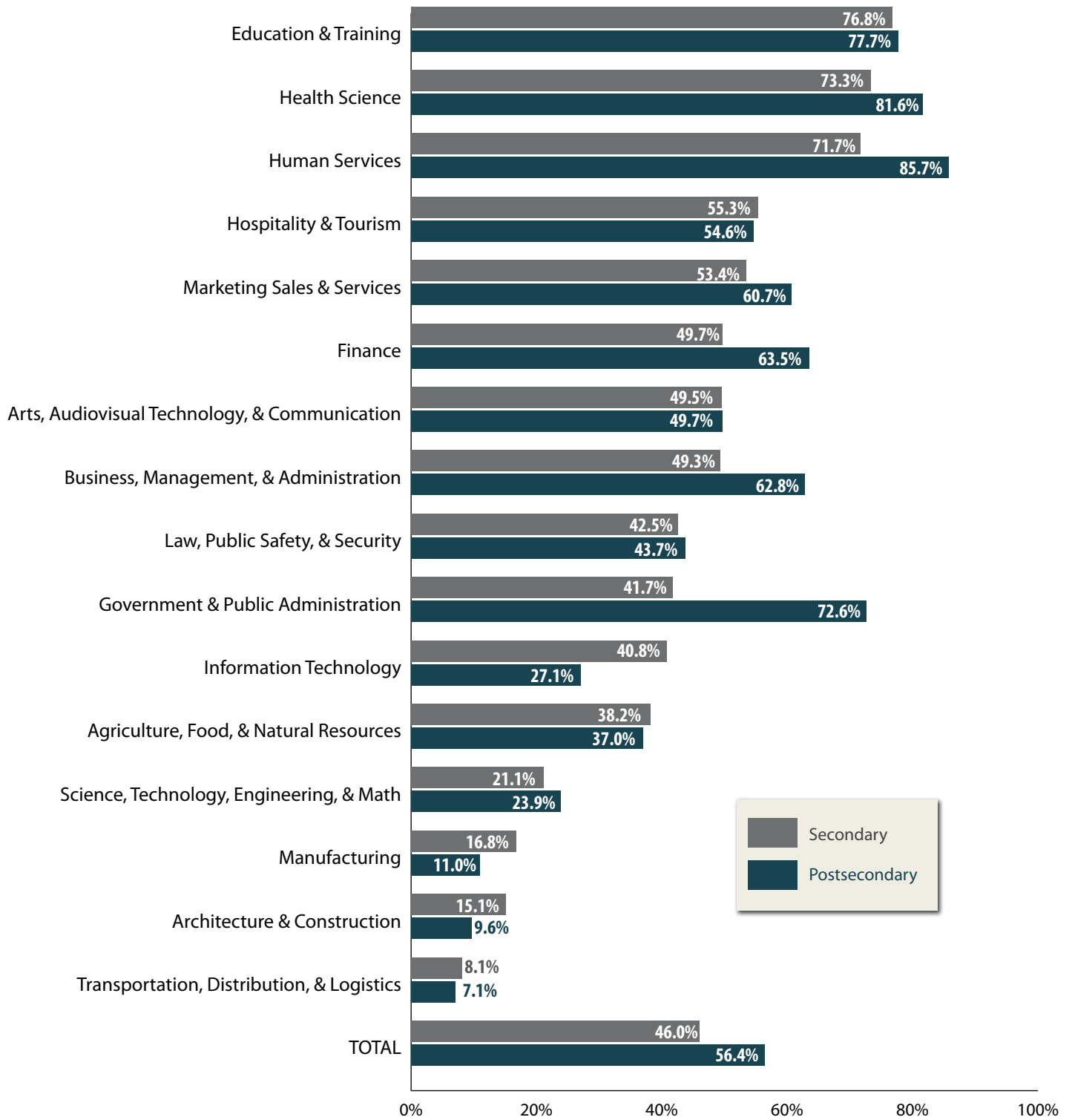
In 1998, the reauthorization of the Perkins Act removed most of these requirements and set-asides except for a small reserve of \$60,000 to \$150,000 a year for state “leadership activi-

States with High Female Participation in Nontraditional Perkins-Funded CTE Programs, 2010

SECONDARY PARTICIPATION OF 40%+	POSTSECONDARY COMPLETION OF 45%+
District of Columbia	District of Columbia
Iowa	Nevada
Massachusetts	New Mexico
New Mexico	Oregon
New York	Tennessee
Washington	
National average=28%	National average=27%

SOURCE: NCWGE CTE Task Force analysis of OVAE data, October 2011.

Secondary and Postsecondary Female Enrollment by Career Cluster, 2009–2010



SOURCE: NCWGE CTE Task Force analysis of OVAE data, October 2011.

ties” for students preparing for nontraditional careers. The law created performance measures requiring states to increase participation in and completion of nontraditional CTE programs among students of underrepresented genders. This “nontraditional measure” was one of four core performance measures for the entire Perkins program. The law provided no sanctions or incentives for improvement, however, thereby creating a culture of limited activity at the state and local level.

The most recent iteration of the law, adopted in 2006, continued the approach of requiring states to meet negotiated targets for placing males and females into programs leading to nontraditional occupations. For the first time, however, the law authorized sanctions and required triggers for state and local improvement plans for not meeting performance measures. The legislation also retained the \$60,000–\$150,000 state leadership set-aside for individuals preparing for nontraditional fields.

LOOKING AHEAD

In April 2011, the Department of Education released its blueprint for reauthorization of the Perkins Act, which stressed the development of rigorous CTE shaped by four core principles:¹⁷

1. Effective alignment between CTE programs and the labor market to prepare students for in-demand occupations in high-growth industry sectors.
2. Strong collaborative efforts among secondary and postsecondary institutions, employers, and industry partners to improve the quality of CTE programs.
3. Meaningful accountability for improving academic outcomes and building technical and employability skills in CTE programs **for all students.** [emphasis added]
4. Increased emphasis on innovation through state policies that support effective practices at the local level.



PHOTO CREDIT: GIRLS INC.

The word “nontraditional” does not appear in the 14-page blueprint, which ultimately needs to be refined, translated into statutory language, and adopted by Congress, a process not expected to be completed until 2013.

Without referring specifically to programs leading to nontraditional careers, the proposal would require states to collect data to “identify equity gaps in performance on the local and state levels, including where students of a particular background (including gender) are disproportionately enrolled in or absent from certain programs.” In addition to gender, state and local data would be collected on students’ race, ethnicity, disability, socioeconomic status, and English proficiency. States would be required to improve their data collection systems and use common definitions and performance indicators.

The blueprint also calls for requiring states to provide “wrap-around” supports such as tutoring and counseling to ensure that there are no equity gaps in participation or performance in CTE programs. In another dramatic change, it

SUCCESSFUL CTE EQUITY PROGRAMS

STEM Equity Pipeline

The National Alliance for Partnerships in Equity Education Foundation's STEM Equity Pipeline started in 2007 with support from the National Science Foundation (NSF) and is now supported by corporate, foundation, and federal funds. The STEM Equity Pipeline provides a suite of professional development offerings focused on increasing the participation and completion of women in high school and community college science, technology, engineering, and math (STEM)-related programs of study. By working with state leadership teams, the project has been successful in influencing state policy, increasing resource investment, and integrating gender equity into professional development for STEM educators in 12 states.

Local pilot sites implement the Program Improvement Process for Equity in STEM™ (PIPESTEM™), where teams of administrators, teachers, counselors, and students conduct a performance gap analysis and implement research-based strategies to increase female participation in STEM programs. Outcomes include an increase in Project Lead the Way (pre-engineering) participation from 8 to 30 girls at one site and from 0 to 21 (33%) at another; an increase from 0% to 43% women in design technology; an increase in females in auto technology from 12% to 36%; and an increase of senior girls in advanced-level math from 15% to 55% in two years.

WomenTech Extension Services

The National Institute for Women in Trades, Technology, and Sciences (IWITTS) received a \$2 million NSF grant for a project at eight community colleges in California to develop and expand a model for closing the gender gap. Each college identified two nontraditional programs, including 3D animation, computer networking and information technology, HVAC (heating, ventilation and air conditioning), welding, electronics, and automotive technology. The first cohort started in 2007, and female enrollment has increased annually in six of the eight colleges. At one college, women's retention rose from 81% to 100% in 15 months.

Grace Hopper Scholars Program, Community College of Baltimore

The Scholars Program encourages women and other underrepresented groups to pursue careers in computer science and related fields, such as information technology and computer-aided design and graphics. Ninety percent of the students are women, and students of color exceed their representation in the overall student body. Full-time Scholars are five times more likely to complete an associate's degree or certificate than the overall student body.

Scholarships of up to \$3,125 are available to help cover tuition, fees, books, supplies, equipment, transportation, and dependent care; low-cost day care is available on campus. Students receive a \$300 incentive to complete their first math credit or 200-level computer course. Retention is encouraged through community-building, including assigned industry mentors and a mandatory summer skill-development program.

St. Paul College

St. Paul College, a community and technical college in St. Paul, MN, has engaged in aggressive recruiting to attract more men to the health care profession, and respiratory care in particular. The number of men enrolled in the college's respiratory care program has increased dramatically. In 2002, the program had only 5 male participants. By 2006, that number had jumped to 88 out of a total 169 enrolled students, or 52%. Male graduation rates post similar numbers; since 2005, males have made up anywhere from 42% to 62% of respiratory care graduates.

Connecticut Regional Center for Next-Generation Manufacturing

The NSF has funded the Connecticut College of Technology (COT), a virtual organization serving 12 community colleges, to prepare students for STEM careers in high-demand fields such as green technology, lasers, photonics, precision manufacturing, and alternative energy. The program allows high school students to take and receive credit for dual-enrollment programs in engineering and technology at nearby community colleges. Women's participation between

(CONT.)

2004 and 2009 increased from 540 to 630, or 17%. Women make up a majority of participants in the Life Supports and Sustainable Living program, which pairs students with peers from four-year institutions to work on joint technology projects.

COT's specialized curricula were developed in partnership with the Connecticut Business and Industry Association to meet the skill needs of manufacturing companies. NASA provides scholarship funds, and each community college has a foundation to assist with emergency needs such as the cost of books. COT encourages female students to mentor each other across campuses and interact with members of women's professionals associations who participate in events and seminars. Child care is offered on all campuses, and students may take classes, including some laboratories, online.

calls for states to use a competitive process to allocate funds to local consortia of secondary and postsecondary schools.

As the Administration and Congress move toward reauthorizing the Perkins Act, striking a balance between the carrot and the stick approach will be important. For the statute to be effective, it needs to dedicate resources to activities that promote gender equity in CTE while at the same time maintaining the performance targets and sanctions embedded in the 2006 accountability measures.

NCWGE Recommendations

- Congress should continue to include accountability measures, improvement plans, and sanctions that hold states and municipalities accountable for increasing women's completion of CTE programs that prepare

them for high-wage careers in which they represent less than 25% of the workforce.

- The Office for Civil Rights (OCR) should collaborate with OVAE and better align its Methods of Administration process for ensuring Title IX compliance in CTE with OVAE's processes for monitoring compliance and providing technical assistance to states.
- OVAE should create a national network of research and practice experts who can provide professional development and technical assistance on building programs that increase gender equity in CTE.
- States and municipalities should be required to report and use disaggregated data at the program level to identify performance gaps and drive program improvement. To best target improvements, gender-specific data must be cross-tabulated with other demographic characteristics, including race, socioeconomic status, disability, and parental status.
- Increasing women's participation in and completion of high-wage CTE programs should be included as a criterion for any incentive program proposed in future CTE legislation.
- Congress should legislate requirements for leadership and resource investment at the state and local levels to implement research-based strategies for increasing female participation and achievement in nontraditional CTE programs.
- Federal, state, and local decision making must include gender equity in CTE as a quality standard for investments in program development, improvement, and expansion.

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