

# Community and Technical Colleges Professional-Technical Education

## Program Details

Washington's 34 community and technical colleges offer professional technical training that provides participants with skills required for specific occupations. Community and Technical Colleges (CTC) Professional-Technical Education training covers a broad range of occupational fields and credentials, from one-year certificates to two-year technical degrees. However, it does not include participants who intend to transfer to a four-year college or university; participants who enroll in a program to raise their basic skills to a high school level; or working adults who take a few classes to improve skills for their current jobs.<sup>1</sup>

*Every year, the Workforce Board measures the performance of key workforce programs. In this report, you'll find out more about the program and who is served, the metrics used to measure performance and how the program performed.*

## Participant Profile

For this 2013 report, researchers examined 34,495 CTC Professional-Technical participants who completed or left the community or technical college system.<sup>2</sup> These participants comprise the Professional-Technical cohort included in this study.<sup>3</sup> The median length of enrollment for these participants was nine months.

Participants from racial and ethnic minority backgrounds continue to be well represented among CTC Professional-Technical participants, especially among African Americans whose participation rate was twice their representation in the state population. Native Americans are also slightly overrepresented in this program in comparison to their state population representation.<sup>4</sup>

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<sup>1</sup> While the Worker Retraining program at the community and technical colleges also provides occupational training, the results for participants who participated in this program are evaluated separately.

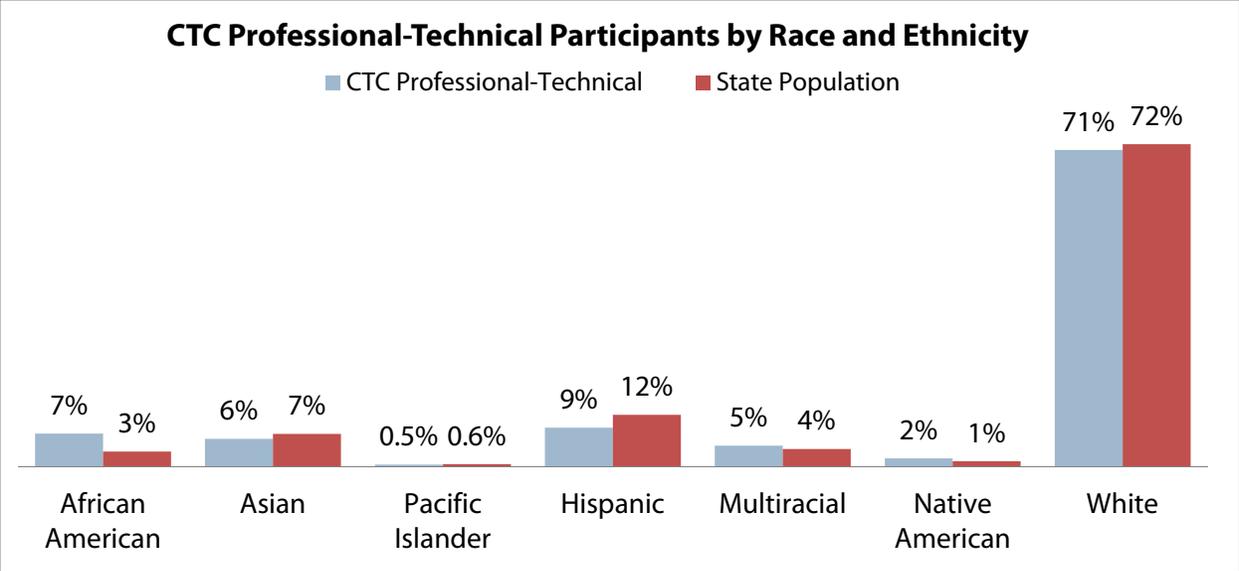
<sup>2</sup> CTC Professional-Technical Education participants identified themselves as vocational participants and have either enrolled for six or more vocational credits or have completed three or more vocational credits. Additionally, the participants included in this study exited their program during the academic year and did not enroll in a community or technical college for a period of one full year.

<sup>3</sup> The 2013 Workforce Training Results reports are based on data observed in 2011-12 for individuals exiting programs during 2010-11.

<sup>4</sup> In this report, unless otherwise stated, racial and ethnic minority groups are mutually exclusive; that is, an individual belongs to one group only. The groups include the following: Hispanics of any race (also referred to as Hispanics); non-Hispanic African Americans (also referred to as African Americans); non-Hispanic Asians (also referred to as Asians); non-Hispanic Pacific Islanders (also referred to as Pacific Islanders); non-Hispanic Native Americans and Alaskan Natives (also referred to as Native Americans); non-Hispanic multiracial (also referred to as multiracial); and non-Hispanic whites (also referred to as whites). According to the 2011 U.S. Census Bureau estimates for Washington from the American Community Survey, 72 percent are white; 3 percent are African American; 1 percent are Native American; 7 percent are Asian, 1 percent are Pacific Islander; 4 percent are multiracial; and 12 percent are Hispanic.

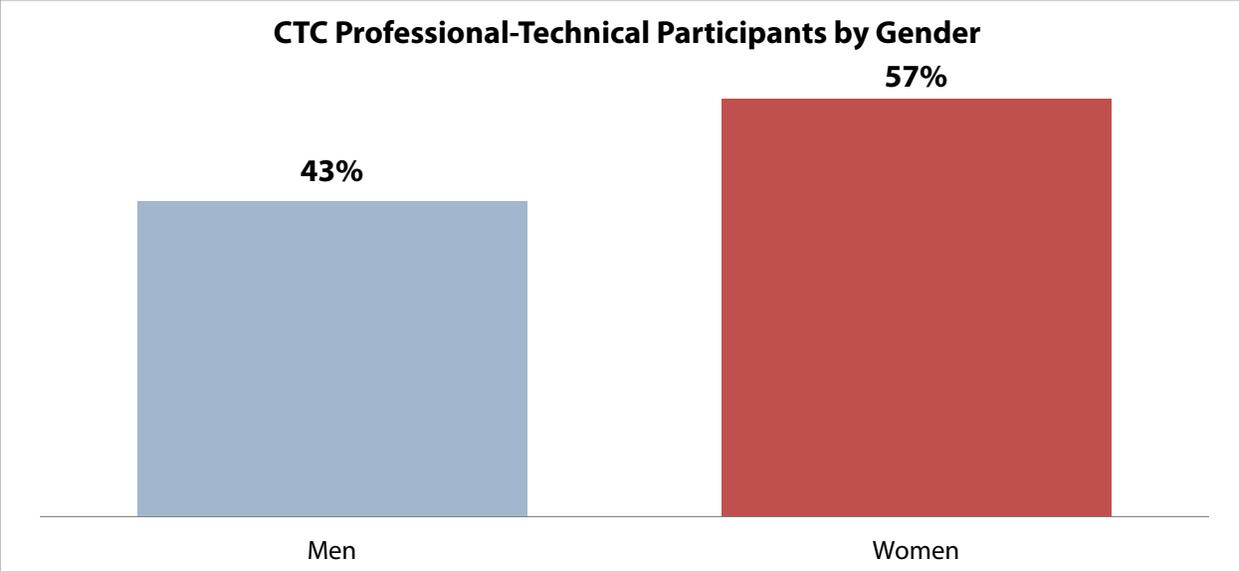
## 2013 Workforce Training Results

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Source: Community and Technical Colleges Administrative Data. Data Linking for Outcomes Assessment (DLOA) and 2011 U.S. Census Data from the American Community Survey.

Gender differences were also examined. Among CTC Professional-Technical participants, 43 percent were men. Looking at completion rates, slightly more women completed their programs compared to men (57 percent versus 55 percent).



Source: Community and Technical Colleges Administrative Data. (DLOA)

When they enrolled, 53 percent of the participants had not previously attended college; 21 percent had attended college without receiving a credential; 12 percent had a certificate or associate’s degree; 10 percent had a baccalaureate or higher degree; and 5 percent had some other credential.

**2013 Workforce Training Results**

The median age in the last quarter of training was 29, with one quarter of the participants under age 23, and another quarter of the participants over age 40.

### **Tracking CTC Professional-Technical Progress**

The Workforce Board routinely measures the performance of our state's largest workforce programs. As a customer-focused advocate for Washington's workers and employers, the Workforce Board strives to provide performance accountability, verifying whether worker education and training programs provide a return on investment for participants and taxpayers.

The Workforce Training Results report seeks to answer five core questions:

- Did participants get the skills they needed?
- Did participants get a job and how much were they paid?
- Were employers satisfied with the preparation workers received?
- Has the program made a difference in the participant's success?
- Did participants and the public receive a return on their investment?

### **Data Comes From State Wage Files & Employer Survey**

The 2013 Workforce Training Results includes information obtained from Employment Security Department wage files in Washington, Idaho, and Oregon, and federal employment records for 2011-12. Information on employer satisfaction among firms that hired new employees who recently completed a CTC Professional-Technical program was assessed through the Workforce Board's 2012 Employer Survey.

### **Net Impact Study Adds More Insight into Program Performance**

In addition, the report includes a comprehensive Net Impact Study. Conducted every four years, this study provides a head-to-head comparison of participants and non-participants to help answer a central question: How much of a workforce participant's success in obtaining a job, or a higher wage, is due to the workforce program? By comparing program participants with similar individuals who did not participate in a workforce training program, the Net Impact Study indicates whether employment and earnings gains are due to the workforce program, or if workers could have made this progress on their own. This research also allows for a more detailed analysis as to whether the participant and the public received a return on their investment in the program.

### **2013 Workforce Training Results**

## Did Participants Get the Skills They Needed?

As a measure of whether participants received the skills they needed, this study tracks the credentials and degrees earned by participants. Among CTC Professional-Technical participants leaving programs:

- 21 percent received an associate's degree.
- 20 percent received a vocational certificate.
- 13 percent were deemed ready for work because they completed 45 or more credits.
- 3 percent completed a non-credit vocational program that led to a certificate.

Taken together, 57 percent of participants earned a credential.<sup>5</sup>

## Did Participants Have a Job and How Much Were They Paid?

To find out whether participants obtained jobs and how much they earned, participant records were matched with Employment Security Department wage files from Washington and neighboring states.<sup>6</sup> The study looks at employment and earnings three calendar quarters after the participant left the CTC Professional-Technical program. The table below displays the employment and earnings of participants who exited the program during the prior year. Nearly 65 percent of the CTC Professional-Technical participants were employed. Of those who were working, 57 percent were employed full time. The median hourly wage was \$15.05 and participants had median annualized earnings of \$26,138.<sup>7</sup>

*Turn to page 18 for the Net Impact Study. Conducted every four years, this in-depth report adds extra value to 2013 Workforce Training Results. The study provides a side-by-side comparison of participants vs. similar non-participants, answering the question of whether the program is making a difference.*

Compared to employment and earnings data for CTC Professional-Technical participants from prior years, the Great Recession may well have negatively impacted the ability of program completers to thrive in the current economic situation. Given this context, the median wage of Professional-Technical participants, at \$15.05 an hour is only slightly less than the prior year, which was \$15.27. This is \$6.01 per hour more than Washington's minimum wage of \$9.04 an hour in 2011. However, there is considerable variation in wages. While one quarter earned more than \$21.97 an hour, another quarter had jobs that paid less than \$11.25 an hour.

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<sup>5</sup> Upon exiting a college, the system determines whether the participant is considered to have completed the program. The percentages do not sum to 57 percent due to rounding.

<sup>6</sup> These files contain quarterly earnings and hours-worked information on those individuals with employment reported for unemployment insurance (UI) benefits purposes (approximately 90 percent of in-state employment, with self-employment, active duty military, and those working for religious nonprofit organizations being the major groups of employers not included).

<sup>7</sup> All wages and earnings are stated in first quarter 2012 dollars.

## 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board

## Employment and Earnings for Community and Technical College Professional-Technical Education Participants, 2013

Performance Measure	Results
Employment Rate* (State Records)	65%
Employment Rate (Completers)	70%
Full Time Employment **	57%
Median Hours Worked Quarterly	429 hours
Median Hourly Wage***	\$15.05
Median Annualized Earnings***	\$26,138
Median Annualized Earnings (Completers)	\$28,877

\* These figures apply to those with employment reported to state employment agencies six to nine months after leaving the program. Rate does not include self-employment, employment outside the Northwest or military service and thus understates total employment by approximately 10 percent.

\*\* Full-time employment averages 30 or more hours per week.

\*\*\* Earnings/wages expressed in first quarter 2012 dollars in order to account for inflation.

### Earnings of CTC Professional-Technical Participants

To better gauge the financial effectiveness of Washington's workforce programs, it helps to frame income levels. One common yardstick is the federal poverty level. In 2011, the federal poverty level for one person was \$11,170 per year.<sup>8</sup>

In 2013, CTC Professional-Technical participants were able to support a median 4.8 people at the poverty level—meaning they could support themselves plus three and a half other people. They could support just slightly more than themselves (1.5) at 200 percent of the poverty level.

### Number of People Supported at Poverty Level by Participant Income

Performance Measure	2006	2008	2010	2011	2012	2013
Number of people supported at the poverty level	4.9 people	5.1 people	5.5 people	4.8 people	4.5 people	4.8 people
Number of people supported at 200 percent poverty	1.6 people	1.6 people	1.8 people	1.5 people	1.4 people	1.5 people

<sup>8</sup> Poverty levels from 2012 were used in this edition of Workforce Training Results to measure the results of workforce programs on participants observed in 2011-12. The federal poverty level is determined by the Department of Health and Human Services. The level varies according to family size. The number is adjusted for inflation and reported annually in the form of poverty guidelines. Public assistance programs typically define eligibility income limits as some percentage of the federal poverty level.

### 2013 Workforce Training Results

## CTC Professional-Technical Participants Receiving Benefits from Employers

Performance Measure	2006	2008	2010*	2011	2012*	2013*
Self-Reported Medical Benefits from Employer	72%	62%	N/A	55%	N/A	N/A
Self-Reported Retirement Benefits from Employer	52%	42%	N/A	44%	N/A	N/A

\*Due to budget limitations, the Workforce Board's Participant Survey was not conducted for the 2010, 2012 or 2013 reports.

The following table shows employment and earnings information over the course of six study periods. Performance results are shown for *all* CTC Professional-Technical participants and broken down further to focus on program completers.

## Employment and Earnings Trends for Community and Technical College Professional-Technical Education Participants

Performance Measure	2006		2008		2010		2011		2012		2013	
	All	Comp.										
Employment Rate (Self-Reported)	81%	-	84%	-	N/A	N/A	76%	-	N/A	N/A	N/A	N/A
Employment Rate* (State Records)	72%	75%	70%	74%	71%	77%	61%	65%	63%	69%	65%	70%
Full Time Employment**	62%	63%	63%	66%	65%	67%	59%	60%	54%	56%	57%	60%
Median Quarterly Hours	450	451	455	468	455	455	429	442	416	429	429	442
Median Hourly Wage***	\$15.41	\$15.78	\$15.81	\$16.32	\$16.21	\$16.90	\$15.56	\$16.45	\$15.27	\$16.06	\$15.05	\$15.93
Median Annualized Earnings***	\$26,500	\$27,716	\$27,179	\$28,972	\$28,843	\$31,004	\$26,269	\$28,448	\$24,974	\$27,340	\$26,138	\$28,877

Source: Matches of Community and Technical College Administrative data with employment wage files.

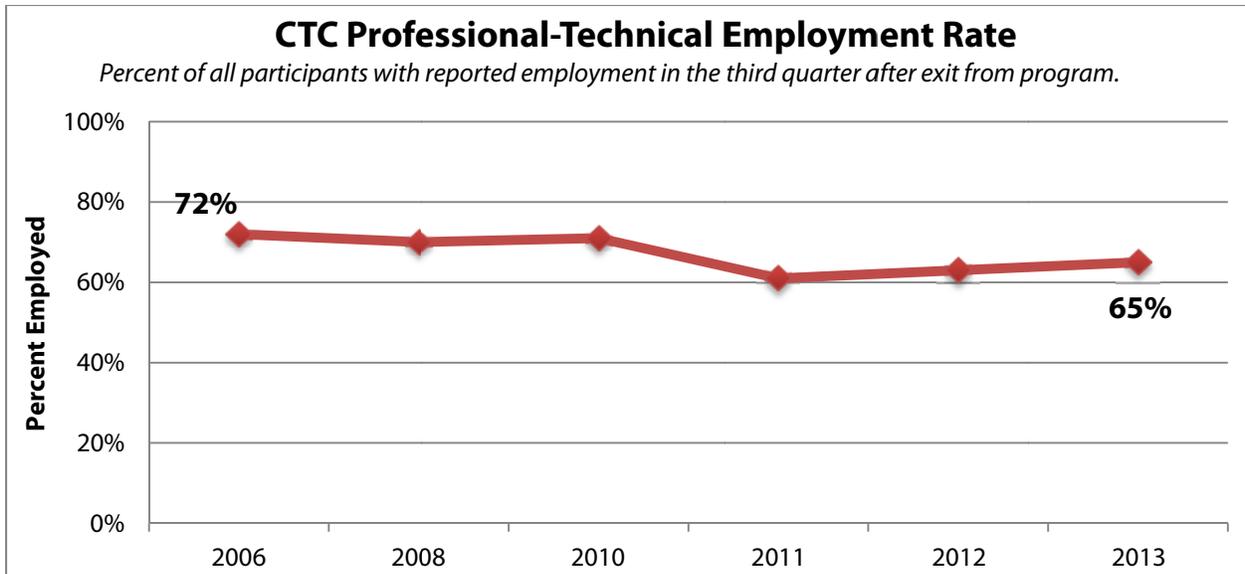
\*These figures apply to those with employment reported to the state's Employment Security Department six to nine months after leaving program for all CTC Professional-Technical participants, and are not limited to those who completed a program. Rate does not include self-employment, employment outside the Northwest or military service and thus understates total employment by approximately 10 percent.

\*\*Full-time employment averages 30 or more hours per week.

\*\*\*Earnings/wages expressed in first quarter 2012 dollars in order to account for inflation.

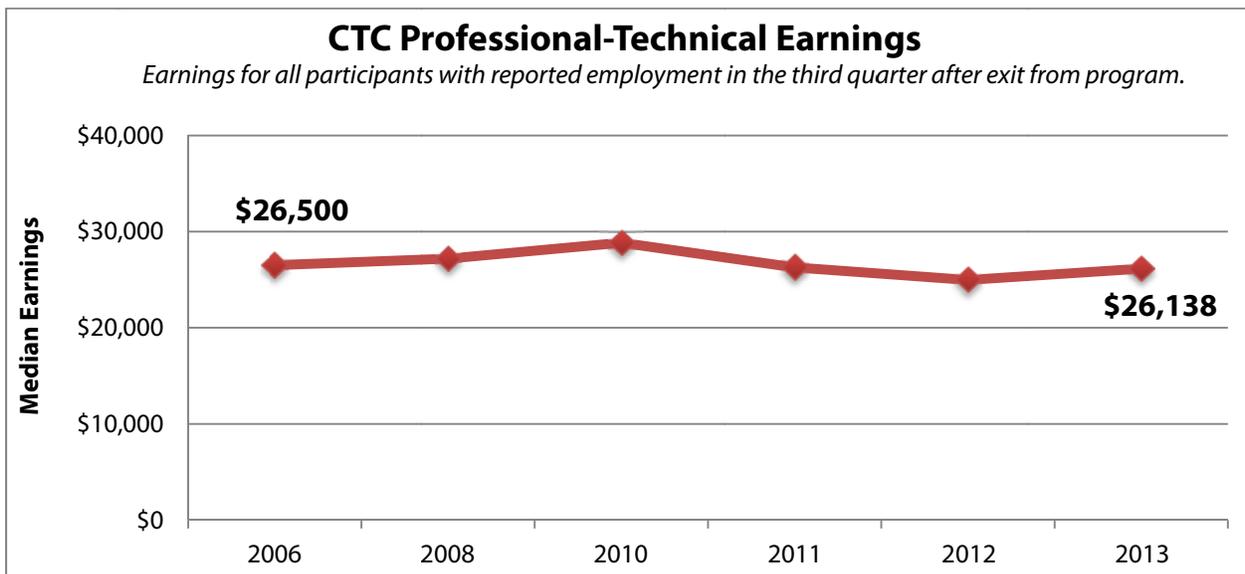
## 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board



Source: Workforce Training Results 2006-13. Rate does not include self-employment, employment outside the Northwest or military service and thus understates total employment by approximately 10 percent.

The program results in the table above indicate that employment among all CTC Professional-Technical participants remained stable prior to a sharp decline in 2011, and then subsequently increased both in 2012 and 2013. In terms of earnings, CTC Professional-Technical participants experienced increases from 2004 to 2010, after which earnings declined the following two study periods, before beginning to recover.



Source: Workforce Training Results 2006-13. Note: This chart shows annualized earnings in 2012 first quarter dollars to account for inflation.

## 2013 Workforce Training Results

### CTC Professional-Technical Participant Employment by Industry

Employment is concentrated in the services industry followed by retail trade, public administration, and manufacturing. Employment in the manufacturing industry increased by 4 percentage points, from 3.2 percent in 2012 to 7.1 percent in 2013.

<b>Industry Group</b>	
56.0%	Services (see breakout)
12.6%	Retail Trade (see breakout)
10.0%	Public Administration
7.1%	Manufacturing (see breakout)
3.5%	Construction
3.2%	Financial Services
2.7%	Wholesale Trade
2.6%	Transportation and Warehousing and Utilities
1.2%	Information
1.1%	Natural Resources and Mining
<b>Breakout of Services Industry</b>	
24.7%	Health Care
8.3%	Administrative and Support and Waste Management and Remediation Services
6.2%	Social Assistance
5.5%	Education Services
4.8%	All Other Services
3.8%	Professional, Scientific, and Technical Services
2.2%	Arts, Entertainment, and Recreation
1.7%	Accommodation and Food Services
<b>Breakout of Retail Trades Industry</b>	
3.4%	Department and Warehouse Stores
2.1%	Food and Liquor Stores
1.5%	Vehicle Sales
1.4%	Clothing and Accessories Stores
1.0%	Miscellaneous Store Retailers
0.9%	Hardware, Garden and Farm Supplies
0.8%	Books, Music and Hobbies Sales
0.7%	Health Care and Beauty Products
0.5%	Gasoline Stations
0.2%	Home Furnishings Sales
<b>Breakout of Manufacturing Industry</b>	
3.2%	Aerospace
2.0%	All Other Manufacturing
0.8%	Fabricated Metal Products
0.8%	Food & Beverage
0.3%	Wood & Paper Products

### 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board

Source: Matches with Employment Security Department data in third quarter after exiting program. Industry groups based on North American Industry Classification System codes.

## Relationship of Training to Employment

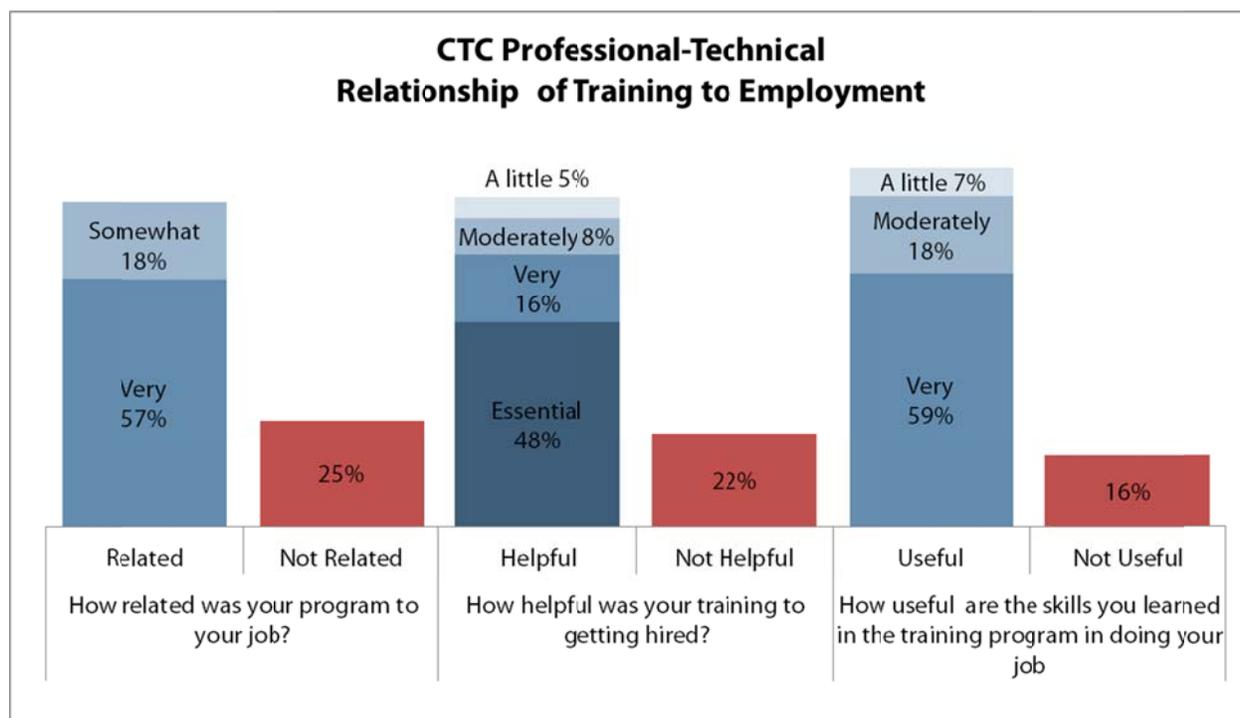
In 2011, the Workforce Board surveyed CTC Professional-Technical Education Participants who had left their program in 2009-10. The survey provided data on employment and participant satisfaction with the training. The survey was conducted by telephone and was completed by 379 participants.

To measure the extent to which a participant’s education program and training related to employment, we asked participants three questions:

1. How related was the program to their job?
2. How important was the training in getting hired?
3. Are the skills they learned useful in their job?

Asking about the relationship between training and employment in different ways can produce more complete information. For example, some participants said their training was not related to their job, but nevertheless found the skills acquired were useful on the job.

Among Community and Technical College Professional-Technical participants employed six to nine months after leaving a program, 57 percent said their training was “very related” to their job. A further 18 percent reported the training was “somewhat related” to their job. Only 25 percent said that the training was “not related at all” to their job. In 2008, employed participants reported slightly higher rates of training related to employment (79 percent reported training was related to their job versus 75 percent this year).



Source: Workforce Board’s Participant Satisfaction Survey 2011.

## 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board

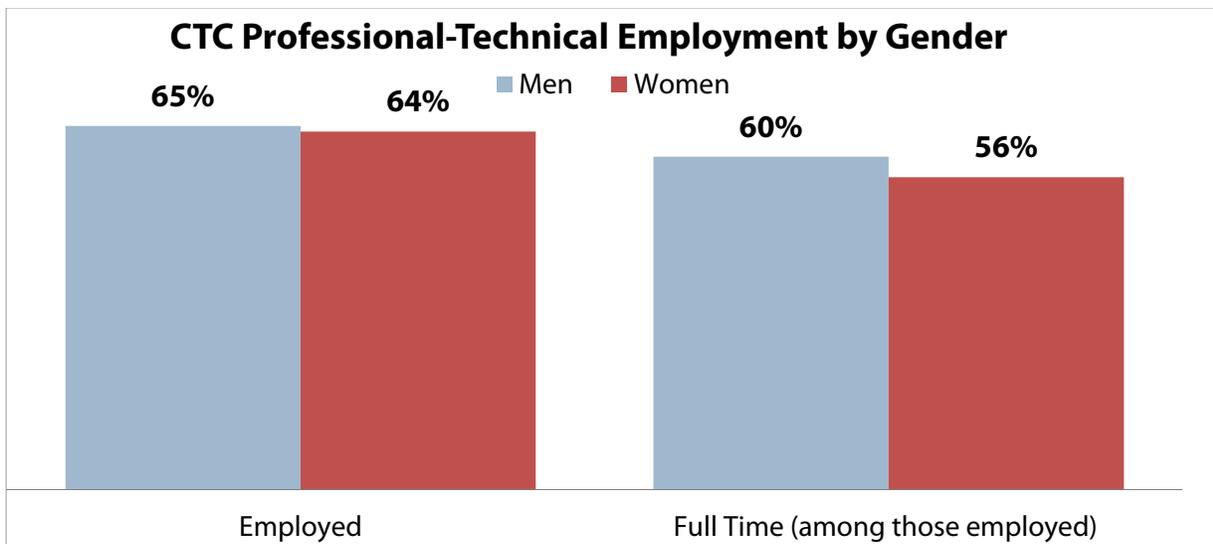
Participants interviewed in 2011 also indicated the training was helpful to them in getting their job. Of those participants, 48 percent indicated their training was an “essential requirement,” another 16 percent indicated it was “very important,” and 8 percent reported it was “moderately important.” Five percent said it was “a little helpful.” Only 22 percent indicated their training was “not important at all” to getting their job.

Most participants said the skills they learned in their training program were useful in doing their job. Some 59 percent of participants indicated the skills were “very useful,” 18 percent said “moderately useful,” and 7 percent “a little useful.” The remaining 16 percent of participants who were employed indicated the skills were “not useful at all.”

When combining two of the questions about the program’s relationship to the job and about whether the skills acquired were helpful, a small percentage of participants answer negatively to both. Just 14 percent of participants employed the third quarter after exit said the training they received was *neither* helpful in their job nor related to the job they obtained.

### Wages and Employment Results Vary by Population

Wage and employment results may vary by gender, race and ethnicity, and disability. However, female participants (64 percent) were just as likely to be employed in the third quarter after leaving their programs as male participants (65 percent). Men were more likely to be employed full time than women (60 percent vs 56 percent).



Source: Matches with Community and Technical Colleges Administrative Data and Employment Security Department data.

Among employed participants, women’s median annual earnings were \$24,404, or 85 percent of what men earned (\$28,777). Women’s median hourly wages were \$14.68, or 95 percent of men’s hourly wages (\$15.48). An earnings gap persists; one possible reason is that women

### 2013 Workforce Training Results

and men tend to enroll in different types of programs, which lead to jobs that pay different amounts.

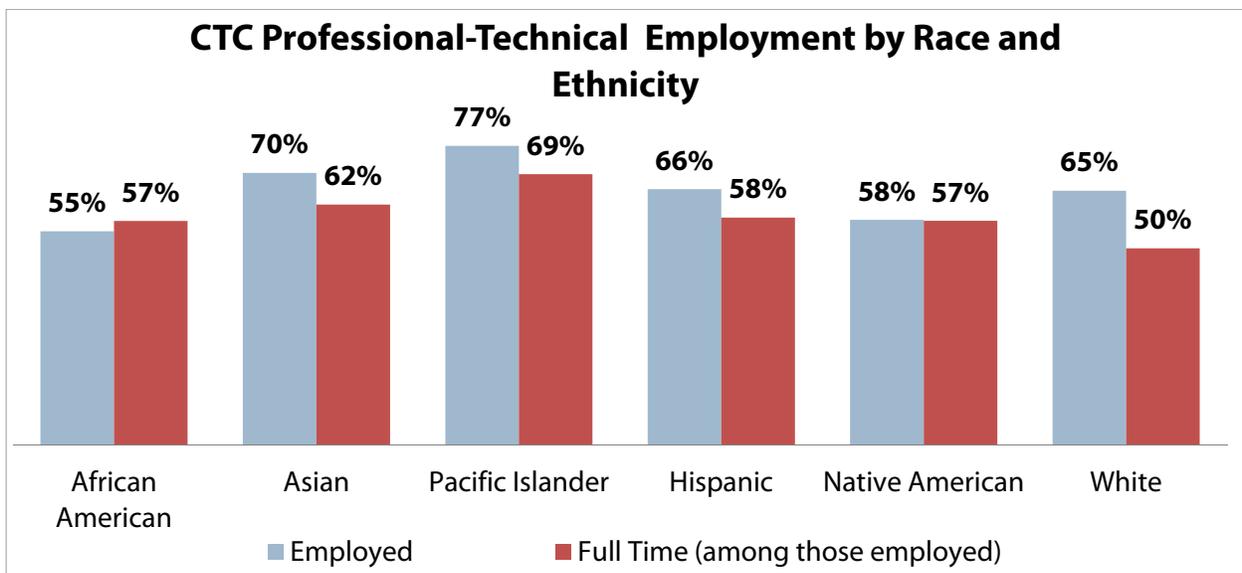
The service industry, for example, has a heavily female workforce. Some 70 percent of women CTC Professional-Technical participants obtained work in the service industry compared to 37 percent of men. Conversely, 13 percent of men obtained work in manufacturing while 3 percent of women obtained manufacturing jobs. Slightly more men than women work in retail trades. However, men were more likely to work in such jobs as vehicle sales while women were more likely to work in clothing and health care and beauty products stores.

### Race and Ethnicity Play Roles

African Americans (55 percent) were the least likely racial/ethnic group to be employed in the third quarter after leaving their programs. This compares to employment rates of 77 percent for Pacific Islanders, 70 percent for Asians, 66 percent for Hispanics, 65 percent for whites, and 58 percent for Native Americans. Among those employed, the percent employed full time was highest for Pacific Islanders (69 percent) and Asians (62 percent). Full time employment was lowest for whites (50 percent). Native Americans (57 percent), African Americans (57 percent) and Hispanics (58 percent) fell in between.

Of those employed the median hourly wages were \$15.96 for Native Americans, \$15.81 for Asians, \$15.27 for whites, \$14.74 for Pacific Islanders, \$13.19 for Hispanics, and \$13.18 for African Americans.

Pacific Islanders had the highest median annual earnings (\$26,625), followed closely by whites (\$26,285) and Native Americans (\$25,435). Hispanics (\$22,975), Asians (\$22,803) and African Americans (\$22,803) all had lower median annual earnings.



Source: Matches with Community and Technical Colleges Administrative Data and Employment Security Department data.

### 2013 Workforce Training Results

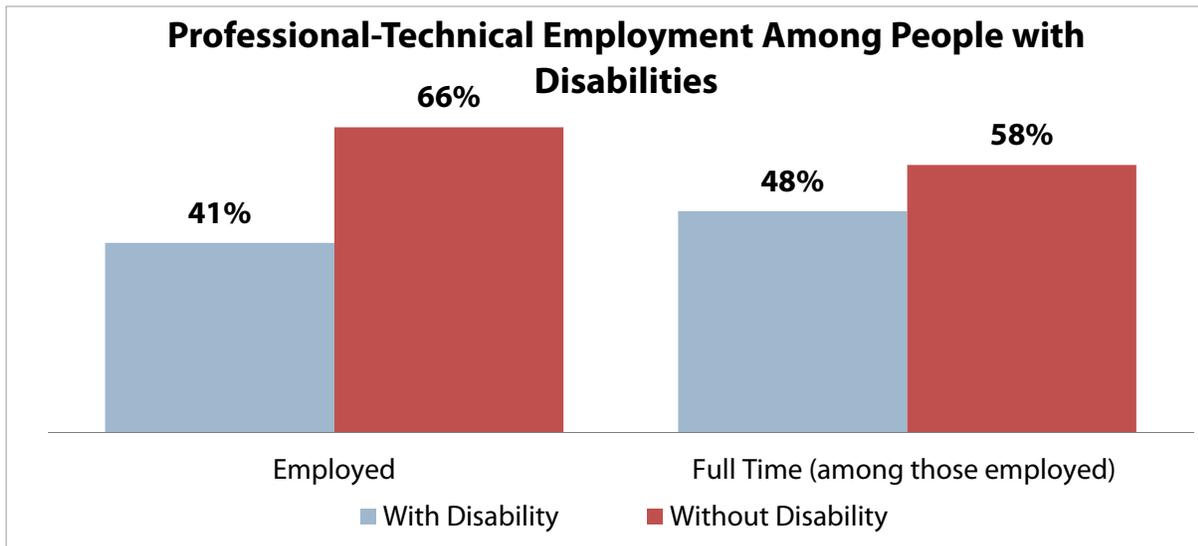
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**2013 Workforce Training Results**

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board

## Disability Impacts Employment and Earnings

Employment outcomes and earnings also varied by disability status. College records indicate that 6 percent of the participants included in this study had a disability. These participants were less likely to have employment during the third quarter after exit (41 percent versus 66 percent of those without a disability). This is similar to the prior year, in which 41 percent of disabled participants were employed, compared to 65 percent of the non-disabled. Disabled participants were also less likely to work full time (48 percent versus 58 percent for non-disabled). Among those working, the median hourly wage rate of those with a disability (\$12.78) was 84 percent of those without a disability (\$15.17), and their median annual earnings (\$19,754) were 75 percent of those with no reported disability (\$26,404).



Source: Matches with Community and Technical Colleges Administrative Data and Employment Security Department data.

## Were Employers Satisfied with the Preparation Workers Received?

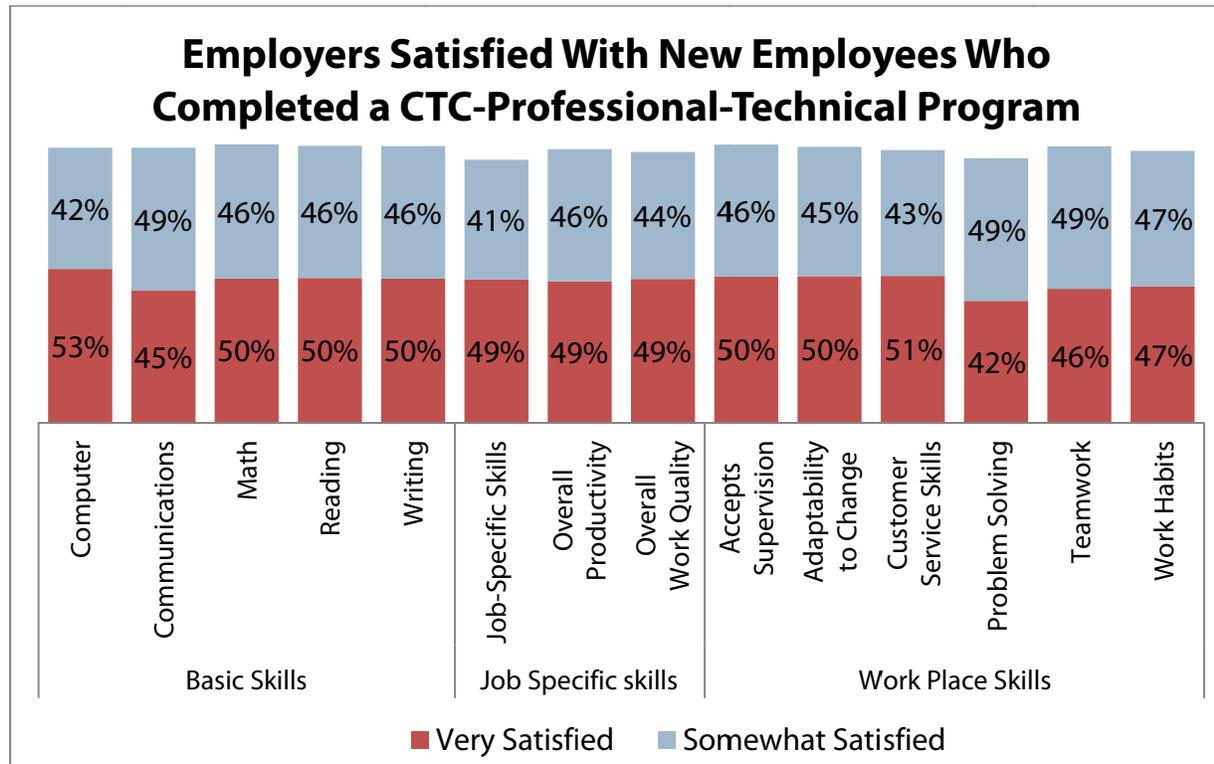
The Workforce Board's Employer Survey, administered during 2012, asked firms to evaluate new employees who had recently completed a CTC Professional-Technical program. Some 93 percent of employers said they were either "somewhat satisfied" or "very satisfied" with the overall work quality of these new employees.

Employer satisfaction is broken down into three categories: Basic Skills, Job Skills and Work Place Skills. Basic skills refer to reading, writing, math, communication and computer skills. Job skills refer to skills specific to the job, as well as overall work quality and productivity. Work place skills refer to the skills necessary to get along in the workplace such as the ability to accept supervision, the ability to adapt to changes in duties and responsibilities, teamwork, customer service, problem solving or critical thinking skills, and having positive work habits and attitudes.

## 2013 Workforce Training Results

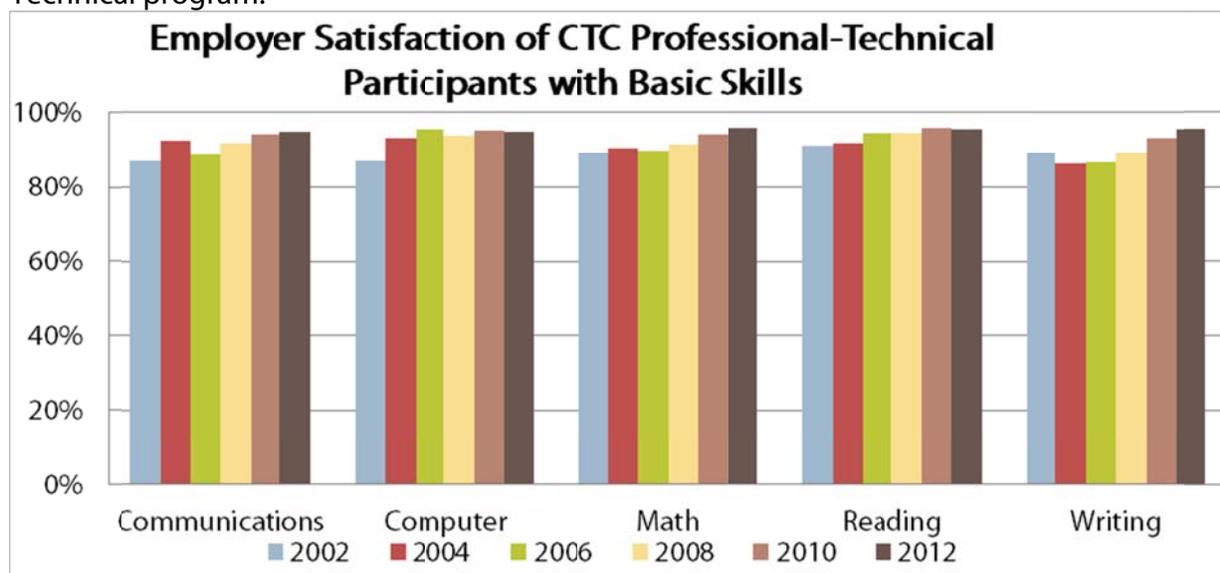
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Workforce Training and Education Coordinating Board

In 2012, employer satisfaction was consistently high across skill types, with just slightly lower satisfaction with new employees' problem-solving and communication skills.



Source: Workforce Board Employer Survey conducted in 2012.

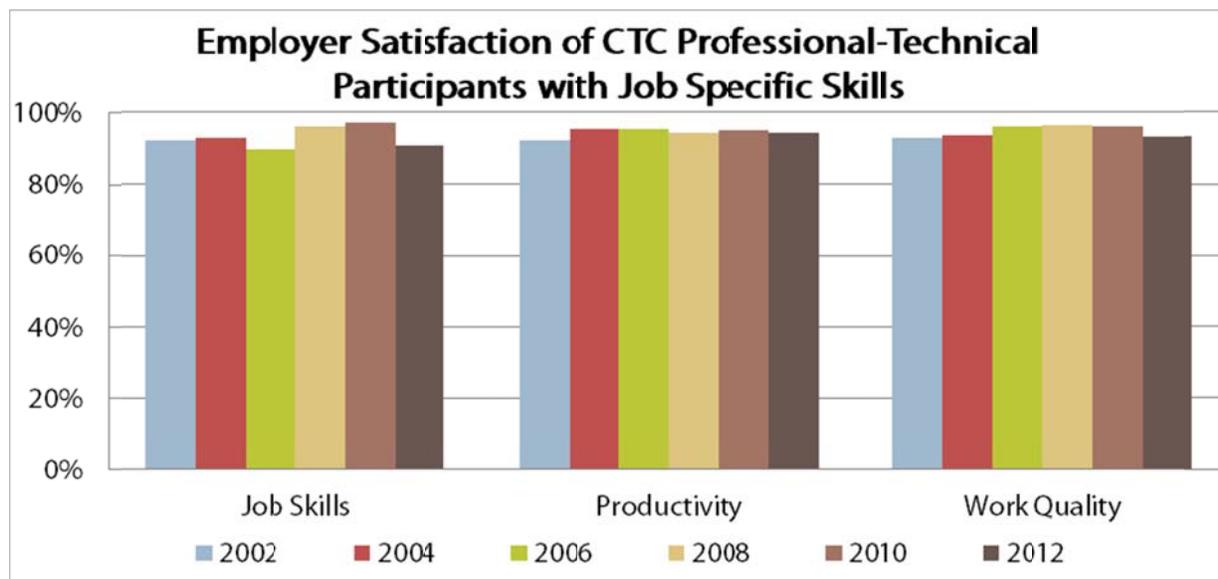
Overall, employer satisfaction has increased in most categories over the last decade, and has remained stable since the last survey. The following three charts show the trends in satisfaction of employers with new employees who recently completed a CTC Professional-Technical program.



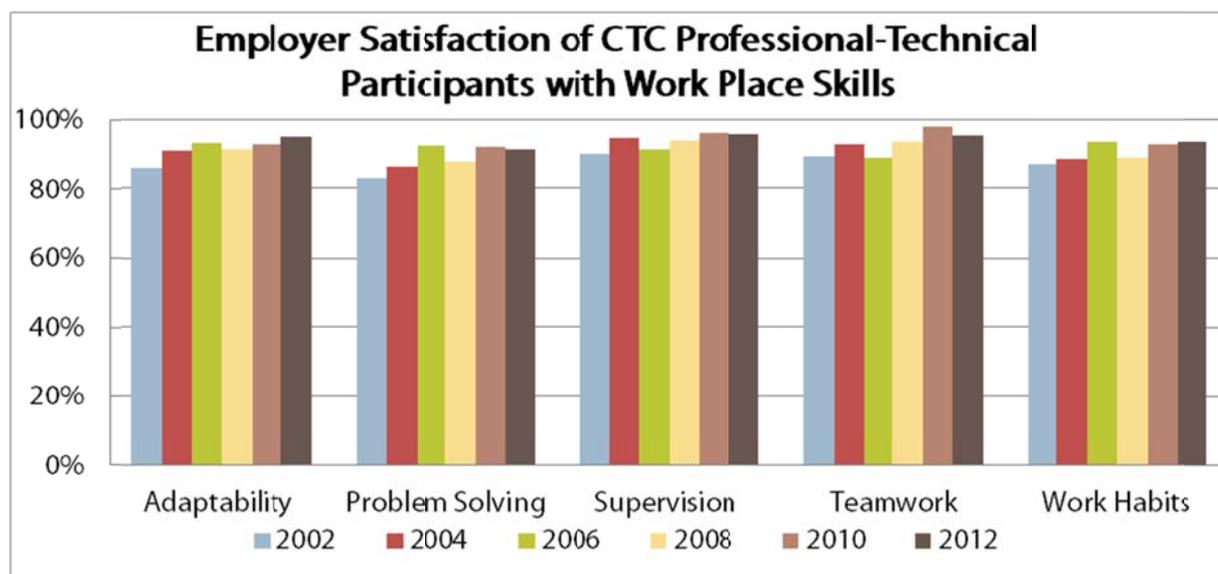
## 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
 Workforce Training and Education Coordinating Board

Source: Workforce Board's biennial Employer Surveys from 2002 through 2012.



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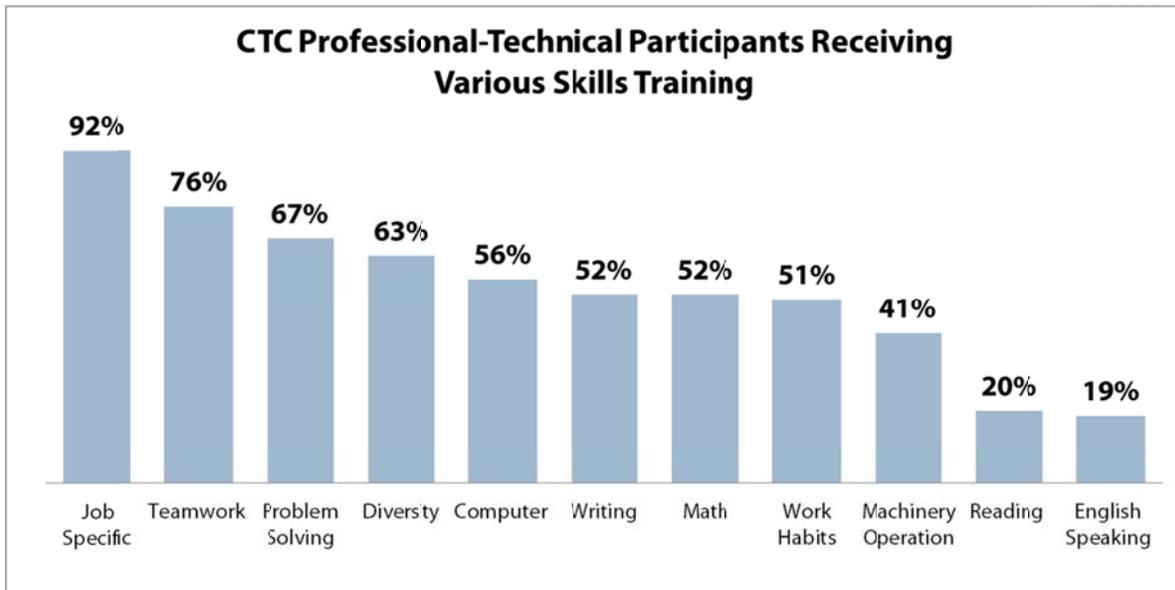
### Competency Gains

The primary goal of workforce training and education is to provide individuals with the skills and abilities required in the workplace. CTC Professional-Technical participants appear to agree: 86 percent of the participants surveyed for the 2011 Workforce Board Participant Survey indicated that they enrolled in college to learn skills for a new job, which is similar to participants in the previous study. At 87 percent, the number one reason participants decided to enroll was to either obtain or finish a degree or certificate.

### 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
 Workforce Training and Education Coordinating Board

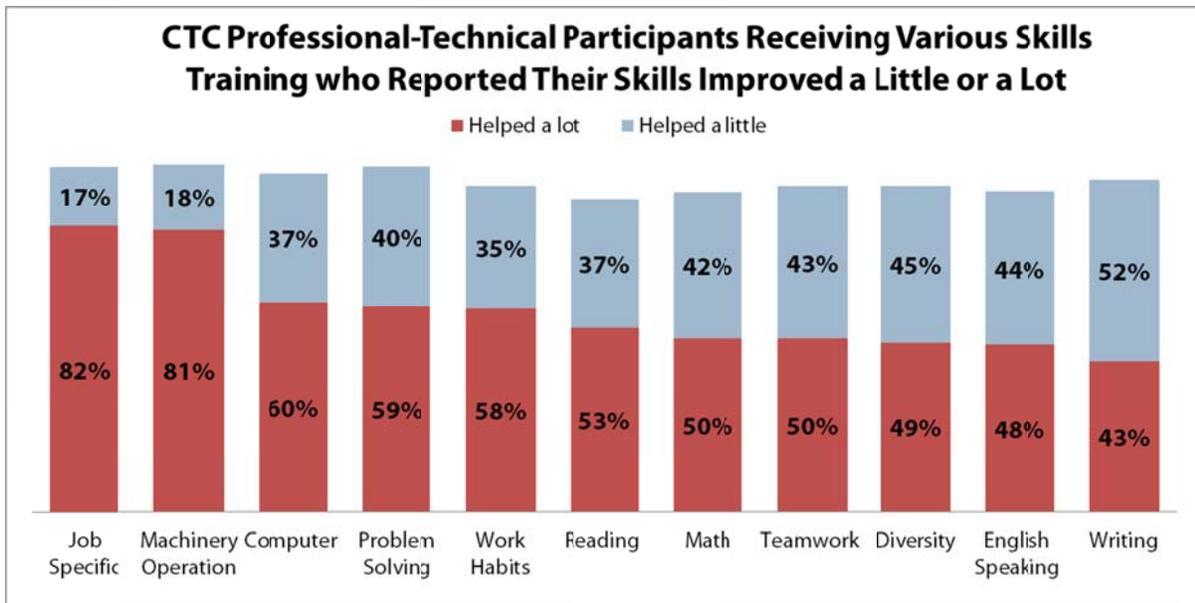
In addition to learning job-specific skills, CTC Professional-Technical participants also receive other types of training. Over 76 percent received training in teamwork, and 67 percent received training in problem solving. In comparison to the 2008 study, participants from 2011 appear to have received a wider variety of skills training. The percentage of participants indicating they received training increased in the areas of machinery operation, diversity, teamwork and problem solving. However, the percentage of participants indicating they received training in English speaking dropped 5 percentage points.



Source: Workforce Board's Participant Satisfaction Survey 2011.

As in the previous study, most participants reported their skills improved as a result of training, and higher percentages reported substantial improvements in their job specific skills than in their workplace or basic skills. Compared with the study in 2008, slightly higher or similar percentages of participants this year reported their skills improved "a lot" across most skills training. However, participants indicating that the training improved their writing and diversity skills "a lot" decreased by around 7 percentage points.

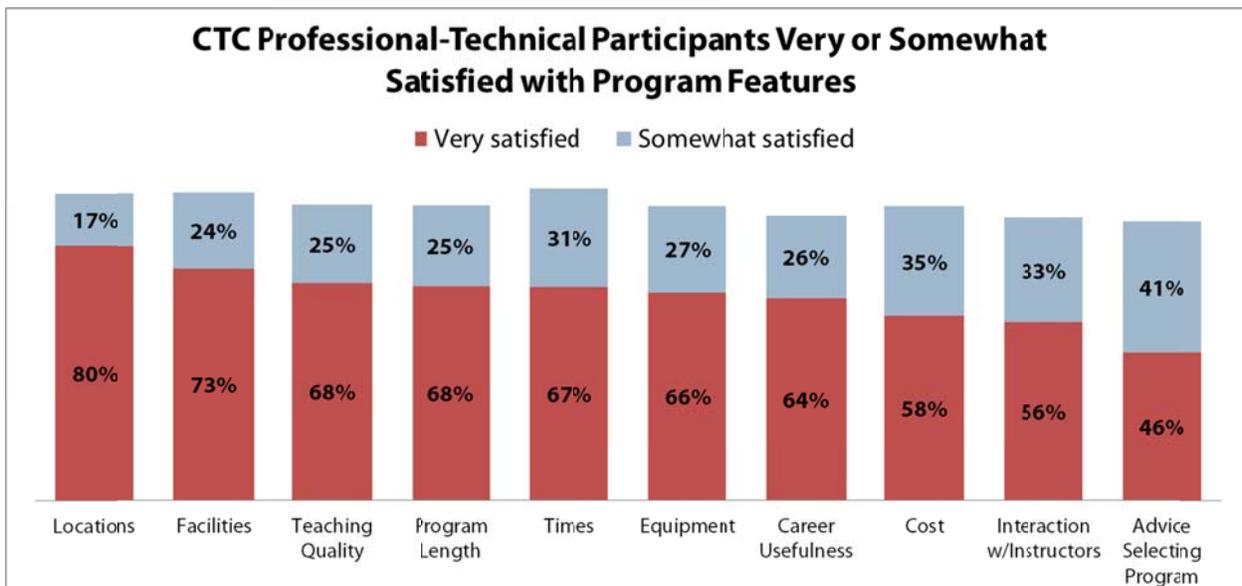
### 2013 Workforce Training Results



Source: Workforce Board's Participant Satisfaction Survey 2011.

### Participant Satisfaction

In the 2011 Workforce Board Participant Satisfaction Survey participants expressed high levels of satisfaction, similar to previous studies. Some 96 percent of participants reported they had met their educational objectives. And 91 percent reported they were “very satisfied” or “somewhat satisfied” with the program as a whole. Participants tended to be “very satisfied” with various features of their programs including location, facilities, quality of teaching, times offered, and usefulness of the program to their career. They were less satisfied with advice on selecting a training program.

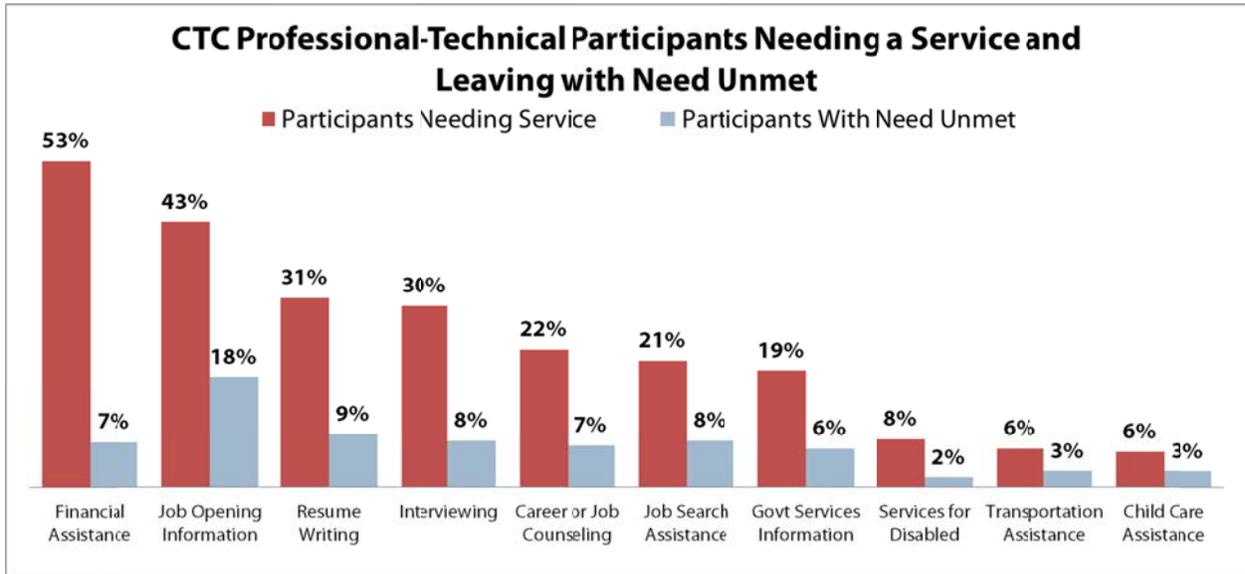


Source: Workforce Board's Participant Satisfaction Survey 2011.

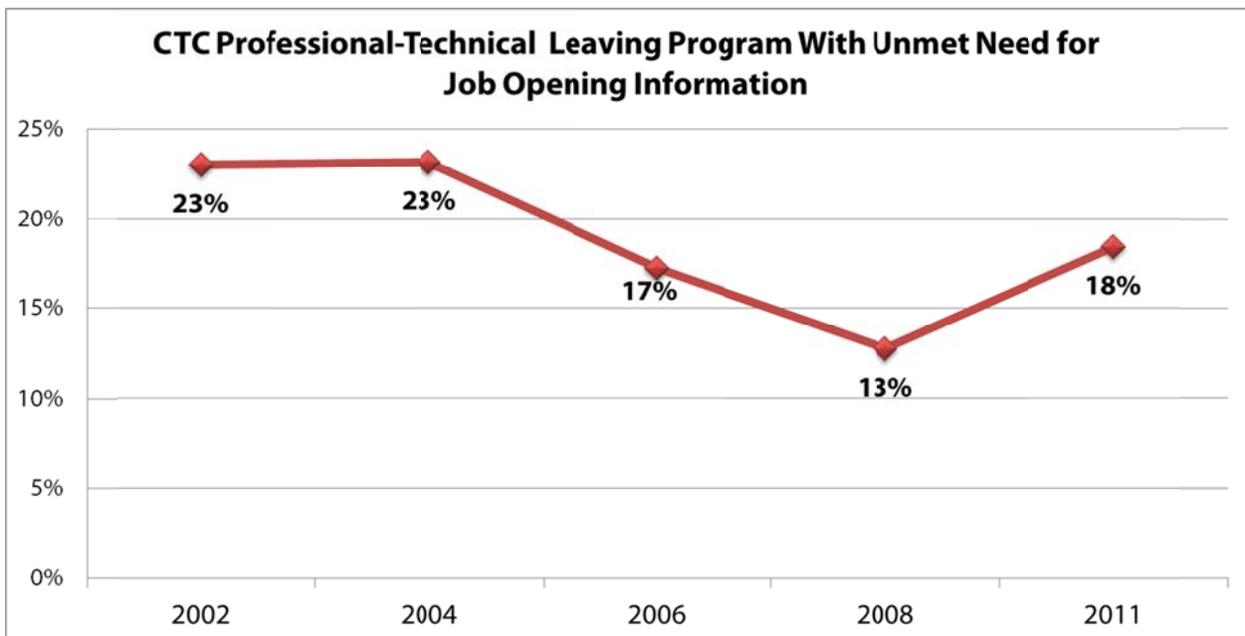
### 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
 Workforce Training and Education Coordinating Board

Similar to previous studies, participants indicated financial assistance and information about job openings as the support services they most needed while enrolled. Fewer participants needed transportation or child care assistance. Participants tended to receive the support services they needed; the exception continues to be information about job openings. In 2011 an increased percentage of participants reported leaving the program with an unmet need in this area.<sup>9</sup>



Source: Workforce Board's Participant Satisfaction Survey 2011.

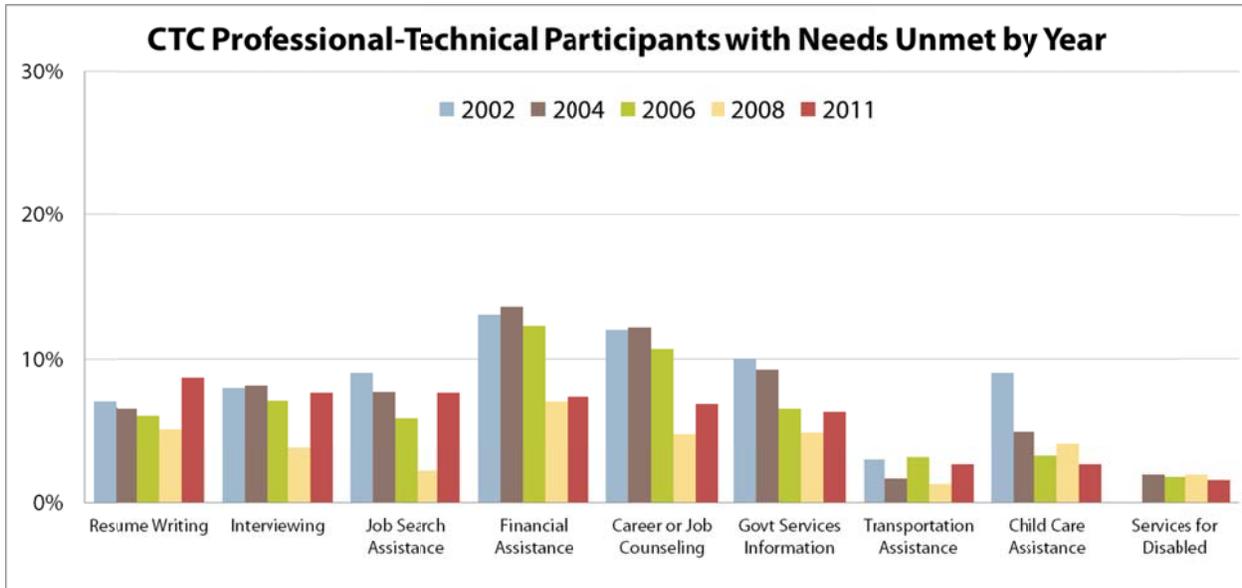


Source: Workforce Board's Participant Satisfaction Survey 2011.

<sup>9</sup> Unmet need refers to cases where the student reports that either they did not receive the required service or what was provided did not meet their needs.

### 2013 Workforce Training Results

After a nearly a decade of declines in unmet needs, the percentage of participants reporting that they left the program with an unmet need has increased in nearly every category. The largest jumps in unmet need were in job opening information, interviewing and job search assistance, all of which increased by 6 percentage points. However, one program reported a decline in the percentage of participants indicating they left with an unmet need: child care assistance, which dropped slightly to 2.6 percent from 4.1 percent in 2008 and 9 percent in 2002.



Source: Workforce Board's Participant Satisfaction Surveys 2002-2011.

### Net Impact – Did the Program Make a Difference in Participant Success?

Every four years the Workforce Training and Education Coordinating Board conducts a net impact analysis of workforce development programs. This detailed study compares participants and non-participants. The net impact part of this study attempts to measure whether the program made a difference in the participant's success. Washington is the only state to periodically conduct rigorous net impact evaluations of its workforce programs.

The net impact analysis was conducted by the W.E. Upjohn Institute for Employment Research (Upjohn), a national leader in evaluating training programs. To do the analysis, Upjohn studied program participants to see what results they achieved and compared these results with a control group. Individuals who participated in a Community or Technical College Professional-Technical Education program were compared to individuals who had similar demographic

CTC Professional-Technical training has strong positive net impacts on employment, wages, hours worked, and earnings. Training substantially increases the lifetime earnings of participants.

### 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board

characteristics, but who did not participate in any of the programs included in the study. The comparison group members were selected from among those who registered with WorkSource, Washington's one-stop career center system.

The most recent net impact analyses examined experiences of participants who left the CTC Professional-Technical Training program through 2009. The short-term impact (Program Year 2007-08) was observed in 2008-09, while the long-term impact (Program Year 2005-06) was observed from 2006-07 through 2008-09.

### **2013 Workforce Training Results**

## Impact on Employment and Earnings: Participants vs. Control Group

Community and Technical College Professional-Technical Education	Short-term <sup>^</sup>	Long-term <sup>^</sup>
Net Employment Impact*	6.6 percentage points	10.1 percentage points
Net Hourly Wage Impact**	\$3.22	\$3.41
Net Quarterly Hours Impact	59.8	59.5
Net Annualized Earnings Impact**	\$8,691	\$9,253

<sup>^</sup>Short-term is three quarters after program exit; Long-term is average across three years since program exit.

\*Percentages listed are employment percentage points above those of the control group of non-participants.

\*\*Wages and earnings, expressed in first quarter 2012 dollars, represent the average difference between CTC Professional-Technical participants who got jobs and those in the control group who were employed.

As can be seen above, Community and Technical College Professional-Technical Education participants fared better in both the short- and long-term in employment, hourly wages, hours worked and annualized earnings than those with similar demographic characteristics who did not participate in a workforce program. These net gains hold up and even increased over time.

### Costs and Benefits

The cost-benefit analysis estimates the value of the net impact on earnings, employee benefits (estimated at 25 percent of earnings), UI benefits, and certain taxes.<sup>10</sup> Program costs include both direct program costs and support payments borne by taxpayers and the tuition and foregone earnings borne by program participants.

Benefits and costs are calculated for both the observed period of time and based upon a statistical model that estimated the benefits and costs out to age 65. In order to compare benefits and costs in terms of net present values, post-program benefits and costs are discounted by 3 percent per year and all figures are stated in 2012 Q1 dollars to control for inflation. The benefits and costs presented here are based on impacts estimated for students leaving programs in 2005-2006 (observed from 2006-07 through 2008-09), because a longer term follow-up is required for this analysis.

<sup>10</sup> Upjohn estimated the impact of the net change in earnings on social security, Medicare, federal income, and state sales taxes.

### 2013 Workforce Training Results

## Participant and Public Benefits and Costs per Participant in Community and Technical Colleges Professional-Technical Programs

Benefit/Cost	First 2.5 years		Lifetime (until 65)		Sum of Costs and Benefits
	Participant	Public	Participant	Public	
<b>Benefits</b>					
Earnings	\$15,759	\$0	\$144,043	\$0	
Fringe Benefits	\$3,939	\$0	\$36,010	\$0	
Taxes	-\$3,255	\$3,255	-\$29,745	\$29,745	
Transfers					
UI	-\$1,019	\$1,019	-\$920	\$920	
<b>Costs</b>					
Foregone net earnings	-\$3,318	-\$656	-\$3,318	-\$656	
Program costs	-\$5,439	-\$10,897	-\$5,439	-\$10,897	
Benefits	\$15,425	\$4,273	\$149,388	\$30,665	
Costs	-\$8,757	-\$11,552	-\$8,757	-\$11,552	
<b>Total (Net)</b>	<b>\$6,668</b>	<b>-\$7,279</b>	<b>\$140,631</b>	<b>\$19,113</b>	<b>\$159,744</b>

Note: Benefits and costs are expressed in 2012 first quarter dollars.

For each student in CTC Professional-Technical Education, the public (taxpayer) cost is \$10,897 over the length of their enrollment, and the student cost is \$5,439 in tuition and \$3,318 in foregone earnings while training. During the first two and one-half years after leaving college, the average student will gain \$15,759 in earnings. During the course of working life to age 65, the average student will gain about \$140,725 in net earnings (earnings minus foregone earnings) and about \$36,010 in employee benefits. These are net gains compared to the earnings of similar individuals who did not receive the training. Including program costs and the net impacts on taxes and unemployment insurance benefits, the total net benefit per participant is \$140,631.

Projected participant net benefits to age 65 outweigh public costs invested in college training by a ratio of about \$13 to 1, or \$140,631 to \$10,897.

From the time of leaving training to age 65, the public is forecasted to gain about \$29,745 per participant in net additional Social Security, Medicare, federal income, and state sales taxes and to save \$920 in UI benefits—far greater than the direct cost of college training. The estimated lifetime net benefit to taxpayers is \$19,113 per participant.

Projected taxpayer net benefits to age 65 outweigh public costs invested in college training by a ratio of \$3 to 1, or \$30,665 to \$10,897.

### 2013 Workforce Training Results

Community and Technical Colleges--Professional Technical Education  
Workforce Training and Education Coordinating Board

## **Summary and Areas for Improvement**

The report finds very strong results for community and technical colleges' professional-technical education. Professional-Technical education has very substantial net impacts on participant employment and earnings and returns more revenue to taxpayers than the program costs. Employer and participant satisfaction are very high. While participant employment and earnings remain below the peaks reported in 2010, they are beginning to recover from the effects of the Great Recession.

The findings suggest some areas to focus on for improvement. Participant satisfaction with support services (especially career counseling, job search assistance, and information on job openings) is lower than it used to be. This likely reflects reductions in these services due to budget cuts. Also, the breakdown of results by subpopulations reveals the greatest disparities in labor market outcomes for students with disabilities. The employment rate for people with a disability is 15 percentage points lower than for people without a disability. The annual earnings for people with a disability is 75 percent of the earnings of those with no reported disability. Enhancing support services, especially services related to post-program employment and services for students with a disability, are areas for improvement.

## **2013 Workforce Training Results**