



Washington State  
Workforce Training  
And Education  
Coordinating Board

## Workforce Training Results Report

December 2008

### Community and Technical Colleges (CTC) Job Preparatory Training

Washington's 34 community and technical colleges offer job preparatory training that provides students with skills required for specific occupations. CTC Job Preparatory training does not include students who intend to transfer to a four-year college or university; students 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. While the Worker Retraining program at the community and technical colleges also provides occupational training, the results for students who participated in this program are evaluated separately.

During the 2005-2006 school year, 30,042 CTC Job Preparatory students completed or otherwise left the community or technical college system.<sup>1</sup> These students comprise the job preparatory cohort included in this study. The median length of enrollment for these students was nine months.

This study includes information from students' college enrollment records; Employment Security Department (ESD) wage files from Washington, Idaho, Oregon; and federal employment records. In addition, 315 students completed a telephone survey, providing additional data on employment and their satisfaction with the training. A survey collected employer satisfaction information during the summer of 2007; 448 firms that hired new employees who recently completed a job preparatory program responded to the survey.

#### *Participant Characteristics*

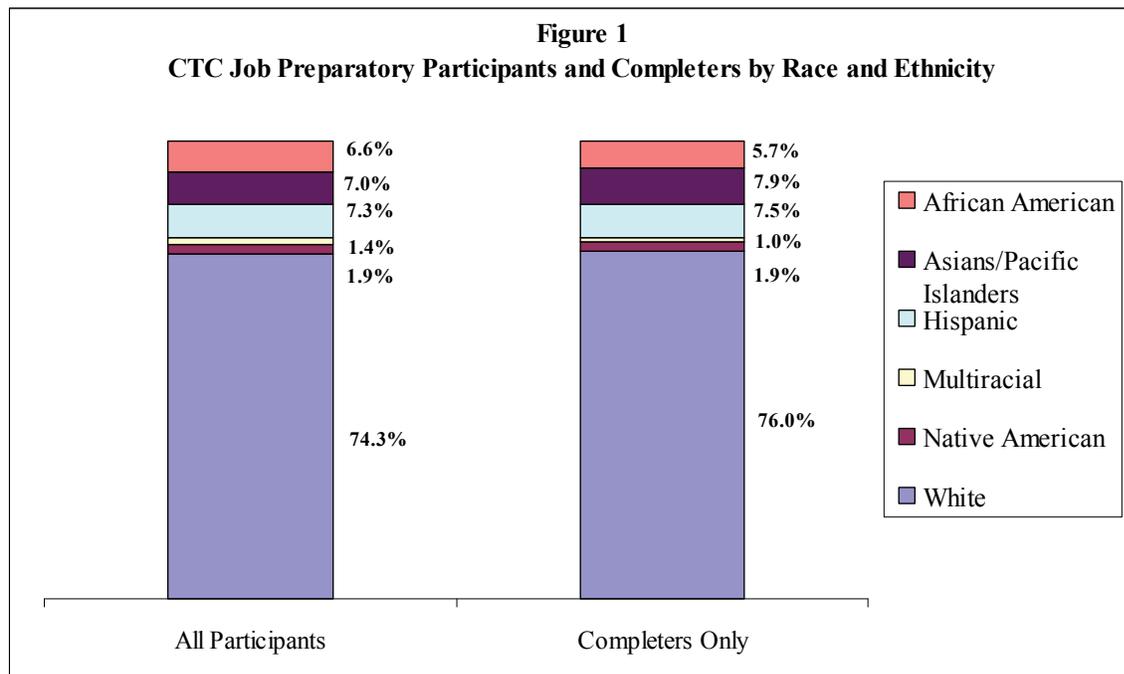
Students from racial and ethnic minority backgrounds continued to be well represented among CTC Job Preparatory participants (Figure 1).<sup>2</sup> They also made up a similar percentage

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<sup>1</sup> CTC Job Preparatory students identified themselves as vocational students and have either enrolled for six or more vocational credits or have completed three or more vocational credits. Additionally, the students included in this study exited their program during the 2005-2006 academic school year and did not enroll in a community or technical college for a period of one full year.

<sup>2</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/Pacific Islanders (also referred to as Asians/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 2006 *Washington State Population Survey*, 77 percent are whites; 3 percent are African Americans; 1 percent are Native Americans; 7 percent are Asians/Pacific Islanders; 3 percent are multiracial; and 9 percent are Hispanics.

of total program completers, although for particular subpopulations, completion rates were lower.



Source: Community and Technical Colleges Administrative Data 2005-2006

Of the 2005-2006 CTC Job Preparatory students, 58 percent are women up from 57 percent in 2003-2004. Of the 2005-2006 completers, 62 percent are women.

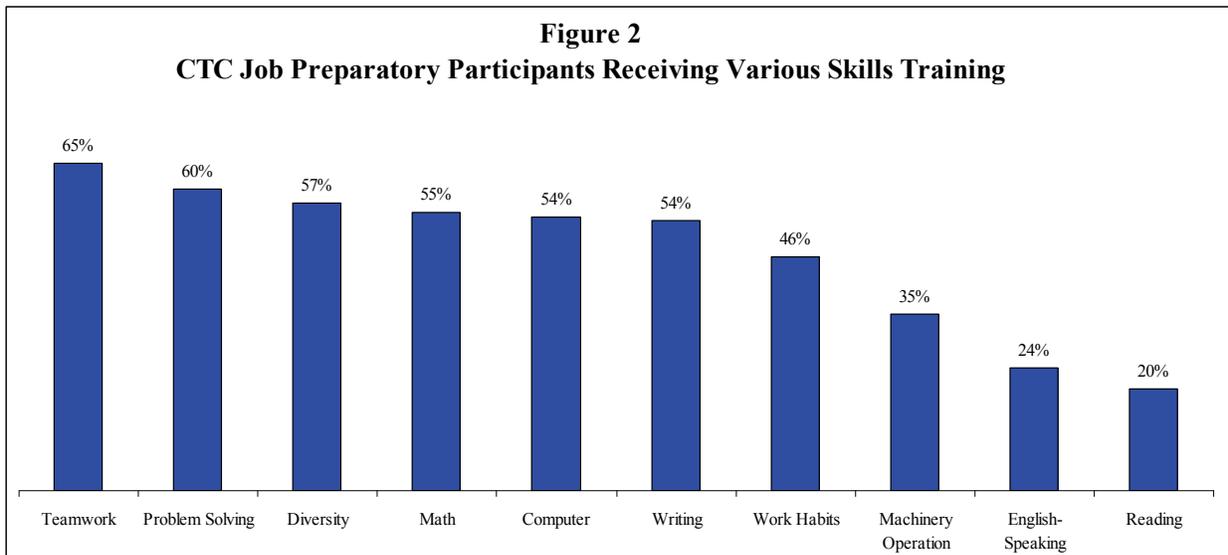
When they enrolled, 52 percent of the students had not previously attended college; 22 percent had attended college without receiving a credential; 12 percent had a certificate or associate degree; and 9 percent had a baccalaureate or higher degree and 6 percent has some other credential. The median age upon leaving training was 29—one quarter was under the age of 23, and another quarter was over age 40.

### Competency Gains

Of CTC Job Preparatory students, 59 percent completed their programs—18 percent received an associate degree; 17 percent received a vocational certificate; 14 percent were deemed ready for work because they completed 45 or more credits, and 10 percent completed a non-credit vocational program that led to a certificate.<sup>3</sup> Similarly 58 percent of those leaving in 2003-2004 completed their program, 18 percent received an associate degree; 18 percent received a vocational certificate; 13 percent were deemed ready for work because they completed 45 or more credits; and 10 percent completed a non-credit vocational program that led to a certificate.

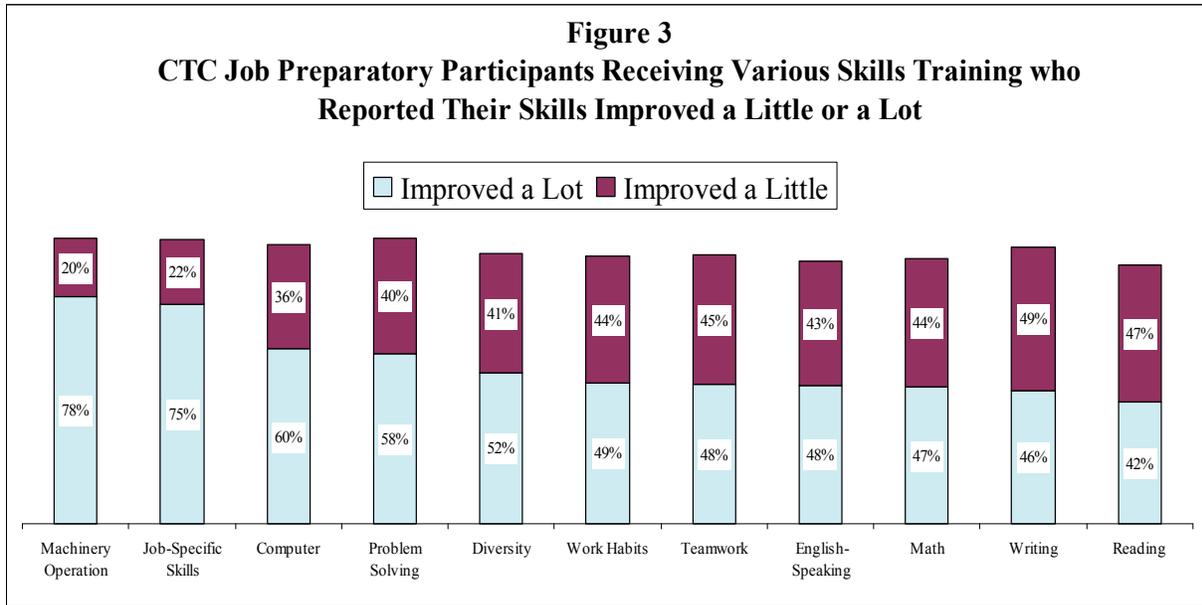
<sup>3</sup> Upon exiting a college, the system determines whether the student is considered to have completed the program. The percentages do not add up to 58 percent due to rounding.

The primary goal of workforce training and education is to provide individuals with the skills and abilities required in the workplace. CTC Job Preparatory students appear to agree. Some 85 percent of the 2005-2006 CTC Job Preparatory students said to “learn skills for a new job” was their most common reason for enrolling in college, which is similar to the 2003-2004 participants. In addition to learning job-specific skills, students also receive other types of training (Figure 2). In comparison to 2003-2004 students, those from 2005-2006 appear to have received a wider variety of skills training. Much higher percentages reported receiving training in teamwork, computer, writing, and diversity skills. A much lower percentage, however, reported receiving training in machinery operations.



Source: Participant Satisfaction Survey 2005-2006

As in the previous study, most students reported their skills improved as a result of training, and higher percentages report substantial improvements in their technical skills than in their general workplace or basic academic skills (Figure 3). Across all skills training, slightly higher or similar percentages of the 2005-2006 students reported their skills improved “a lot” compared to two years ago.

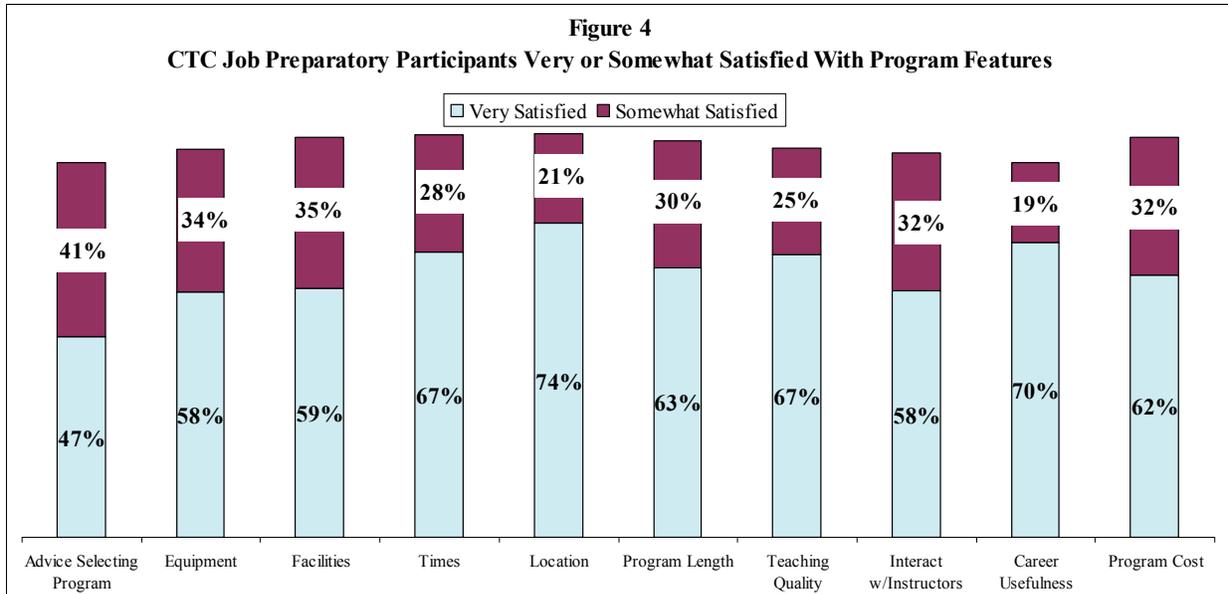


Source: Participant Satisfaction Survey 2005-2006

Among students employed seven to nine months after leaving the program, 79 percent reported their education and training was related to their job, up from 73 percent two years ago.

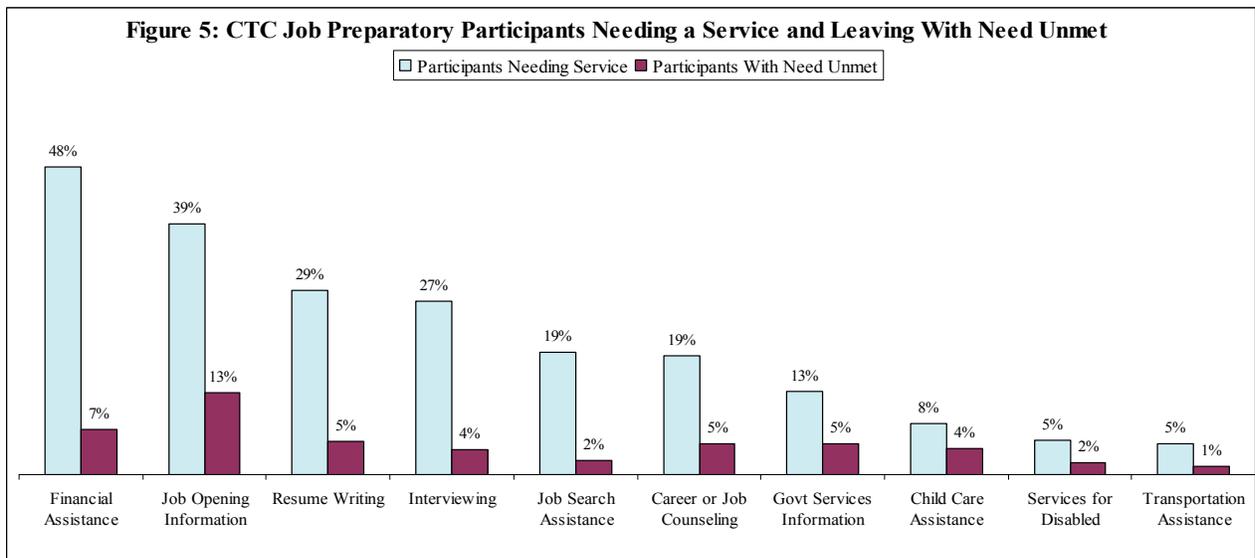
**Participant Satisfaction**

The 2005-2006 CTC Job Preparatory students expressed similar high levels of satisfaction as in previous studies. Some 95 percent of students reported they had met their educational objectives. And 91 percent reported they were “very satisfied” or “somewhat satisfied” with the program as a whole. Students tended to be “very satisfied” with various features of their programs including location, times offered, quality of teaching, facilities, and usefulness of the program to their career (Figure 4). They were less satisfied with advice on selecting a training program.



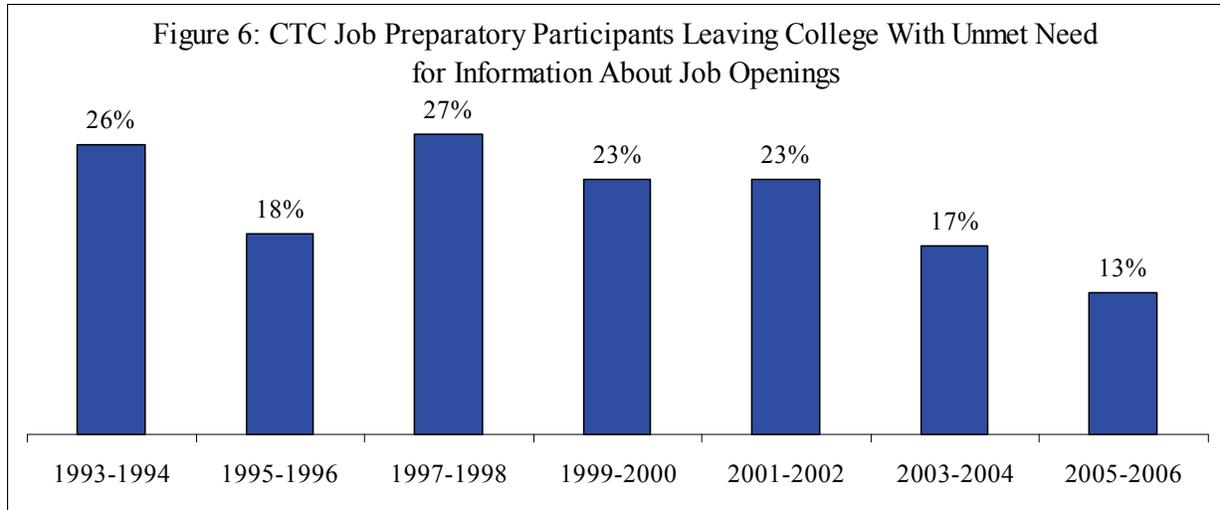
Source: Participant Satisfaction Survey 2005-2006

Similar to previous studies, students indicated financial assistance and information about job openings as the support services they most needed while enrolled (Figure 5). Students tended to receive the support services they needed. The exception continues to be information about job openings. However, a smaller percentage of the 2005-2006 students compared to previous cohorts reported such an unmet need (Figure 6).<sup>4</sup>



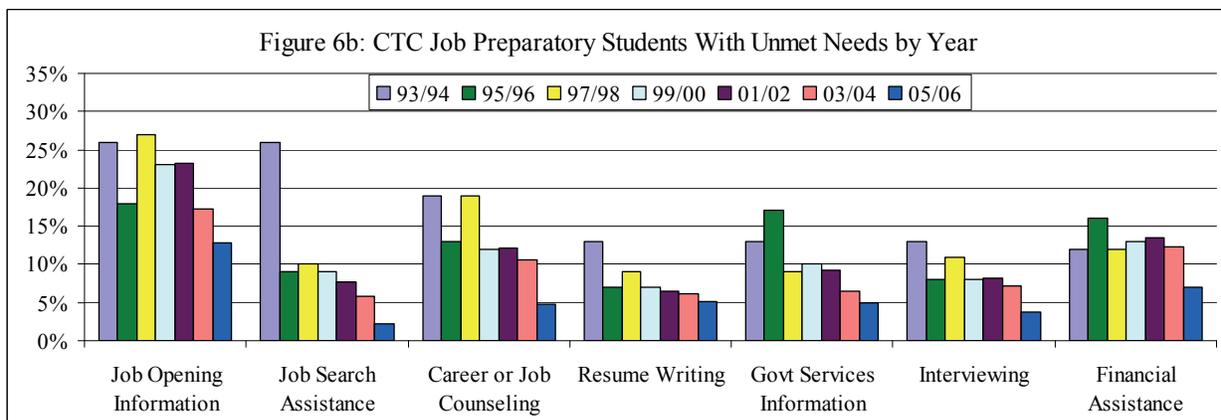
Source: Participant Satisfaction Survey 2005-2006

<sup>4</sup> Those with unmet need include students who needed a service but either did not receive it or what they received did not meet their needs.



Source: Participant Satisfaction Survey 1993-2006

The percent of unmet needs for all types of needs has gone down fairly steadily over the years (Figure 6b).



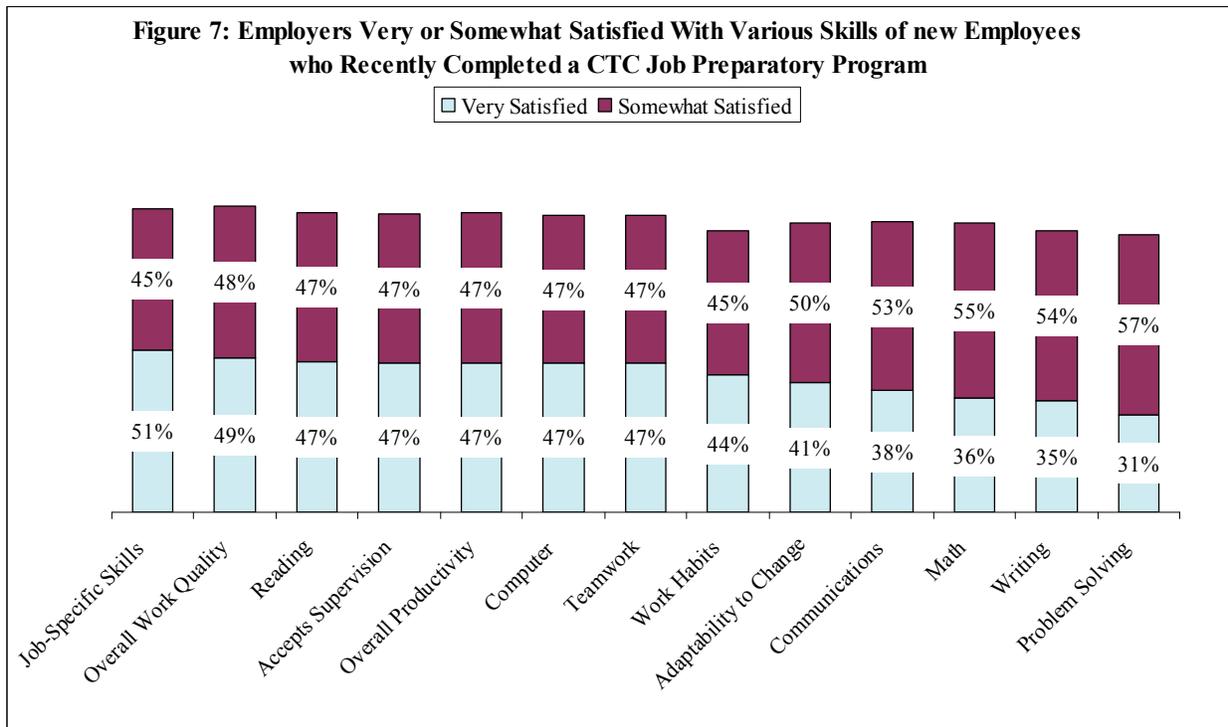
Source: Participant Satisfaction Survey 1993-2006

### Employer Satisfaction

The employer satisfaction survey asked firms to evaluate new employees who had recently completed a vocational program at a community or technical college. Some 97 percent of employers said they were either “somewhat satisfied” or “very satisfied” with the overall work quality of these new employees. This is not significantly different from the previous survey (Figure 7).

There are some differences in the skills satisfactory to employers. In the previous survey, firms tended to be “very satisfied” with the Adaptability to Change, Problem Solving and Work Habits of their new employees more than in the current survey. In this current survey, employers tended to be “very satisfied” with Teamwork, Job-specific Skills and Writing

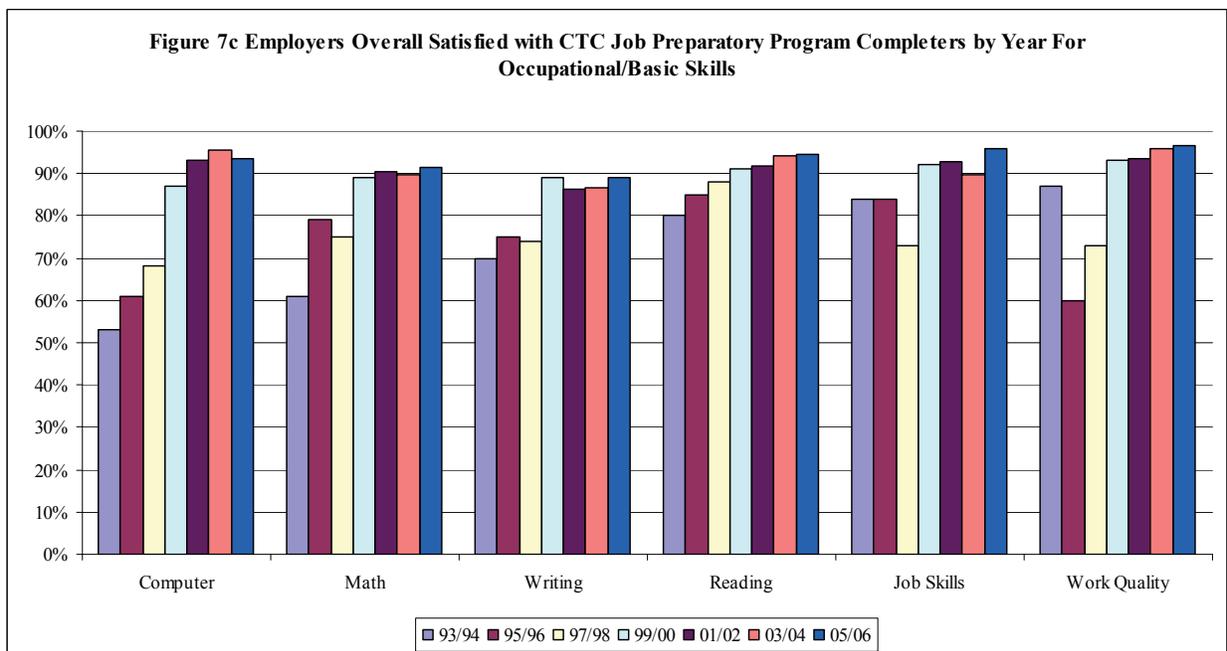
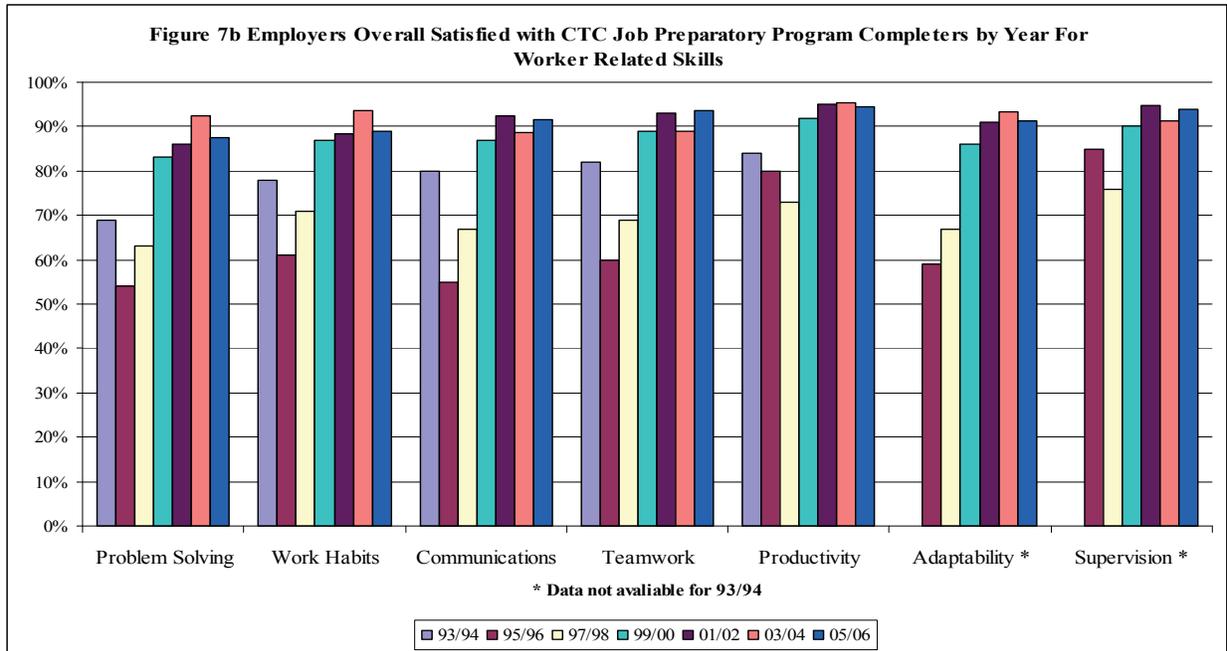
compared to the last survey. Overall Work Quality, Reading, Accepting Supervision, Productivity and Computer Skills were also high.



Source: Employer Satisfaction Survey 2005-2006

Over the past 10 years, the employers' overall satisfaction with skills has varied depending on the program. Figures 6b and 6c show employers' overall satisfaction with work-related skills and basic skills of new employees who recently completed a Job Preparatory program. Work-related skills include: work habits, adaptability to change, problem solving, communications, teamwork, ability to accept supervision and overall productivity. Basic skills include: overall work quality, specific job skills, math, writing, reading and computer skills.

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Source: Participant Satisfaction Survey 1993-2006

**Employment and Earnings**

According to the participant survey responses, 84 percent of CTC Job Preparatory students were employed during the period seven to nine months after leaving their program (Figure

8).<sup>5</sup> To find out more about where students worked and what they earned after participating in a program, we matched student records with Employment Security Department wage files from Washington and neighboring states.<sup>6</sup>

Record matches found 70 percent of the 2005-2006 students were employed during the third quarter after they left their program. Their median hourly wage<sup>7</sup> was \$14.26, and they had median annualized earnings of \$24,509. There was a downturn of the economy in 2001, which is reflected in both the employment and the earnings for 2001-2002 students. However, earnings have climbed to near the peak earnings of the 1999-2000 students (Figures 8b and 8c). The median wage of job preparatory students is relatively high, but there is considerable variation in how much students earn. While one quarter earned more than \$19.95 an hour, another quarter had jobs that paid less than \$10.67 an hour.

**Figure 8. Employment and Earnings of Community and Technical College Job Preparatory Students in the Third Quarter After Leaving Program**

	1997-98	1999-00	2001-02		2003-04		2005-06	
	All	All	All	Completers	All	Completers	All	Completers
Percentage self-reporting employment during third quarter after leaving program	83	86	82	na	81	na	84	na
Percentage with employment reported by employers to ESD third quarter after leaving program	73	74	71	74	72	75	70	74
Median quarterly hours worked of those working	451	468	455	455	450	451	455	468
Percentage employed full-time of those working (averaging 30 or more hours/week)	65	66	62	64	62	63	63	66
Median annualized earnings of those working	\$23,031	\$24,771	\$23,661	\$24,680	\$23,897	\$24,993	\$24,509	\$26,126
Median annualized earnings of those working and not enrolled in further education	\$23,128	\$24,866	\$23,744	\$24,717	\$24,053	\$25,264	\$24,509	\$26,126
Size of household in which median earnings would support at poverty level	4.7	5.2	4.9	5.2	4.9	5.2	5.1	5.6
Size of household in which median earnings would support at twice poverty level	1.4	1.6	1.5	1.6	1.5	1.7	1.6	1.8
Median hourly wage of those working	\$12.96	\$14.00	\$13.85	\$14.19	\$ 13.90	\$ 14.23	\$ 14.26	\$ 14.72
Percentage self-reporting receipt of medical benefits from employer	65	68	71	na	72	na	62	na
Percentage self-reporting receipt of pension benefits from employer	43	46	48	na	52	na	42	na

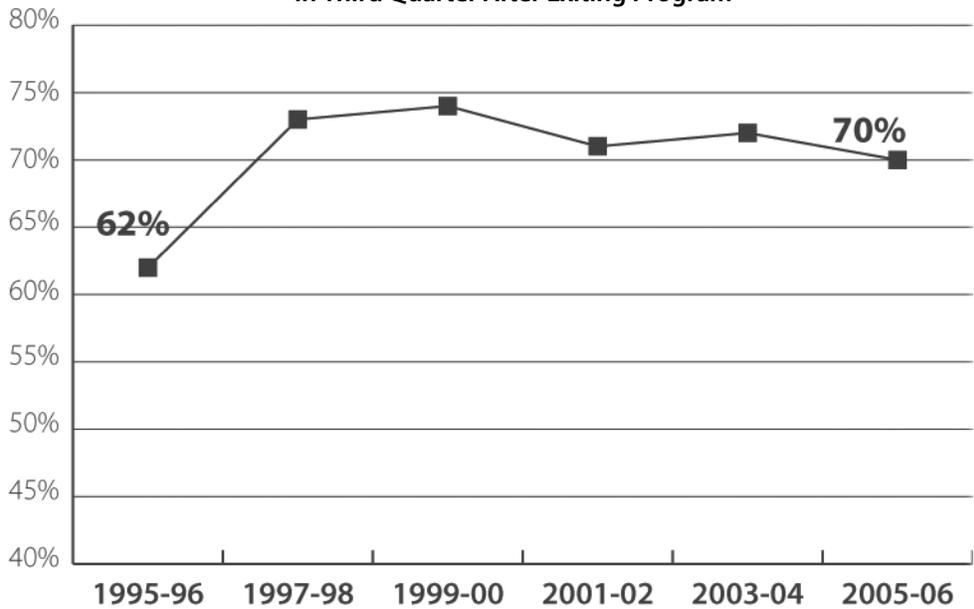
Notes: Earnings and wages are expressed in first quarter 2007 dollars. Poverty levels are based on federal poverty guidelines identified by the Department of Health and Human Services for 2007.

<sup>5</sup> In the survey, students were asked whether they were employed or self-employed. Therefore, in most cases, the percentage who reported being employed will be higher than the percentage of those whose employment was found in ESD wage records.

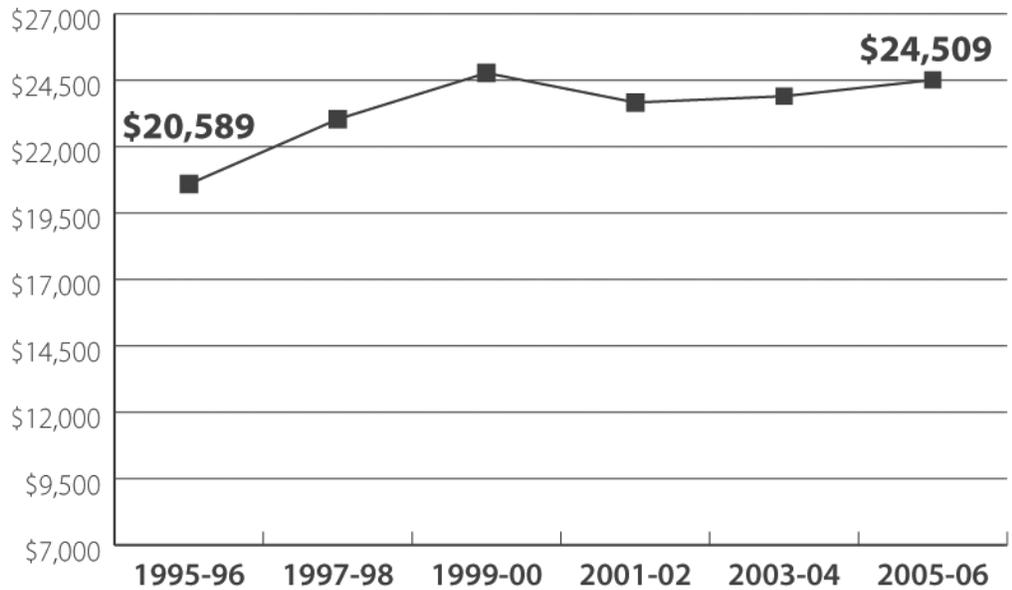
<sup>6</sup> These files contain quarterly earnings and hours worked information on those individuals with employment reported for unemployment insurance (UI) benefits purposes (approximately 90 percent of in-state employment, with self-employment, active military duty, and those working for religious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

<sup>7</sup> All wages and earnings are stated in 2007 Q1 dollars.

**Figure 8b: Percent of CTC Job Preparatory Students with Reported Employment in Third Quarter After Exiting Program**



**Figure 8c: Median Annualized Earnings of CTC Job Preparatory Students in the Third Quarter after Leaving Program**



Source: Employment Security Department data matches 1995-2006.

Employment among CTC Job Preparatory students is primarily concentrated in the services industry followed by retail trade, public administration, and the manufacturing industries (Figure 9). Compared to employment of the 2003-2004 cohort, higher percentages of those

from 2005-2006 were employed in the construction, education, health care, accommodation and food, and arts, entertainment and recreation industries. Lower percentages were employed in manufacturing, and transportation, warehousing and financial activities.

**Figure 9. Industry of Employment of CTC Job Preparatory Students in the Third Quarter After Leaving Program 2005-06**

Industry Group	Employment
Natural Resources and Mining	0.9%
Construction	4.3%
Manufacturing	6.9%
Aerospace	1.2%
All Other Manufacturing	5.7%
Wholesale Trade	2.7%
Retail Trade	12.3%
Transportation and Warehousing and Utilities	2.7%
Information	1.6%
Financial Activities	4.7%
Services	56.0%
Professional and Technical Services	3.8%
Administrative and Support and Waste Management Remediation Services	7.5%
Education	5.9%
Health Care	20.6%
Social Assistance	3.9%
Arts, Entertainment, and Recreation	2.1%
Accommodation and Food Services	7.4%
Other Services	4.7%
Public Administration	7.9%
Correctional Institutions	3.0%
All Other Public Administration	5.0%
Total	100%

Note: Industry groups are based on North American Industry Classification System codes. Major and subgroup percentages do not always sum due to rounding.

Source: Employment Security Department data matches 2005-2006.

**Gender Differences in Employment and Pay**

Employment and earnings varied by gender, race and ethnicity, and disability status. Female students were slightly more likely to be employed in the third quarter after leaving their programs than male students. Among those with employment, however, the median earnings for female students were 81 percent of males, about a 2 percent increase from 2003-2004. Female median hourly wages were 90 percent of males--less than a one percent

decrease. One reason for the earnings gap is that women were less likely to be employed full-time (59 percent versus 69 percent). Another reason is women and men choose to enroll in different types of programs. Although women do enroll in high-wage programs—they account for 9 out of every 10 students in associate degree nursing and dental hygienist programs—many more enroll in programs that pay relatively low wages. Nearly two thirds of the women obtained work in five relatively low paying industries: administration support, education services, health care and social assistants, accommodation and food services and other services. One third of male students worked in these industries.

### ***Differences in Employment and Pay among Minorities***

African Americans and Native Americans were less likely than whites to be employed in the third quarter after leaving their programs. Of those employed, the median earnings for Native Americans were 75 percent of whites, for African Americans 83 percent, and for Hispanics 92 percent. Compared to white students, Native American, African American, and Hispanic students are less likely to have enrolled in higher wage programs.

### ***Disparity Persists for Students with Disabilities***

Employment outcomes and earnings also varied by disability status. College records indicate 7 percent of the students included in this study had a disability. These students were less likely to have employment during the third quarter after exit (55 percent versus 72 percent, though this is an improvement over 2003-2004)). They were also less likely to work full time (56 percent versus 64 percent). Among those working, the median hourly wage rate of those with a disability was 87 percent of those without a disability, and their median earnings were 78 percent of those with no reported disability.

### ***Net Impacts***

Every four years the Workforce Training and Education Coordinating Board conducts net impact and cost-benefit analyses of workforce development programs. The most recent net impact study was conducted in 2006 and examined the experience of participants who left workforce development programs during the 2003-2004 and 2001-2002 program years. The next net impact study is planned for 2010 and will include the program years of 2005-2006 and 2007-2008.

The net impact analysis, conducted by the W.E. Upjohn Institute for Employment Research (Upjohn), attempts to estimate what happens to program participants as compared to what would have happened if they had not participated in a program. The objective is to determine the short-term and longer-term impacts of program participation on employment, hourly wages, hours worked, quarterly earnings, and receipt of UI benefits and public assistance.

To estimate these impacts, individuals who participated in a CTC Job Preparatory program were compared to individuals who had similar characteristics, but who did not participate in any of the programs included in the study. The comparison group members were selected from registrants to the state’s employment service. *Short-term* net impacts were derived by examining outcomes for individuals who exited the program (or from the employment service) in fiscal year 2003-2004 and *longer-term* impacts for individuals who exited in fiscal year 2001-2002.

*CTC Job Preparatory training has strong positive net impacts on employment, wages, hours worked, and earnings. Training substantially increases the lifetime earnings of participants.*

Figure 10 shows the short-term net impacts of CTC Job Preparatory training. During the third quarter after the 2003-2004 students left their programs, training is associated with an increase of 9.2 percentage points in employment as reported to ESD. The impact on wage rates is \$3.24 per hour,<sup>8</sup> and the impact on hours worked per quarter is 71.3 hours. There is a large impact on mean quarterly earnings—\$1,564. Training is associated with decreases in the percentage receiving UI benefits and public assistance.

<b>Figure 10</b>		
<b>Short-Term Net Impact Results for CTC Job Preparatory Students Compared to Non-Participants</b>		
	<b>All Students</b>	<b>Program Completers</b>
Employment: percentage of additional reported employment due to program participation	9.2	12.9
Difference in Mean Hourly Wage	\$3.24	\$4.07
Difference in Mean Hours Worked Per Quarter	71.3	89.2
Difference in Mean Quarterly Earnings	\$1,564	\$1,924
TANF: percentage receiving	-0.5	-0.3
Food Stamps: percentage receiving	-4.1	-4.4
Medical Benefits: percentage receiving	-3.0	-3.1
UI: percentage receiving	-1.2	-1.4
Notes: Short-term refers to impacts observed in the third quarter after leaving the program. Earnings and wages are in 2005 Q1 dollars. Results are for participants who left during PY 2005-2006.		

The longer-term net impacts of training are observed 9 to 12 quarters after students left the college during the 2001-2002 school year (Figure 11). There are strong, positive net impacts on training and employment, hourly wage, hours worked, and earnings, and reduction in the percentage receiving UI benefits in the longer term. However, despite training, there is a slightly higher percentage receiving Temporary Assistance to Needy Families (TANF) benefits.

<sup>8</sup> All dollar amounts in this report are expressed in 2005 Q1 dollars.

<b>Figure 11 Longer-Term Net Impact Results for CTC Job Preparatory Students Compared to Non-Participants</b>		
	<b>All Students</b>	<b>Program Completers</b>
Employment: percentage of additional reported employment due to program participation	6.7	9.5
Difference in Mean Hourly Wage	\$2.06	\$3.18
Difference in Mean Hours Worked Per Quarter	39.7	56.6
Difference in Mean Quarterly Earnings	\$1,008	\$1,529
TANF: percentage receiving	0.6	0.8
Food Stamps: percentage receiving	-0.4*	-0.1
Medical Benefits: percentage receiving	-0.2*	-1.3
UI: percentage receiving	-2.7	-2.3
Notes: Long-term refers to impacts observed 9 to 12 quarters after leaving the program. Earnings and wages are in 2005 Q1 dollars. Includes students who left during PY 2001-2002. * Not statistically significant at the 0.05 level.		

The data allowed for separate analysis of both students who completed their training and those who left before completing. Both short-term and longer term net impacts of training are greater for completers, indicating the value of students completing their programs.

### ***Benefits and Costs***

The cost-benefit analysis estimates the value of the net impact on earnings, employee benefits (estimated at 20 percent of earnings), social welfare benefits, UI benefits, and certain taxes.<sup>9</sup> Program costs include both direct program costs and support payments borne by the state 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 2005 Q1 dollars. The benefits and costs presented here are based on impacts estimated for students leaving programs in 2001-2002, because a longer term follow-up is required for this analysis.

For each student in CTC Job Preparatory training, the public (taxpayer) cost is \$7,560 over the length of their enrollment, and the student cost is \$3,869 in tuition and \$2,309 in foregone earnings while training (Figure 12). During the first two and one-half years after leaving college, the average trainee will gain \$13,644 in earnings. During the course of working life to age 65, the average trainee will gain about \$88,100 in net earnings (earnings minus foregone

<sup>9</sup> Upjohn estimated the impact of the net change in earnings on social security, Medicare, federal income, and state sales taxes.

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earnings) and about \$18,100 in employee benefits.<sup>10</sup> These are net gains compared to the earnings of similar individuals who did not receive the training.

*Projected participant benefits to age 65 outweigh public costs invested in college training by a ratio of about 14 to one, or \$102,368 to \$7,560.<sup>11</sup>*

Over the lifetime of the participant, the total public (taxpayer) costs is less than the program costs because the training is associated with increased tax revenues and decreased state social welfare expenditures. From the time of leaving training to age 65, the public is forecasted to gain over \$15,600 per participant in additional Social Security, Medicare, federal income, and state sales taxes and to save over \$1,300 per participant in total UI benefits and other social welfare costs—far greater than the direct cost of college training.

<b>Figure 12</b>				
<b>Benefits and Costs of CTC Job Preparatory Training</b>				
	<b>First 2.5 Years After Program</b>		<b>Forecast to Age 65</b>	
	<b>Participant</b>	<b>Public</b>	<b>Participant</b>	<b>Public</b>
Benefit Difference				
Earnings	\$13,644		\$90,455	
Employee Benefits	\$2,729		\$18,091	
Taxes	-\$2,354	\$2,354	-\$15,603	\$15,603
Transfers*	-\$1,796	\$1,796	-\$1,324	\$1,324
Cost Difference				
Foregone Earnings	-\$2,309		-\$2,309	
Program Costs**	-\$3,869	-\$7,560	-\$3,869	-\$7,560
<b>TOTAL</b>	<b>\$6,045</b>	<b>-\$3,410</b>	<b>\$85,442</b>	<b>\$9,367</b>
Notes: Benefits and costs are expressed in 2005 Q1 dollars. * Transfers include UI, TANF, food stamps, and medical benefits. TANF benefits reflect the value of cash grants, childcare, and other client support services. ** Participant program costs refer to tuition only; it does not include costs such as books and supplies. Public program costs do not include student financial aid programs.				

<sup>10</sup> This employee benefits amount does not account for the reduction in employee benefits associated with foregone earnings. If the same benefit percentage (20 percent) were applied to foregone earnings, the gain in employee benefits in the longer term would be about \$17,600.

<sup>11</sup> This ratio does not include the impacts on taxes, UI benefits, and public assistance, which are direct transfers between participant and the public (taxpayers).

***Progress and Areas for Improvement***

The large majority of students were satisfied with their college training program. Most students who completed the program obtained jobs that paid a decent wage and an increasing number received the support services they needed while enrolled.

About the same percentage of students earned degrees or certificates compared to two years ago. The completion rate increased by 1 percentage point to 59 percent. Since those who complete their programs are more likely to be employed and earn more, colleges should strive to increase the rates of successful completions. The State Board for Community and Technical Colleges started the Student Achievement Initiative to reward colleges for increasing student retention.

Although there has been some improvement (see website for detailed results), the colleges might do more to eliminate gender and racial and ethnic differences in labor market outcomes. Women and minorities should continue to be guided into higher wage programs.

For more study results on other workforce programs, go to [www.wtb.wa.gov/wtr2008.asp](http://www.wtb.wa.gov/wtr2008.asp)