

Apprenticeship

Program Details

Apprenticeship combines classroom studies with extensive on-the-job training under the supervision of a journey-level craft person or trade professional. Apprentices receive wages and may receive health, pension, and other benefits while learning occupational skills. This “earn while you learn” model has proven successful across a range of industries—from cosmetology to construction.

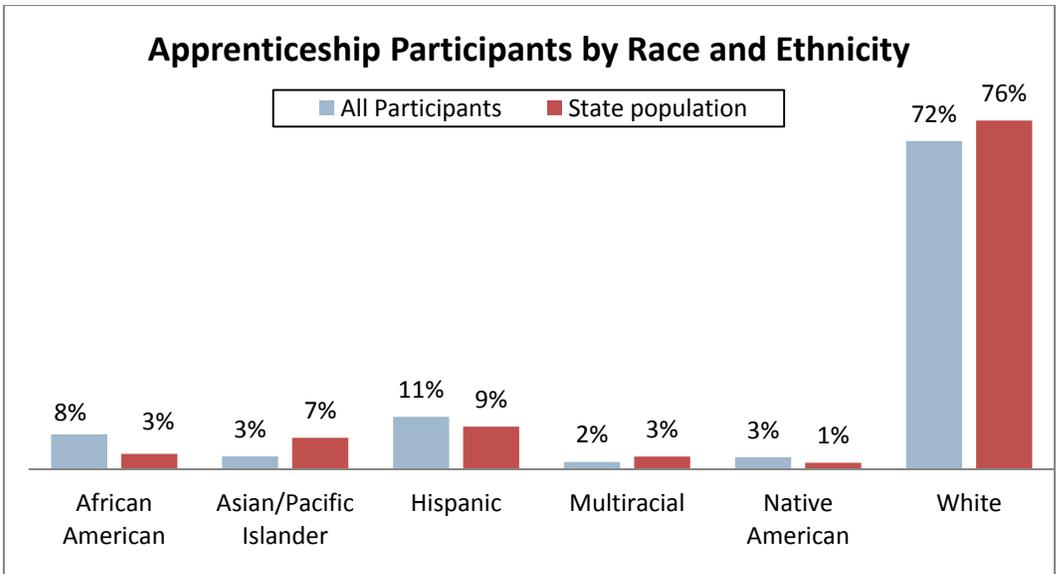
Apprenticeships require applicants be at least 16 years old (18 for construction trades), and most require at least a high school diploma or GED for entrance. Apprenticeship in Washington is governed by the Washington State Apprenticeship and Training Council and administered by the Department of Labor and Industries.

Participant Profile

For this report, researchers studied the results of 4,082 apprentices who left a program during the 2007-2008 program year. Apprentices reflect the racial and ethnic diversity of the state population. African Americans, Native Americans and Hispanics are represented above their proportions of the state population. However, African Americans, Hispanics and Native Americans do not complete at the same rates as they enroll, with relatively fewer reaching the finish line in their apprenticeships than those of other backgrounds. Multi-racial, Asians and Pacific Islanders, and whites enroll in apprenticeship programs in lower numbers than their share of the state population.¹

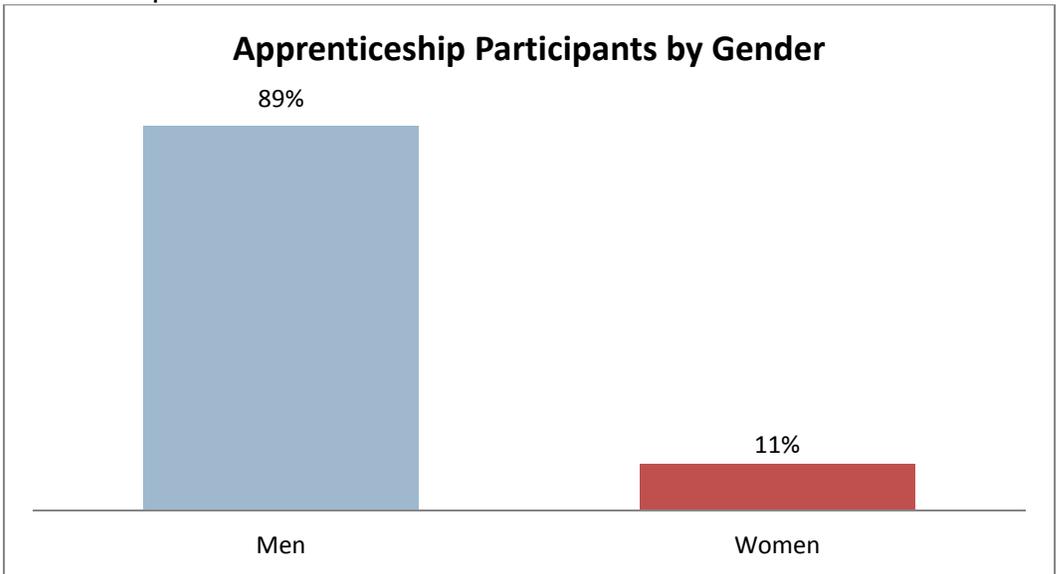
Every two years, the Workforce Board measures the performance of key workforce programs. In this report, you'll find out more about the program and who is served, the metrics used to measure performance and how the program performed.

¹ 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 2008 *U.S. Census Estimates*, 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.



Source: *Apprenticeship Administrative Data, Department of Labor and Industries and Office of Financial Management State Population Survey 2008.*

Relatively few women enter apprenticeships; only 11 percent of the 2007-2008 apprentices were women. This is lower than the 12 percent of the 2005-2006 cohort and the 15 percent of the 2003-2004 cohort.



Source: *Apprenticeship Administrative Data, Department of Labor and Industries and Office of Financial Management State Population Survey 2008.*

The median age at exit was 29. One quarter of those enrolled in apprenticeship programs were age 35 or older.

Completion Rates

Overall, apprentices spent a median of 15 months in their program. Among apprenticeship completers, the median program length was 36 months. However, the

length of participation varied widely. The number of years spent in apprenticeship programs is reflected in the following table, comparing those who completed with those who did not complete.

It’s worth noting that apprenticeship programs cover a broad array of occupations, from construction trades and early learning to dispensing optician and cosmetologist. Not only are apprenticeship occupations wide-ranging, the length of time it takes to complete a program varies considerably. For example, a Washington resident training to become a construction electrician can expect an apprenticeship to last at least four years to reach journey level status, while those training to become an esthetician require 2,000 hours, or approximately one year, to complete.

Number of Years Apprentices Participated in their Program		
Years in Program	Non Completers	Completers
less than 1	0.4%	0.0%
1-2	60.6%	16.6%
2-3	21.8%	13.9%
3-4	7.2%	21.1%
4-5	2.4%	20.7%
5-6	1.0%	15.4%
6-7	1.4%	7.9%
7-8	0.9%	2.6%
8-9	2.3%	1.2%
9-10	1.6%	0.4%
more than 10	0.4%	0.1%

Source: Apprenticeship Administrative Data, Department of Labor and Industries.

Many participants opt to leave prior to completion. These non-completers still tend to show wage gains in subsequent quarters due, most likely, to the skills acquired while in the apprenticeship program. This, however does put considerable downward pressure on completion rates for apprenticeship programs overall.

State Core Measures: Tracking Apprenticeship 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.

Workforce Training Results seeks answers to five core questions:

- Did participants get the skills they needed?
- Did they get a job and how much were they paid?
- Were employers satisfied with the preparation workers received?²
- 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 2010 Workforce Training Results includes information obtained from Employment Security Department wage files in Washington, Idaho, and Oregon, and federal employment records for 2008-2009. Data used in the Net Impact Study also reached back to 2006-2007 employment records, to help assess trends over a slightly longer time frame. Employer satisfaction was assessed through the Workforce Board's 2010 Employer Survey from 156 firms that hired employees who recently exited an apprenticeship program.

Turn to page 14 for the Net Impact Study. Conducted every four years, this in-depth report adds extra value to 2010 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.

Net Impact Study Adds More Insight Into Program Performance

This year's 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.

Did Participants Get the Skills They Needed?

The study follows the progress of all Apprenticeship participants who left a program during the 2007-2008 program year.

² Workforce Training Results usually includes a survey that measures the satisfaction of workforce participants, in addition to employers. The survey was not conducted this time because of budget constraints.

By definition, people enter an apprenticeship program to acquire occupation or industry-specific training. As they gain these skills, they are paid to work and hold down jobs that both bolster their resume and pay the bills. Many apprentices also receive training in general workplace skills such as teamwork and problem solving. They receive both on-the-job training and classroom training.³

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

To find out about the apprentices' post-program employment and earnings, participant records were matched with Employment Security Department wage files from Washington and neighboring states.⁴ Labor market outcomes for apprenticeships are higher than for any other program the Workforce Board studies. In addition to the quality of apprenticeship training and the wage levels in these occupations, this result may be due to the relatively long length of the program.

Record matches found 73 percent of apprentices had reported employment during the third quarter after they left the program. This is 6 percentage points below that reported in 2005-2006. Their median wage⁵ was \$25.19 per hour, and annualized earnings were \$47,750.⁶ The median wage of apprentices is high, but there is considerable variation in wages. Limiting analysis to just those apprentices who completed their program, the outcomes are even better. The median earnings of completers was \$64,778. These results highlight the value of completing an apprenticeship program.

Distribution of Hourly Wages of Apprentices in the Third quarter After Leaving Program	
Quartile	Hourly Wage
Highest	Above \$35.25
Third	\$25.19-\$35.25
Second	\$16.00-\$25.19
Lowest	Below \$16.00

³ Apprentices are required to participate in at least 144 hours of classroom training annually.

⁴ 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).

⁵ All wages and earnings are stated in 2007 Q1 dollars.

⁶ To derive annualized earnings, third quarter earnings are multiplied by four. Quarterly earnings are the result of hourly wage rates and the number of hours worked in a calendar quarter.

During the third quarter after leaving their programs, almost half of the apprentices were employed in construction industries. Many apprentices took jobs in services and public administration. However, most apprentices employed in manufacturing, retail trade, and service industries left their programs *without* completing training—*forfeiting* a significant increase in income.

2007-2008 Program Year Performance for Apprentices

Performance Measure	Results
Employment Rate*	73%
Percentage Employed Full Time**	65%
Median Annualized Earnings	\$42,750
Median Hourly Wage***	\$25.19
Hours Worked Quarterly (Median)	465 hours

These figures apply to those with employment reported to Employment Security Department six to nine months after leaving 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 2009 dollars.*

To put earnings in context, the median number of dependents Apprenticeship participants were able to support at the poverty level after leaving the program in 2007-2008 was 9.5 people. At the 200 percent of poverty level, this was 3.8 people.⁷

Self Sufficiency Level for Apprentices – Previous Years

Performance Measure	1999-00	2001-02	2003-04	2005-06	2007-08
Household size-poverty level	8.7	7.8	7.9	9.4	9.5
Household size-poverty level at 200 percent	3.4	2.9	3.0	3.7	3.8

⁷ In 2009, the poverty level for one person was \$10,830 per year. The 200-percent-poverty level that year was \$21,660 for one person.

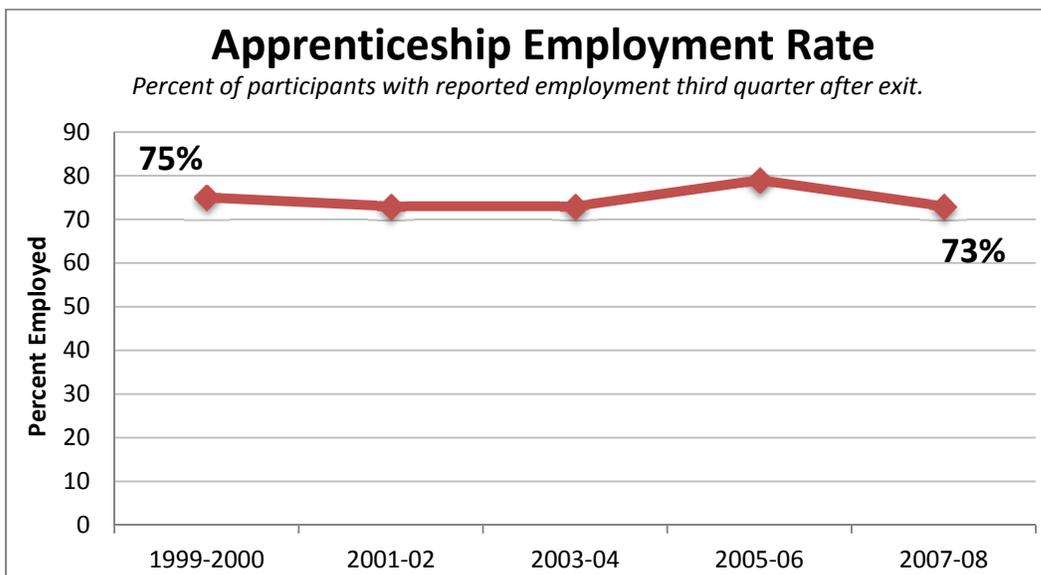
The next table shows employment and earnings information over five study periods.

Program Performance for Apprentices – Previous Years

Performance Measure	1999-00	2001-02	2003-04	2005-06	2007-08
Employment Rate	75	73	73	79	73
Percentage Employed Full Time*	82	60	61	69	65
Median Annualized Earnings**	\$39,461	\$36,159	\$36,786	\$42,086	\$42,750
Median Hourly Wage**	\$23.42	\$24.09	\$24.31	\$24.78	\$25.19
Hours Worked Quarterly (Median)	489	442	451	476	465

*Full-time employment averages 30 or more hours per week. **Note: 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. Earnings/wages expressed in first quarter 2009 dollars in order to control for inflation.

Since 2002, participants have experienced increased earnings. However, the employment rate has been relatively flat, and declined in 2008, which might reflect the effects of the recession beginning.



Source: Workforce Training Results 1999-2008.



Source: Workforce Training Results 1999-2008.

The majority of Apprenticeship program participants who were reported to be employed held jobs in the construction industry and services.

Apprenticeship Employment by Industry	
Industry Group	All participants
	Percent
Construction (see breakout below)	49.0%
Services (see breakout below)	18.1%
Public Administration	11.6%
Retail Trade	6.0%
Manufacturing	5.7%
Transportation and Warehousing and Utilities	4.1%
Wholesale Trade	2.5%
Finance, Insurance and Real Estate	1.5%
Natural Resources and Mining	1.0%
Information	0.3%
Breakout of Construction	
Building Equipment Contractors	18.1%
Building Finishing Contractors	7.8%
Construction of Buildings	7.6%
Foundation, structure & Building Exterior Contractors	7.0%
Heavy & Civil Engineering Construction	5.7%
All Other Specialty Contractors	2.9%
Subtotal from Construction	49.0%
Breakout of Services	
Administrative and Support and Waste Management and Remediation	5.4%
Education Services	3.4%
Accommodation and Food Services	2.8%
Other Services (except Public Administration)	1.7%
Health Care	1.7%
Professional, Scientific, and Technical Services	1.6%
Arts, Entertainment, and Recreation	0.9%
Social Assistance	0.7%
Subtotal from Services	18.2%
Note: Industry groups are based on North American Industry Classification System	

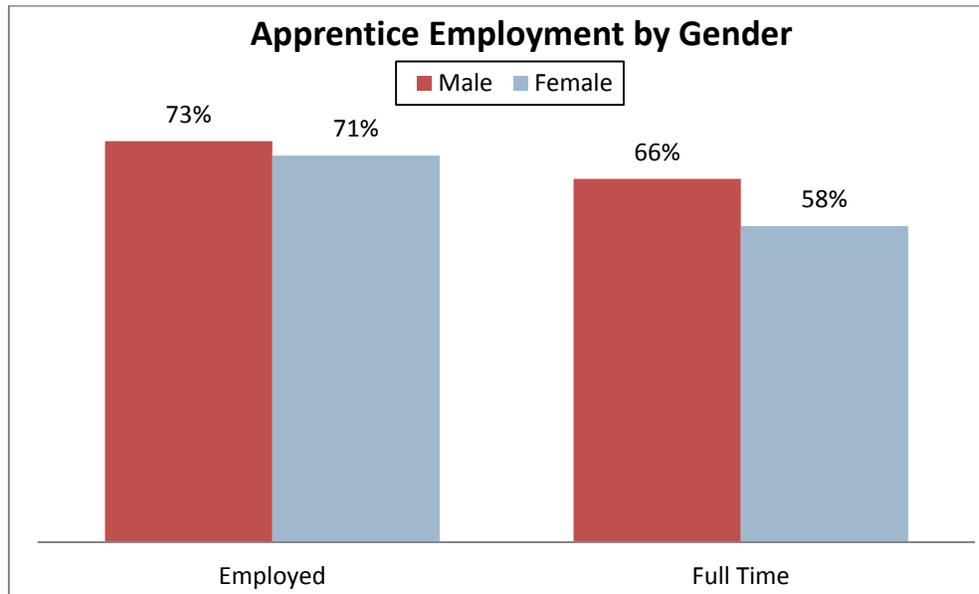
Source: Matches with Employment Security Department data in third quarter after exiting program.

Wages and Employment Results Vary by Population

Wages and employment results can vary by gender, race and ethnicity, and disability.⁸ Women were nearly as likely as men to be employed in the third quarter after leaving their apprenticeship, but less likely to be employed full-time (58 percent versus 66 percent). Of those employed, women had median hourly wages that were 88 percent of men's wages, an increase of 10 percentage points from the 2005-2006 study, and

⁸ Apprenticeship administrative records do not include information on disability status.

median annualized earnings that were 77 percent of males, 6 percentage points higher than the last study.



Source: Apprenticeship Administrative Data, Department of Labor and Industries and Office of Financial Management State Population Survey 2008.

Note: The percentage employed and percentage full-time are calculated from different bases. The percent employed is percent of all participants; the percent full-time is percent among those employed.

However, within the construction industries, men and women apprentices earned about the same wage—women’s median wages were actually 33 cents higher than men’s. An important factor contributing to the overall gender gap in earnings is that relatively few women are enrolled in the following high-wage apprenticeship programs:

- Construction.
- Precision, production and craft.
- Machinist trades.

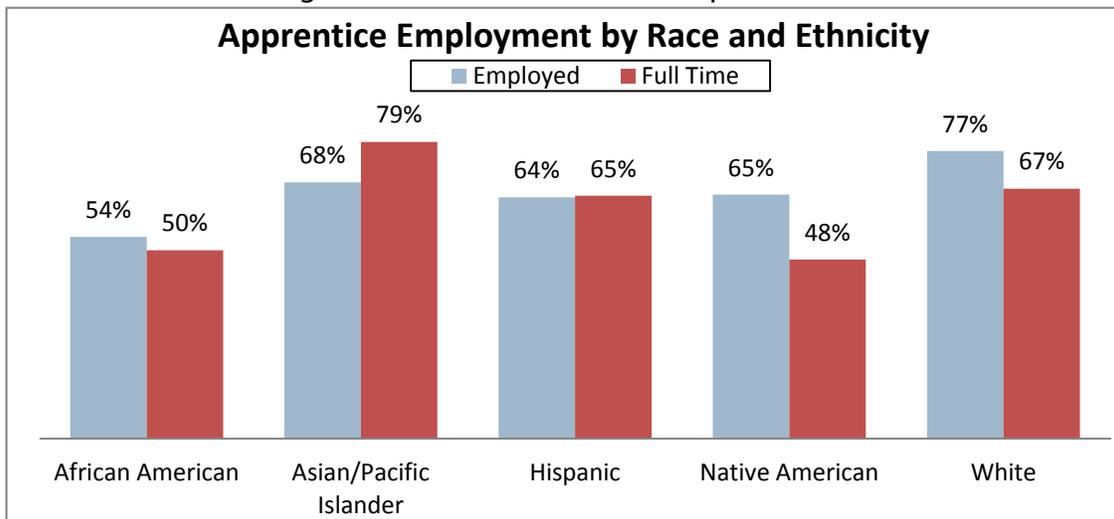
Among those leaving apprenticeships during 2007-2008 nearly 20 percent of women (and less than 1 percent of men) left programs in early childhood education and teaching/library assistants. Wages in these fields are considerably lower than in the construction; precision, production, craft; and machinist trades.

Trade Group	Males	Females
Construction Trades	59%	32%
Precision, Production, Crafts	10%	5%
Machinist	7%	2%
Transportation Operators	3%	5%
Industrial Technology	2%	1%
Early Childhood Education	0.0%	3%
Teaching/Library Assistant	0.1%	17%
All Other Groups (see breakout)	19%	34%
Breakout of Other Groups		
Health	9%	1%
Financial, Legal, Real Estate	6%	1%
Managerial and Managerial Support	4%	1%
Mechanical, electrical, engineering, technical	8%	6%
Services	6%	7%
Natural Resources and, Forestry	0.0%	0.2%

Source: Matches with Employment Security Department data 2007-2008.

Race/Ethnicity Plays Role

White apprentices were more likely than others to be employed in the third quarter after leaving their programs. However, Asians and Pacific Islanders were more likely than whites to be employed full time and Hispanics were about as likely to be employed full time as whites. African Americans and Native Americans were less likely to be employed full time. For those employed, the median wage for African American apprentices was 63 percent of whites; the median wage for Asians/Pacific Islanders was 82 percent of whites; and the median wage for Hispanics was 86 percent of whites. The median wage of Native Americans was 76 percent of whites.



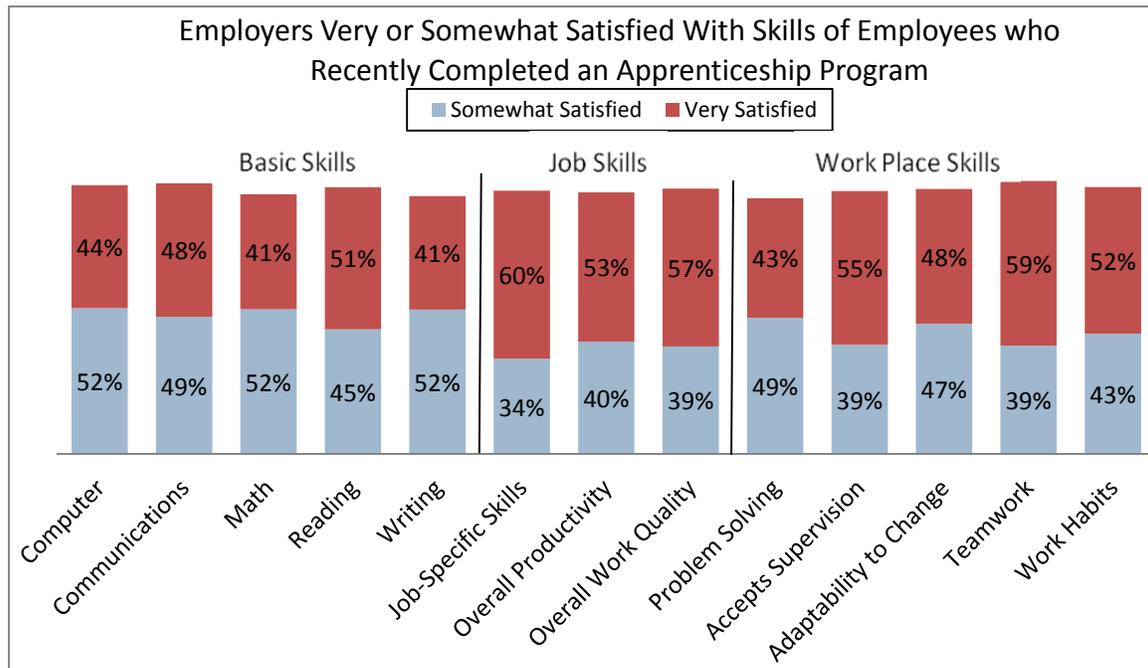
Source: Apprenticeship Administrative Data, Department of Labor and Industries and Office of Financial Management State Population Survey 2008.

Note: The percentage employed and percentage full-time are calculated from different bases. The percent employed is percent of all participants; the percent full-time is percent among those employed.

Were Employers Satisfied with the Preparation Workers Received?

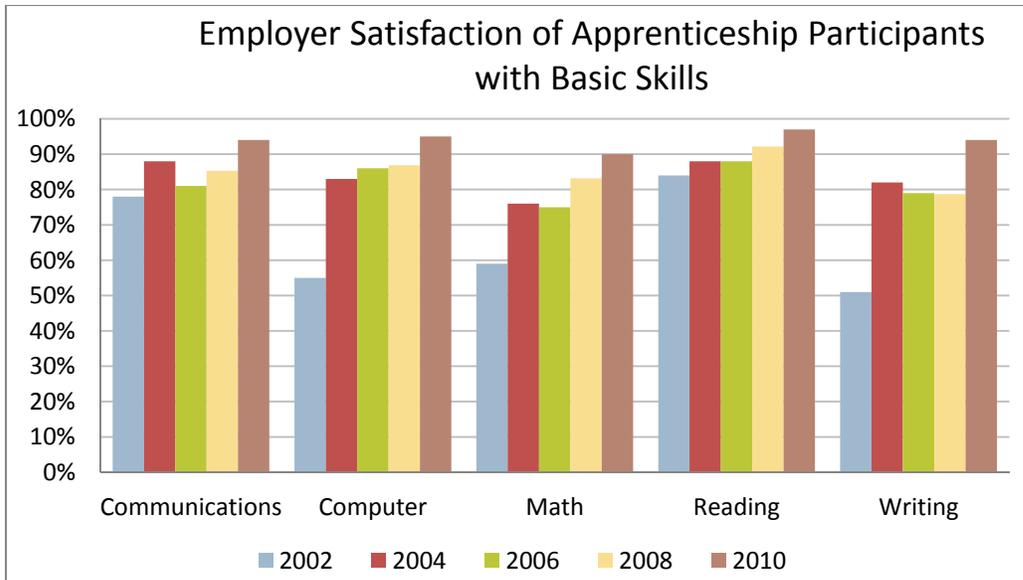
The Workforce Board's Employer Survey, administered during 2010, asked firms to evaluate new employees who had recently completed an apprenticeship program.

Employer satisfaction was 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 ability to accept supervision, teamwork, ability to adapt to changing situations, problem solving and overall work habits.

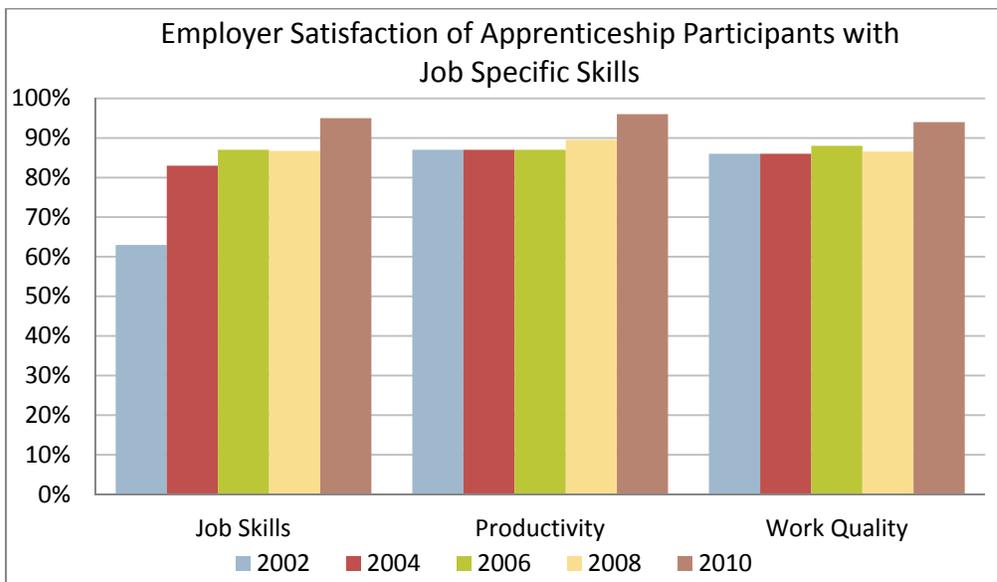


Source: Workforce Board Employer Survey conducted in 2010.

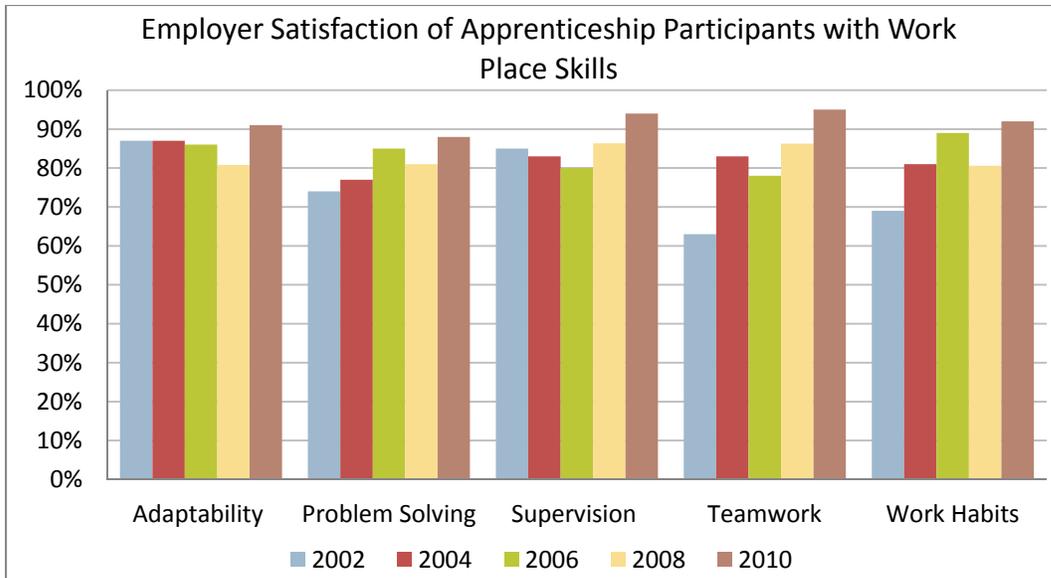
For basic skills, employers were most satisfied with computer and reading skills, though they were more likely to be very satisfied with the reading skills. For job skills employers were most satisfied with the overall work quality of apprenticeship participants and were very satisfied with their job-specific skills. Employers rated the overall satisfaction with teamwork as highest among the work place skills.



Source: Workforce Board's biennial Employer Surveys from 2002 through 2010.



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Overall satisfaction of employers in all skill areas was higher in 2007-2008 than any of the past 10 years of surveys.

Net Impact – Did Program Make a Difference in Participant Success

Every four years the Workforce Board conducts net impact and cost-benefit analyses 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 an Apprenticeship program were compared to individuals who had similar demographic 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.

Apprenticeship programs have very large, positive impacts on employment, wages, hours worked, and earning. Training substantially increases the lifetime earnings of apprentices.

The most recent analyses examined the experience of participants who left programs during the 2005-2006 and 2007-2008 program years.

Short-term net impacts: Individuals who exited in Program Year 2007-2008.

Longer-term net impacts: Individuals who exited in Program Year 2005-2006.

Impact on Employment and Earnings: Participants vs. Control Group

Apprenticeship	All Apprenticeship		Completers	
	Short Term	Long Term	Short Term	Long Term
Net Employment Impact	7.80 percentage points	9.80 percentage points	24.70 percentage points	24.00 percentage points
Net Hourly Wage Impact	\$7.87	\$8.75	\$13.24	\$14.54
Net Hours Employed per Quarter Impact	46.9	26.4	71.8	43
Net Annualized Earnings Impact	\$18,520	\$17,654	\$32,339	\$30,125

Percentages listed are employment percentage points above those of the control group of non-participants. Dollars listed are the average annual earnings difference between Apprenticeship participants who got jobs and those in the control group who were employed. Earnings and wages are in 2009 Q1 dollars.

As can be seen above, apprenticeship programs had significantly positive net impacts on employment, wages, hours worked and annualized earnings, when apprenticeship participants are compared with non-participants. These impressive results get even stronger over the longer-term. Also, it's clear that completing an apprenticeship yields nearly twice as much in annualized earnings, hourly wages and employment compared with those apprenticeship program participants who exited a program early. The benefits of not only starting but completing an apprenticeship program are clear.