2010 BC Apprenticeship Student Outcomes Survey

Summary Report

BRITISH COLUMBIA

ita
industry training authority

Contents

Highlights

The 2010 Apprenticeship Student Outcomes (APPSO) Survey was conducted with former students who completed the final year of their apprenticeship training in a B.C. post-secondary institution between July 1, 2008 and June 30, 2009. Approximately six months later, from January to April of 2010, 2,750 former students from 29 institutions (14 public and 15 private) participated in survey telephone interviews—the gross response rate was 56 percent. The following are highlights from the survey findings.

Former apprenticeship students

- 56 percent of respondents were in one of four program areas: Electrician, Carpentry, Steel Fabrication & Welding, and Plumbing
- 82 percent of respondents took their in-school training in public post-secondary institutions
- 95 percent were male; the median age for all respondents was 28
- 32 percent of respondents took pre-apprenticeship training: a trades foundation course or entry-level trades training
- 35 percent had some other post-secondary education; of these former students, 59 percent had achieved a credential

In-school experiences

- 95 percent of respondents said they were *very satisfied* or *satisfied* with their in-school training
- 86 percent said the quality of their instruction was *very good* or *good*
- 83 percent of respondents rated the content of their training *very good* or *good* at covering the standards used in their field
- 82 percent of respondents said their apprenticeship training program did *very well* or *well* helping them to use mathematics and to learn on their own
- 80 percent said the organization of their program was *very good* or *good*
- 66 percent said the length of their program was *about right*
- 66 percent said the availability of their technical training courses was *very good* or *good*
- 16 percent of respondents started their apprenticeship training above Level 1
- 27 percent of those who took pre-apprenticeship training started their apprenticeships above Level 1
- 83 percent of the former apprentices surveyed said they received their Trades Qualification (TQ), British Columbia Certificate of Qualification (C of Q), or Interprovincial (IP) certification
- 93 percent reported that their training was *very useful* or *somewhat useful* to them in preparing to write the TQ or IP certification exam

Workplace experiences

- 93 percent of respondents said they were *very satisfied* or *satisfied* with their overall workplace training
- 92 percent said their in-school technical training was *very related* or *somewhat related* to their workplace experience

Employment

- 97 percent of respondents were in the labour force (employed or looking for work)
- 11 percent of those in the labour force were unemployed
- 86 percent of respondents were employed
- 96 percent of employed respondents were working full time
- 8 percent of employed respondents were self-employed
- 68 percent had done work placements with their current employer
- 86 percent took less than one month to find a job
- 95 percent of employed respondents said their employment was *very related* or *somewhat related* to their in-school training
- 96 percent said the knowledge and skills they gained through their training had been *very useful* or *somewhat useful* in performing their job
- $29 was the median hourly wage of respondents who were employed at the time of the survey

Introduction

The Conference Board of Canada is projecting there will be a skilled labour shortage in British Columbia of approximately 160,000 positions in five years. An aging population, a rapidly growing knowledge economy, and increased global connections will place pressure on B.C.'s ability to get workers with the right skills, in the right place, at the right time. The B.C. government is committed to building a workforce with more skills, and matching those skills with demand in communities across the province. Successful apprenticeship training will help the province achieve that goal.

Under B.C.'s apprenticeship model, training is delivered across the province in partnership with the Industry Training Authority, public and private institutions, and employers. Approximately 80 percent of apprentices' training is provided on-the-job; the remaining technical training is provided in a classroom or shop setting. Successful completion of both components, along with examinations, is required to earn a certificate or "ticket" and become a certified tradesperson. The length of an apprenticeship can range from one to five years, but most require four years to complete.

The Ministry of Advanced Education, the Industry Training Authority, and the institutions that provide technical training share the commitment to building a skilled workforce for the future and work continuously to expand and improve delivery of apprenticeship training in B.C. Results of the annual Apprenticeship Student Outcomes Survey are an important part of that process.

About the 2010 Apprenticeship Survey

The 2010 Apprenticeship Student Outcomes (APPSO) Survey is the sixth annual survey of former apprenticeship students. This year, the survey group included former students who completed the final year of their apprenticeship program at a B.C. post-secondary institution between July 1, 2008 and June 30, 2009. Telephone interviews for the survey were conducted from the end of January to mid-April 2010; 2,750 students participated, representing 153 apprenticeship programs offered at 29 institutions (14 public and 15 private).[1] The gross response rate of the survey was 56 percent. (For more information on the survey, see Appendix A: Apprenticeship Survey Methodology.)

To provide insight into the apprenticeship experience, former students were asked to:

- rate aspects of their in-school and workplace training;
- evaluate the usefulness of the knowledge and skills they gained;
- quantify their level of satisfaction with their training; and
- describe their post-training employment and further education.

1 There were 16 private institutions that submitted information for eligible former students, but there were no survey respondents for one of those institutions.

About this report

This report presents a summary of the findings from the 2010 survey. In some cases, comparisons are made with the results from previous years' apprenticeship surveys. When the term *former students* is used, it is meant to represent the former apprenticeship students who responded to one of the Apprenticeship Student Outcomes surveys.

The report is organized into the following sections:

- details about the former students and where they took their programs;
- their in-school experiences;
- their workplace training experiences; and
- their subsequent employment, occupations, and labour force participation.

The former students who were surveyed had apprenticed in a variety of trades. The trades programs named in this report have been organized according to the Classification of Instructional Programs (CIP) coding and then grouped to simplify reporting. To see how these groupings relate to institutions' program names, see Appendix B: Apprenticeship Program Areas and Institutions' Programs.

Respondents have been grouped according to the programs they were enrolled in for their in-school training. For the purposes of this analysis, small program areas have been identified as those with fewer than 30 respondents. These small programs are not used for comparison purposes in the text; the program comparisons use specific examples from the larger programs only. The appendices, however, will show information for all program areas.

Former Apprenticeship Students

The 2010 Apprenticeship Student Outcomes Survey included questions about students' previous education, including credentials already completed and other trades training. They were also asked to report their immigration and Aboriginal status. Information on age and gender came from administrative records. The 2,750 former students who were interviewed had completed training in 22 different apprenticeship program areas.

The typical former apprenticeship student surveyed in 2010 was male, about 28 years old and had trained in one of the construction trades. He may well have taken some previous trades training or other post-secondary education before becoming an apprentice.

More than likely, he started his apprenticeship training at Level 1, although if he had taken foundation industry or other pre-apprenticeship training, his chances of starting at a higher level were improved. If he had taken pre-apprenticeship training, it was probably in the same field as his apprenticeship program.

The typical apprenticeship student in 2010 went on to receive his "ticket" to be a certified tradesperson. At the time of the survey, he was working at a job related to his apprenticeship training, quite likely at a workplace where he did an apprenticeship placement, and was earning about $29 per hour.

What apprenticeship programs did survey respondents take?

The programs with the largest number of respondents were Electrician and Carpentry, with Steel Fabrication & Welding and Plumbing not far behind; over half (56 percent) of respondents were in one of those four program areas.[2] The larger program areas—those with 30 or more respondents—account for 96 percent of respondents to the survey.[3]

2 To see which programs from each institution are included in each program area, refer to Appendix B: Apprenticeship Program Areas and Institutions' Programs.

3 See Appendix C: Response Rates by Program Area for cohort numbers and response rates.

Large apprenticeship program areas (30 or more respondents)

Apprenticeship Program Area	Respondents	% of Total Respondents
Electrician	453	16%
Carpentry	412	15%
Steel Fabrication & Welding	342	12%
Plumbing	330	12%
Automotive Mechanics	202	7%
Medium/Heavy Duty Mechanics	186	7%
Exterior and Interior Finishing Trades	123	4%
Industrial Mechanics & Maintenance	116	4%
Pipefitter & Sprinkler Fitter	109	4%
Culinary Arts	102	4%
Autobody/Collision & Repair	66	2%
Machinist	59	2%
Heating, Air Conditioning, Refrigeration	55	2%
Construction Heavy Equipment	52	2%
Precision Metal Working	31	1%
Total Large Program Areas	**2638**	**96%**

Small apprenticeship program areas (fewer than 30 respondents)

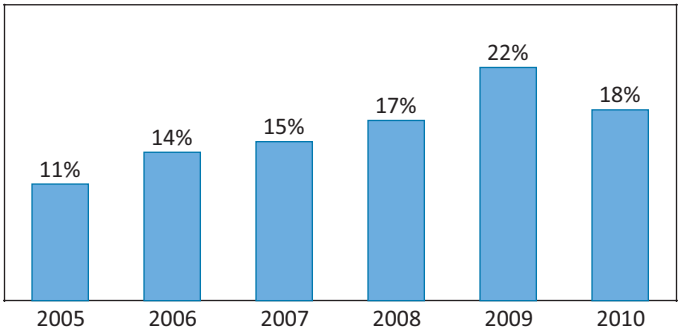
Apprenticeship Program Area	Respondents	% of Total Respondents
Lineworker	28	1%
Parts & Warehousing	27	1%
Horticulture & Landscaping	26	1%
Industrial Electronics	14	1%
Marine & Power Sport	8	0%
Mortuary Science & Embalming	#	#
Airframe Mechanics & Aircraft Maintenance	#	#
Total Small Program Areas	**112**	**4%**

Note: To preserve confidentiality, some data are masked.

Did apprentices study in public or private institutions?

In 2010, as in previous years, the majority of all the former apprenticeship students who were eligible for the survey had studied in public institutions—only 18 percent were

The percentage of students from private institutions has increased since 2005



Note: Percentages are of former students eligible for the survey.

from private institutions. This percentage is a little lower than last year's, but is still higher than every year preceding 2009.[4]

The percentages of 2010 respondents to the survey are the same as the cohort percentages, private (18 percent) versus public (82 percent).

Respondents from participating private institutions

Private Institutions	Respondents	% of Total Respondents
BC Floor Covering Joint Conference Society	#	#
B.C. Wall & Ceiling Association	15	1%
DC 38 Joint Trade Society	20	1%
Discovery Community College	7	0%
Electrical Industry Training Institute	34	1%
Enform Canada	25	1%
Funeral Service Association of B.C.	7	0%
Joint Apprentice Refrigeration Trade School	41	1%
Operating Engineers Training Centre	12	0%
Pacific Vocational College	188	7%
Piping Industry Trade School	46	2%
Quadrant Marine Institute	#	#
R.C.A.B.C. Roofing Institute	25	1%
Sheet Metal Workers Training Institute	33	1%
Trowel Trades Training Association	26	1%
Total Respondents from Private Institutions	**487**	**18%**

Note: To preserve confidentiality, some data are masked.

Respondents from participating public institutions

Public Institutions	Respondents	% of Total Respondents
BC Institute of Technology	791	29%
Camosun College	202	7%
College of New Caledonia	153	6%
College of the Rockies	91	3%
Kwantlen Polytechnic University	93	3%
North Island College	70	3%
Northern Lights College	56	2%
Northwest Community College	33	1%
Okanagan College	288	10%
Selkirk College	75	3%
Thompson Rivers University	127	5%
University of the Fraser Valley	26	1%
Vancouver Community College	158	6%
Vancouver Island University	100	4%
Total Respondents from Public Institutions	**2,263**	**82%**

Some apprenticeship programs are offered exclusively by public institutions, others by private institutions, and some are offered by both private and public institutions. The following table summarizes the trade programs by institution type for respondents of the 2010 Apprenticeship Student Outcomes Survey.

4 There were changes to the 2010 APPSO cohort definition that affected the proportion of eligible students coming from the public institutions. Please see Appendix A: Apprenticeship Survey Methodology for notes on the cohort and on the analysis for this report.

Apprenticeship program areas, by institution type

Apprenticeship Program Area	Private	Public
Airframe Mechanics & Aircraft Maintenance		Yes
Autobody/Collision & Repair		Yes
Automotive Mechanics		Yes
Carpentry	Yes	Yes
Construction Heavy Equipment	Yes	Yes
Culinary Arts		Yes
Electrician		Yes
Exterior & Interior Finishing Trades	Yes	Yes
Heating, Air Conditioning, Refrigeration	Yes	Yes
Horticulture & Landscaping	Yes	Yes
Industrial Electronics		Yes
Industrial Mechanics & Maintenance		Yes
Lineworker	Yes	
Machinist		Yes
Marine & Power Sport	Yes	Yes
Medium/Heavy Duty Mechanics		Yes
Mortuary Science & Embalming	Yes	
Parts & Warehousing		Yes
Pipefitter & Sprinkler Fitter	Yes	Yes
Plumbing	Yes	Yes
Precision Metal Working		Yes
Steel Fabrication & Welding	Yes	Yes

Who were former apprenticeship students?

As in previous years, most of the former apprenticeship students who were surveyed were male, although the percentage of female respondents has gone up slightly from 4 percent to 5 percent. The program area with the highest rate of female participation is Culinary Arts; this rate has gone up to 45% from 35% last year.[5]

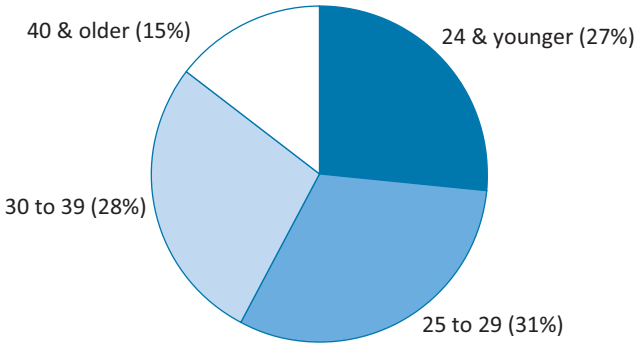
The percentage of former apprenticeship students who identified themselves as Aboriginal was 4 percent—this percentage has been the same over most of the past five years.

In 2010, for the first time, the survey included questions about country of origin and citizenship status. Most respondents (90 percent) were born in Canada, and of the 10 percent whose country of origin was not Canada, 75 percent were citizens and 24 percent were landed immigrants.

At the time of the survey, the median age of respondents was 28; almost one-third were 25 to 29. The age of respondents ranged from 18 to 61, although very few were over 50 and only 15 percent were 40 or older.

5 There were changes to the 2010 survey cohort that had impacts on Culinary Arts and Welding programs. Please see Appendix A: Apprenticeship Survey Methodology for a note describing the changes.

Almost six of ten former apprenticeship students were under 30 years of age



Note: Age is at the time of the survey.

Some programs attracted older students—the median age of former students in Industrial Mechanics & Maintenance programs was 36; for those in Precision Metal Working programs it was 42. On the other hand the median age for Culinary Arts apprentices was 24.

The age of former apprenticeship students varied according to program area

Apprenticeship Program Area	Age
Precision Metal Working	42
Industrial Mechanics & Maintenance	36
Heating, Air Conditioning, Refrigeration	30
Medium/Heavy Duty Mechanics	30
Plumbing	30
Electrician	29
Pipefitter & Sprinkler Fitter	29
Construction Heavy Equipment	29
Autobody/Collision & Repair	27
Automotive Mechanics	27
Machinist	27
Carpentry	26
Exterior and Interior Finishing Trades	26
Steel Fabrication & Welding	26
Culinary Arts	24

Note: Age is at the time of the survey; numbers above are medians.

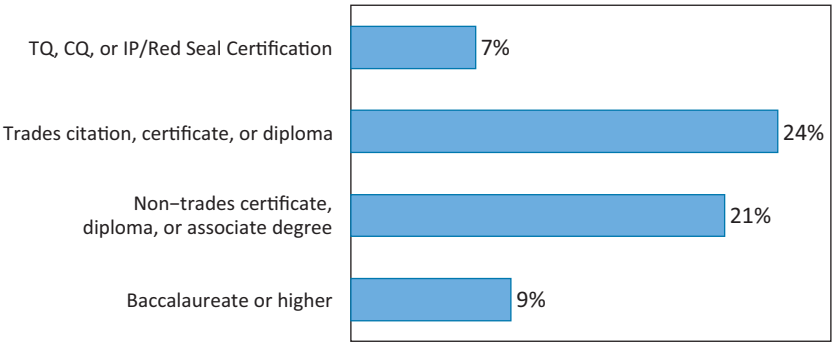
What previous education did students have?

Overall, 56 percent of respondents had taken previous trades training or other post-secondary education before beginning their apprenticeships.

A relatively large portion of those surveyed (35 percent) had taken post-secondary education other than specific pre-apprenticeship training. Of these students, 59 percent had achieved a credential; almost one-quarter had a trades program citation, certificate, or diploma. A relatively small percentage (7 percent) had received a trades certification

(Trades Qualification (TQ), Certificate of Qualification (CQ), or Inter-Provincial (IP/Red Seal) Certification) in a different field.

Many respondents had previous trade credentials



Note: Percentages are based on those who had taken previous post secondary education. Respondents could have more than one type of post secondary credential.

Almost one-third of respondents (32 percent) took pre-apprenticeship training: a trades foundation course or entry-level trades training.[6] The majority (88 percent) of those who had pre-apprenticeship training had studied in the same field as their apprenticeship.

In addition, a small percentage of the former students surveyed (7 percent) said they had taken a high school apprenticeship program. Of those, 81 percent (155 respondents) received technical credit for their training.

6 The ITA framework for pre-apprenticeship training refers to Foundation Industry Training, which is replacing the training programs commonly known as Entry-Level Trades Training (ELTT).

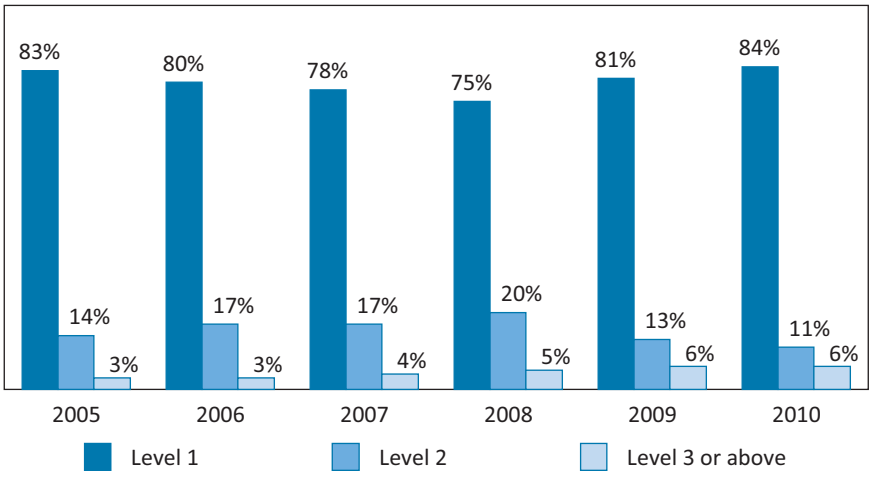
In-School Experiences

The former apprentices surveyed in 2010 were asked a number of questions about their in-school apprenticeship training. They were asked to state the level at which they began their apprenticeship training and then to provide ratings of the quality of their instruction, the content of their program, and their opportunities for skill development.

At what level did apprenticeship students begin their in-school training?

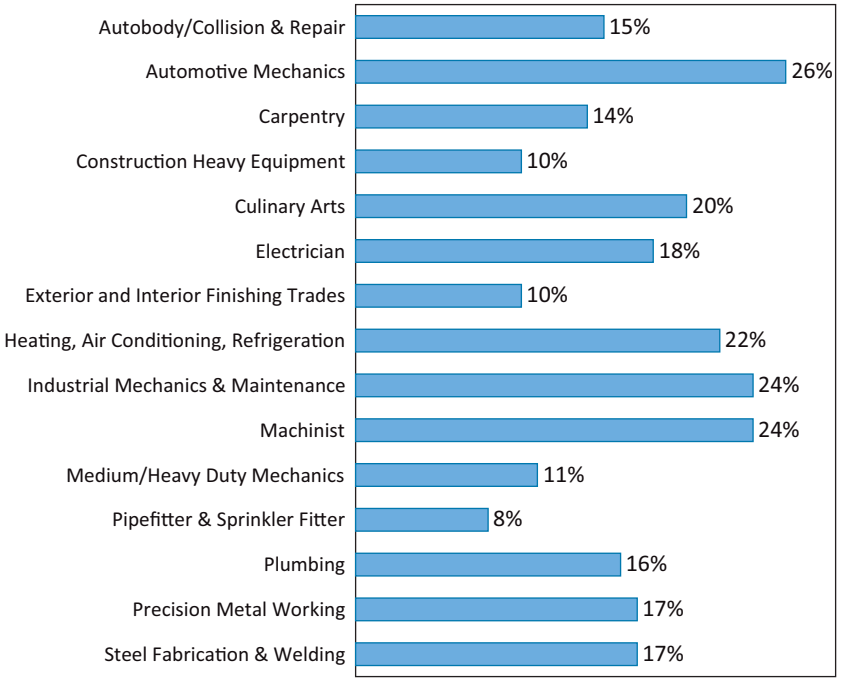
Apprentices start their training in one of a possible five levels; most of the survey respondents (84 percent) said they started their apprenticeship training at Level 1. This percentage is the highest recorded since the 2005 survey, when 83 percent of respondents said they started their apprenticeships at Level 1.

Most former apprenticeship students started their training at Level 1



Placement level in apprenticeship programs varied by program area. For example, in Automotive Mechanics programs, 26 percent of respondents started above Level 1, but in Pipefitter & Sprinkler Fitter programs, only 8 percent started their training at Level 2 or above.

The percentage of apprenticeship students who started above Level 1 varied according to program area



The former students who had taken pre-apprenticeship training (industry foundation courses or entry-level trades training) were more likely than those who did not to have started their apprenticeship at Level 2 or above—27 percent versus 12 percent.

There was a slight advantage to having other previous post-secondary education—15 percent of those with no pre-apprenticeship training but some previous post-secondary started above Level 1, compared with 10 percent of those who did not take any prior post-secondary studies.

Did in-school training provide opportunities to develop skills?

Former apprenticeship students rated the extent to which their in-school training provided them with opportunities to develop a number of analytical and personal skills. If a particular skill was not relevant to their training, it was rated *not applicable*.

A large majority of respondents said their apprenticeship programs helped them to develop skills in mathematics and in learning on their own—more than 80 percent said *very well* or *well* on a 5-point scale that went from *very well* to *very poorly*. Somewhat smaller majorities said their programs helped them develop skills with computers and other tools and equipment appropriate to their field.

Apprenticeship programs helped students develop skills

Skill	Very Well or Well	Not Applicable
Use mathematics appropriate to field	82%	4%
Learn on own	82%	2%
Use other tools and equipment appropriate to field	78%	3%
Use computers appropriate to field	53%	57%

Note: The percentage of *very well* or *well* was calculated excluding those who said *not applicable*.

Ratings of skill development varied across apprenticeship program areas. For example, while 90 percent of respondents from Precision Metal Working felt their program did *very well* or *well* in helping them to use tools and equipment appropriate to their field, only 65 percent of respondents from Pipefitter & Sprinkler Fitter programs gave such ratings.[7]

Ratings of skill development varied across apprenticeship programs

Apprenticeship Program Area	Use Mathematics	Use Tools
Autobody/Collision & Repair	83%	89%
Automotive Mechanics	78%	81%
Carpentry	88%	85%
Construction Heavy Equipment	84%	76%
Culinary Arts	84%	81%
Electrician	88%	66%
Exterior and Interior Finishing Trades	70%	81%
Heating, Air Conditioning, Refrigeration	79%	74%
Industrial Mechanics & Maintenance	83%	79%
Machinist	90%	90%
Medium/Heavy Duty Mechanics	67%	72%
Pipefitter & Sprinkler Fitter	82%	65%
Plumbing	80%	78%
Precision Metal Working	84%	90%
Steel Fabrication & Welding	82%	84%

Note: The percentages are of those who said *very well* or *well*, calculated excluding those who said *not applicable*.

How did students rate the quality, length, and availability of their in-school training?

Former students were asked to rate certain aspects of their in-school training using a 5-point scale: *very good, good, adequate, poor,* or *very poor*. They were instructed to identify any items they thought did not apply to their studies. Respondents gave particularly high ratings to the quality of instruction. They also provided favourable ratings to the organization of the program and the quality of tools and equipment used in the program. Although most items received very few *not applicable* responses, the quality of computers and software were applicable to fewer than half of all respondents.

7 For a complete listing of skills ratings by all program areas, see Appendix D: Ratings of In-School Training by Program Area.

Most respondents gave high ratings to the quality of instruction

Aspect of Training	Very Good or Good	Not Applicable
Quality of instruction	86%	0%
Organization of program	80%	0%
Quality of tools & equipment	78%	2%
Amount of practical experience	71%	1%
Textbooks & learning materials	70%	1%
Quality of computers & software	59%	53%

Note: The percentage of *very good* or *good* was calculated excluding those who said *not applicable*.

Respondents' ratings of the quality of various aspects of in-school training varied by program area. For example, while 92 percent of former students from Autobody/Collision & Repair programs rated the quality of tools and equipment *very good* or *good*, only 62 percent of Medium/Heavy Duty Mechanics said the same.[8]

Respondents' ratings of the quality of aspects of their training varied by program area

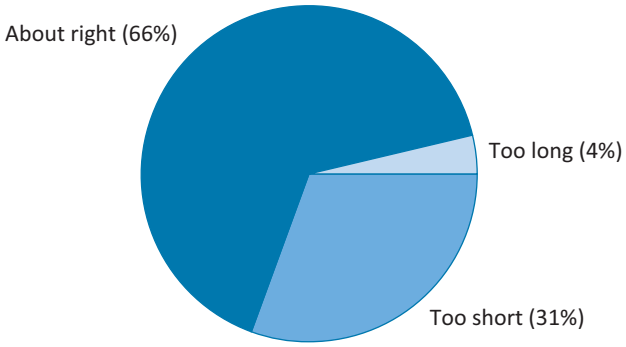
Apprenticeship Program Area	Instruction	Tools & Equipment
Autobody/Collision & Repair	94%	92%
Automotive Mechanics	88%	71%
Carpentry	87%	87%
Construction Heavy Equipment	90%	76%
Culinary Arts	91%	87%
Electrician	85%	70%
Exterior and Interior Finishing Trades	85%	88%
Heating, Air Conditioning, Refrigeration	69%	64%
Industrial Mechanics & Maintenance	94%	79%
Machinist	86%	62%
Medium/Heavy Duty Mechanics	79%	62%
Pipefitter & Sprinkler Fitter	88%	74%
Plumbing	86%	79%
Precision Metal Working	90%	87%
Steel Fabrication & Welding	87%	85%

Note: The percentages are of those who said *very good* or *good*, calculated excluding those who said *not applicable*.

Almost two-thirds of the former apprenticeship students surveyed said the length of their program was about right to cover the material taught; very few said it was too long.

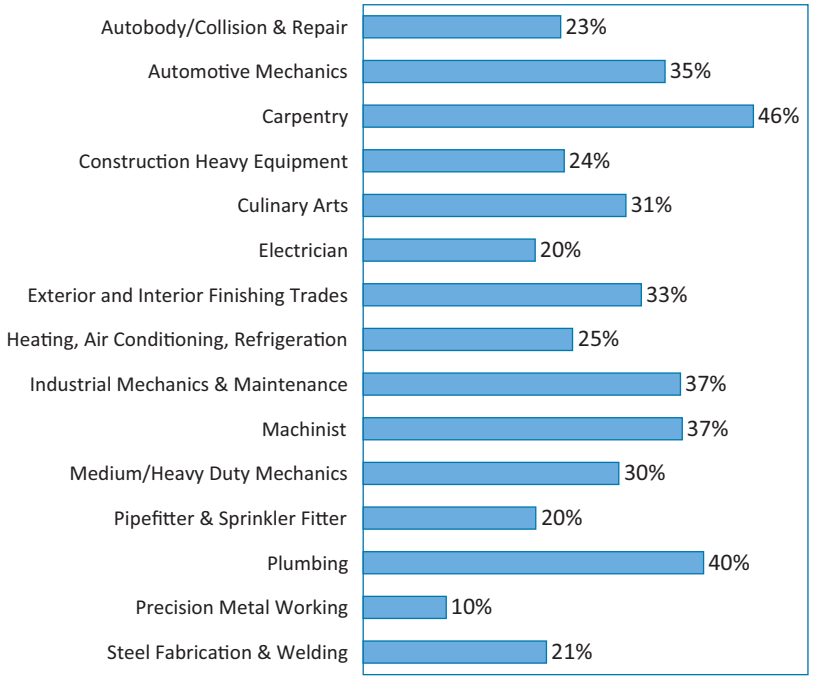
8 For a complete listing of respondents' ratings of aspects of their in-school training for all program areas, see Appendix D: Ratings of In-School Training by Program Area.

A majority of respondents said their program length was about right



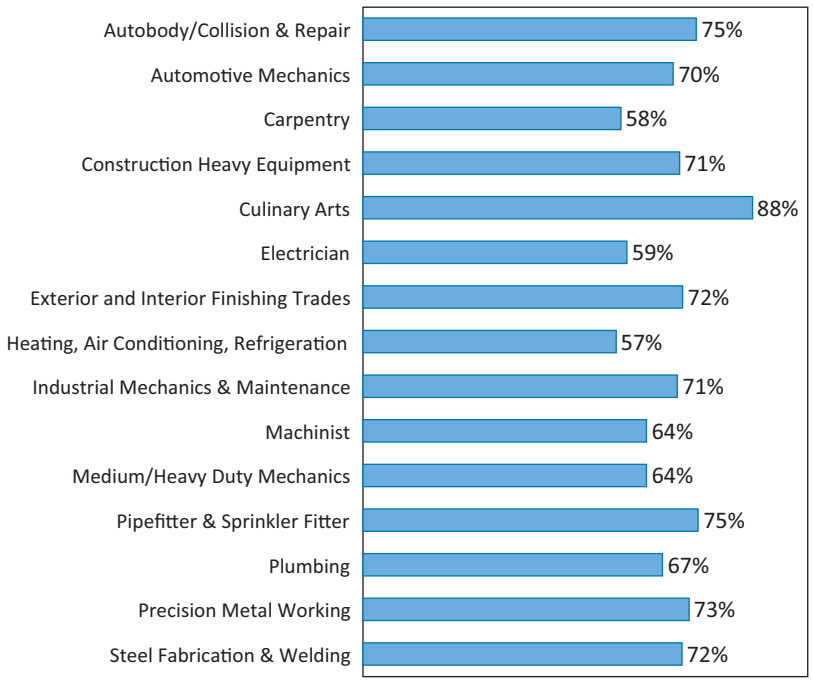
A significant number of respondents thought their program didn't give them enough time to cover the material adequately. Overall, this percentage was less than one-third of respondents; however by program, it varied from 10 to 46 percent.

A significant number of respondents said their program was too short



The former students surveyed were also asked to rate the availability of their technical training courses throughout their apprenticeship. The scale used was 5-points, from *very good* to *very poor*. Overall, a majority of 66 percent said the availability of courses was *very good* or *good*; another 24 percent said they were *adequate*. By program area, availability varied from 57 percent to 88 percent saying *very good* or *good*.

Ratings for availability of technical training varied by program area

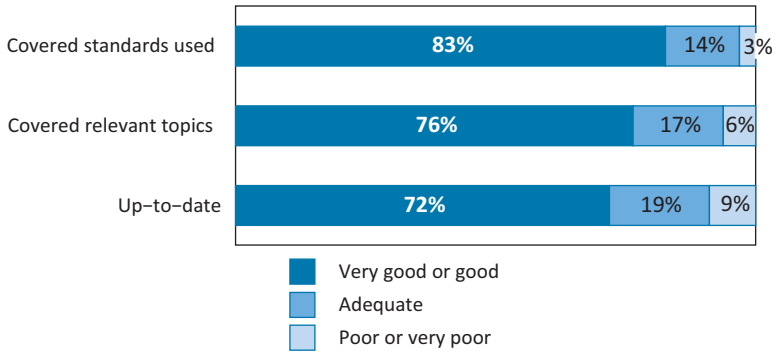


Note: The percentages are of those who said *very good* or *good*, calculated excluding those who said *not applicable*.

How did respondents rate the content of their in-school training?

Former apprenticeship students were asked to rate the content of their in-school training in the following areas: covering the standards being used in their fields, covering the topics most relevant to their fields, and being up-to-date. These areas were rated on a 5-point scale, from *very good* to *very poor*. In each case, a majority of respondents gave either a *very good* or *good* rating.

The majority of respondents rated the content of their training as *very good* or *good*



Note: Percentages were calculated excluding those who said not applicable.

Although ratings of the content areas varied by program, in each case a majority of respondents gave ratings of *very good* or *good*. The respondents from some program areas gave similar ratings to each of the content items—for example, from 84 to 89 percent of former Culinary Arts students said each content area was *very good* or *good*; respondents from some of the other areas rated the items quite differently—84 percent of those from Heating, Air Conditioning, Refrigeration programs said their training covered the standards used in their field, while only 62 percent said the content was up-to-date.

Respondents' ratings of in-school content varied by program area

Apprenticeship Program Area	Up-to-Date	Covered Relevant Topics	Covered Standards Used
Autobody/Collision & Repair	89%	91%	85%
Automotive Mechanics	66%	81%	84%
Carpentry	71%	79%	84%
Construction Heavy Equipment	76%	73%	81%
Culinary Arts	84%	89%	88%
Electrician	63%	71%	84%
Exterior and Interior Finishing Trades	69%	73%	80%
Heating, Air Conditioning, Refrigeration	62%	74%	84%
Industrial Mechanics & Maintenance	76%	75%	79%
Machinist	61%	69%	80%
Medium/Heavy Duty Mechanics	55%	63%	67%
Pipefitter & Sprinkler Fitter	81%	81%	88%
Plumbing	83%	78%	85%
Precision Metal Working	77%	87%	94%
Steel Fabrication & Welding	79%	82%	85%

Note: Percentages are of respondents who said *very good* or *good*, calculated excluding those who said *not applicable*.

How could in-school training be improved?

The former students surveyed were asked how the training in their programs could be improved. Of those who answered the question, 23 percent said their program was fine; it needed no improvement. The other 77 percent (1,970) gave a variety of responses. Probably the most common suggestion had to do with increasing the length of study. Over 20 percent of those who made a suggestion for improvement said their courses should have been longer; many said two weeks longer.

Program should be longer by two weeks.

Make the length of the in-school training longer so it's not so condensed.

Courses should be longer, spending more time on each topic.

Make the course longer by at least two weeks.

The course could be longer by two weeks to cover the material more thoroughly.

Almost as many thought some aspect of their program needed updating: curriculum, learning materials, tools, or equipment.

They could update the curriculum a bit more to modern standards.

The training could be improved by having more up-to-date equipment in the shop.

More up-to-date with current standards in the industry. Too much out-of-date information to study.

I would like there to be more up-to-date texts and equipment to practice on. They are about 30 years behind the times in both these areas.

More up-to-date and newer equipment to train on and work on for the practical part of in-school training.

Approximately 16 percent of respondents who provided suggestions made a comment about instruction. There were a number of complaints about the quality of instruction, although many suggestions had to do with the number of available teachers and the student to teacher ratio.

Teachers should be more knowledgeable and prepared.

Some of the teachers aren't as qualified as they should be.

They need better teachers and smaller classes.

Less people in the classes. There were 30-40 people in the class and only one or two teachers.

It can be improved by having less students per class, compared to the student teacher ratio.

Better instructors, more instructors, smaller class sizes, focus more on technical training hands-on.

A large number of the suggestions given had to do with the practical or hands-on aspects of training. About 15 percent of the comments were to the effect that more of this type of training was needed.

The training in this program can be improved by having more hands-on.

They do not give us enough practical experience during the in-school portion. There should be more hands-on time during school.

They could improve the program by giving more practical training.

There should be more balance between in class learning and hands-on training.

More hands-on, more technical, too much theory in the program.

The training can be improved by if they could get the students more hands-on training. Do the training to match with the outside work.

Roughly 11 percent of the comments made focussed on the qualification examinations. Most would have liked more help preparing for their exams; a number thought the exam they took was out-of-date.

To provide more help with preparing for the Inter-Provincial (IP) exam.

I think that we need to be provided with updated books and better information to be prepared for writing the Red Seal examination.

The IP exam needs to relate more to the curriculum. The questions on the IP were outdated.

To have had more studying literature on the TQ exam.

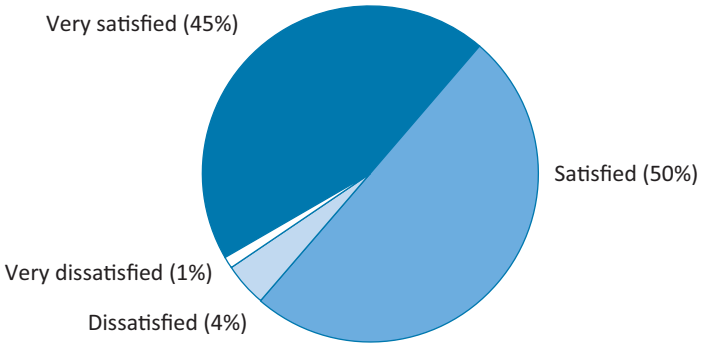
To have been better prepared for the IP exam.

The program should encourage the government to update their exams.

How satisfied were former students with their in-school training?

Almost all respondents (95 percent) said they were *very satisfied* or *satisfied* with the in-school education they received as part of their apprenticeship program. Overall satisfaction with in-school training has been consistently high since this survey began in 2005.

Almost all respondents were satisfied with their in-school training



Although overall satisfaction with in-school training has not varied over time, it does vary across program areas. Appendix E: Respondents' Satisfaction Ratings by Program Area shows the current year's satisfaction results by program area.

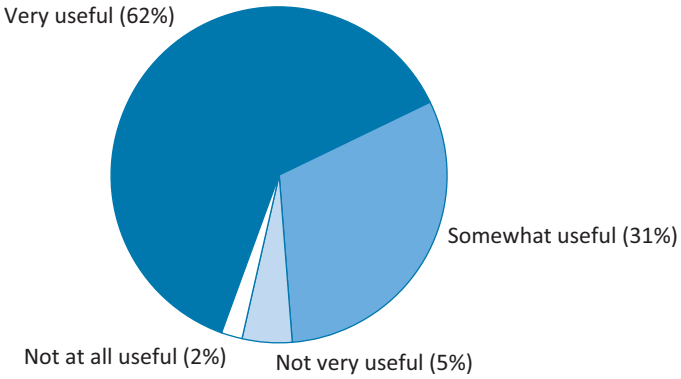
How many received qualification or certification?

The majority (83 percent) of the former apprentices surveyed said they received their Trades Qualification (TQ)—also called British Columbia Certificate of Qualification (C of Q)—many with Interprovincial (IP) or Red Seal endorsement. To receive certification, apprentices must successfully complete a number of work-based training hours, complete or successfully challenge all required levels of technical training, and pass examinations.

The results varied by program area; for the larger program areas, the percentages of respondents who received certification ranged from a high of 94 percent of Electricians to a low of 64 percent of respondents from Exterior & Interior Finishing Trades. Appendix F: Qualification or Certification by Program Area shows results for all program areas.

Whether they had received their certification or not, all respondents were asked how useful the knowledge and skills they gained from in-school training were in preparing to write their examinations. Approximately 2 percent of respondents said the question was not applicable, but of those who responded, most (93 percent) agreed that what they gained from their training was *very useful* or *somewhat useful* to them in preparing to write the TQ or IP certification exam.

Nine out of ten respondents found their in-school training useful in preparing to write their certification exam



Note: Percentages were calculated excluding those who said *not applicable*.

Did former apprenticeship students take further training?

After completing their apprenticeship programs, some of the former students surveyed chose to go on to further education. At the time of the survey (9 to 20 months after students had left their apprenticeship programs), 11 percent of respondents said they were taking or had taken further studies. This percentage is similar to last year's 12 percent; however, previous APPSO surveys show percentages of further education ranging from a high of 16 percent in 2006 to this year's 11 percent.

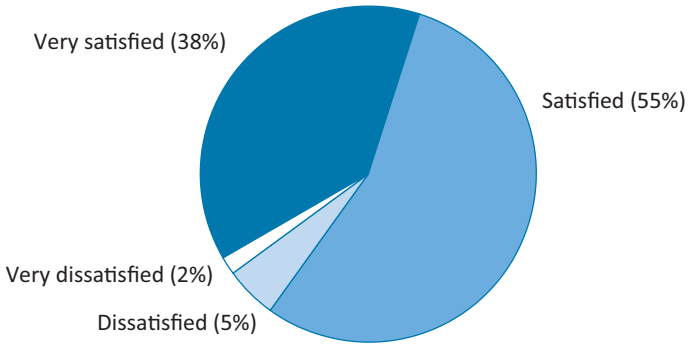
Workplace Experiences

The 2010 survey included a few questions for former students about their on-the-job experiences as apprentices. They were asked to say how related their workplace experience was to their in-school training and to provide a rating of their overall satisfaction with their workplace experience. They were also asked to give specific suggestions to improve on-the-job training.

How satisfied were former apprentices with their workplace training?

Most survey respondents (93 percent) said they were *very satisfied* or *satisfied* with their overall workplace training experience. This level of satisfaction with on-the-job training is consistent with previous years' satisfaction ratings.

Most respondents were satisfied with their workplace training

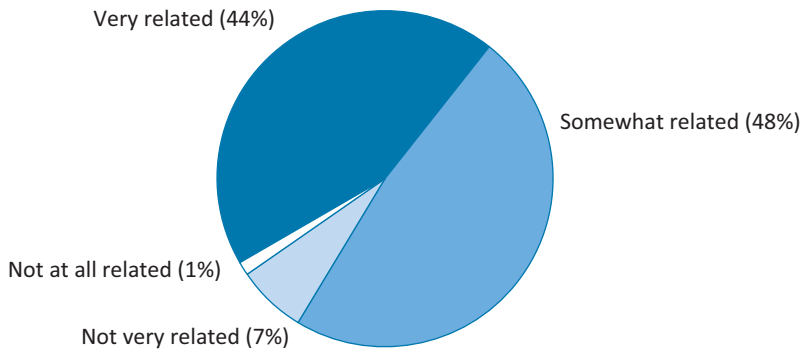


Although overall satisfaction with workplace training has not varied much over time, it did vary across program areas. Appendix E: Respondents' Satisfaction Ratings by Program Area provides the 2010 results by program area.

How related was the workplace experience to in-school training?

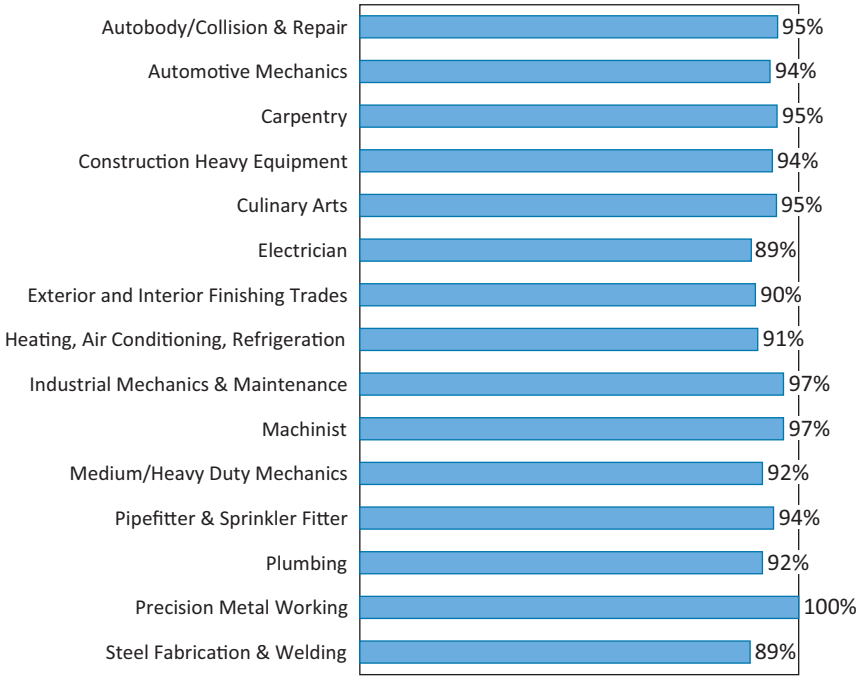
Most (92 percent) of the former apprenticeship students surveyed said their in-school technical training was related—*very related* or *somewhat related*—to their workplace experience. Very few said their in-school and workplace training were unrelated.

Most former students said their workplace experience was related to their in-school training



The proportion of respondents who said their in-school training was *very related* or *somewhat related* to their workplace experience was consistently high across all program areas, ranging from 89 percent (Electrician and Steel Fabrication & Welding) to 100 percent (Precision Metal Working).

Respondents from all program areas said their workplace experience was related to their in-school training



Note: Percentages are of respondents who said their workplace experience was *very related* or *somewhat related* to their in school training.

How could on-the-job experiences be improved?

Former apprenticeship students were asked how their on-the-job experiences could have been improved. Well over half (55 percent) of those who answered this question said their workplace training was fine and needed no improvement; 45 percent (n=1,002) made suggestions. The majority of those who responded talked about wanting *more*: more instruction, more variety of tasks, more hands-on experience. About 15 percent wanted more teaching or mentoring or time with a qualified journeyman.

To have had more time with the Journeyman during my on-the-job experience.

There should be more training provided and more work with a journeyman.

On-the-job experiences could have a more effective mentoring program.

More instruction should be available at the work sites.

Approximately 14 percent suggested a greater variety of tasks and exposure to different jobs would improve the work placement experience.

They could have more work experience in different areas in different fields.

To have more variety of work, to offer different types of work and gain experience.

I would have liked to get a job that would have given me exposure to all the aspects of the courses, as my placement only limited me to certain parts of the program.

The employer should expose apprentices to a broader variety of tasks.

About 13 percent of those who provided suggestions for improvement mentioned more hands-on or practical experience.

There should be more real world and hands-on work performed by apprenticeship students at the work sites.

To provide hands-on practical work experience to apprentices.

There should be more practical work.

The apprentices should get hands-on experience with every aspect of the field.

Employment

Former apprenticeship students were asked a number of questions to determine their labour force status. Employed respondents were asked about their occupation, hours of work, earnings, and the relation of their current employment to their apprenticeship training.

What was the labour force participation of former students?

Almost all (97 percent) of the former students surveyed were in the labour force; that is, employed or looking for work. In comparison, the labour force participation rate (unadjusted) for the B.C. population aged 20 to 54 was 83 percent in March of 2010.

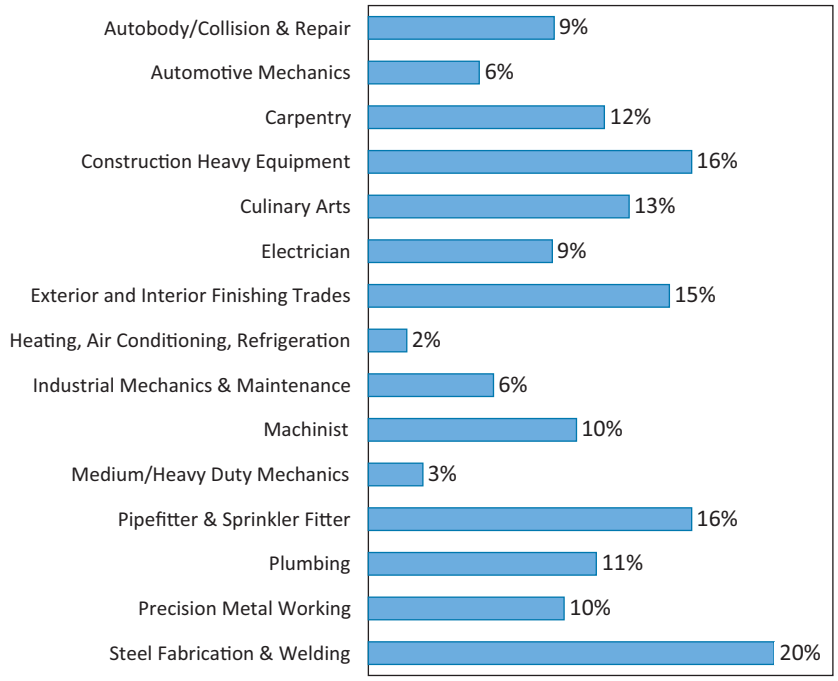
The labour force participation rate was consistently high across all of the larger program areas, ranging from 91 percent (Culinary Arts) to 99 percent (Automotive Mechanics).

The unemployment rate (the number unemployed as a percentage of the labour force) for respondents was 11 percent. While this rate is higher than in previous years, it is a reflection of the economic conditions that prevailed in the months leading up to March 2010. Some trades were affected more than others; construction trades in particular were hard hit. For many years, employment in construction had risen steadily in B.C., fuelled, in part, by preparations for the 2010 Winter Olympics. By October of 2009, however, significant declines in employment for these trades (especially welders, exterior finishing trades, and carpenters) were noted Canada-wide. The biggest losses in apprenticeable occupations were posted in B.C., particularly for electricians, interior finishing trades, and heavy equipment and crane operators.[9]

Results from the 2010 APPSO Survey reflected the declines noted for particular occupations. The unemployment rate for respondents varied significantly across program areas, from 2 percent to 20 percent.

9 Source: *Apprenticeable Occupations and the Employment Downturn in Canada*, Statistics Canada. Please note that since the 2010 survey was conducted, employment in apprenticeable occupations has increased in B.C.

Some program areas had much lower unemployment rates than others



Note: The unemployment rate is the number of unemployed as a percentage of the labour force.

What were former students' employment outcomes?

At the time of the survey, 86 percent of survey respondents were employed at a job or business. In approximately the same time period, March 2010, the employment rate (un-adjusted) for the B.C. population aged 20 to 54 was 76 percent.

Most employed respondents had only one job and it was most likely a permanent, full-time position rather than a part-time or temporary one. Likewise, most respondents were employed by someone else rather than being self-employed (8 percent were self-employed).

Most employed respondents had full-time, permanent positions with an employer

Note: Percentages above are based on employed respondents.

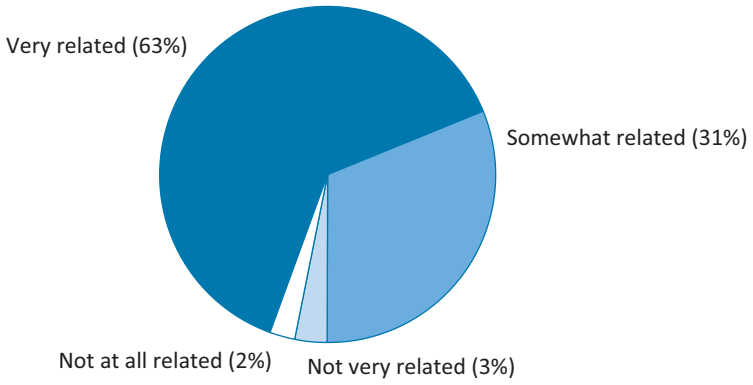
The employed former apprenticeship students were asked if they had done any work placements with their current employer: 68 percent said *yes*. Those who said *no* were

asked how long they took to find their employment. A large majority of 86 percent took less than one month to find a job; by six months, 98 percent had found employment.

How related were former students' jobs to their in-school training?

Employed respondents were asked to judge the extent to which their job was related to the in-school training they took. If they had more than one job[10] they were told to think about their main job; the one at which they worked the most hours. The correlation between respondents' training and their employment is quite high—95 percent of those who answered the question said their employment was *very related* or *somewhat related* to their in-school training.

Most employed respondents said their current job was related to their apprenticeship training



Note: Percentages above are based on employed respondents.

Across most of the larger program areas, from 93 to 98 percent of respondents said their job was related to their in-school training. The exceptions were, on one hand, 84 percent of respondents from Steel Fabrication & Welding and 88 percent from Construction Heavy Equipment who said their job was *very* or *somewhat related* to their training, and on the other hand, 100 percent of respondents from Heating, Air Conditioning, Refrigeration programs who said their job was related.

To explore the relationship of training to employment in more depth, former students were asked to say how useful the knowledge and skills they gained through their program of studies had been in performing their job. Again, a very large majority said they had been *very* or *somewhat useful*; 61 percent said *very useful* and 35 percent said *somewhat useful*.

The ratings across the larger program areas were consistently high—from 93 to 100 percent of respondents said the knowledge and skills they gained were useful—with one exception: the rating for Construction Heavy Equipment programs was 80 percent. (For detailed results by program area see Appendix G: Usefulness of In-School Training when Performing Job, by Program Area.)

10 Barely 5 percent of employed respondents had two jobs, and only 1 percent had three or more jobs.

What occupations did former apprenticeship students have?

A substantial majority—90 percent—of the employed respondents were working in Trades, Transport, and Equipment Operators and Related Occupations.[11] In addition, a handful (n=16) were employed as managers in construction and transportation. The remainder of the respondents were spread thinly across all the other occupational categories, although 4 percent were in Sales and Service Occupations.

There is a very good correlation between former students' apprenticeship programs and their subsequent occupations. For example, of the respondents who apprenticed in the program area of Automotive Mechanics, 94 percent were employed as Motor Vehicle Mechanics.[12] (For details see Appendix H: Common Occupations by Selected Program Areas.)

What was the wage of employed respondents?

The employed former apprenticeship students were asked to report their gross salary or wage before deductions. If they had more than one job, they were asked to report the wage from their main job, the one at which they worked the most hours. Respondents could report their wages by whatever time period they wished (hour, day, week, and so on); an *hourly* wage was derived from the information provided and confirmed by the respondent during the interview.

At the time of the survey, the median hourly wage of employed respondents was $29—the same as it was for 2009 survey respondents. Until 2010, the median hourly wage among former apprenticeship students had been increasing steadily since the 2005 survey—wage figures in previous years were: $24 (2005), $25 (2006), $27 (2007), $28 (2008), and $29 (2009)[13]

The hourly wage varies quite a bit across occupations. Among the 10 most common occupations for 2010 respondents, the median hourly wage ranges from a low of $15 (Chefs & Cooks, Butchers & Bakers), to a high of $33 (Machinery & Transportation Equipment Mechanics).

Hourly wage varies significantly by occupation

Occupation	Respondents	Hourly Wage
Machinery& Transportation Equipment Mechanics	240	$33
Printing Press Operators, Commercial Divers, & NEC	30	$32
Electrical Trades & Telecommunication Occupations	304	$31
Contractors & Supervisors, Trades & Related	214	$30
Metal Forming, Shaping & Erecting Occupations	180	$30
Plumbers, Pipefitters & Gas Fitters	261	$29
Machinists and Related Occupations	36	$26
Carpenters & Cabinetmakers	240	$26
Motor Vehicle Mechanics	271	$25
Chefs & Cooks	51	$15

Note: The wages above are medians; the occupation groups are at the NOC 3 digit level.

11 The National Occupational Classification (NOC) system, which is a taxonomy of occupations in the Canadian labour market, was used to assign 4-digit codes to the occupations former students had at the time of the survey. The codes are used to describe occupations and to aggregate them into occupational categories. The grouping of occupations called "Trades, Transport, and Equipment Operators and Related Occupations" is at the 1-digit level. The respondents who had more than one job were asked to describe their main job.

12 This grouping of occupations is at the 3-digit NOC level.

13 These median wage amounts have not been adjusted for inflation.

Conclusion

Over the past several years, the B.C. provincial government has promoted skills development to mitigate predicted labour shortages. The government's efforts to increase participation in training for the trades has had an impact on the numbers of former apprenticeship students participating in the Apprenticeship Student Outcomes (APPSO) Survey every year—the number eligible for the survey has more than doubled since 2005. Most of the former students are coming from public institutions, but the participation from private institutions has also increased dramatically: since 2005, the number from private institutions submitted for surveying has gone up over 250 percent.

Former apprenticeship students

In 2010, the sixth annual survey of former apprenticeship students was administered to a record number of respondents. Since its inception in 2005, the survey has collected information from over 10,000 former apprenticeship students. The findings from the surveys show interesting variations year-to year, although the basic demographics have been stable: the proportion of respondents under 30 years of age has been consistent, and female participation in apprenticeship remains low—5 percent of respondents in 2010 were female, up from 4 percent in previous years.

Construction trades figure prominently in apprenticeship training programs and the survey results reflect this. For most years, the largest number of APPSO respondents were from Electrician programs. This is also true for 2010, although almost as many were from Carpentry programs.

The government has also focussed on encouraging potential apprentices to take pre-apprenticeship training programs: entry level trades training and, more recently, industry foundation training. Since 2006, approximately one-third of survey respondents annually say they have taken pre-apprenticeship training. Those who do, benefit by being more likely to start their apprenticeships above Level 1.

In-school experiences

Former students' evaluation of the in-school portion of their apprenticeships has been consistently positive. Large majorities said their in-school training helped them develop skills. In 2010, most respondents said their institution helped them develop the skill to use mathematics appropriate to their fields. A somewhat smaller majority said they were helped to use tools and equipment; however, that did not include computer use. It would seem that computers are not used extensively in the in-school training for trades—well over half of the former students surveyed said using computers was not applicable to their training. Of the respondents who gave a rating to computer use, just over half said their training helped them develop appropriate skills.

Other aspects of in-school training received high ratings, especially the quality of instruction, which most respondents rated *very good* or *good*. A large majority gave the same rating to the organization of the program and almost as many said the same about the quality of tools and equipment.

While two-thirds of respondents said the length of their program was *about right*, a significant number said it was *too short*—carpenters and plumbers especially wanted more time for their training. This was a theme that was repeated a number of times by those who made suggestions for improving the technical training. At least 20 percent of those who took the trouble to make a verbatim comment said the program should be longer.

In 2010, the survey included a new question about the availability of courses throughout the training—two-thirds of respondents said the availability was *very good* or *good*. Likewise, the majority were happy with the content of their training, in particular, covering the standards used in the field and focussing on relevant topics. Not quite as many were willing to say their training was up-to-date. Of those who made a verbatim suggestion to improve training, almost 20 percent mentioned updating some aspect of their training, especially equipment and texts.

When former students are asked a general question about their in-school training, the response is highly positive. Every year, almost all respondents say they are satisfied with the education they received in their apprenticeship training. Since 2006, from 93 to 95 percent of respondents said they were *very satisfied* or *satisfied*.

Over those same years, high percentages of former students said the knowledge and skills they gained from their training were useful to them in preparing to write their certification exams. Each year, approximately 80 percent of respondents say they have received their Trades Qualification (TQ), British Columbia Certificate of Qualification (C of Q), or Interprovincial (IP) or Red Seal certification.

Workplace experiences

The APPSO Survey includes a few questions about former students' workplace experiences, and although 2010 respondents may not have been quite as positive as they were about their overall in-school training, most said they were *very satisfied* or *satisfied* with their workplace training. Even more importantly, most respondents said it was related to their in-school training.

The former students surveyed were asked if they had suggestions to improve their workplace training; over half of those who answered the question said it needed no improvement. Those who offered suggestions mentioned a need for more instruction, more variety in the tasks they were assigned, and more hands-on experience.

Employment

As in other years, APPSO respondents had very high rates of labour force participation; employment, however, was still on the downswing, dropping a few percentage points from 2009. After several years in a row of unemployment rates under 3 percent, the jump to 8 percent in 2009 and the further increase to 11 percent in 2010 were startling.

Those rates were a reflection of the declining employment in apprenticeable occupations that occurred across Canada and that was particularly pronounced in B.C. Some occupations were harder hit than others, and as a result, the unemployment rates for the apprenticeship program areas varied considerably.

The respondents who had employment found it relatively quickly—the majority were employed in less than one month. Almost all working respondents had jobs related to their training. In fact, there was a very good correlation between the training they took and their stated occupations. Most said the knowledge and skills they gained in their training were useful to them in the performance of their jobs.

In spite of their higher than usual unemployment rate, the former apprentices surveyed in 2010 were very positive about their apprenticeship experiences. The findings of the APPSO Survey confirm that B.C. apprenticeship training is appropriate, well-received, and meeting the goal of preparing a skilled workforce for the future.

Appendices

Appendix A: Apprenticeship Survey Methodology

Apprenticeship Survey Project

The Apprenticeship Student Outcomes (APPSO) Survey project is conducted with funding from the Province of British Columbia, the British Columbia Industry Training Authority (ITA), and participating British Columbia post-secondary institutions. The British Columbia Student Outcomes Research Forum (Forum) oversees all aspects of the project, from data collection to the reporting of survey results. The Forum represents a longstanding partnership among the ministry responsible for post-secondary education, participating post-secondary institutions, and system-wide organizations, such as the Senior Academic Administrators' Forum, the Council of Senior Student Affairs Leaders, the BC Registrars' Association, and the BC Council on Admissions and Transfer.

APPSO Survey Committee

The APPSO Survey Committee, which has responsibility for oversight of the survey and the resulting publications, is made up of representatives from B.C.'s public apprenticeship training institutions, the ministry responsible for post-secondary education, and the ITA. It is a subcommittee of the BC Student Outcomes Research Forum.

The apprenticeship survey project uses the methodology developed for the Diploma, Associate Degree, and Certificate Student Outcomes (DACSO) Survey.[14] The APPSO Survey Committee developed the survey instrument, which uses many of the same questions as the DACSO Survey questionnaire. In particular, the apprenticeship questionnaire includes the questions designed for performance measures used by the Province and the institutions.

Use of data from the Apprenticeship Survey

Data from the apprenticeship student survey are currently used by the ministries and ITA for policy development and to monitor the effectiveness of the post-secondary system. Participating B.C. post-secondary institutions use information from the annual survey for program and curriculum reviews, for marketing and recruitment, and to assist prospective students with career decisions.

Feedback from former foundation or trades training students is currently collected in the annual DACSO survey, so the ministries and the institutions also have access to pertinent and valuable outcomes information for non-apprenticeship and pre-apprentice trades programs.

14 Formerly known as the College and Institute Student Outcomes (CISO) Survey.

Impact of changes in the 2010 cohort

In 2010, there was a change to the cohort selection criteria that had an impact on two of the program areas discussed in the report—the areas including cook training and welding programs. The Industry Training Authority (ITA) had designated some of these programs as apprenticeable, even though they may not have been delivered like apprenticeship programs. Welding B, welding A, and cook training level 3 programs were submitted with the 2010 Apprenticeship (APPSO) Survey cohort; however, welding C, cook training levels 1 and 2, which are delivered like foundation programs, were not included in the APPSO cohort.

There were 223 respondents to the cook training and welding programs that were added to the 2010 cohort. The characteristics of the respondents from these programs were somewhat different from regular apprenticeship students in that they were a little younger and more likely to be female. Nevertheless, their inclusion did not significantly change any results by program area—with one exception. In the area of Culinary Arts, the addition of these younger and less experienced respondents served to lower the labour force participation rate and the employment rate. It should be noted, however, that the numbers in the Culinary Arts group are not high, and only 12 people in the group were unemployed.

Compared with Culinary Arts, the program area of Steel Fabrication & Welding included a much larger number of respondents from the programs that were added to the 2010 APPSO cohort. This addition did not change the employment outcomes of the group, but did have minor effects on some of the ratings. The respondents from the added cohort (whose training was closer to the industry foundation training model than to traditional apprenticeship) tended to be more satisfied and give higher ratings to programs, although few of the results were statistically significant.

Cohort

The survey cohort included all apprenticeship students who *completed the final year of their apprenticeship programs* at a participating B.C. post-secondary institution. The following criteria were used to define the survey cohort: all apprenticeship students who completed the final year of their apprenticeship programs (i.e., 3-, 4-, or 5-year apprentice programs) between July 1, 2008 and June 30, 2009 at a B.C. public post-secondary institution or at a B.C. private training institution.

Since apprenticeship students may take different parts of their apprenticeship programs at different institutions, the *last* institution that the student attended was considered the institution of record, and that institution was asked to submit the names in their cohort file. The cohort extract included elements such as name, address, telephone number, program description, length of apprenticeship, gender, birth date, program start date, and completion date.

There were 30 B.C. post-secondary institutions that participated in this project—14 of them were public. These public institutions provided 82 percent of the survey respondents. The cohort of students from private institutions was provided by the ITA. The following tables list the participating institutions, the number of former apprentices from each who were eligible for the survey, and the number who responded to the survey.

Participating public institutions

Public Institutions	Eligible for Survey	Respondents	Response Rate
BC Institute of Technology	1,371	791	58%
Camosun College	350	202	58%
College of New Caledonia	270	153	57%
College of the Rockies	129	91	71%
Kwantlen Polytechnic University	184	93	51%
North Island College	127	70	55%
Northern Lights College	83	56	67%
Northwest Community College	55	33	60%
Okanagan College	552	288	52%
Selkirk College	143	75	52%
Thompson Rivers University	216	127	59%
University of the Fraser Valley	44	26	59%
Vancouver Community College	304	158	52%
Vancouver Island University	182	100	55%
Public Institutions Total	4,010	2,263	56%

Participating private institutions

Private Institutions	Eligible for Survey	Respondents	Response Rate
BC Floor Covering Joint Conference Society	15	#	#
B.C. Wall & Ceiling Association	23	15	65%
DC 38 Joint Trade Society	42	20	48%
Discovery Community College	16	7	44%
Electrical Industry Training Institute	79	34	43%
Enform Canada	39	25	64%
Funeral Service Association of B.C.	11	7	64%
Joint Apprentice Refrigeration Trade School	64	41	64%
Operating Engineers Training Centre	19	12	63%
Pacific Vocational College	309	188	61%
Piping Industry Trade School	99	46	46%
Quadrant Marine Institute	4	#	#
R.C.A.B.C. Roofing Institute	54	25	46%
Secwepemc Cultural Education Society	6	0	0%
Sheet Metal Workers Training Institute	73	33	45%
Trowel Trades Training Association	44	26	59%
Private Institutions Total	897	487	54%

Note: Low numbers are masked, to preserve confidentiality.

The cohort extracts were assembled and reviewed for completeness and then passed to the survey contractor for data collection.

Data collection

Field testing of the survey instrument was done January 18 to January 19, 2010, using a sub-sample of the available cohort—there were 86 respondents surveyed. The data collection contractor suggested some minor modifications to the questionnaire, to enhance the flow of the survey and to increase the clarity of certain questions.

The data collection contractor undertook a number of steps to contact former students, including:

- For records with multiple phone numbers, calling all numbers to determine the correct number
- Leaving a voice mail and toll-free number for the former students to call at their convenience
- Using a number of directories to trace former students whose phone numbers were missing or incorrect
- Asking for a forwarding number, where possible
- Sending emails with the toll-free number, where possible

The telephone interviews for the survey were conducted from January 28 to April 14, 2010. Of the 4,907 students identified as eligible for the survey cohort, 2,750 completed the survey (56 percent response rate). The average administration time of the survey was 13.3 minutes.

The following table shows the disposition of the survey cohort that was submitted for data collection.

Final call dispositions, 2010 Apprenticeship Student Outcomes Survey

Call Result	N	Percent of Cohort
Completion	2,750	56%
Incomplete Survey	21	0%
Refused/ Declined	492	10%
Hard Appointment	21	0%
Soft Appointment	104	2%
Left Message - Call Again	578	12%
Busy	3	0%
No Answer	27	1%
Not in Service/ Wrong Number/No NA number	740	15%
Moved - Left Toll Free Number	6	0%
Business (Not Employed There)	5	0%
Travelling Within Canada/US	21	0%
Travelling/ Moved Outside of Canada/ US	29	1%
Communication Problem	14	0%
Deceased	4	0%
Ineligible (Still in same program)	24	0%
Non-qualifier	68	1%
Total All Records	**4,907**	**100%**

Analysis and reporting

BC Stats was responsible for cleaning and validating the data received from the data collection contractor. Based on these data—the responses to the survey questionnaire—the necessary variables were derived for analysis and reporting. Data from the 2010 survey were first released through the web-based Student Outcomes Reporting System (SORS) on June 18, 2010. Apprenticeship SORS provides access to six years of Apprenticeship Survey data in a variety of formats—through report templates, individual questions, and pivot tables. The public version of Apprenticeship SORS—available on the student outcomes website under "Search BC Post-Secondary Student Survey Results"—was released at the same time and provides information for the general public in report form. The most recent three years of data are combined to produce reports at the individual trade or program level.

Analysis for this report included frequencies, crosstabs, and comparison of means; in addition, statistical tests were used to determine if the observed differences between groups were statistically significant. A statistically significant result is one that cannot reasonably be explained by chance alone.

Limitations

The former students who were interviewed—56 percent of those eligible for surveying—were those from the cohort who could be located and who agreed to be surveyed. They may not be representative of all former students.

Some of the 22 apprenticeship program areas had relatively small numbers; for these programs, the numbers were too small to permit comparative or in-depth analysis.

Percentages

For consistency and ease of presentation, most percentages in the report text, tables, and charts have been rounded and may not always add to 100.

Unless otherwise noted, each percentage is based on the number of students who gave a valid response to the question—those who refused the question, or said *don't know*, were not included in the calculation.

Appendix B: Apprenticeship Program Areas and Institutions' Programs

Apprenticeship Program Area	Institution's Program Name	Institution	Respondents
Airframe Mechanics & Aircraft Maintenance			
	Aerostructures Apprentice	BCIT	#
Autobody/Collision & Repair			
	Apprentice Auto Paint/Refinishing	OKN	8
	Auto Collision Repair Apprentice Level 3	VCC	33
	Auto Glass Installer Apprentice Level 2	VCC	#
	Auto Paint & Refinishing Apprentice Level 1	VCC	12
	Auto Refinishing Prep Apprentice Level 1	VCC	12
Automotive Mechanics			
	Apprentice Automotive ServiceTechnician	OKN	23
	Apprentice RV Technician	OKN	5
	Apprentice-Automotive Repair	KWN	16
	Auto Tech Apprentice Level 4	VCC	29
	Automotive Apprenticeship	VIU	19
	Automotive Mechanics IV	CNC	15
	Automotive Service Tech Apprentice Level 4	NLC	9
	Automotive Service Technician- Apprenticeship Training	CAM	22
	Automotive Service Technician Apprenticeship Year 4	COTR	7
	Automotive Technician Acura/Honda(AHAP) Apprentice	BCIT	8
	Automotive Technician Apprentice	BCIT	43
	Automotive Technician GM (ASEP) Apprentice	BCIT	6
Carpentry			
	Apprentice Carpentry	OKN	86
	Apprentice Joinery	OKN	10
	Apprentice Year 4-Carpentry	SEL	10
	Apprentice-Carpentry	KWN	15
	Carpenter - Apprenticeship Training	CAM	49
	Carpentry Apprentice	BCIT	86
	Carpentry Apprentice	TRU	24
	Carpentry Apprentice - Level 4	NWCC	9
	Carpentry Apprentice Level 4	NLC	10
	Carpentry Apprenticeship	VIU	51
	Carpentry Apprenticeship Year 4	COTR	26
	Carpentry IV	CNC	29
	Residential Construction FramingTechnician Apprenticeship	DCC	7
Construction Heavy Equipment			
	Heavy Equipment Operator Apprenticeship	OETC	12
	Piledriver and Bridgework Apprentice	BCIT	15
	Rig Technician 1 Apprenticeship	ENFORM	25

Note: Low numbers are masked, to preserve confidentiality.

Apprenticeship Program Area	Institution's Program Name	Institution	Respondents
Culinary Arts			
	Baking & Pastry Apprentice Level 3	VCC	6
	Baking Apprenticeship	VIU	5
	Cook Training Certificate	FVAL	8
	Culinary Arts	NWCC	#
	Culinary Arts Apprentice 3	VCC	31
	Culinary Arts Apprenticeship	VIU	10
	Culinary Arts Foundation Level 3	CAM	10
	Culinary Arts Professional Cook Training Term 3	COTR	#
	Culinary Arts	NIC	12
	Level Three Cooking	SEL	11
	Professional Cook Apprenticeship Training	CAM	5
Electrician			
	Apprentice Electrician	OKN	53
	Apprenticeship Year 4 Electrical	SEL	39
	Electrical Apprentice	BCIT	186
	Electrical Apprentice	TRU	42
	Electrical Apprentice Level 4	NWCC	6
	Electrical Apprentice IV	CNC	25
	Electrical Apprenticeship Year 4	COTR	15
	Electrician Apprenticeship Training	CAM	51
	Electrician Apprenticeship Level 4	NLC	8
	Electricity Apprentice	NIC	28
Exterior & Interior Finishing Trades			
	Bricklayer (Mason) Apprenticeship	TTTA	10
	Concrete Finisher (Cement Mason) Apprenticeship	TTTA	14
	Floor Covering Installer Apprenticeship	BCFC	6
	Joinery (Cabinetmaker) Apprentice	BCIT	31
	Lather (Interior Systems Mechanic) (Wall & Ceiling Installer) Apprenticeship	BCWCA	15
	Lather (Interior Systems Mechanic) (Wall & Ceiling Installer) Apprenticeship	JTS	5
	Painter And Decorator Apprenticeship	JTS	15
	Roofer (Roofer, Damp and Waterproofer) Apprenticeship	RCABC	25
	Tilesetter Apprenticeship	TTTA	#
Heating, Air Conditioning, Refrigeration			
	Domestic/Residential Certified Heating Technician Hydronic	BCIT	3
	Heat/Frost Insulation Apprentice	BCIT	#
	Refrigeration and Air Conditioning Mechanic (Refrigeration Mechanic) Apprenticeship	JARTS	41
	Refrigeration Apprentice	BCIT	9
Horticulture & Landscaping			
	Apprentice Landscape Horticulture	KWN	20
	Utility Arborist Apprenticeship	EITI	6
Industrial Electronics			
	Industrial Instrumentation Apprentice	BCIT	14

Note: Low numbers are masked, to preserve confidentiality.

Apprenticeship Program Area	Institution's Program Name	Institution	Respondents
Industrial Mechanics & Maintenance			
	Apprentice-Millwright	KWN	6
	Millwright Apprentice	BCIT	52
	Millwright Apprentice Level 4	SEL	8
	Millwright Apprenticeship Technical Training	NIC	9
	Millwright IV	CNC	38
	Planermill Tech 1 Level I Apprentice	COTR	3
Lineworker			
	Power Line Technician Apprenticeship	EITI	28
Machinist			
	Machinist Apprentice	BCIT	47
	Machinist IV	CNC	12
Marine & Power Sport			
	Inboard/Outboard Apprentice	BCIT	4
	Marine Repair Technician Apprenticeship	QUADR	#
	Motorcycle Mechanic Apprentice	BCIT	#
Medium/Heavy Duty Mechanics			
	Apprentice Heavy Duty Equipment	OKN	11
	Commercial Transport Apprentice	BCIT	28
	Commercial Transport Tech Apprentice Level 4	NLC	4
	Commercial Vehicle Mechanic Apprentice	TRU	18
	Diesel Commercial Transport Mechanic Apprentice Level 4	VCC	19
	Diesel Heavy Duty Mechanics Apprentice Level 4	VCC	15
	Heavy Duty Mechanic Apprentice	BCIT	17
	Heavy Duty Mechanic Apprenticeship	VIU	14
	Heavy Duty Mechanic IV	CNC	23
	Heavy Duty Mechanics Apprentice	TRU	11
	Heavy Duty Mechanics Apprenticeship Year Four	COTR	20
	Heavy Duty Tech Apprentice Level 4	NLC	6
Mortuary Science & Embalming			
	Embalmer and Funeral Director Apprenticeship	FSABC	#
Parts & Warehousing			
	Apprentice-Automotive Parts	KWN	20
	Industrial Warehousing Apprenticeship Year 3	COTR	7
Pipefitter & Sprinkler Fitter			
	Domestic/Commercial Gasfitter Apprenticeship	PVC	43
	Gasfitting Apprentice	BCIT	14
	Sprinkler System Installer Apprenticeship	PIPE	11
	Sprinkler System Installer Apprenticeship	PVC	31
	Steamfitter-Pipefitter Apprenticeship	PIPE	6
	Steamfitting Apprentice	BCIT	4
Plumbing			
	Apprentice Plumbing	OKN	32
	Plumber - Apprenticeship Training	CAM	35
	Plumber Apprentice Level 4	NLC	5
	Plumber Apprenticeship	PIPE	29
	Plumber Apprenticeship	PVC	114
	Plumbing Apprentice	BCIT	81
	Plumbing Apprentice	TRU	19
	Plumbing Apprenticeship	NIC	15

Note: Low numbers are masked, to preserve confidentiality.

Apprenticeship Program Area	Institution's Program Name	Institution	Respondents
Precision Metal Working			
	Benchperson Apprentice	BCIT	15
	Circular Sawfiler Apprentice	BCIT	10
	Sawfitting Apprentice	BCIT	6
Steel Fabrication & Welding			
	Apprentice Sheet Metal	OKN	14
	Apprentice Welding Technician	OKN	9
	Boilermaker Apprentice	BCIT	6
	Ironworker Apprentice	BCIT	#
	Ironworker Generalist Apprentice	BCIT	5
	Sheet Metal Apprentice	BCIT	29
	Sheet Metal Worker - Apprenticeship Training	CAM	5
	Sheet Metal Worker Apprenticeship	SMWTC	33
	Steel Fabrication Apprentice	BCIT	34
	Welding Apprentice	BCIT	#
	Welding Apprentice - Year 3	CNC	#
	Welding Apprentice Level 4	NLC	6
	Welding Apprenticeship	VIU	#
	Welding Apprenticeship Level 4	COTR	8
	Welder - Apprenticeship Training	CAM	3
	Citation in Welding-Level A	KWN	4
	Welding - Level A	CNC	10
	Welding A Level	COTR	#
	Welding A Module	NWCC	6
	Welding Level A	BCIT	12
	Welding Level A	CAM	10
	Welding Level A	NIC	5
	Welding Level A	NLC	#
	Welding Level A Certificate	FVAL	#
	Welding Level A Certificate	OKN	16
	Welding-Level "A"	SEL	3
	Welding-Level "A"	TRU	7
	Citation in Welding-Level B	KWN	12
	Welding B Level	COTR	#
	Welding B Module	NWCC	10
	Welding Level B	BCIT	17
	Welding Level B	CAM	12
	Welding Level B	NIC	#
	Welding Level B	NLC	6
	Welding Level B Certificate	FVAL	16
	Welding Level B Certificate	OKN	21
	Welding-Level "B"	SEL	4
	Welding-Level "B"	TRU	6

Note: Low numbers are masked, to preserve confidentiality.

Institution Names and Codes

Institution Name	Code
B.C. Floor Covering Joint Conference Society	BCFC
B.C. Wall & Ceiling Association	BCWCA
British Columbia Institute of Technology	BCIT
Camosun College	CAM
College of New Caledonia	CNC
College of the Rockies	COTR
DC 38 Joint Trade Society	JTS
Discovery Community College	DCC
Electrical Industry Training Institute	EITI
Enform Canada	ENFORM
Funeral Service Association of B.C.	FSABC
Joint Apprentice Refrigeration Trade School	JARTS
Kwantlen Polytechnic University	KWN
North Island College	NIC
Northern Lights College	NLC
Northwest Community College	NWCC
Okanagan College	OKN
Operating Engineers Training Centre	OETC
Pacific Vocational College	PVC
Piping Industry Trade School	PIPE
Quadrant Marine Institute	QUADR
R.C.A.B.C. Roofing Institute	RCABC
Selkirk College	SEL
Sheet Metal Workers Training Institute	SMWTC
Thompson Rivers University	TRU
Trowel Trades Training Association	TTTA
University of the Fraser Valley	FVAL
Vancouver Community College	VCC
Vancouver Island University	VIU

Appendix C: Response Rates by Program Area

Apprenticeship Program Groupings
(as approved by the APPSO Survey Committee in May 2010)

Apprenticeship Program Area	Eligible for Survey	Respondents	Response Rate
Airframe Mechanics & Aircraft Maintenance	10	#	#
Autobody/Collision & Repair	126	66	52%
Automotive Mechanics	323	202	63%
Building/Property Maintenance & Mgmt.	6	0	0%
Carpentry	698	412	59%
Construction Heavy Equipment	90	52	58%
Culinary Arts	214	102	48%
Electrician	797	453	57%
Exterior and Interior Finishing Trades	226	123	54%
Heating, Air Conditioning, Refrigeration	105	55	52%
Horticulture & Landscaping	52	26	50%
Industrial Electronics	18	14	78%
Industrial Mechanics & Maintenance	203	116	57%
Lineworker	63	28	44%
Machinist	99	59	60%
Marine & Power Sport	15	8	53%
Medium/Heavy Duty Mechanics	320	186	58%
Mortuary Science & Embalming	11	#	#
Parts & Warehousing	43	27	63%
Pipefitter & Sprinkler Fitter	184	109	59%
Plumbing	573	330	58%
Precision Metal Working	49	31	63%
Steel Fabrication & Welding	682	342	50%
Total	**4,907**	**2,750**	**56%**

Note: Low numbers are masked, to preserve confidentiality.

Appendix D: Ratings of In-School Training by Program Area

How well did in-school training help former students develop skills?

Apprenticeship Program Area	Use Math	Learn on Own	Use Tools & Equipment
Airframe Mechanics & Aircraft Maintenance	#	#	#
Autobody/Collision & Repair	83%	90%	89%
Automotive Mechanics	78%	83%	81%
Carpentry	88%	83%	85%
Construction Heavy Equipment	84%	75%	76%
Culinary Arts	84%	86%	81%
Electrician	88%	80%	66%
Exterior & Interior Finishing Trades	70%	84%	81%
Heating, Air Conditioning, Refrigeration	79%	76%	74%
Horticulture & Landscaping	90%	85%	88%
Industrial Electronics	100%	93%	86%
Industrial Mechanics & Maintenance	83%	82%	79%
Lineworker	73%	63%	71%
Machinist	90%	80%	90%
Marine & Power Sport	88%	88%	75%
Medium/Heavy Duty Mechanics	67%	77%	72%
Mortuary Science & Embalming	50%	100%	83%
Parts & Warehousing	62%	56%	42%
Pipefitter & Sprinkler Fitter	82%	75%	65%
Plumbing	80%	80%	78%
Precision Metal Working	84%	90%	90%
Steel Fabrication & Welding	82%	88%	84%
Total	82%	82%	78%

Note: The percentages are of those who said *very well* or *well*, out of valid responses to the question, excluding those who said *not applicable*. Percentages based on low numbers are masked, to preserve confidentiality.

How did respondents rate aspects of in-school training?

Apprenticeship Program Area	Quality of Instruction	Organization of Program	Quality of Tools & Equipment
Airframe Mechanics & Aircraft Maintenance	#	#	#
Autobody/Collision & Repair	94%	94%	92%
Automotive Mechanics	88%	83%	71%
Carpentry	87%	80%	87%
Construction Heavy Equipment	90%	77%	76%
Culinary Arts	91%	88%	87%
Electrician	85%	82%	70%
Exterior & Interior Finishing Trades	85%	78%	88%
Heating, Air Conditioning, Refrigeration	69%	76%	64%
Horticulture & Landscaping	88%	92%	100%
Industrial Electronics	100%	100%	64%
Industrial Mechanics & Maintenance	94%	89%	79%
Lineworker	71%	32%	71%
Machinist	86%	73%	62%
Marine & Power Sport	100%	50%	63%
Medium /Heavy Duty Mechanics	79%	69%	62%
Mortuary Science & Embalming	57%	57%	60%
Parts & Warehousing	67%	41%	35%
Pipefitter & Sprinkler Fitter	88%	86%	74%
Plumbing	86%	80%	79%
Precision Metal Working	90%	100%	87%
Steel Fabrication & Welding	87%	81%	85%
Total	86%	80%	78%

Note: The percentages are of those who said *very good* or *good*, out of valid responses to the question, excluding those who said *not applicable*. Percentages based on low numbers are masked, to preserve confidentiality.

Appendix E: Respondents' Satisfaction Ratings by Program Area

How satisfied were former students with the education they received from their institution?

Apprenticeship Program Area	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Valid Responses
Airframe Mechanics & Aircraft Maintenance	#	#	#	#	#
Autobody/Collision & Repair	44%	53%	3%	0%	66
Automotive Mechanics	41%	55%	4%	0%	201
Carpentry	46%	50%	3%	1%	410
Construction Heavy Equipment	35%	56%	8%	2%	52
Culinary Arts	55%	42%	3%	0%	102
Electrician	45%	52%	2%	1%	453
Exterior & Interior Finishing Trades	36%	56%	5%	3%	122
Heating, Air Conditioning, Refrigeration	38%	47%	11%	4%	55
Horticulture & Landscaping	54%	42%	4%	0%	26
Industrial Electronics	86%	14%	0%	0%	14
Industrial Mechanics & Maintenance	52%	44%	3%	2%	116
Lineworker	21%	75%	4%	0%	28
Machinist	31%	64%	2%	3%	59
Marine & Power Sport	50%	50%	0%	0%	8
Medium/Heavy Duty Mechanics	31%	61%	8%	1%	186
Mortuary Science & Embalming	#	#	#	#	#
Parts & Warehousing	22%	48%	19%	11%	27
Pipefitter & Sprinkler Fitter	49%	43%	7%	1%	109
Plumbing	47%	46%	6%	1%	330
Precision Metal Working	58%	42%	0%	0%	31
Steel Fabrication & Welding	50%	45%	4%	1%	342
Total	45%	50%	4%	1%	2,746

Note: Low numbers are masked, to preserve confidentiality.

How satisfied were former students with their overall workplace training experience?

Apprenticeship Program Area	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Valid Responses
Airframe Mechanics & Aircraft Maintenance	#	#	#	#	#
Autobody/Collision & Repair	37%	56%	5%	2%	62
Automotive Mechanics	36%	57%	4%	3%	196
Carpentry	37%	59%	2%	3%	400
Construction Heavy Equipment	34%	62%	2%	2%	50
Culinary Arts	34%	55%	8%	2%	96
Electrician	41%	55%	4%	1%	446
Exterior & Interior Finishing Trades	43%	49%	7%	0%	122
Heating, Air Conditioning, Refrigeration	42%	43%	13%	2%	53
Horticulture & Landscaping	32%	60%	8%	0%	25
Industrial Electronics	50%	50%	0%	0%	14
Industrial Mechanics & Maintenance	42%	49%	5%	4%	114
Lineworker	29%	64%	7%	0%	28
Machinist	28%	67%	3%	2%	58
Marine & Power Sport	38%	63%	0%	0%	8
Medium/Heavy Duty Mechanics	32%	58%	9%	1%	180
Mortuary Science & Embalming	#	#	#	#	#
Parts & Warehousing	24%	56%	20%	0%	25
Pipefitter & Sprinkler Fitter	36%	55%	5%	4%	101
Plumbing	45%	48%	5%	1%	321
Precision Metal Working	32%	61%	6%	0%	31
Steel Fabrication & Welding	37%	57%	4%	2%	325
Total	38%	55%	5%	2%	2,664

Note: Low numbers are masked, to preserve confidentiality.

Appendix F: Qualification or Certification by Program Area

Apprenticeship Program Area	% Qualified	Valid Responses
Airframe Mechanics & Aircraft Maintenance	#	#
Autobody/Collision & Repair	67%	64
Automotive Mechanics	80%	201
Carpentry	84%	410
Construction Heavy Equipment	80%	50
Culinary Arts	71%	95
Electrician	94%	452
Exterior & Interior Finishing Trades	64%	121
Heating, Air Conditioning, Refrigeration	80%	55
Horticulture & Landscaping	44%	25
Industrial Electronics	93%	14
Industrial Mechanics & Maintenance	83%	116
Lineworker	93%	28
Machinist	92%	59
Marine & Power Sport	75%	8
Medium/Heavy Duty Mechanics	91%	185
Mortuary Science & Embalming	#	#
Parts & Warehousing	89%	27
Pipefitter & Sprinkler Fitter	85%	108
Plumbing	88%	329
Precision Metal Working	82%	28
Steel Fabrication & Welding	71%	339
Total	83%	2,722

Note: Low numbers are masked to preserve confidentiality.

Appendix G: Usefulness of In-School Training when Performing Job, by Program Area

Apprenticeship Program Area	Very Useful	Somewhat Useful	Not Very Useful	Not at All Useful	Valid Responses
Airframe Mechanics & Aircraft Maintenance	#	#	#	#	#
Autobody/Collision & Repair	71%	25%	2%	2%	59
Automotive Mechanics	71%	29%	0%	1%	188
Carpentry	61%	34%	3%	1%	348
Construction Heavy Equipment	37%	44%	5%	15%	41
Culinary Arts	69%	23%	6%	1%	81
Electrician	50%	46%	3%	0%	399
Exterior and Interior Finishing Trades	57%	39%	1%	3%	97
Heating, Air Conditioning, Refrigeration	62%	38%	0%	0%	52
Horticulture & Landscaping	67%	19%	5%	10%	21
Industrial Electronics	93%	7%	0%	0%	14
Industrial Mechanics & Maintenance	69%	30%	0%	1%	106
Lineworker	79%	21%	0%	0%	28
Machinist	56%	38%	6%	0%	52
Marine & Power Sport	57%	43%	0%	0%	7
Medium/Heavy Duty Mechanics	61%	36%	2%	0%	176
Mortuary Science & Embalming	#	#	#	#	#
Parts & Warehousing	27%	38%	23%	12%	26
Pipefitter & Sprinkler Fitter	65%	33%	2%	0%	89
Plumbing	60%	37%	2%	1%	283
Precision Metal Working	86%	14%	0%	0%	28
Steel Fabrication & Welding	60%	34%	3%	3%	258
Total	61%	35%	3%	1%	2,359

Note: Low numbers are masked to preserve confidentiality.

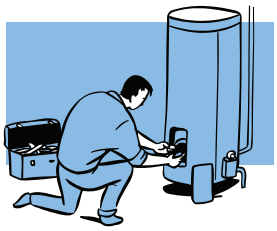
Appendix H: Common Occupations by Selected Program Areas

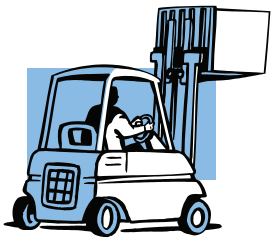
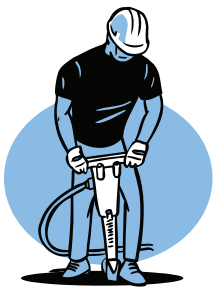
Apprenticeship Program Area Occupation Category	Number in Occupation	Percent in Occupation
Autobody/Collision & Repair		
Motor Vehicle Mechanics	55	93%
Automotive Mechanics		
Motor Vehicle Mechanics	176	94%
Contractors & Supervisors, Trades & Related	3	2%
Carpentry		
Carpenters & Cabinetmakers	238	68%
Contractors & Supervisors, Trades & Related	79	23%
Managers in Construction & Transportation	10	3%
Trades Helpers & Labourers	4	1%
Construction Heavy Equipment		
Mine Service Work & Operations	17	40%
Metal Forming, Shaping & Erecting	6	14%
Heavy Equipment Operators	5	12%
Contractors & Supervisors, Trades & Related	3	7%
Crane Operators, Drillers & Blasters	3	7%
Motor Vehicle & Transit Drivers	3	7%
Culinary Arts		
Chefs & Cooks	57	70%
Butchers & Bakers	12	15%
Occupations in Food & Beverage Service	3	4%
Electrician		
Electrical Trades & Telecommunications	322	81%
Contractors & Supervisors, Trades & Related	54	14%
Machinery & Transportation Equipment Mechanics	4	1%
Electronics & Electrical Engineering	3	1%
Exterior & Interior Finishing Trades		
Other Construction Trades	23	24%
Masonry & Plastering Trades	22	23%
Carpenters & Cabinetmakers	21	22%
Contractors & Supervisors, Trades & Related	14	14%
Other Assembly & Related Occupations	6	6%
Managers in Construction & Transportation	3	3%
Heating, Air Conditioning, Refrigeration		
Machinery & Transportation Equipment Mechanics	46	87%
Contractors & Supervisors, Trades & Related	4	8%
Horticulture & Landscaping		
Technical Occupations in Life Sciences	9	43%
Contractors & Supervisors in Agriculture	4	19%
Industrial Electronics		
Electronics & Electrical Engineering	12	86%

Note: Occupations with fewer than three respondents are not shown; most program areas do not add to 100 percent. Occupation categories are at the 3 digit NOC level.

Apprenticeship Program Area Occupation Category	Number in Occupation	Percent in Occupation
Industrial Mechanics & Maintenance		
Machinery & Transportation Equipment Mechanics	87	82%
Contractors & Supervisors, Trades & Related	4	4%
Machinery Operations & Related in Pulp & Paper	3	3%
Lineworker		
Electrical Trades & Telecommunications	25	89%
Contractors & Supervisors, Trades & Related	3	11%
Machinist		
Machinists & Related Occupations	40	77%
Metal, Woodwork & Related Machinery Operators	4	8%
Machinery & Transportation Equipment Mechanics	3	6%
Marine & Power Sport		
Other Mechanics	4	57%
Medium/Heavy Duty Mechanics		
Machinery & Transportation Equipment Mechanics	98	55%
Motor Vehicle Mechanics	67	38%
Contractors & Supervisors, Trades & Related	10	6%
Mortuary Science & Embalming		
Technical Occupations in Personal Service	#	#
Parts & Warehousing		
Recording, Scheduling & Distributing Occupations	21	81%
Longshore Workers & Material Handlers	3	12%
Pipefitter & Sprinkler Fitter		
Plumbers, Pipefitters, & Gas Fitters	59	66%
Contractors & Supervisors, Trades & Related	11	12%
Machinery & Transportation Equipment Mechanics	7	8%
Other Mechanics	6	7%
Plumbing		
Plumbers, Pipefitters, & Gas Fitters	234	83%
Contractors & Supervisors, Trades & Related	36	13%
Machinery & Transportation Equipment Mechanics	3	1%
Other Installers, Repairers, & Servicers	3	1%
Precision Metal Working		
Printing Press Operators, Other Trades & Related	26	93%
Steel Fabrication & Welding		
Metal Forming, Shaping, & Erecting Occupations	194	75%
Contractors & Supervisors, Trades & Related	17	7%
Machinery & Transportation Equipment Mechanics	14	5%
Trades Helpers & Labourers	6	2%
Motor Vehicle Mechanics	3	1%
Retail Salespersons and Sales Clerks	3	1%

Note: Occupations with fewer than three respondents are not shown; most program areas do not add to 100 percent. Occupation categories are at the 3 digit NOC level.

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For more information on the BC Apprenticeship Student Outcomes Survey, see http://outcomes.bcstats.gov.bc.ca/APPSO/APPSO_Info.aspx