INNOVATION IN SKILLED TRADES TRAINING AND APPRENTICESHIP IN BC

Inventory of innovation

Funding provided through the Canada-British Columbia Labour Market Development Agreement.
INTRODUCTION

In British Columbia, we have an incredible opportunity on the horizon. The provincial government supports efforts to continually explore and develop new and innovative ways to make trades training work better, especially through stronger partnerships with industry, labour and training providers, so BC students and workers are first in line for the jobs in the growing economy.

In 2014-15, the Industry Training Authority (ITA) and the provincial government worked together to collect nearly 100 examples of innovative practices in use in the BC trades training system, helping improve trades training outcomes. Substantive work is underway in all regions across the province. This report summarizes a few examples of innovative practices involving flexible delivery, regional access, student supports and partnerships.

FLEXIBLE DELIVERY

Deliver technical training through flexible scheduling and use of innovative tools to attract apprentices and encourage program completion.

• CCT Controls developed an on-site training centre to supplement the technical training their apprentices receive. This training develops apprentices into specialized tradespeople to meet the needs of CCT’s customers. CCT also established a competency measurement tool for Construction Electrician and Instrumentation and Control Technician apprentices. This tool builds practical skills essential for CCT’s specialized work and equipment, also allows CCT to track and document progress and fill in training gaps.

• The BC Wall and Ceiling Association delivers technical training for Wall and Ceiling Installer instruction is delivered on Thursday evenings and all day Fridays and Saturdays (20 hours/week). Apprentices can continue to work part-time or full-time while attending school.

ACCELERATED TRAINING PERIODS

• By increasing the hours taught each day, the College of New Caledonia has shortened each level of Machinist technical training from six weeks to five weeks. Although students are in class for longer each day, they finish their program one week sooner. This approach helps to attract students to the Machinist apprenticeship program, particularly students coming from other areas of the province, and companies are pleased that their apprentices can be back at work a week earlier.

• White Spot selects a cohort of apprentices to take Professional Cook 1, 2 and 3 technical training one day per week over 25 weeks at Vancouver Community College while continuing to work full-time. There is no reduction in training time.

APPRENTICESHIP TRAINING ON A WEEKLY BASIS

• The Quadrant Marine Institute, which was developed by the marine repair industry, delivers Marine Service Technician technical training once per week in the evenings. This timing results in no lost wages for the apprentice, no lost time for the employer, and no Employment Insurance costs while apprentices participate in the training.

Technical training is delivered in Surrey at the BC Wall and Ceiling Association office and regionally through partnerships with training providers in the Greater Victoria area.

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At the British Columbia Institute of Technology (BCIT), 3-D applications allow a system or object to be viewed from, and rotated in, all directions. While these applications have been used in machining and manufacturing trades for some time, they are now also being used to train tradespeople on complex mechanical systems. BCIT uses 3-D applications for Aircraft Maintenance training, Carpentry trades training and other technical training.

**DELIVERING MULTIPLE LEVELS IN ONE CLASS**
- Northern Lights College delivers Welder training to all three levels in one class. This enables a smaller group of apprentices to progress towards certification.

**DELIVERING ONLINE AND BLENDED LEARNING**
- The first year of the BC Funeral Association’s Foundation program is provided through distance learning and online training. To continue into the second year of training, students must find employment with a funeral service provider within two years. Okanagan College developed a library for funeral service provider training to provide the online Electric Utility Fundamentals course to students in the Power Line Technician, Military Aircraft Maintenance programs. This course supplements the theory required to understand and explains the systems that generate and deliver electrical power. Apprentices have access to a CNC tutor to help with course-related questions.
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**DELIVERING ONLINE AND BLENDED LEARNING**
- The machine simulator and apprentice students with videos programs. This course allows for the training did not work well in the third year due to an increased technical focus. The issue was corrected by removing the online portion and using only on-site instruction for the third year, and the IP pass rates have returned to their previous levels.

**DELIVERING ONLINE AND BLENDED LEARNING**
- During the first two levels of the traditional program, students must find employment with a funeral service provider within two years. Okanagan College developed a library for funeral service provider training to provide the online Electric Utility Fundamentals course to students in the Power Line Technician, Military Aircraft Maintenance programs. This course supplements the theory required to understand and explains the systems that generate and deliver electrical power. Apprentices have access to a CNC tutor to help with course-related questions.

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Introduction of training programs that break down barriers to accessing trades training by bringing training opportunities to apprentices in remote areas across BC.

**Regional Access**

- Selkirk College transported equipment from their Nelson campus to two smaller communities to deliver Carpentry ACE IT and Foundation programs. One program, delivered in Nakusp, was made possible by a partnership with School District 10 and the Village of Nakusp, with partial funding from BC Hydro. Training was delivered at the Selkirk College site, the secondary school, and in an adjacent parking lot and field. A second program was delivered at a secondary school in Grand Forks and School District 56.

**Mobile Training**

- Thompson Rivers University (TRU) has a 53-foot custom-built long-box trailer with pull-out sides that is equipped to hold 12 Welding stations. Hauled by a semi-truck and fully self-contained with its own generator, the unit can run for up to a month in a remote area on its own fuel. By running two classes at the same time (e.g., an 8:00 a.m. – 3:00 p.m. class and a 3:00 p.m. – 10:00 p.m. class), the unit could accommodate up to 48 students per year.

- Northwest Community College (NWCC) has a 30-foot self-contained training unit, built by a pickup truck, that allows for Foundation-level Heavy Equipment Operator training in remote areas of Northwest BC. The mobile unit, a simulator housed in the back of a large trailer, provides a safe and reliable environment for training while reducing wear and tear on regular machinery by students who haven’t previously used heavy equipment. NWCC funds the operating costs for the unit through a combination of block funding, ITA funding, contract training, and student tuition. NWCC feels that the benefits of supporting remote communities in their region are worth the costs, and are seeking to add to their successful mobile training unit.

- Nicola Valley Institute of Technology’s mobile unit, which has operated for the past 4.5 years, consists of two 53-foot custom-built long-box trailers hauled by two semi-trucks. The unit provides 1,100 square feet of training space and enough room for 12 teaching stations. The mobile unit is used to provide Introductory Bridging to Trades training exclusively to First Nations communities throughout the Nicola Valley region and across BC. The mobile program, which enables Aboriginal participants to explore and select an apprenticeship trade for further training, consists of essential skills and upgrading assessments, as well as 12 weeks of classroom and practical hands-on experience.

- Okanagan College’s Foundations programs in Electrical, Plumbing and Welding rotate through the communities of Penticton, Vernon and Salmon Arm using equipment loaded into a container. Each location hosts the program for six months. Prior to seeking funding for permanent programs, the models were tested to sustainably deliver training in remote communities and across BC.

**TAKING TRAINING TO THE WORK SITE**

- The Christian Labour Association of Canada created a virtual classroom system in order to bring training to remote areas and to First Nations across BC. Through the training centre, students at remote job sites and in communities across BC are linked to instructors at Thompson Rivers University (TRU) using a combination of GoToMeeting, Skype and online learning with recording capabilities. In partnership with Ledcor, TRU used the system to teach Construction Craft Worker skills to Haisla First Nations students at a Chevron site in Kitimat. The theory portion of technical training was delivered online at the work site each morning over four weeks, with students returning to work each afternoon. Following the theory portion, a TRU instructor delivered the practical training component at the work site.

**TAKING TRAINING TO CORRECTIONAL FACILITIES**

- In partnership with Correctional Service Canada, Camosun College delivered trades training in Professional Cook 1 and Electrical at a correctional facility. Each program had unique attributes. Professional Cook was production-based and Electrical was self-paced. All three programs provided offenders with an opportunity to develop employment-ready skills and to achieve recognized industry certifications prior to their release from the facility.

**TAKING TRAINING TO REMOTE AREAS**

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**BC Hydro** partnered with Thompson Rivers University (TRU), a BC Hydro educational partner, to provide mobile Welding training to supplement Milimathit and Machinist programs. TRU sends a mobile welding vehicle and instructor to one of the remote work sites to deliver practical training.

**Innovation in Skilled Trades Training and Apprenticeship in BC**

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STUDENT SUPPORTS

Offer programs to apprentices that build upon essential skills and cultural knowledge to support employment success and retention.

Okanagan College delivers Essential Skills upgrading to students from the PentICT Indian Band prior to their entry into Residential Construction programs. The program supports improved student outcomes and employability for First Nations students.

- Aboriginal Community Employment Services Society (ACCESS) offers a range of Essential Skills programs to support employment success and retention. The Employer Partner program is an eight-week program that builds targeted foundational workplace Essential Skills identified for specific employment positions.

- The Piping Opportunities for Women program is offered by the UA Piping Industry College of BC (UAPIC) to assist women wishing to pursue a career in the piping trades. This six-week program offers opportunities for women with minimal or no experience in piping to explore options available such as Plumbing, Steamfitting, Sprinkler Fitting and Welding. Program participants have the option to proceed with Foundation training or to access specialized Welding training through UAPIC. Supports provided are determined through an assessment process, based on the needs of an applicant, and could include free tuition, daycare subsidies, subsidized lunches/meals, safety boots and coveralls, monthly gym memberships, and math tutoring.

CULTURAL DIVERSITY

- In partnership with training providers (Thompson Rivers University, Selkirk College and School District 67), the Southern Interior Construction Association offers pre-trades training throughout the Southern Interior. The 19-week industry-driven program exposes students to Carpentry, Electrical and Plumbing, reflecting the skills that employers are seeking. Training consists of 50 percent theory and 50 percent hands-on projects. As part of the program, students are matched with an employer for a practicum placement that could potentially lead to employment.

- Northern Lights College has integrated a practicum placement into their Foundation program. The practicum is supervised and evaluated by faculty at Northern Lights College and by the employer. In order to begin a practicum, students must complete or show current valid certification for safety courses such as Occupational First Aid, WHMIS and H2S Alive. Practicum length varies by trade from 40 to 160 hours. Students must keep a detailed written report or logbook of their work, and submit it to the instructor upon completion of the practicum.

PARTNERSHIPS

Incorporating Work Experiences

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• Okanagan College students in Carpentry form move from the classroom to the job site to participate in building projects throughout the year. For example, in 2014, students contributed to the construction of the new main building at the Okanagan College Aerospace Campus in Vernon, with the remaining 14 weeks taking place at Northern Lights College in Dawson Creek. Graduates are granted a diploma in Aircraft Maintenance Engineering from Northern Lights College. Okanagan College invested approximately $300,000 to construct the Aerospace Campus, and continues to supply student recruiting and administration. Northern Lights College contributes their Transport Canada Approved Program along with curriculum and staff. Vernon students have guaranteed housing at the Northern Lights College apartment complex on campus.

• Through a partnership with Northern Lights College, Okanagan College was able to bring Aircraft Maintenance Training to the Okanagan region. Northern Lights College delivers the first 48 weeks of this 62-week program at the Okanagan College Aerospace Campus in Vernon, with the remaining 14 weeks taking place at Northern Lights College in Dawson Creek. Graduates are granted a diploma in Aircraft Maintenance Engineering from Northern Lights College. Okanagan College invested approximately $300,000 to construct the Aerospace Campus, and continues to supply student recruiting and administration. Northern Lights College contributes their Transport Canada Approved Program along with curriculum and staff. Vernon students have guaranteed housing at the Northern Lights College apartment complex on campus.

Camosun College has partnered with several charities over the years on construction projects. The most recent partnership was formed in 2014 with Habitat for Humanity Victoria to build the conceptual foundation and structural framing for a duplex of new housing. This provides a real-world environment in which learners can apply their new Carpentry knowledge in an actual job site.

A new 142,000 square-foot Milestone Power Centre of Excellence on Annacis Island replaced smaller outdoor facilities at Vancouver Community College and BCIT. The two schools share common space, including labs/ classrooms, work areas, locker rooms, and shop space.

• Okanagan College formed a partnership with Taylor Pro Training, a leader in truck driver training, to offer Class 1 Truck Driver training and Heavy Equipment Operator training. Although the driving school is located in Kelowna, as is the main Okanagan College campus, Taylor Pro delivers training with their equipment and instructors at Okanagan College campuses throughout the region, including Penticton, Salmon Arm, Revelstoke and Vernon.

• Vernon, Salmon Arm, and Revelstoke. At the outset of the program, the Home for Learning partnership only built homes to be sold, with proceeds given back to the College Foundation. However, at one point, the College and its partners were left with an unused house for a number of years, so the model was changed to include not-for-profit projects benefiting charitable groups such as daycare facilities, women’s shelters, and Habitat for Humanity.

• Vancouver Island University has partnered with Habitat for Humanity and surrounding First Nations to take a local house to the lock-up stage, providing an industrial setting for practical learning for Vernon, Salmon Arm, or Revelstoke. At the outset of the program, the Home for Learning partnership only built homes to be sold, with proceeds given back to the College Foundation. However, at one point, the College and its partners were left with an unused house for a number of years, so the model was changed to include not-for-profit projects benefiting charitable groups such as daycare facilities, women’s shelters, and Habitat for Humanity.

• Through Coldstream Truck Parts, the Salt family believes that the community needs to support up-and-coming tradespeople. The motivation for donating the loader was simple: it knowledge on an actual job site.

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