

Apprenticeship: Facing Change Head On

National Apprenticeship Conference 2018

Apprenticeship: Change Pressure Points

CAF-FCA surveys indicate apprentices are experiencing significant change in five key areas:

- Technology
- Diversity
- Training
- Skills
- Employer and Apprentice Expectations

Today's discussion gives us an opportunity to understand industry experiences across sectors, trades and regions.

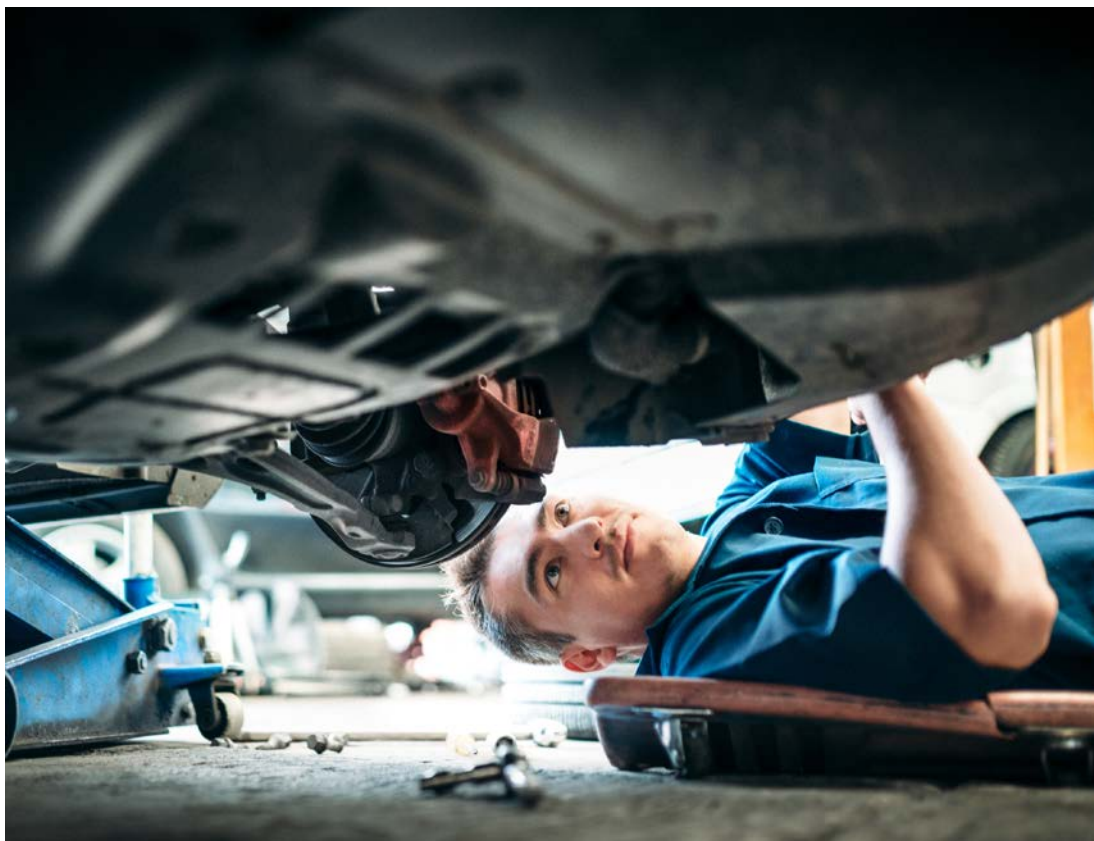
Coping with Change

- Ken Coates wrote a paper on the changing nature of work: *Future of the Trades-Trades of the Future: Thinking Outside the Tool Box*
 - "...workers have to be properly trained for the work of today, alert to the prospects for the introduction of distributive technologies, and adaptable to changing systems as they emerge."
 - "Tradespeople need exposure to new technologies, constant upgrading and a commitment to "continuous personal improvement."

Change-Related Skills and Abilities

- **Creativity:** Coming up with new ideas and solutions
- **Critical thinking:** Willingness to question ideas
- **Communication:** Ability to present new ideas or products to an audience
- **Awareness:** Alertness to emerging opportunities
- **Learning:** Acquiring new knowledge

Introduction of New Technologies



Technology: Key Trends and Issues

- Incorporating electronic sensors and controllers in equipment
- Increasing use of diagnostics and electronics-based testing equipment
- Programming of machinery and equipment
- 90 per cent of skilled trades companies use digital technologies such as computers and smartphones at the workplace
- 30 per cent of companies reported tradespeople's work was impacted by technological change in the past 18 months, with the automotive service trade identifying the biggest impact

Apprentice Perspectives

- Apprentices report using smartphones on-the-job:
 - when finding directions to a worksite (60%)
 - looking up codes and regulations (59%)
 - recording work to show their supervisors (57%)
- Apprentices would like to see more trades-specific or skills-related applications and greater mobile compatibility for trade-specific documents and codes
- Automotive service pre-apprentices and apprentices are the most concerned about losing their jobs due to automation and believe, more than other trade groups, that training will be required to cope with technological change

Diversity in Skilled Trades Workplaces



Diversity: Key Trends and Issues

- According to the 2015 National Apprenticeship Survey, the majority of apprentices are Canadian-born, white males
 - Women - 13.7%
 - Immigrants - 8.7%
 - Visible minorities - 8.2%
- For women and newcomers, employers were a bigger influencer than family or friends when it came to deciding whether or not to pursue an apprenticeship
- Productivity pressures, a lack of time, generational differences and rapid technological change strain journey person - apprentice relationships

Apprentice Perspectives

- Apprentices say desirable workplaces include:
 - a journeyperson willing to teach (74%)
 - a variety of work experiences (58%)
 - opportunities for career advancement (56%)
 - a positive work environment (53%)
- Higher percentages of women (58%) and Indigenous peoples (29%) identified discrimination as a barrier when trying to find an employer sponsor

Apprenticeship Technical Training



Training: Key Trends and Issues

- Online learning featuring simulations, animations, web-based broadcasts, “live” blueprints and videos promotes accessible technical training and supports progression, especially in Northern and rural areas
- By enabling practical learning of more complex employer-driven training scenarios, virtual reality and simulators give apprentices the opportunity to rehearse difficult and/or dangerous scenarios in a controlled environment
- Professional development is required to support trades instructors who are trying to keep up with industry standards and technological change

Apprentice Perspectives

- Online training helps specific groups of apprentices progress:
 - Parents
 - Older apprentices
 - Rural and Northern residents
- Most apprentices say they prefer hands-on training and studying with their peers
- Apprentices believe block-release training provides access to teachers and learning supports
- They are less likely to agree that block-release training is flexible or allows them to learn at their own pace

Skills Required for Success in the Trades



Skills: Key Trends and Issues

Apprentices not only need to master complex technical skills, but also require:

- **Digital skills** related to using smartphones and iPads
- **Essential skills** including computers and document use
- **Ability to innovate** to contribute practical solutions and apply problem-solving skills to the research and development process
- **Continuous learning opportunities** given the speed of change affecting their workplaces

Apprentice Perspectives

- When encountering a new challenge at the workplace, apprentices say they:
 - ask a journeyperson mentor for help (84%)
 - search online for the answer (63%)
 - watch videos by tradespeople on YouTube (40%)
 - take pictures or videos to send to supervisors (32%)
- It is important journeypersons receive training to keep up with technological change so they can teach apprentices. Web resources must remain up-to-date and align with industry standards

Employer and Apprentice Expectations

- Industry Expectations
- Training Expectations of Apprentices
- Youth Perceptions of Apprenticeship

Expectations: Key Trends and Issues

- Across sectors, 90% of employers say journeypersons are the tradespeople most impacted by technological change
- When surveyed, youth, parents and K-12 educators largely agreed that skilled trades positions involve hard physical labour
- The idea that young learners do not possess the knowledge or skills to contribute to improvements is counter to innovation

Employer Perspectives

- Employers are placing a premium on skills related to coping with change and using new technologies
- Employers would like their tradespeople to:
 - Learn continuously and adapt to new work processes (17%)
 - Think independently to solve problems (16%)
 - Work with others, including giving or following instructions and resolving conflict in a team (15%)
 - Work with digital technology (10%)

Apprentice Perspectives

- Apprentices seek support and skills in these areas:
 - online training related to technical skills and equipment use (64%)
 - techniques for finding information online (31%)
 - strategies on utilizing smartphones for work-related tasks (30%)
 - online essential skills training (27%)
 - online mentoring programs (26%)

Stakeholder Panel

- Angelo Cosco, Mohawk College
- Katherine Jacobs, Ontario Construction Secretariat
- Sheryl Scully, Institute for Ocean Research Enterprise
- Josie Weitzenbauer, Léch  Desserts