



Digital Tools and Apprentice Learning On-the-Job:

CAF-FCA Project Findings



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FSC is a forward-thinking centre for research and collaboration dedicated to preparing Canadians for employment success. We believe Canadians should feel confident about the skills they have to succeed in a changing workforce. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure, and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead. The Future Skills Centre was founded by a consortium whose members are Toronto Metropolitan University, Blueprint ADE, and The Conference Board of Canada

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The Canadian Apprenticeship Forum – Forum canadien sur l'apprentissage (CAF-FCA) is a national, not-for-profit organization working with stakeholders in all regions of Canada. We influence pan-Canadian apprenticeship strategies through research, discussion and collaboration – sharing insights across trades, across sectors and across the country – to promote apprenticeship as an effective model for training and education. Our Board of Directors includes representatives from business, labour, the jurisdictional apprenticeship authorities, education and equity-priority groups. Through our work, CAF-FCA has shed light on a number of key issues affecting apprenticeship, such as the perceived barriers to accessing and completing apprenticeship and the business case for apprenticeship training. For more information, visit the CAF-FCA website at www.caf-fca.org

About CAF-FCA's Research Partner

CAF-FCA recognizes there are many useful digital tools available that may have value for apprenticeship stakeholders, depending on their needs. For this pilot, CAF-FCA worked in partnership with Vametric to implement the Future Skills Centre pilot. VALID-8 by Vametric is a powerful, user-friendly platform that companies and institutions around the world rely upon to assess thousands of their employees and apprentices. VALID-8 builds on decades of experience. It was created by assessors and built and supported by leading technical minds. It has been refined over 20 years of development. Vametric has offices in the United Kingdom (UK) and North America, supplying solutions globally to 27 countries and in several languages, including English, French, Welsh, Arabic and Chinese.

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Canada 

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1. Executive Summary

1.1 Overview

Between 2020 and 2022, CAF-FCA gathered input from apprenticeship stakeholders about digital tools. Stakeholders included employers, apprentices, journeypersons, union trainers, educators, provincial/territorial bureaucrats and non-profit administrators. CAF-FCA piloted a digital tool with 2,013 Canadian apprentices in the electrical, carpentry, plumbing and welding trades to explore the ways it could support apprentice learning on-the-job. In addition, CAF-FCA reviewed relevant research about apprentice learning and organized four industry workshops, 30 tool demos and 23 interviews to obtain direct feedback from stakeholders. In addition, CAF-FCA implemented surveys to understand the demographic background of the pilot participants and any barriers the participants experienced during the pilot. At the end of the project, insights about the future of apprentice learning were collected by implementing a survey with 288 apprenticeship stakeholders. In total, 633 apprenticeship stakeholders participated in the project, in addition to 2,013 pilot participants. This report summarizes the findings from these consultations with members of the apprenticeship community. This pilot project was funded by the Future Skills Centre.

1.2 Justification for the Study

CAF-FCA was motivated to implement this pilot because it was interested in understanding the ways digital tools could supplement and enhance current workplace learning. On-the-job learning is a core part of apprentice training with apprentices typically spending 80 per cent of their time learning on-the-job from a journeyperson mentor.¹

In an ideal learning situation, industry apprenticeship champions facilitate apprentice learning on-the-job by organizing regular meetings with the apprentice to discuss skill strengths, areas of improvement and training plans.² Champions also offer journeypersons training about teaching methods, giving constructive feedback and effective communication.³ Not all apprentices experience this ideal learning scenario. Limited use of the logbook, uncertainty around progression, being dissatisfied with the ways their skills are assessed and test anxiety are concerns noted by many apprentices.⁴

Journeypersons who mentor apprentices on-the-job report being unsure about what to teach the apprentice in relation to the required training standard.⁵ Training standards documents are complex and can contain more than 200 pages of detailed tasks and sub-tasks.⁶

Digital tools may enhance apprentice learning experiences on-the-job. In other occupations, review and feedback through videos has helped learners become safer, more productive and better able to reflect upon their learning and retain what they have learned.⁷

1 [Apprenticeship 101 - CAF-FCA » CAF-FCA](#)

2 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

3 Ibid.

4 See CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018), CAF-FCA, *Apprentice Attitudes Toward Learning and Examinations*, (Ottawa: CAF-FCA, 2017) and CAF-FCA, *Career Entry and Program Progression: An Apprentices in Canada ePanel Report*, (Ottawa: CAF-FCA, 2020) and CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021).

5 CAF-FCA, *Effective Journeyperson Apprentice Mentoring On-the-Jobs: Tips, Strategies and Resources*, (Ottawa: CAF-FCA, 2013).

6 [Occupational Standards / Red Seal \(red-seal.ca\)](#)

7 Komal Srinivasa, Yan Chen and Marcus A. Henning, "The role of online videos in teaching procedural skills to post-graduate medical learners: A systematic narrative review," *Medical Teacher*, (2020), 689-697 and Gary Cheng and Juliana Chau, "Digital video for fostering self-reflection in an e-Portfolio environment," *Learning, Media and Technology*, (2009), 337-350.

1.3 The Pilot Implementation

There are several digital tools that may be useful to apprenticeship stakeholders. CAF-FCA was not trying to endorse any specific tool through this project. CAF-FCA recognizes that stakeholders need to choose tools that are best suited to their particular needs. For the purposes of exploring how digital tools can support apprentice learning on-the-job, Vametric's VALID-8 was a good fit for the CAF-FCA pilot because it supports learner engagement.⁸ Apprentices can upload videos, pictures and documents and connect them to required tasks within the standards. Journeypersons can upload videos of themselves doing these tasks correctly, can review the materials provided by the apprentice and can provide feedback online. A progress graphic makes it clear to the apprentice and journeyperson where the gaps are in the apprentice's training in relation to the trades standard requirements.

CAF-FCA wanted to use Canadian standards for its pilot so Vametric identified key tasks and sub-tasks from the Red Seal, Ontario and Quebec standards and integrated them into the VALID-8 technology. The Red Seal standard is the industry standard of excellence in the trades.⁹ Industry representatives, including employers and trainers, determine what should be in the Red Seal standard through trade workshops.¹⁰

After the standards were fully integrated into the tool, apprentices and journeypersons were then recruited through Facebook, Twitter advertisements and emails distributed



by the provinces and territories. Both apprentices and journeypersons were recruited because many early career journeypersons also wanted access to this tool. The participants reflected the current apprentice population in Canada.¹¹ They were white men who were Canadian born high school graduates. Most of the participants were from Alberta and Ontario.

Once recruited, CAF-FCA then invited the participants to try using the tool. The tool was used as a supplemental learning resource and a centralized place to document their skills achievements and not a replacement per se for the logbook.

8 [Learning Management System: Validation, Assessment Software | Vametric](#)

9 [Red Seal Program / Red Seal \(red-seal.ca\)](#)

10 [Occupational Standards / Red Seal \(red-seal.ca\)](#)

11 [Canada Overview Report 2015 \(publications.gc.ca\)](#)

1.4 Key Findings

Over the years, apprentices remain highly interested in digital tools, with 84 per cent of them reporting interest in using digital e-Portfolios or logbooks in 2017, 68 per cent of them in 2021 and 73 per cent of them in 2022.¹² In 2022, when apprenticeship stakeholders were asked about whether digital logbooks should be adopted across sectors in the skilled trades, 70 per cent of respondents agreed.¹³ However, what needs to be considered are a number of issues concerning the wider adoption of digital logbooks and tools. This includes examining some of the more desirable features and taking into account some prevailing barriers.

Apprentices identified the following with respect to digital tools when their “very important” responses are analyzed:

- **71%** wanted a tool that was easy to update
- **60%** sought access to a qualified expert who can identify skills gaps and areas for improvement
- **59%** thought a tool recognized by employers was important
- **55%** believed that potential employers and educators should be able to see the tool.¹⁴



There were 84 per cent of apprentices who would like to pay \$50 or less for a digital tool.¹⁵

Employers, union representatives, educators, apprentices and journeypersons who participated in the consultations and completed a survey about apprentice learning thought the digital tool had these advantages:

- Information is centralized and accessible by the employer, journeyperson mentor and apprentice.
- The progress graphic helps employers and trainers identify apprentice achievements and gaps.
- The tool outlines the tasks and sub-tasks in the standard making the criteria that apprentices must know explicit. Apprentices appreciated the transparency of knowing the requirements.
- Tools that provide a mechanism for giving feedback to the apprentice are important. There were 21 per cent of stakeholders that identified mechanisms for providing feedback as valuable.¹⁶
- The option to upload videos of journeypersons doing tasks correctly helps apprentices identify where they may have gone wrong and assists them in their learning process.

Stakeholders also expressed several concerns and barriers about using this and other digital tools more broadly:

- Stakeholders thought there was a lack of awareness about what is available (23 per cent)¹⁷
- New tools need to be embedded into the current documentation system to avoid extra work such as having to also complete the logbook. Apprentices said the tool required extra work for them.
- Alignment with all provincial/territorial standards is key (21 per cent).¹⁸
- Stakeholders thought demonstrations at employer workshops (20 per cent) would allow employers to see how digital tools work.¹⁹

12 Percentages throughout the report may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions. When the “yes” and “maybe” responses were combined. See these surveys: CAF-FCA, *Interest in e-Portfolio Tool*, (Ottawa: CAF-FCA, 2017), CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey* (Ottawa: CAF-FCA, 2021) and CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

13 When the “strongly” agree and “agree” responses were combined. CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

14 Based upon responses from 376 apprentices. Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions. CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

15 When “nothing” and “up to \$50” responses are combined. See CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

16 Based on the survey with 288 apprenticeship stakeholders. CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

17 Ibid.

18 Ibid.

19 Ibid.

- Stakeholders thought provincial/territorial apprenticeship authorities should offer the tools (19 per cent).²⁰
- Stakeholders wanted the option to make the tools customizable to individual employers (17 per cent).²¹
- Some tools require access to smartphones which are not allowed on certain worksites.

1.5 The Future of Apprentice Learning

CAF-FCA also wanted to understand apprenticeship stakeholder perspectives on broader issues related to apprentice learning. In the Fall of 2022, 288 apprenticeship stakeholders were surveyed. A mix of employers, college trainers, journey person mentors and union trainers completed the survey.²² Respondents represented the industrial construction, residential construction, automotive and manufacturing sectors.²³ Respondents came from all provinces and territories, though most were from Ontario and Alberta.²⁴

Respondents identified a number of priority issues that will need to be considered in the context of the future of apprentice learning. For respondents, priority apprenticeship issues are:

- improving employability skills among today's youth (24 per cent)
- recruiting future talent (23 per cent)
- keeping standards and curriculum up-to-date in order to reflect the rapid technological changes in industry (16 per cent).²⁵

Future trends that most interested apprenticeship stakeholders include:

- competency-based progression (29 per cent)
- transferrable skills so that tradespeople can transition to different occupations in the trades (26 per cent)
- a move to digital logbooks (12 per cent).²⁶

Respondents sought the following supports:

- more training in effective teaching strategies for journey person mentors (25 per cent)
- additional grants and incentives to help train apprentices (21 per cent)
- easier ways to sign up for technical training (17 per cent)
- online tools that allow journey persons to review evidence of apprentice skills development (16 per cent)
- timely updates of apprenticeship curriculum (16 per cent).²⁷

20 Ibid.

21 Ibid.

22 Under a quarter (21 per cent) of respondents identified as "other." This category includes high school educators and college administrators. See CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

23 Here, 46 per cent of respondents identified as "other." This category includes representatives from mostly service sector trades such as landscape, cook, refrigeration and hairstyling. See CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

24 CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

25 Ibid.

26 Ibid.

27 Ibid.

2. Introduction

2.1 Overview

This report was completed for CAF-FCA's Future Skills Centre Project, *Best Practice Models for Industry Engagement*. The report includes findings from a literature review and the pilot consultations and provides information about the following topics:

- sources used in gathering information for this report
- apprentice perspectives about their on-the-job learning experiences
- a description of the pilot structure and approach
- the backgrounds of the pilot participants
- advantages and drawbacks of using such a tool
- insights from apprenticeship stakeholders about the adoption of digital tools and the future of apprentice learning.

2.2 Feedback Gathered During Pilot: Key Sources

Literature Review

This report refers to secondary and primary sources. CAF-FCA reviewed scholarly databases for articles about apprentice on-the-job learning and the use of digital tools. CAF-FCA also reviewed information from the *Apprentices in Canada ePanel*, which is an online survey mechanism that captures apprentice perspectives while they are in the system.²⁸

CAF-FCA also gathered insights from additional surveys carried out in 2021 and 2022. Two of these were completed by apprentices and journeypersons. One focused on workplace training and the other asked about tradespeople's interest in digital tools.²⁹ A third survey asked employers, trainers and educators about the adoption of digital tools and the future of apprentice learning.³⁰

28 [APPRENTICES IN CANADA](#)

29 Funds from the Future Skills Centre project supported these surveys. See CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021) and CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

30 CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).



Information Collected During Pilot

During the pilot, CAF-FCA gathered feedback from apprenticeship stakeholders in the following ways:

1. Employers and employer association, union, college, provincial/territorial and non-profit representatives provided their perspectives on the digital tool at four workshops hosted by CAF-FCA and during 30 tool demonstrations.
2. A survey was completed by pilot participants to gather background information about their education, equity group status and geographic location.
3. A survey was completed during the pilot to understand any barriers that participants were experiencing.
4. Interviews were completed with 23 individuals who shared their perspectives on apprentice learning and digital tools.
5. A survey was implemented with 288 apprenticeship stakeholders at the end of the project.

3. Context

3.1 Overview

When reviewing the background research, CAF-FCA identified a number of barriers to learning in the Apprentices in Canada ePanel surveys that are worth reviewing here to better understand the potential usefulness of digital tools. Information about apprentices' comfort level with digital technologies and their interest in using digital tools is also included.

Some barriers that were identified include limited use of the logbook and a lack of discussion with journeypersons and employers about training plans and program progression. Some apprentices expressed dissatisfaction with the way their skills are assessed, and some apprentices reported experiencing test anxiety. As outlined later in this report, digital tools could help address these barriers by encouraging journeypersons to review video, pictures, or written evidence to provide additional feedback to their apprentices. Because the tasks and sub-tasks are explicitly outlined in the tool, apprentices can see exactly what they need to know in order to progress in their programs and to pass their final multiple-choice examination.

3.2 Process for Learning On-the-Job

Currently in most jurisdictions, when an apprentice demonstrates a task, the journeyperson mentor checks it off in a paper or electronic logbook. Some Canadian jurisdictions do not use logbooks. After the apprentice works the required number of hours and learns the tasks outlined in the logbook, documentation is submitted to provincial/territorial apprenticeship administrators for review. Once verified by the administrators, the apprentice is allowed to write the multiple-choice certification examination.³¹

Using a logbook is important because it helps apprentices chart their progress through the stages of their apprenticeship. In a 2018 survey, respondents whose employers used logbooks were more likely to report they were achieving progress towards completing their current apprentice level than non-logbook users.³²

31 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

32 Ibid.



3.3 On-the-Job Learning Barriers and Challenges

Logbook

Based on the review of research, some apprentices reported being unfamiliar or unaware of the logbook process. In a 2017 survey, 25 per cent of apprentices reported not using a logbook.³³ In a 2018 survey, 29 per cent of apprentices reported they did not use a logbook and 15 per cent said they were unsure.³⁴

Another common problem is their vulnerability. Physical logbooks can be lost or misplaced, leaving the apprentice with no proof of their skills accomplishments.³⁵ Losing this information makes continuing with an apprenticeship difficult because accurate paperwork is a requirement in many jurisdictions.

Engagement with Employers and Journeypersons

Research indicates that apprentices are concerned about their lack of engagement with their journeypersons and employers, further motivating CAF-FCA to explore how digital tools might be able to enhance their experience of apprentice learning. According to a 2018 survey, almost half of the apprentices surveyed reported not meaningfully engaging with their employers and/or journeypersons about their learning on-the-job.³⁶ Most apprentices reported that their employers did not meet with them on a regular basis, either weekly, bi-weekly or monthly (61 per cent), and that they did not discuss a training plan with their employers (62 per cent).³⁷ Just over half the apprentices reported their employers and/or journeypersons did not provide them with feedback about their progress³⁸ and slightly more (56 per cent) said that their skills strengths and weaknesses were not discussed.³⁹

The fact that so many apprentices did not report meaningful engagement with their employers and journeypersons about their learning on-the-job is concerning because these are the fundamental practices that help apprentices to

understand their progress through their program. In the 2018 survey, respondents who identified their employers had implemented practices such as providing feedback and discussing a training plan were more likely to say they were developing relevant skills and achieving progress than those who did not.⁴⁰ Among apprentices who had benefitted from engagement with their employer and/or journeyperson including receiving feedback, 95 per cent of these apprentices agreed that they were developing relevant skills, and 91 per cent reported they were achieving progress.⁴¹ Among apprentices who had not engaged with their employer or journeyperson, 68 per cent of them felt they were developing relevant skills and 54 per cent thought they were achieving progress.⁴²



A survey conducted in 2020 also indicates some apprentices feel there is a lack of meaningful engagement with their journeypersons and employers.⁴³ When asked about barriers preventing them from completing their programs, 17 per cent of apprentices felt they were not progressing because their journeyperson did not take the time to teach them new things, and 13 per cent believed their employers were not encouraging them to progress.⁴⁴

33 CAF-FCA, *Interest in e-Portfolio Tool*, (Ottawa, CAF-FCA, 2017).

34 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

35 Ibid.

36 Most respondents worked for firms with 100 or more employees (N=84) or 5 to 19 employees (N=74). Other respondents worked for employers with 20 to 49 employees (N=46), 1 to 4 employees (41) and 50 to 99 employees (N=25). See CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

37 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

38 Ibid.

39 Ibid.

40 Ibid.

41 Ibid.

42 Ibid.

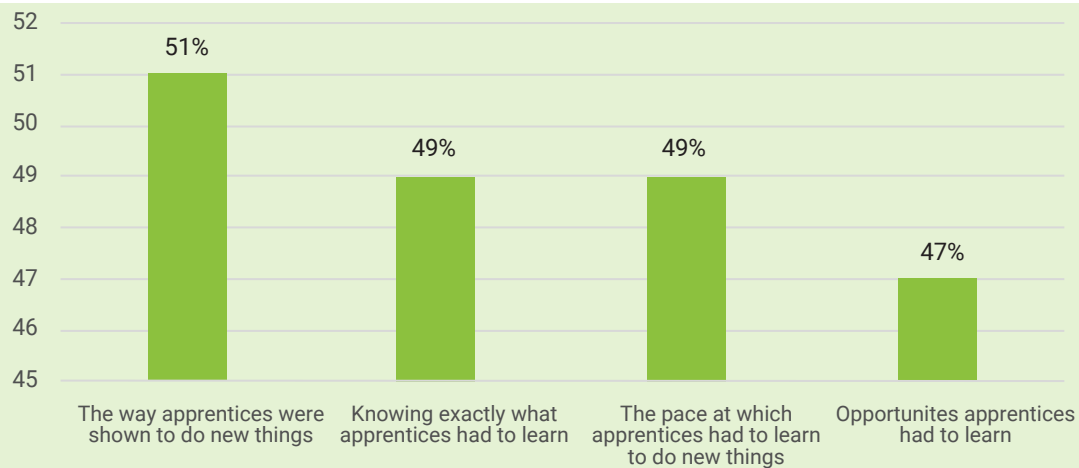
43 CAF-FCA, *Career Entry and Program Progression: An Apprentices in Canada ePanel Report*, (Ottawa: CAF-FCA, 2020).

44 Ibid.

In 2021, CAF-FCA surveyed 1,867 apprentices and journeypersons to reflect on their experiences as apprentices.⁴⁵ Respondents were asked about their on-the-job training. The figure below indicates those aspects of training where apprentices were only partially satisfied or unsatisfied.⁴⁶

Figure 1: Apprentice Level of Dissatisfaction with Aspects of On-the-Job Training

N=1,867



Note: When the “somewhat satisfied,” “somewhat dissatisfied” and “very dissatisfied” responses are combined. Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions.

For those who were only partially or not at all satisfied with their training overall (57 per cent),⁴⁷ common reasons for dissatisfaction included not receiving enough training (16 per cent), their journeypersons not having enough time to train them (12 per cent) and not receiving enough “hands-on” training (5 per cent).⁴⁸

Apprentices thought that better employer and journeyperson engagement with learning on-the-job would motivate them to complete their programs. Apprentices wanted improved training and mentoring provided by journeypersons (17 per cent) and increased employer commitment to high quality training (16 per cent).⁴⁹

Assessment Processes

Assessment processes frustrate some apprentices and journeypersons. In a 2021 survey with 1,867 respondents, 51 per cent of them were dissatisfied or only partially satisfied with the way their skills were being assessed.⁵⁰

International research indicates that assessment processes may be influenced by cultural, racial, and gender biases that favour apprentices who are white men and this further complicates the assessment process for those in the skilled trades from under-represented groups. Research from the UK has found that among apprentices, white men are often perceived as “good blokes” who may receive informal mentoring and extra help so they will not fail an assessment, while apprentices from equity groups may not receive the same level of support.⁵¹

45 See CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021)

46 Ibid. When the “somewhat satisfied,” “somewhat dissatisfied” and “very dissatisfied” responses were combined.

47 Ibid. When the “somewhat satisfied,” “somewhat dissatisfied” and “very dissatisfied” responses were combined.

48 Ibid. There were 7 per cent of respondents who answered “other.”

49 Ibid.

50 Ibid. When “somewhat satisfied,” “somewhat dissatisfied” and “very dissatisfied” responses were combined.

51 Colley, H. & Jarvis, J. “Formality and informality in the summative assessment of motor vehicle apprentices: A case study,” *Assessment in Education: Principles, Policy & practice*, 14(3), 2007, pp. 308-9.

3.4 Test Anxiety

Test anxiety is another barrier for apprentices. According to a 2017 CAF-FCA survey, when asked if they get nervous before exams, 24 per cent of apprentices said they get “very nervous” and 15 per cent said they get “extremely nervous.”⁵² In a 2020 CAF-FCA survey, 18 per cent of apprentices identified anxiety about tests and examinations as a factor that prevented them from progressing in their programs.⁵³

3.5 Digital Tools

Use of Digital Technologies

CAF-FCA wanted to know how willing apprentices and early career journeypersons might be to use digital tools. Accordingly, it reviewed research about apprentice uses of technology and gathered feedback about tradespeople’s interest in digital tools.

In a 2017 survey, most respondents expressed comfort using digital technology as part of their job as 86 per cent of them agreed “somewhat” or “strongly.”⁵⁴

A majority of apprentices and early career journeypersons use smartphones to do their jobs, as overall, two-thirds (67 per cent) of respondents reported using smartphones in the workplace.⁵⁵

Apprentices and early career journeypersons report using smartphones in a variety of ways on-the-job. Most report using them to find directions to a worksite, to look up codes and regulations online and to record their work for reporting to their supervisor. Nearly half of smartphone users also used them to stay connected to their industry and to find user manuals and identify various fault codes.⁵⁶

As outlined in figure 2, of the apprentices and early career journeypersons who use smartphones on-the-job, 80 per cent of them said they were interested in the possibility of accessing more trade specific or skills relevant apps. There were 59 per cent who wanted apps and mobile compatible information that was related specifically to their apprenticeship training.⁵⁷

Figure 2: Interest in Smartphone Applications and Features, by Trade Group⁵⁸

N=241

Application or feature	Total (n=241)	Auto. Service (n=27)	Carpenter (n=26)	Electrician (n=47)	Plumbing-related trades (n=31)	Other (n=110)
More trades-specific or skills-relevant applications (“Apps”)	80%	74%	85%	77%	77%	82%
More durable smartphones that are dust and waterproof	65%	56%	73%	70%	65%	63%
Greater mobile compatibility on websites with code books and regulations	63%	44%	88%	68%	71%	57%
Apps and mobile compatible information related specifically to my apprenticeship	59%	37%	73%	64%	61%	57%

Note: N=241 represents the respondents who use a smartphone on the job. Statistically significant differences by trade groups are bolded in a different colour. Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions. Source: CAF-FCA, *The Impact of Digital Technologies, Automation and Technological Change: Apprentice Perspectives* (2018)

52 CAF-FCA, *Apprentice Attitudes Towards Learning and Examinations*, (Ottawa: CAF-FCA, 2017).

53 CAF-FCA, *Career Entry and Program Progression: An Apprentices in Canada ePanel Report*, (Ottawa: CAF-FCA, 2020).

54 CAF-FCA, *The Impact of Digital Technologies, Automation and Technological Change: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

55 Ibid.

56 Ibid.

57 Ibid.

58 Ibid.

In 2022, CAF-FCA asked apprenticeship stakeholders including employers, journeypersons, trainers and educators what digital tools they were currently using with apprentices. Respondents reported using these tools:

- online essential skills tools (33 per cent)
- online e-Portfolio or resumé (16 per cent)
- mentoring app (9 per cent)
- digital logbook (8 per cent).⁵⁹

Interest in Digital Logbook

What is the current level of interest among apprentices and early career journeypersons in using digital tools as a part of their learning? In 2017, 2021 and 2022, CAF-FCA implemented surveys with apprentices and early career journeypersons to ask them about their level of interest in using digital tools such as an e-Portfolio, which is an online resumé, and a logbook.⁶⁰ As outlined in figures 3,4 and 5, the results indicate that over a third of apprentices report being interested in digital tools and a majority of apprentices are interested when the “yes” and “maybe” responses were combined.

Figure 3: Apprentice and Journeyperson Interest Level in a Digital e-Portfolio or Logbook, Separate Results⁶¹

When “yes” and “maybe” responses are separated

2017 N=245		2021 N=1,867		2022 N=513	
Yes	Maybe	Yes	Maybe	Yes	Maybe
40%	44%	68%	NA ⁶²	36%	37%

Note: Percentages may not add up to 100 per cent due to rounding.

Figure 4: Apprentice and Journeyperson Interest Level in a Digital e-Portfolio or Logbook, Combined Results⁶³

When “yes” and “maybe” responses are combined

2017 N=245	2021 N=1,867	2022 N=513
84%	68%	73%

Note: Percentages may not add up to 100 per cent due to rounding.

In 2017 and 2022, when asked about their preferred features, usability was the most important feature of the tool followed by access to a qualified expert.

Figure 5: “How important would the following features of an e-Portfolio be to you?”⁶⁴

When the “very important” responses are analyzed

Characteristics of Tool	2017 N=204	2022 N=376
Easy for me to set-up and update as I progress.	79%	71%
Access to help from a qualified expert who can identify my skill gaps and tell me where I need to improve.	65%	60%
Recognized by employers	64%	59%
Ability to let potential employers or educators to see it.	55%	55%

Note: Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions.

When apprenticeship stakeholders were asked in 2022 about whether digital logbooks should be adopted across sectors, 70 per cent of respondents agreed (31 per cent of respondents answered, “strongly agree” and 39 per cent responded “agree”).⁶⁵

59 Based upon 288 responses. CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

60 See CAF-FCA, *Interest in e-Portfolio Tool*, (Ottawa: CAF-FCA, 2017), CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021) and CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

61 Ibid.

62 “Maybe” was not an option in the 2021 survey.

63 See CAF-FCA, *Interest in e-Portfolio Tool*, (Ottawa: CAF-FCA, 2017), CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021) and CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

64 Ibid.

65 CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

Willingness to Pay for Digital Tools

When asked about cost, a third of apprentices and early career journeypersons in 2017 and a quarter in 2022 said they would pay up to \$50. A minority were willing to pay more.⁶⁶ The CAF-FCA pilot accommodated apprentice needs by offering them access to the tool at no cost. Future adoption of the tool should consider ways of offering it without placing the financial burden on apprentices.

Figure 6: “How much would apprentices be willing to pay to use the e-Portfolio Service?”⁶⁷

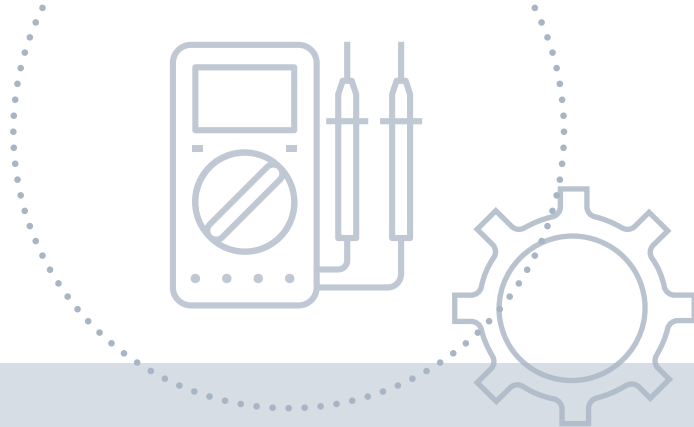
	2017 N=206	2022 N=376
Nothing	51%	59%
Up to \$50	31%	25%
\$51 to \$100	7%	5%
\$101 to \$150	1%	1%
\$151 to \$200	1%	0%
Don't know/Prefer not to answer	10%	10%

Note: Percentages may not add up to 100 per cent due to rounding.

66 CAF-FCA, CAF-FCA, *Interest in e-Portfolio Tool*, (Ottawa: CAF-FCA, 2017) and CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

67 Ibid.





4. The Pilot Tool

4.1 Overview

Having heard directly from apprentices about their learning barriers and their interest in digital tools, CAF-FCA decided to offer apprentices free access to a digital tool as a part of its Future Skills Centre project. This section describes how CAF-FCA chose the VALID-8 tool.

4.2 Digital Tools

The digital tool landscape is not an empty space; different kinds of digital tools are readily available, including mentoring apps, online skills assessments, online Skills for Success resources, e-Portfolios, skills passports and digital logbooks. Specific examples include Mentorship Matters, Build Your Skills and Ready Skills.⁶⁸

Other projects involving digital tools have been tested in the skilled trades sector. One example is the Electrical Joint Training Committee (EJTC) in Port Coquitlam, British Columbia. The EJTC is currently enrolling 200 construction electrician apprentices on the Ready Skills digital platform. The Red Seal and British Columbia's provincial competency requirements have been uploaded to create a profile for each level of the apprenticeship and the apprentices. Employers and educators will enter evidence to document the progress of each apprentice progress toward completion. Ready Skills is the digital iteration of a manual profiling and evidence gathering system that was developed for Australian apprentices more than 20 years ago and is now the most widely adopted of the three digital systems mandated for use in Australia by training.gov.au.⁶⁹

4.3 Why VALID-8 Was Selected

CAF-FCA chose VALID-8 as the digital tool because it has been used by a number of different industries across the globe.⁷⁰

CAF-FCA also chose VALID-8 because third parties evaluated the tool. VALID-8 was subject to a large-scale audit in the British health care sector. The audit indicated that it was more effective than the paper-based systems, reduced costs, and found that £1 billion was being wasted on duplicated effort and paperwork.⁷¹

CAF-FCA also selected VALID-8 because it addresses many of the concerns apprentices had expressed concerning their on-the-job learning. Unlike a logbook that can get lost, all evidence is kept in a central location online and is easily accessible by all concerned: the apprentice, journey person and employer.⁷² The tool facilitates engagement between the apprentice and journey person. It allows apprentices to upload pictures, documents and videos that demonstrate their ability to do specific tasks. Each piece of evidence is linked to a task or sub-task outlined in the Red Seal standard.

68 See: <https://www.canada.ca/en/services/jobs/training/initiatives/skills-success.html>, <https://www.skillplan.ca/>, Mentorship Program (skillplan.ca) and <https://www.readytech.com.au/what-we-do/education/products/ready-skills/>. Insite also creates digital resources such as skills passports: <https://www.insite.com/>. The Ontario government plans to adopt a digital logbook: <https://news.ontario.ca/en/release/1002402/ontario-launches-skilled-trades-career-fairs-for-students>

69 Ready Skills is part of the Ready Tech organization, a publicly traded Australian company providing multiple software systems for education and training, HR, and corporate and public governance. <https://www.readytech.com.au/>

70 [Our Clients & Partners - Digital Portfolio Company | Vametric | Vametric](#)

71 See: <http://www.vametric.com/digital-portfolio-company/case-studies/health-and-social-care/>.

72 For a demonstration of the tool and to learn more about how it works, contact Vametric.

The journeyperson can review what the apprentice has done, accept it or may choose to give constructive feedback. A graphic depiction of their progress makes it clear to the apprentice and journeyperson where the gaps are in the training in relation to trades standard requirements.⁷³ The tool focuses on the practical demonstration of skills rather than the more traditional multiple-choice testing methods, thus addressing apprentice concerns about the way their skills are assessed and their experiences of test anxiety. If apprentices are still required to take a multiple-choice examination, the tool can be used as a supplemental learning resource. As they study, apprentices can review their evidence in relation to the Red Seal standard, which is the basis for the examination.



5. Pilot Structure and Implementation



5.1 Overview

CAF-FCA implemented the pilot in six steps:

- 1. Integration of standards into VALID-8:** The Red Seal standards were integrated into the tool as well as Ontario and Quebec provincial standards.
- 2. Industry Workshops:** To gather industry feedback about the tool, CAF-FCA hosted industry workshops.
- 3. Pilot Participant Recruitment:** CAF-FCA recruited apprentices to participate in the pilot.
- 4. Pilot Participant Surveys:** Pilot participants completed surveys.
- 5. Participant Support:** Vametric provided videos on how to use the tool and answered participant emails.
- 6. Interviews/Survey:** CAF-FCA interviewed apprenticeship stakeholders and gathered additional feedback about digital tools and apprentice learning through a survey.

5.2. Integration of Standards into VALID-8

To make VALID-8 relevant to Canadian apprentices, the Red Seal standards for electrical, carpentry, welding and plumbing were integrated into it. The Ontario and Quebec standards were also included. Key tasks and sub-tasks were identified and integrated into the digital platform.⁷⁴ The content was translated into French to make the tool usable for participants in both official languages.

5.3. Industry Workshop Findings

In 2020 and 2021, CAF-FCA hosted four industry workshops to gather feedback about the tool. The 51 employers and employer association, college, union, provincial and non-

profit representatives who participated identified the benefits and drawbacks of digital tools. To create further awareness about the tool and its capabilities, Vametric provided 30 additional demonstrations for employers, trainers and national and provincial organizations, including the Canadian Council of Directors of Apprenticeship, the Commission de la Construction du Quebec and the Nova Scotia Apprenticeship Agency.

5.4 Pilot Participant Recruitment

Pilot recruitment began in late 2020 and continued throughout the pilot. Participation in the pilot was voluntary. Pilot participants were recruited through Facebook and Twitter advertisements and emails distributed by provincial and territorial apprenticeship administrators. Recruitment materials were available in English and French.

Some 2,013 apprentices and journeypersons who signed up for the pilot received complementary licences to VALID-8, were informed of their rights, and their consent to participate in the research project was obtained.

5.5. Participant Surveys

Once pilot participants had signed up, they were invited to complete a 10-to-15-minute survey to provide further insights into their backgrounds. There were 153 individuals who completed the survey. During the pilot, participants were asked to complete another survey to identify any barriers they encountered when using the tool. There were 892 participants who completed the survey.⁷⁵

5.6. Participant Support

Vametric created videos to inform participants about how to use the tool. Staff answered inquiries from pilot participants.

5.7. Interviews/Survey

In June and July 2022, CAF-FCA conducted 23 interviews with stakeholders. In September and October 2022, CAF-FCA implemented a survey with 288 stakeholders.

⁷⁴ Budget limitations prevented CAF-FCA from including additional provincial/territorial standards.

⁷⁵ Further demographic or geographic information was not collected about these survey respondents.

6. Demographic Information

6.1 Overview

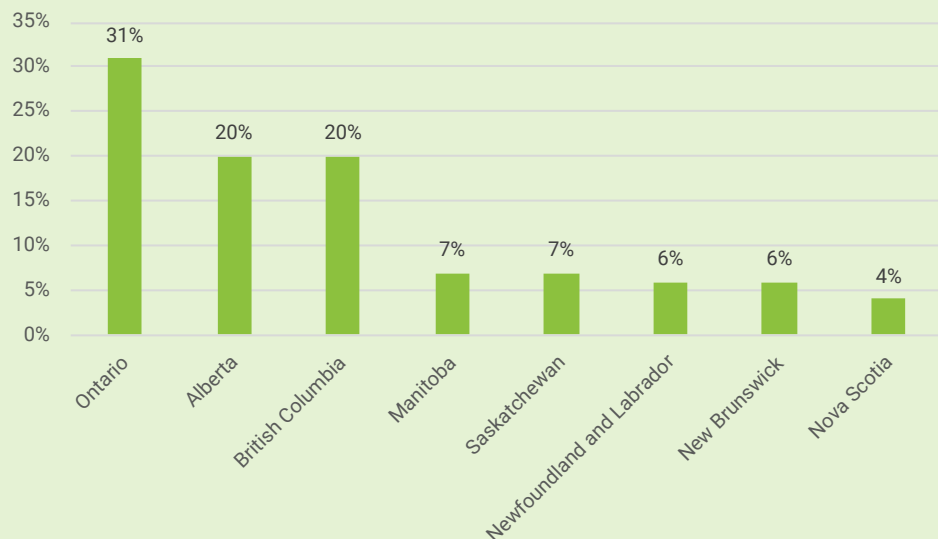
This section presents some background information on the pilot participants.⁷⁶ The Future Skills Centre’s Common Outcomes Framework was used to formulate the questions. A majority of participants who responded to the survey were white, English-speaking men, who were born and educated in Canada. These characteristics reflect the broader apprentice population in Canada.⁷⁷ CAF-FCA also asked participants and other stakeholders who participated in the project to identify their geographic location.

6.2 About the Pilot Participants

Geographic Location

The respondents were pre-apprentices (4 per cent), apprentices (41 per cent) and journeypersons (55 per cent).⁷⁸ Most of the respondents were from Ontario, Alberta and British Columbia. This distribution is similar to the apprentice population overall, as most apprentices in Canada are from Ontario, Quebec, Alberta and British Columbia.⁷⁹

Figure 7: Pilot Participant Survey Respondents’ Geographic Location
N=153



Note: Percentages may not add up to 100 per cent due to rounding.

⁷⁶ Percentages referred to in this section may not add up to 100 per cent due to rounding.

⁷⁷ See [Canada Overview Report 2015 \(publications.gc.ca\)](https://publications.gc.ca)

⁷⁸ N=148

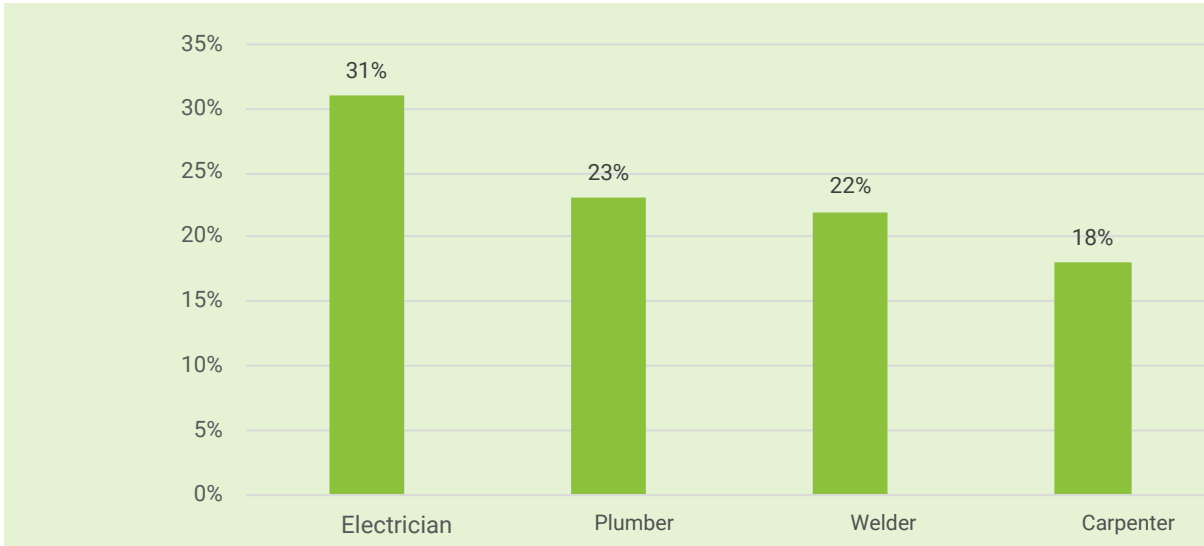
⁷⁹ CAF-FCA, *Apprentice Demand in Red Seal Trades: A 2022 National Labour Market Information Report*, (CAF-FCA, Ottawa, 2022), p. 15.



Trade

Most of the survey respondents were electricians.

Figure 8: Pilot Participants' Trade
N=142



Note: Percentages may not add up to 100 per cent due to rounding. Some respondents identified their trade as "other." These individuals were invited to explore the tool and its functionality. Additional standards could be added to the tool in future projects..

Gender

Most of survey respondents were men (84 per cent) and only 15 per cent were women.⁸⁰

Indigenous Representation

Most survey respondents identified as non-Indigenous (87 per cent). Six per cent identified as being Métis and 4 per cent identified as First Nation.⁸¹

Racialized Representation

Most respondents (83 per cent) did not identify as being racialized individuals. Ten per cent did.⁸²

Newcomer Representation

There were 97 per cent of respondents who did not identify as newcomers and 3 per cent who did.⁸³

Persons with Disabilities

There were 92 per cent of respondents who did not identify as persons with disabilities and 7 per cent who did.⁸⁴

80 N=152 There were 1 per cent who answered, "prefer not to say."

81 N=153 There were 3 per cent who answered, "prefer not to say."

82 N=153 There were 7.2 per cent who answered, "prefer not to say."

83 N=153

84 N=153 There were 1 per cent who answered, "prefer not to say."

Language

Most of the respondents (95 per cent) identified as non-Francophone. There were 5 per cent of respondents who identified as Francophone.⁸⁵

Marital Status

The respondents identified as being married (48 per cent), single (29 per cent), common law (16 per cent) and divorced (5 per cent).⁸⁶

Children

There were 56 per cent of respondents who identified as having children and 42 per cent who did not.⁸⁷ There were 43 per cent of the respondents who were caring for children under 17 years of age but 57 per cent who were not.⁸⁸

Education Background

Almost all the respondents (98 per cent) graduated from high school or had earned a high school equivalency, the remaining 2 per cent did not.⁸⁹

Similarly, almost all (95 per cent) had pursued their education in Canada with only a minority saying they had gone to school elsewhere (5 per cent).⁹⁰

There were 33 per cent who had previously started an educational credential, such as degree or diploma, and had not finished it. There were 67 per cent of respondents who did not have this experience.⁹¹

Employment

Most respondents were employed full-time (80 per cent). There were 8 per cent who were attending technical training as apprentices. Others worked part-time (6 per cent).⁹²



85 N=153 There were 1 per cent who answered, "prefer not to say."

86 N=153 There were 3 per cent who answered, "prefer not to say."

87 N=153 There were 2 per cent who answered, "prefer not to say."

88 N=153 There were 2 per cent who answered, "prefer not to say."

89 N=153

90 N=153

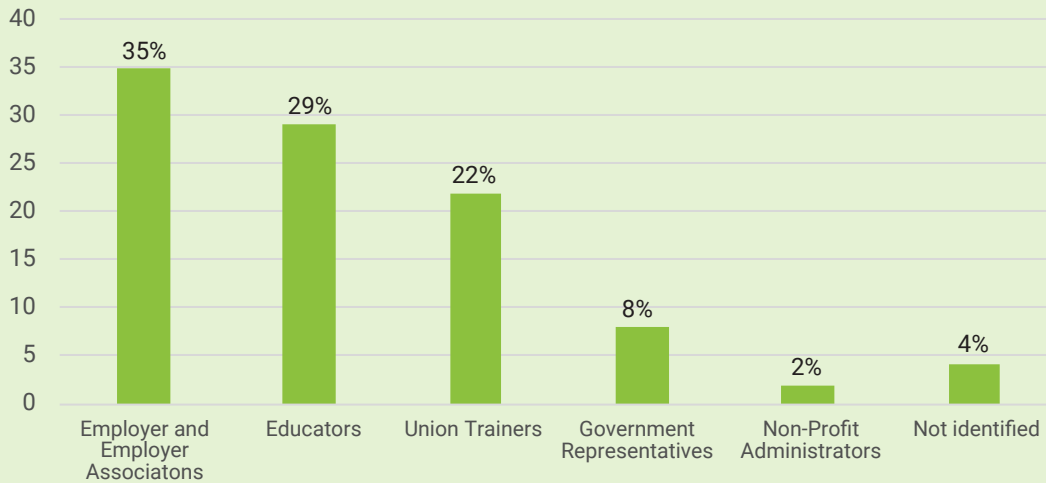
91 N=153 Respondents were asked what program they were studying in before they left. There were 32 per cent who were studying for a Certificate of Qualification or Certificate of Apprenticeship, 20 per cent who answered "prefer not to say," 13 per cent who responded non-university certificate, 8 per cent a Bachelor's, 8 per cent high school or an equivalency, 6 per cent CEGEP in the trades, 3 per cent a university certificate or diploma, 1 per cent CEGEP non-trades and 1 per cent law, medicine, dentistry or veterinary medicine.

92 N=133 There were 7 per cent who answered, "prefer not to say."

6.3 About the Workshop Participants

Workshop participants were asked to identify their stakeholder group and geographic location. No other demographic questions were asked. Most workshop participants were employers and employer associations.

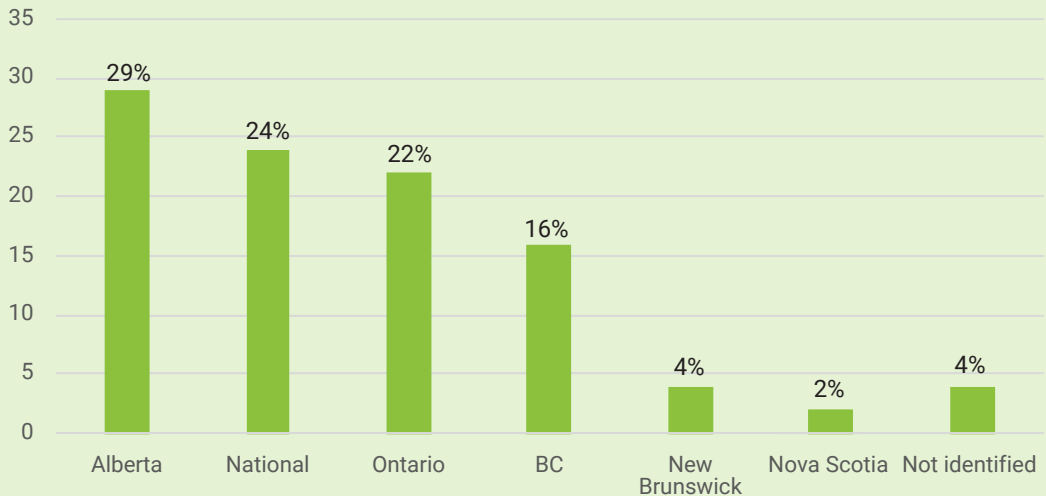
Figure 9: Workshop Participants by Stakeholder Group
N=51



Note: Percentages may not add up to 100 per cent due to rounding.

A majority of the workshop participants were from Alberta or represented national organizations.

Figure 10: Geographic Location of Workshop Participants
N=51



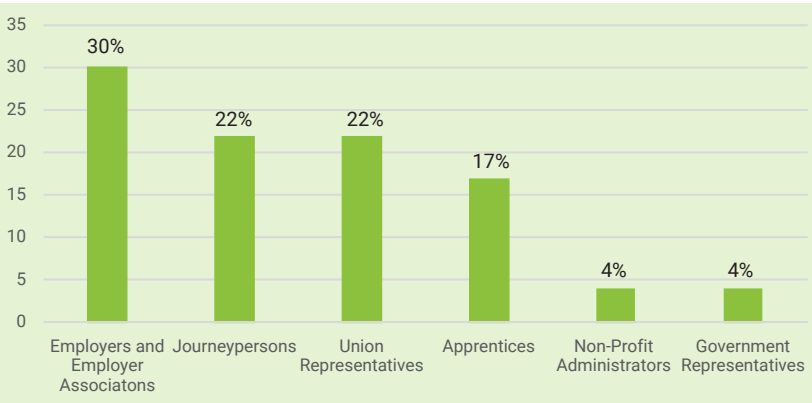
Note: Percentages may not add up to 100 per cent due to rounding.

6.4 About the Interviewees

Like the workshop participants, interviewees identified their stakeholder group and geographic location. Employers, employer association representatives, journeypersons, union trainers, apprentices, government bureaucrats and non-profit administrators were interviewed. The largest group of interviewees was employers and employer association representatives.

Figure 11: Interviewees by Stakeholder Group

N=23

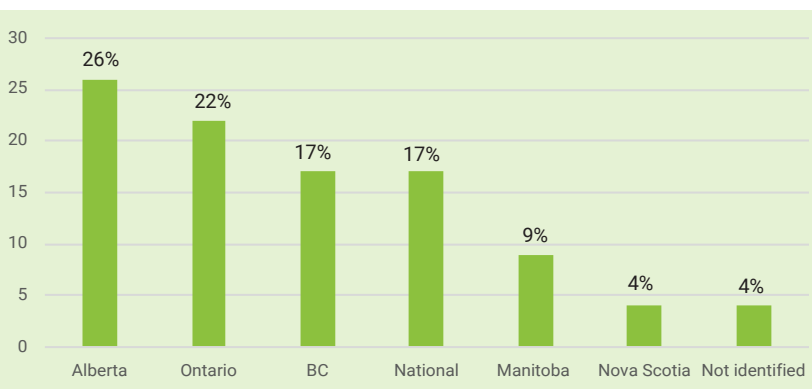


Note: Percentages may not add up to 100 per cent due to rounding.

Most interview respondents were from Alberta.

Figure 12: Geographic Location of Interviewees

N=23



Note: Percentages may not add up to 100 per cent due to rounding.

6.5 About the Future of Apprentice Learning Survey Respondents

In all, CAF-FCA surveyed 288 apprenticeship stakeholders in September and October of 2022. A mix of employers (29 per cent), college trainers (29 per cent), journeyperson mentors (11 per cent) and union trainers (10 per cent) completed the survey.⁹³ Respondents represented the industrial construction (17 per cent), residential construction (10 per cent), automotive (9 per cent) and manufacturing (8 per cent) sectors.⁹⁴

Respondents came from all provinces and territories, though most were from Ontario (42 per cent), Alberta (19 per cent), British Columbia (14 per cent) and Nova Scotia (7 per cent).⁹⁵

⁹³ Under a quarter (21 per cent) of respondents identified as “other.” This category includes high school educators and college administrators. See CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

⁹⁴ Here, 46 per cent of respondents identified as “other.” This category includes representatives from mostly service sector trades such as landscape, cook, refrigeration and hairstyling. See CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

⁹⁵ CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

7. The Pilot Findings

7.1 Overview

Project participants identified the benefits and drawback of using the digital tool. Some apprentices were particularly keen on digital tools while others, perhaps with weaker digital skills, may have shied away from participating and this possibly influenced the research findings.

In addition, comments from workshop participants and interviewees refer to the current system. As described earlier, current documentation of on-the-job training relies upon the use of a logbook, though this book is not a requirement in every Canadian jurisdiction.⁹⁶ The journeyperson mentor or employer must check off boxes in the pages of the logbook when the apprentice demonstrates a defined level of skill. After the apprentice works the required number of hours and succeeds in demonstrating the tasks outlined in the logbook, this documentation is submitted to provincial/territorial apprenticeship administrators for their review. Once verified in this way, the apprentice is allowed to write the certification examination which is a multiple-choice test and based upon the tasks and sub-tasks as outlined in the Red Seal standard.⁹⁷ If the apprentice scores 70 per cent or higher on this examination, the apprentice is awarded a Certificate of Qualification.⁹⁸

As noted earlier in the report, CAF-FCA research indicates that some apprentices do not recall using the logbook. Some report they do not have regular meetings where they discuss their training plan with their journeyperson or employer.⁹⁹ Some report they are not satisfied with the way their skills are assessed.¹⁰⁰ Some also report they do not know what stage they have reached in their training.¹⁰¹ Some report test anxiety as another barrier.¹⁰² When reviewing these project findings it is important to keep in mind the specifics of the certification process and apprentice perspectives on their current learning environment on-the-job.



7.2 Benefits

The key benefits of digital tools were summarized based on the pilot using VALID-8, the various workshops, interviews and surveys conducted by CAF-FCA.

Useful for Centralizing Information in One Spot

Stakeholders thought digital tools were most beneficial when they centralize the evidence of apprentice skills in a central spot, providing a big picture overview for employers and trainers of the skill attainments and skill gaps that still need to be addressed. Employers, journeypersons and/or training coordinators are able to identify exactly where their apprentices are at in any stage of training.

Provides the Apprentice the Specific Tasks and Sub-Tasks Connected to the Standard

Stakeholders desire tools that outline the specific trade tasks and sub-tasks to be attained so it is clear to the apprentice learner, the journeyperson mentor and the employer what still needs to be taught on-the-job. A 2021 survey indicated that 49 per cent of apprentices and journeypersons were only “somewhat satisfied” or dissatisfied with the “knowing exactly what they had to learn.”¹⁰³ Digital tools could address this barrier because the tasks are clearly outlined.

96 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

97 [Red Seal Program / Red Seal \(red-seal.ca\)](https://www.red-seal.ca)

98 [Apprenticeship 101 - CAF-FCA » CAF-FCA](https://www.caf-fca.ca/apprenticeship-101)

99 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

100 CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021).

101 CAF-FCA, *Quality of Workplace Training: Apprentice Perspectives*, (Ottawa: CAF-FCA, 2018).

102 CAF-FCA, *Career Entry and Program Progression: An Apprentices in Canada ePanel Report*, (Ottawa: CAF-FCA, 2020).

103 CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021).

Allows for Review of Material

The ability of journeypersons to record themselves performing a particular task and uploading the video for review was well appreciated. Apprentices can access the videos at any time and review the correct techniques. Tools with these features would help apprentices to review and reinforce the concepts learned during technical training, especially those that are increasingly complex. In 2021, some apprentices and journeypersons were only “somewhat satisfied” or dissatisfied with the “the way apprentices were shown to do new things” (51 per cent), “the pace at which apprentices had to learn to do new things” (49 per cent) and “the opportunities apprentices had to learn” (47 per cent).¹⁰⁴ Digital tools could provide additional learning opportunities for apprentices. Apprentices could watch videos with expert journeypersons doing the tasks and difficult concepts and techniques could be reviewed.

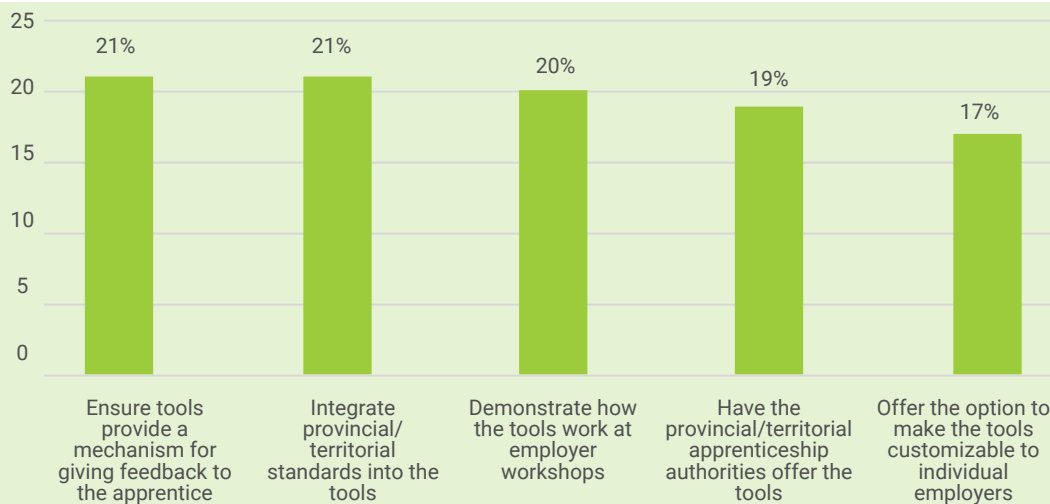
Provides a Way to Get Additional Feedback and Get Help for Apprentices More Quickly

Digital tools provide a valuable and effective means for apprentices to obtain constructive feedback online. They can receive comments on their work throughout their training. Offering tutoring and remedial support that is targeted to problem skill areas earlier in the process might prevent apprentices from becoming discouraged and leaving their programs.

When surveyed, 21 per cent of stakeholders thought digital tools should allow mentors and trainers to give feedback to apprentices.¹⁰⁵

Figure 13: Factors that Encourage the Use of Digital Tools

N=288



Note: Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions.

104 CAF-FCA, *Apprentice and Journeyperson Satisfaction with On-the-Job Training Survey*, (Ottawa: CAF-FCA, 2021).

105 CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

Provides a More Rigorous and Fairer Assessment Based on Practical Demonstration of Skills

When surveyed, 16 per cent of stakeholders thought online tools should allow journeypersons to review evidence of apprentice skills.¹⁰⁶ During the consultations, stakeholders valued the reliability and fairness of capturing evidence on-the-job through digital tools allowing maximum opportunity for candidates to prove what tasks they are able to perform. Stakeholders felt this would reduce bias and discrimination in the assessment process. With evidence submitted through digital tools, employers would have a better idea of what a prospective candidate can (and cannot) do without having to administer an additional examination. Reliance on traditional testing techniques places many learners at a disadvantage, but digital tools could reduce such barriers for these learners because the focus is on practical skills demonstration.

Can be Used Remotely

In remote or Northern locations, stakeholders noted that digital tools provide opportunities for apprentices to progress in their training and still receive feedback on their skills from a journeyperson who may be in another location. One-on-one in-person mentoring and teaching will still have to take place, as required by the province/territory, but this tool gives the opportunity for additional journeypersons to give feedback while the apprentice is waiting for their in-person journeyperson to arrive in a remote or Northern area to work on a project. Many Northern employers struggle with meeting the scope of the trade because many employers have a narrower focus in their work. The tool could identify gaps in the apprentices' training that could be addressed in other ways, perhaps through additional training at the local college or through a short-term transfer to another worksite.



7.3 Drawbacks

Additional light was shed on the barriers to using digital tools from data in CAF-FCA surveys, workshops and interviews, complemented by the views of the pilot participants testing VALID-8.

Needs all Provincial Standards for all 50 plus Red Seal Trades

Given that provinces and territories have different interpretations of the Red Seal standards, any proposed digital tools need to be comprehensive and coherent to avoid confusion for apprentices and journeypersons. There were 29 per cent of pilot participants who said they were confused that the Red Seal standards were not the same as the provincial/territorial ones.¹⁰⁷ Some apprenticeship stakeholders thought a lack of clear links to provincial/territorial standards was a barrier when using digital tools (14 per cent). There were 21 per cent of stakeholders who thought digital tools should integrate provincial/territorial standards into the tools and 19 per cent who felt the provincial/territorial apprenticeship authorities should offer the tools.¹⁰⁸

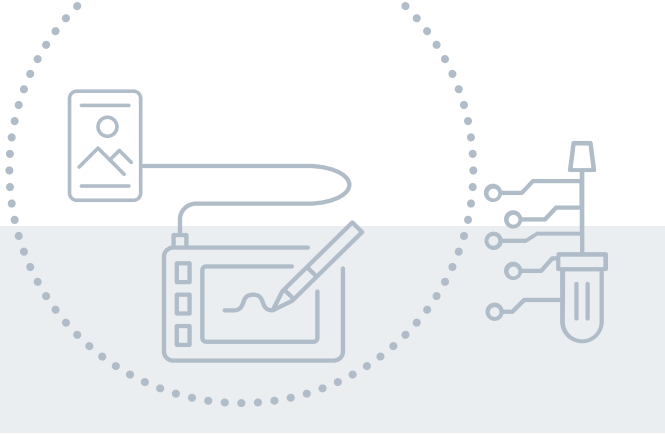
Lack of Awareness and Digital Skills and the Need for Additional Assistance

A number of apprentices and journeypersons noted they would have benefitted from additional help in understanding how such tools work. In this respect, consideration should be given to how to support apprentices in overcoming technological barriers, e.g., improving digital skills or having a webinar to provide a demonstration of the tool. The opportunity for apprentices to ask questions may have helped apprentices who required further explanation about how to use the tool. Hiring journeyperson coaches as a part of the

¹⁰⁶ Ibid.

¹⁰⁷ Based on survey with 892 pilot participants.

¹⁰⁸ CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).



project team would have helped apprentices who require an in-depth explanation of how the tool worked. Coaches would have provided ongoing encouragement to the apprentices and additional feedback.

Employers and trainers may also lack awareness and may require additional assistance when it comes to adopting digital tools. A lack of awareness about the digital tools available was identified as a barrier by 23 per cent of apprenticeship stakeholders. There were 20 per cent of stakeholders who thought creating employer awareness through demonstrations of digital tools or offering customizable tools (17 per cent) would be valuable.¹⁰⁹

Too Time Consuming to Use

A majority of pilot participants surveyed (83 per cent) felt the tool would have benefits for them, but they felt it should be integrated into the workplace training system.¹¹⁰ Even though there were benefits to their own learning and skills development, some pilot participants felt that spending time uploading the evidence was hard to justify when it did not count towards the apprenticeship. Although the tool gives apprentices more control and ownership over their own learning, some apprentices still felt the digital tool was not relevant because they did not have control their logbook (23 per cent).¹¹¹

There were 15 per cent of apprenticeship stakeholders who thought it was too time consuming to learn a new way to do things and this impaired the widespread adoption of digital tools.¹¹²

Not Learning New Skills

Not being exposed to a variety of tasks was a barrier for some apprentices because the tool requires that videos, pictures and text be uploaded when an apprentice accomplishes a new skill. Some pilot participants reported they were not learning any new skills on-the-job that they could document in the tool (11 per cent).¹¹³

Barriers Due to COVID-19

Some pilot participants (9 per cent) said that COVID-19 affected their ability to participate or they were no longer apprentices (13 per cent).¹¹⁴ Other CAF-FCA research indicates that some apprentices were unemployed during the pandemic, were considering leaving the skilled trades sector and the pandemic negatively impacted apprentices' physical and mental health.¹¹⁵

Employer Reluctance to Allow Smartphone Use on Worksites

Although many tools require the use of smartphones to upload videos, stakeholders noted that worksites often restrict their use due to unnecessary distractions and concerns regarding the filming of proprietary company information when documenting their skills on work sites. Indeed, in a number of cases, collective agreements explicitly prohibit the use of smartphones on worksites.

109 Ibid.

110 Based on survey with 892 pilot participants.

111 Ibid.

112 CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

113 Based on survey with 892 pilot participants.

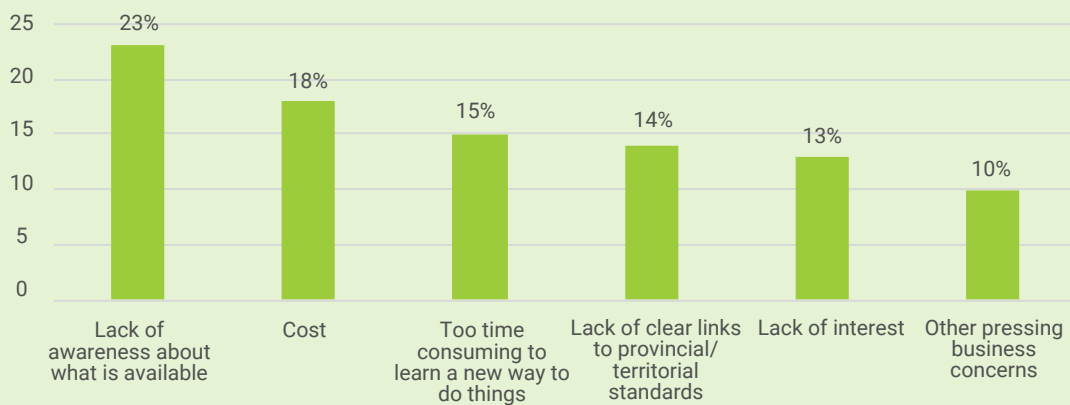
114 Ibid.

115 CAF-FCA, *The Impact of COVID-19: A Year Later*, (Ottawa: CAF-FCA, 2022).

7.4 Cost

Apprentices who were surveyed earlier said they would be unwilling to pay to use the digital tool. As discussed previously, the costs of digital tools remain a barrier for many apprentices, with only a quarter in 2022 saying they would pay up to \$50.¹¹⁶ In a separate survey completed by employers, trainers and educators, 18 per cent reported cost as a factor discouraging the use of digital tools (Figure 14).¹¹⁷

Figure 14: Factors that Discourage the Use of Digital Tools
N=288



116 CAF-FCA, *Interest in Digital Tools Results from the Apprentices in Canada ePanel Mini Survey*, (Ottawa: CAF-FCA, 2022).

117 CAF-FCA, *The Future of Apprentice Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

8. The Future of Apprenticeship Learning

8.1 Overview

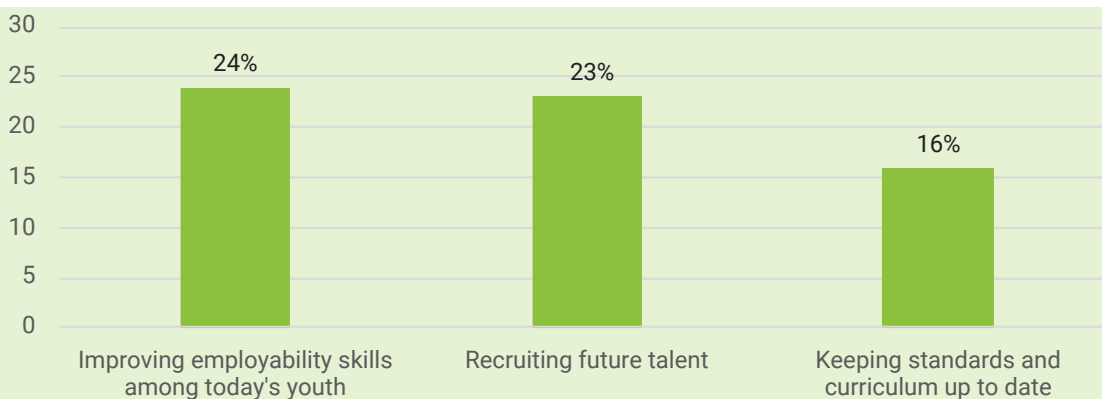
In addition to the workshops and the interviews which were specifically focused on the VALID-8 tool, CAF-FCA wanted to understand more broadly the issues that are important to apprenticeship stakeholders when thinking about the future of apprentice learning. CAF-FCA asked stakeholders questions about the future of apprentice learning as a part of its Fall 2022 survey.¹¹⁸

The top priority for apprenticeship stakeholders is improving employability skills among today's youth, followed closely by recruiting future talent.



Figure 15: Priority Apprenticeship Issues

N=288



Note: Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions.

¹¹⁸ CAF-FCA, *The Future of Apprenticeship Learning Survey with Apprenticeship Stakeholders*, (Ottawa: CAF-FCA, 2022).

Half of the apprenticeship stakeholders agree that apprenticeship systems will be flexible enough to navigate the future world of work.¹¹⁹ More than one-third think that apprentices are receiving the appropriate amount of training to cope with technological changes in the workplace.¹²⁰

Figure 16: Level of Agreement with Statements about Apprenticeship Training¹²¹

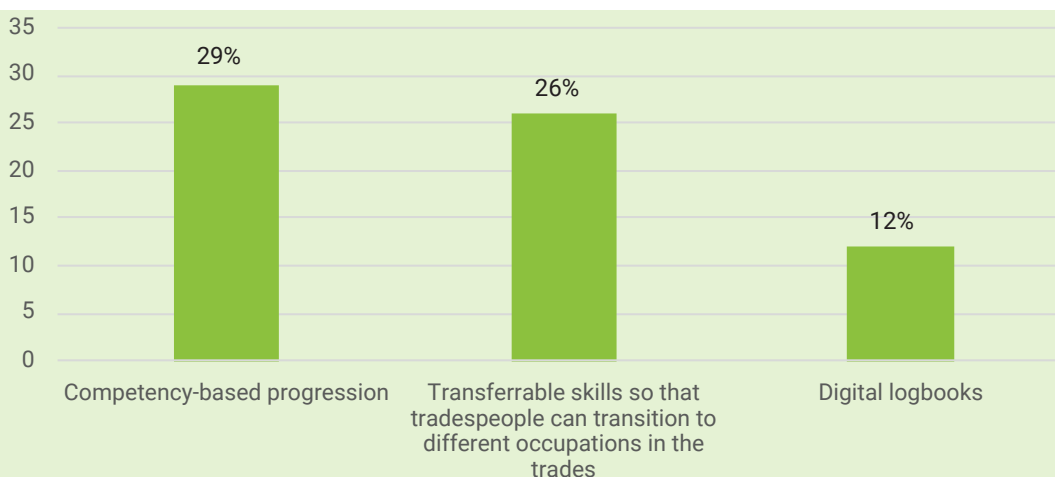
Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Apprenticeship systems will be flexible enough to navigate the future world of work.	11%	38%	26%	19%	6%
Apprentices are receiving the appropriate amount of training to navigate rapid technological change at the workplace.	3%	33%	30%	29%	6%

Note: Percentages may not add up to 100 per cent due to rounding.

The future trends apprenticeship stakeholders are most interested in are competency-based progression, followed by transferable skills.¹²²

Figure 17: Future Apprenticeship Trends of Interest to Apprenticeship Stakeholders

N=288



Note: Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions.

119 When “strongly agree” and “agree” responses are combined.

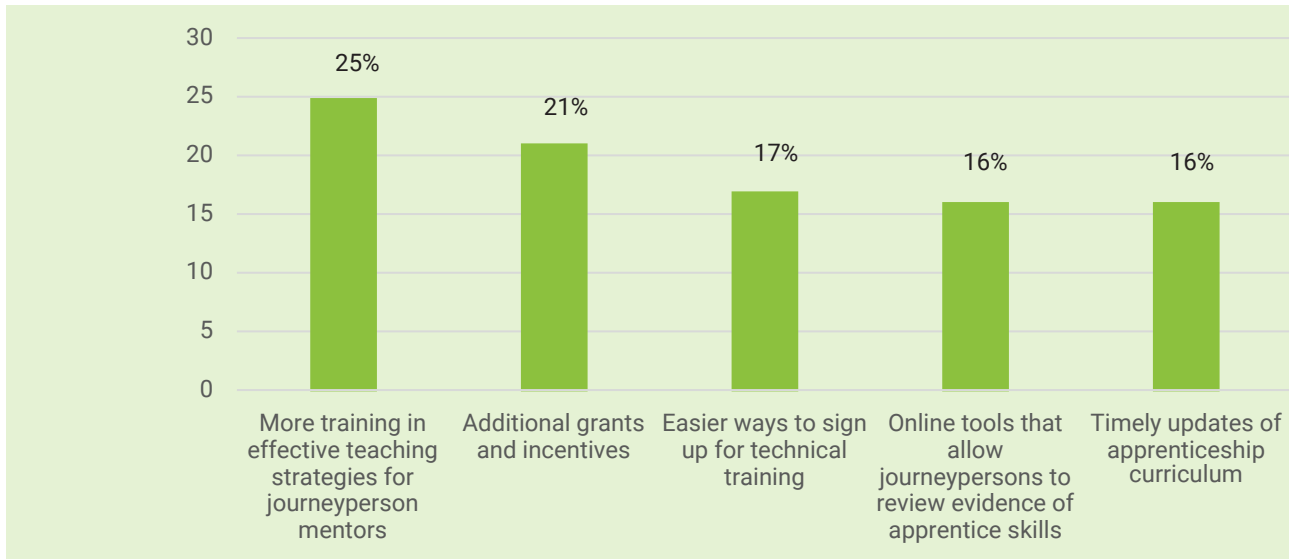
120 When “strongly agree” and “agree” responses are combined.

121 Ibid. N=288

122 Ibid.

Journey person training in effective teaching strategies for mentors and additional grants and incentives for training are identified as desired supports.

Figure 18: Needed Supports
N=288



Note: Percentages may not add up to 100 per cent due to rounding. Multiple responses were accepted for some questions.

9. Conclusion

9.1 Overview

From 2020 to 2022, CAF-FCA piloted a digital tool with 2,013 Canadian apprentices in the electrical, carpentry, plumbing and welding trades. Previous research indicates that apprentices experience certain barriers to their on-the-job learning, including limited use of the logbook and a lack of discussions with journeypersons about their training plans and specific areas for improvement. Digital tools could help engage apprentices more directly in their management of their own learning by sharing the criteria with apprentices and allowing them to upload evidence of their progress. This evidence could be reviewed and commented upon by journeypersons virtually.

To test the usefulness of this kind of digital process, CAF-FCA provided apprentices and journeypersons with free access to a digital tool, VALID-8. During this pilot project, CAF-FCA gathered feedback from the apprenticeship community by hosting industry workshops, conducting interviews and implementing surveys. Employers, employer association representatives, union trainers, college educators, non-profit and government administrators, apprentices and journeypersons shared their thoughts about the digital tool.

Workshop participants and interviewees agreed that the tool provides a way to centralize information in one spot and to document learning in an easy-to-use and secure access digital format. Apprentices who use the tool obtain additional feedback from journeypersons and any learning problems are more easily identified and addressed. The tool makes the learning more meaningful for the apprentice because the journeyperson must review the items uploaded by the apprentice and approve them or explain what still needs to be improved throughout the training process. The tool could help to verify assessments, further ensuring a fair process for all apprentices.

Reluctance to allow smartphone on worksites was identified as a drawback to using the tool. For budgetary reasons, the pilot version of the digital tool was limited to selected provincial standards. Ideally, all provincial/territorial standards should be included.

In addition to providing specific feedback about the tool, apprenticeship stakeholders identified factors that encourage or discourage industry representatives from adopting digital tools. Five factors that support the use of digital tools were identified:

1. ensuring these tools provide a mechanism for giving feedback to the apprentice

2. integrating provincial/territorial standards into the tools
3. clearly demonstrating how these tools actually work
4. having the provincial/territorial apprenticeship authorities offer these tools
5. giving the option to make the tools customizable to individual employers.

Factors that discourage industry from using digital tools were identified as lack of awareness about what is available as well as the issue of their cost and the time “start-up” required in learning how to use them.

Stakeholders also provided their insights about their priorities and the future of apprentice learning. They gave priority to the issue of improving overall employability skills among today’s youth, recruiting future talent, and keeping standards and curriculum up to date. Apprenticeship stakeholders sought more training in effective teaching strategies for journeyperson mentors, offering grants and incentives that will help to train apprentices, easier ways to sign up for technical training, online tools and timely updates of all apprenticeship curriculum. Future trends that were of most interest to apprenticeship stakeholders were competency-based progression and transferrable skills so that tradespeople can transition to different occupations in the trades.

While other countries have used digital tools for years in vocational education, there is a lack of large-scale research projects that have tested these models with Canadian apprentices. The CAF-FCA pilot has helped to fill this knowledge-gap by conducting a national pilot project and by providing Canadian apprentices and journeypersons with a chance to experiment with a digital tool. Wider adoption of these digital tools could help apprentices to engage more meaningfully in their own learning, thus reducing barriers and improving the overall quality of workplace training across Canada.





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