

What Influences British Columbia Apprenticeship Students to Accelerate Their Technical Training Schedules?

**by
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Abstract

British Columbia's apprenticeship system policies allow apprentices to accelerate their technical training, enabling them to write their Red Seal qualification exam well before becoming eligible for certification. The reasons why apprentices choose to do this remain unclear. I have consistently observed apprentices who accelerate their technical training be unsuccessful when writing their certification exam. Although research exists on the wide variety of factors affecting the completion rates of apprentices, none specifically examines those who accelerate their timelines and how they perform on their Red Seal exam. This lack of research may be due to British Columbia's policies, which permit highly accelerated training timelines compared to other provinces where regulations limit how much an apprentice can accelerate their timeline.

In order to better understand this phenomenon, I convened a focus group of seven apprentices near the end of their final level of classroom-based education to learn what influenced their timing when enrolling for their technical training sessions and why they would accelerate their training schedule. Within the focus group I found that course availability, student housing and money were the primary influences. These influences led two of the focus group participants to accelerate their training timelines and take their certification exam before they were eligible for certification.

Keywords: Apprenticeship; Accelerated training; Apprenticeship duration; Technical training; Work-based hours; Vocational training

Dedication

I dedicate this work to my family for their support and understanding over the last two years. To my wife Mary for her encouragement, patience, and occasional ability to adequately perform the role of psychologist. To my children, Chelsea, Pearce, and Quinn hoping they see that it is never too late to start something new, especially with the support of a loving family. Finally, in appreciation of all the lessons learned over the years, to my mother, Beatrice, and my father, John who passed unaware I had enrolled in this Master of Educational Leadership program.

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I acknowledge my cohort of fellow students. We have spent two years worth of Tuesdays together, some filled with laughter, some long, hot and tedious and some very emotional. Regardless of where our paths may take us, the bond of our cohort will always be there for each of us.

To Brian Buckley, a mentor who has provided both challenge and encouragement as we worked and grew together for seven years. Without his encouragement, I would not have enrolled into the Master of Educational Leadership program.

To all professors within the program who show their passion every week. I appreciate their guidance and support throughout the last two years.

And finally, to the instructors within BCIT's Industrial Mechanic (Millwright) department who have listened to and tolerated me incessantly applying my newly acquired understanding of education and leadership.

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Introduction

The most common trade apprenticeships in British Columbia (BC) have a standard duration of four years. Within this timeframe, the apprentice performs work at their employer/sponsor's worksite, completing hands-on tasks that provides experiential learning while being paid. Once per year, the apprentice leaves the workplace to attend technical training at one of the approved training providers such as British Columbia Institute of Technology (BCIT) or Kwantlen Polytechnic University. Within the Industrial Mechanic (Millwright) trade, technical training is scheduled for seven weeks per level. The apprentice continues this schedule of alternating approximately 44 weeks of work-based training and seven weeks of technical training until they have completed Level 4 technical training. The technical training sessions start at a basic level introducing trade safety, trade tools, and foundational theory. Complexity increases in each successive level as the apprentice continues through to Level 4.

Within British Columbia's apprenticeship system, there are three requirements for an apprentice to obtain certification. First is to successfully complete the required levels of technical training. The second requirement is the completion of a minimum number of work-based training hours and, third, the apprentice must earn a grade of 70% or greater on the Inter-Provincial Red Seal exam. This exam is a national exam hosted by Employment and Social Development Canada (ESDC), the branch of the federal government which oversees all apprenticeship training in the country. ESDC designs the Red Seal exam with a priority of evaluating the apprentices' experience within the trade and has topics covering the full 'scope of trade'. This emphasizes the value of an apprentice's work-based training hours and the tasks they complete during these hours.

Historically, a four-year apprenticeship with seven weeks per year technical training results in apprentices spending 87% of their time accumulating work-based training hours, and 13% of their time attending technical training. Apprentices write the Red Seal exam on the last day of their Level 4 technical training.

In 2007, I was a novice trades instructor at the British Columbia Institute of Technology and met an apprentice "Jesse", who had completed a low number of work-

based training hours and was attending Level 1 technical training. As is typical, Jesse completed Level 1 technical training, returned to his workplace to accumulate more work-based training hours, and scheduled his Level 2 technical training. However, in scheduling his training, Jesse returned to complete levels 2, 3 and 4 technical training in a back-to-back format, meaning he completed Level 2 on a Friday and started his Level 3 course the following Monday. He then repeated this pattern when transitioning from Level 3 to Level 4. Jesse was on campus for a 21-week period to do this and, as per the policies in place, he wrote his Red Seal exam on the last day of Level 4 technical training. One week later I received the exam results and found Jesse had failed his exam.

Due to the way he had scheduled his technical training, Jesse had only accumulated about 35% of the work-based hours required for certification, yet British Columbia's apprenticeship policy permitted him to take the exam without the hands-on experience provided by completing most or all required work-based training hours. This is like a student writing the final exam of a fifteen-week course at the end of the course's sixth week, and the exam includes content from the entire fifteen weeks. While the instructor may have provided a syllabus describing which content is included within the exam, the student has not had time to develop their learning by completing assignments or practicing the cognitive and psychomotor skills related to the content.

After failing the Red Seal exam, Jesse returned to work and was assigned to be a tool room attendant; a job considered low skill with a rate of pay lower than he earned as an apprentice. Jesse tried two more times to pass the exam and was not successful in either instance, likely because the Red Seal exam is experiential in nature and is "a trade certification exam based on the work. So, textbooks might be great resources to help you study, but they are not the basis of the exam" (Employment and Social Development Canada, 2017, p. 4). I often wondered if Jesse's lack of work-based hours had an influence on his exam results due to the experiential nature of this exam. Jesse was the first apprentice I encountered who utilized policies implemented in 2003 (Auditor General of British Columbia, 2009) to accelerate his training. I noticed the number of apprentices accelerating their technical training became more frequent once it was realized this could be done. I now see many apprentices accelerating their training to various levels, and it is becoming less common to see an apprentice complete or be close to their work-based hours when they write the Red Seal exam.

During the last Level 4 cohort I instructed in November 2023, I surveyed apprentices who would be writing their Red Seal exam within ten days, asking how many work-based training hours they had accumulated. Fifty percent of the apprentices in the cohort confirmed they would be writing the Red Seal exam before they had accumulated the work-based hours required for certification. Three of the apprentices were exceptionally short of hours, having completed only 2000, 3500, and 4000 hours respectively; well short of the 6360 hours required for certification. The apprentice who had completed 4000 hours was the only one successful in passing the exam, yet he is not eligible to be certified until completing another 2360 work-based training hours: over one year of full-time employment.

Relevant History of British Columbia's Apprenticeship System

British Columbia's governing body for apprenticeship training has undergone two major transitions since the late 1990's, both resulting from changeover in the elected government. The first major change was a complete overhaul of the apprenticeship system. Prior to 2003, the government agency overseeing the apprenticeship system was the Industry Training and Apprenticeship Commission (ITAC). In 2003 a major reorganization occurred as ITAC was dissolved and replaced by the Industry Training Authority (ITA). The transition from ITAC to ITA resulted from legislation initiated by the British Columbia Liberal Party elected in 2001 which created a period of deregulation. Deregulation included the removal of the compulsory trade designation within the province, making British Columbia unique as the only province not to have compulsory trade certification (Barrett & Hogben, 2021). Compulsory trades require individuals to be certified or be in the process of obtaining certification before they can work within the trade. Proponents believe that compulsory trades lead to better safety, consumer protection, higher apprentice completion rates, and positive economic impacts.

During the British Columbia Liberal government era from 2001 to 2017 the political landscape allowed for many policy changes to be implemented. However, in dissolving ITAC there was little consultation with employers, training providers or apprentices within the process. In its annual report, the office of the Auditor General of British Columbia (2009) stated that "The ITA did not sufficiently consult with, or provide enough guidance and support to, its partners and stakeholders" (p.1).

Changes included a drastic reduction in staffing; ITAC staffing was reduced from 120 employees to fewer than 10 employees when ITA was formed (Barrett & Hogben, 2021). This affected historically staff-dependent policies, such as apprentice scheduling, which had previously been a service provided through ITAC's centralized registration system. Scheduling now became the responsibility of apprentices themselves. The self-scheduling model provided the opportunity for apprentices to accelerate their training schedules as the change also removed the built-in checks of the centralized registration system. These inherent checks ensured apprentices performed a large portion of the work-based training requirements before writing their Red Seal exam.

These changes permitted, and continue to permit, apprentices to take Red Seal exams well before accumulating the prerequisite work-based training hours to be eligible for certification. I do not understand the desire for an apprentice to accelerate their technical training to the point where they are writing their Red Seal certification exam well before they are eligible to receive certification. While I understand the rationale to accelerate training for those who are close to the required hours, the issue I see is not over a matter of a few hundred hours. I am witnessing more apprentices writing their Red Seal exam while still requiring thousands of hours before being eligible for certification. In extreme cases, I have witnessed apprentices writing the Red Seal exam who have less than 25% of the required work-based training hours. This is a problem. The hands-on tasks apprentices perform in these thousands of work-based training hours provide crucial knowledge as the Red Seal certification exam is "experiential in nature" (Employment and Social Development Canada, 2017, p. 4)

The second major change to the apprenticeship system happened in 2023 as the New Democratic Party's (NDP) government legislation reintroduced the compulsory trades model reflecting the NDP's belief that the previous system disadvantaged British Columbia's workers and employers (Province of British Columbia, 2022). With the term "skilled trades certification" now used to refer to compulsory trades, the ITA underwent a rebranding and is now known as Skilled Trades BC to better reflect its legislated mandate.

Though the compulsory trades model has been reintroduced, the NDP government has not made any changes to policies affecting apprentice scheduling or

technical training timelines. Apprentices continue to accelerate their technical training schedules.

Since being named Department Head BCIT Industrial Mechanic (Millwright) in 2014, I receive the Red Seal exam results of each Industrial Mechanic (Millwright) apprentice who completes Level 4. Data beyond that timeframe is not readily available to me. With these data I tracked the pass rate and failing rates of these apprentices from 2014- 2021. Figure 1 shows the percentage of each cohort of BCIT Industrial Mechanic (Millwright) apprentices who fail their Red Seal exam has an upwards trend increasing by 20 points over the timeframe.

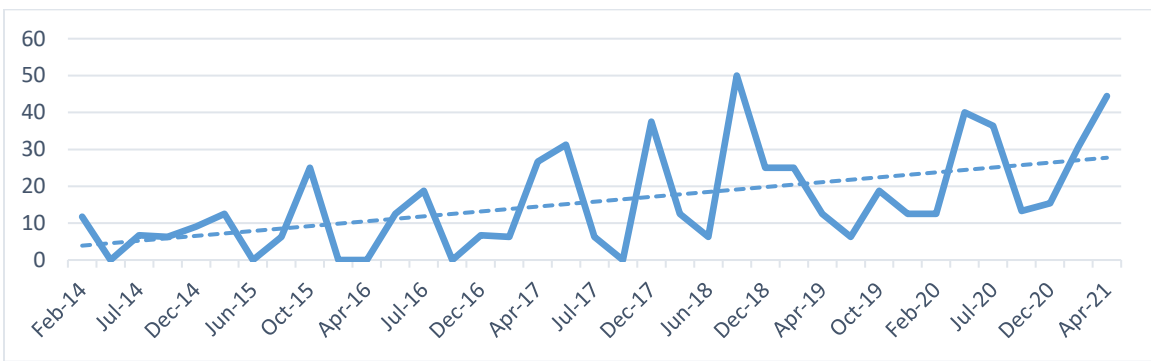


Figure 1. Red Seal Exam Failure Rate - BCIT Industrial Mechanic (Millwright) Apprentice

The data also show a decrease in average Red Seal exam score from 78% in 2014 to 72% in 2020. Figure 2 shows the average Red Seal exam grade by cohort identification number with cohorts arranged chronologically from 2014 – 2020.

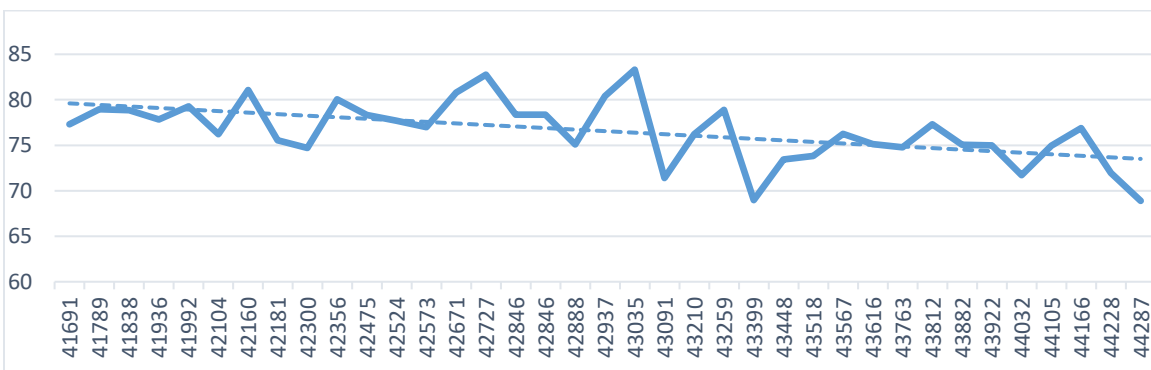


Figure 2. Average Red Seal Exam Grade by Cohort (Chronological)- BCIT Industrial Mechanic (Millwright) Apprentice

These data were collected for my personal work as a technical training provider. As I use it for work purposes, it is best used to indicate trends.

Recent Data on Accelerated Timelines

In trying to better understand the problem, I realized that I did not have the data required to confirm accelerated timelines. I submitted a Freedom of Information request to Skilled Trades BC to obtain time related information for all Industrial Mechanic (Millwright) apprentices who have gone through the British Columbia apprenticeship system between March 1997 and August 2020. My Freedom of Information request specifically asked for each apprentice's:

- date of indenture (the date an apprentice starts their apprenticeship)
- date of completion: Level 1 training
- date of completion: Level 2 training
- date of completion: Level 3 training
- date of completion: Level 4 training. (This is also the date of the apprentices Red Seal exam.)
- success on the apprentices first writing of the Red Seal exam. (Y/N)

With these data, I determined apprenticeship duration (years, months, and days) and time between successive levels of technical training. However, I could not determine an apprentice's exact work-based hours. There is a relationship between the time-based data and the number of work-based hours, but it only provides a loose correlation over short durations. For example, if data show the apprentice completed Level 1 technical training and returned for Level 2 technical training three months later, I can safely assume they did not complete a full year's worth of work-based training hours in the three-month timeframe. However, if they return to Level 2 technical training 22 months after completing Level 1, I cannot assume they have accumulated 22 months of work-based hours. They could have been on lay-off, injured or for a variety of other reasons not taken their training on a yearly schedule. In understanding the limitations of this dataset, only time-based trends may be extrapolated.

I analyzed these data for broad patterns and trends. The first step of analysis revealed several inconsistencies within the data. For example, there are situations which show chronological events occurring in a “negative timeframe.” In exploring these issues, I found instances where the data state an apprentice completed several levels of technical training before being indentured. Within the system, this cannot occur, leading me to consider possibilities as to why they are present within the data. For example, a data entry error might have occurred, or an apprentice may have had unusual circumstances within their apprenticeship journey. I removed these data to prevent data contamination.

Across the usable data, one aspect stood out. The average length of a four-year Industrial Mechanic (Millwright) apprenticeship is decreasing. I used an Excel spreadsheet to arrange the data chronologically and determined each apprentice’s duration from their date of indenture to the date they wrote their Red Seal exam. Using only data where apprenticeship timelines have occurred in a standard, chronological order resulted in a data set representing 2478 apprentice timelines and indicated an average duration of apprenticeship as 3.52 years. I then plotted the average duration of apprenticeship by year in Figure 3 which showed a definite decline in the length of apprenticeship.

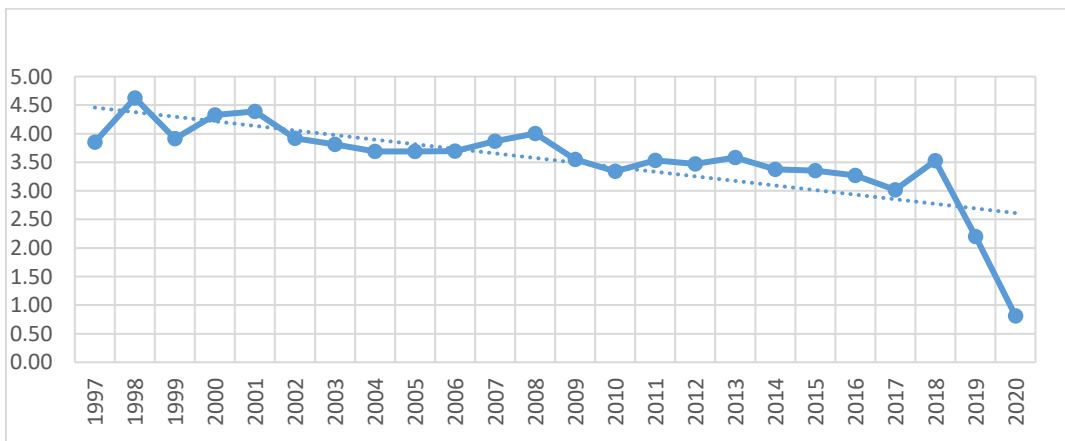


Figure 3. Average British Columbia Industrial Mechanic (Millwright) Apprenticeship Duration by Year of Indenture 1997 – 2020)

Two factors may have influenced the rapid decline since 2018. The first factor may have been the COVID-19 pandemic. The second reason may be the result of the data not representing those apprentices who may eventually complete on a longer timeline. This means the dataset represented apprentices who have completed their apprenticeships at an accelerated pace and did not include those who would be completing in the future. This skewed the results towards the shorter duration. Therefore, I repeated the process but removed the data of apprentices which had started in 2017 onwards as shown in Figure 4.

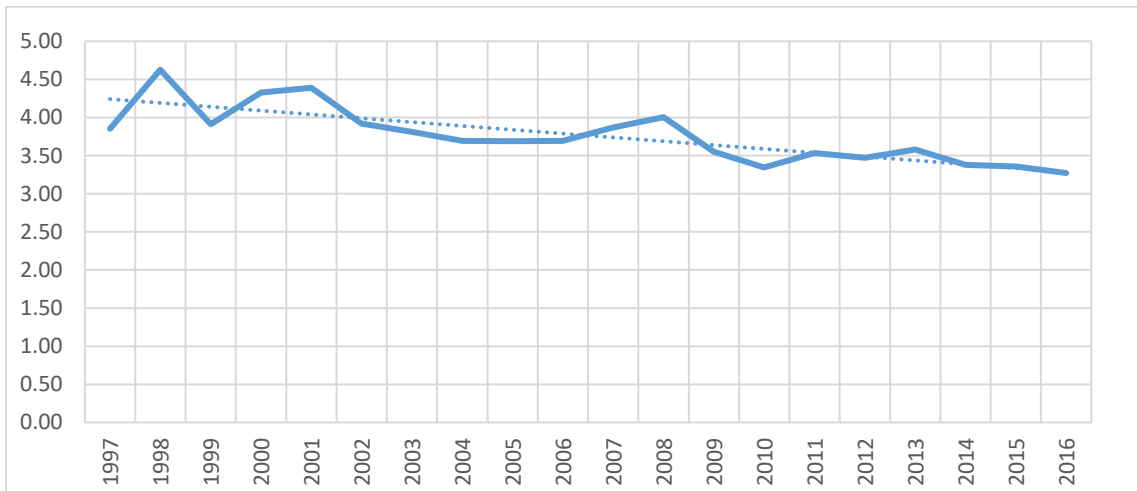


Figure 4. Average British Columbia Industrial Mechanic (Millwright) Apprenticeship Duration by Year of Indenture 1997 – 2016

When comparing the two data sets, each shows a downward slope as indicated by the trendline. However, the slope's amplitude decreases when excluding the 2017-2020 data. Although the trend indicates an acceleration in apprenticeship duration, the effects of the 2017-2020 period might be a temporary 'blip' due to COVID and could diminish as more post-COVID data becomes available. Regardless, a downward trend existed, albeit to a lesser extent, before 2017.

Literature Review

While performing a literature review for this paper, I found it difficult to locate literature directly addressing apprentices who accelerate their technical training timelines. I

conclude this is due to a uniqueness in British Columbia's apprenticeship system allowing for the drastic acceleration of apprentices technical training timelines.

Studies conducted by The Canadian Apprenticeship Forum (2011), BC Chamber of Commerce (2021), Coe (2013), as well as Laporte and Mueller (2011) have examined apprentice completion rates and compared them to standard apprenticeship durations. The Christian Labor Association (March, 2022) investigated the effect of support mechanisms on apprentice success. These studies reveal several themes that affect completion rates both positively and negatively. One theme is that the standard duration of an apprenticeship does not influence success rates. A second theme shows that apprentices taking longer than standard duration have a higher incompleteness rate. These completion rate studies consider many factors and are much broader than simply failing the Red Seal exam. In these studies, "standard duration" is a term describing the length of time it should "normally" take to complete an apprenticeship (Skilled Trades BC, 2024). For example, Hairstylist is a Red Seal certified trade with a two-year standard duration while Construction Electrician is also a Red Seal certified trade, yet it has a four-year standard duration.

In his research, Coe (2013) relied on several supporting studies to conclude the standard duration of an apprenticeship does not affect completion rates. This means completion rates are the same whether the trade has a two-year, three-year or four-year standard duration. Laporte and Mueller (2011) conclude that if an apprentice takes longer than the standard duration for their trade, it has a negative effect on completion rates. Several factors can cause a longer than standard duration such as family or health issues, employment issues, or the cost of attending school delaying technical training sessions.

The Christian Labour Association of Canada (2022) explored the effects of funding, support, and employer training on apprentice completion rates. By examining and understanding existing apprenticeship systems, they have integrated several strategies into their programs. Consequently, the association maintains close relationships with industry to act in their apprentices' best interests during the cyclical highs and lows of many construction trades. They provide support to apprentices navigating provincial apprenticeship systems and ensure apprentices are informed about

all available funding resources, including an internal grant that offsets yearly schooling costs.

The Canadian Apprenticeship Forum (2011) report has identified fourteen individual influences (See Figure 5) causing apprentices to discontinue their apprenticeship. In examining why apprentices “discontinue”, most of the reasons are controlled by the apprentice themselves. They may choose to return to school for non-trade related training, or their family situation may force them to make family versus work-based decisions. Economic issues such as not earning enough wages and employer issues such as conflict or disliking the working conditions also cause apprentices to discontinue. The apprentices make these decisions, which are therefore not within the purview of the training provider.

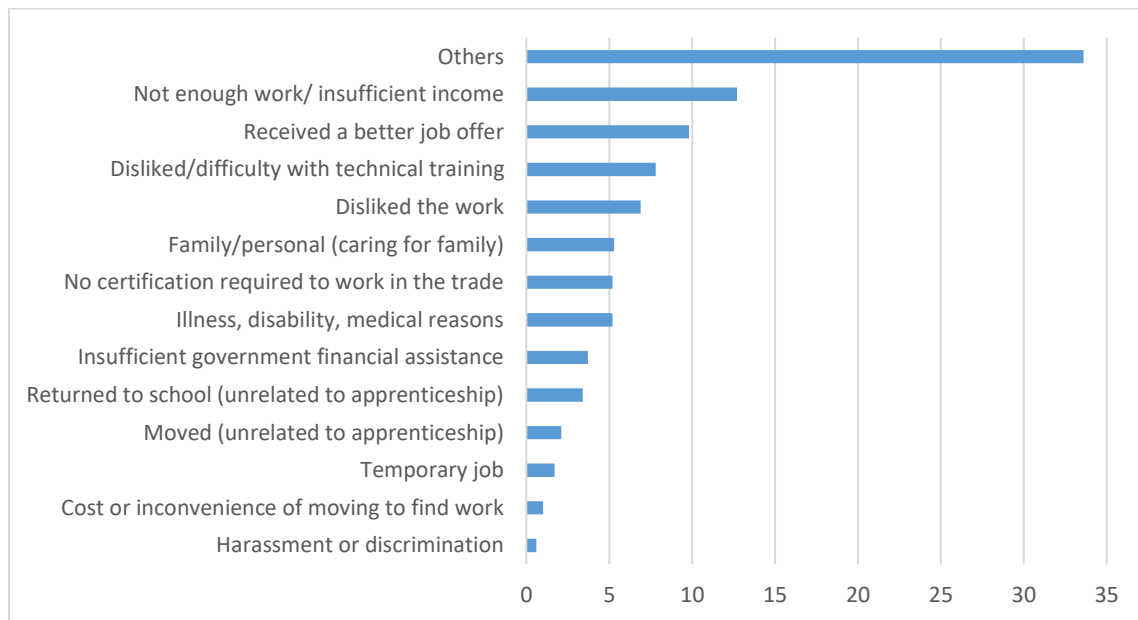


Figure 5. Primary Reason Discontinuers Did Not Complete Apprenticeship Program

Source: BC Labour Market Information (BCLMI) Committee, September 2008. CAF (2011)

At nearly 35%, the largest category in the Canadian Apprenticeship Forum study is labelled “Other.” When respondents chose this category, they were asked to supply an explanation. These explanations were categorized as follows:

- Barriers to attending schooling (waitlists, location, program, etc.) (8%)
- Required hours/training/sponsor (6%)

- Difficulty passing the exam (final, Red Seal, Inter-provincial) (4%)
- Too busy, no time (4%)
- Employer-related difficulties (dislike, conflicts, lack of support) (3%)
- Found work pursuing another trade (3%)

Canadian Apprenticeship Forum (2011, p. 24)

Within these stated reasons, two appear to be within the control of a technical training provider. Since 8% of respondents stated they faced barriers in attending schooling (waitlists, location, program, etc.), one might hastily conclude that training providers could add courses to reduce waitlists or offer courses in remote areas to address locational issues. However, training providers can only do this with approval and funding from Skilled Trades BC.

Eliminating the issues with attending schooling, the only other impact a training provider might have on the reasons for discontinuing studies relates to the 4% of apprentices having difficulty passing the Red Seal exam.

A gap in the literature relates to the experiences of those who complete their apprenticeships in less time than the standard duration. This situation seems unique to British Columbia due to policies enacted by ITA in 2003. Most research focuses on the larger Canadian context. Other provinces have policies ensuring apprentices complete most, if not all, their work-based hours before writing their Red Seal exam. These policies include a) requiring all work-based hours to be completed before writing the Red Seal exam, b) setting a minimum number of hours to be completed before enrolling in the next level of technical training, or c) requiring the completion of one level of training before enrolling in the next level.

The Research Question

Government policy permitting apprentices to accelerate their technical training and write their Red Seal exam well before they are eligible for certification has, over time, resulted in a reduction of the average earned grade and an increase in failures on the Red Seal exam.

I am curious why apprentices accelerate their technical training schedules if this potentially increases the risk of failure on the Red Seal exam. Therefore, my research question is:

What factors influence apprentices' decisions to accelerate their technical training schedules within the British Columbia apprenticeship system?

Secondary questions include:

- Do apprentices make a conscious decision to accelerate their technical training as permitted within the British Columbia apprenticeship system or is it determined by external factors?
- How do apprentices within the British Columbia apprenticeship system perceive the effect of work-based hours on their success on the Red Seal certification exam?

The timing for this research appears to be optimum as Skilled Trades BC plans to review their scheduling practices soon (C. Rogan, personal communication, June 8, 2023). British Columbia currently has 41,000 apprentices and if this research leads to a policy change resulting in a 1% increase in the completion rate, it will mean 410 more apprentices certified in the province per year (Skilled Trades BC, 2023). Although 1% may seem low, it is significant because it is one of the few areas where technical training providers have influence to support apprentices in completing their apprenticeships. Also, increasing completion rates, even slightly, every year would lead to a substantial increase in qualified tradespeople joining the British Columbia workforce.

Methodology

To understand why apprentices make certain decisions, I engaged in qualitative research. Qualitative data provides broad explanations for behavior and attitudes, complete with variables, constructs, and hypotheses (Cresswell & Cresswell, 2018). Using this approach, I conducted a focus group session where participants shared their personal stories regarding their decision-making processes in scheduling technical training.

I chose the focus group methodology for this research because it helps “to better understand how people feel or think about an idea, issue, product or service” (Kruger & Casey, 2015, p. 2). In this case, the issue at hand was the self-scheduling of apprenticeship technical training and the associated factors which result in accelerated training schedules.

Researcher Role/Positionality

I started as a full-time trades instructor in 2003 and in 2015 I took on the role of Department Head, BCIT Industrial Mechanic (Millwright) programs. I have performed this job for the last nine years. In both roles, my job description requires me to engage with apprentices each day. In over two decades working at BCIT I have taken part in training and witnessed over 1600 apprentices write their Red Seal exam.

My extensive contact with apprentices has allowed me to consistently hear their views on the apprenticeship system and observe their actions within it. Vicariously experiencing the apprenticeship journey through thousands of students has shaped my perspective on the system. It is my belief that the British Columbia apprenticeship system does not have the apprentice as their top priority, rather, they serve the apprentice employers within the province. Although I see areas where the governing body could improve conditions for apprentices, it appears they avoid doing so as it would place additional responsibilities on employers, who they see as their primary stakeholders. This contrasts with my beliefs that an apprenticeship system should have the apprentice, and their training as its top priority.

Research Site/Participants

As Department Head of the British Columbia Institute of Technology (BCIT) Industrial Mechanic (Millwright) programs, I oversee a department offering 19 sessions of apprentice technical training per year. With four apprentice sessions taking place at any given time, I had access to 64 apprentices as potential focus group participants. I was guided by Kruger and Casey’s (2015) Organizational Recruiting method and decided to approach a Level 4 apprenticeship cohort for recruiting purposes. These apprentices were selected because they have the most “past use of a program or service” (Kruger & Casey, 2015, p. 2) in scheduling their technical training.

The focus group consisted of seven apprentices who were each working at large companies and one participant who was working at a small division of a large company. The group showed a diverse range of job locations and experience as evidenced by their work-based training hours. (See Table 1)

Table 1. Focus Group Participant Details

Participant ID	Company Description	City	Length of Apprenticeship (Years)	Stated Work Based Training Hours Upon Writing Red Seal Exam
#1	Family Owned 350 employees	Castlegar, BC	4	6400
#2	Large Lumber Mill	Vernon, BC	3	5900
#3	Large company, small branch	Burnaby, BC	2.5	3600
#4	Approximately 100 people	Abbotsford, BC	6	6400
#5	Large	Burnaby, BC	3.5	6600
#6	Large, Family Owned	Williams Lake, BC	3.5	6600
#7	Large	Vancouver, BC	5	9500

Data Collection

The first step in recruiting participants involved having a third party approach a cohort of Level 4 apprentices to avoid any potential ethical issues, such as coercion. The third party provided a class presentation which indicated I was performing the research, introduced the topic of the research, described the research method and requested apprentices consider participating in the research. Apprentices were also given a handout consisting of all the information to review after the presentation if they desired.

Seven apprentices volunteered to participate in the focus group, collectively contributing 28 individual scheduling experiences. Based on participant availability, the focus group was scheduled to take place two days later.

In preparing for the focus group, I identified two issues that I wanted to ensure did not affect the group's participants. Firstly, my stance on accelerated training

schedules, and secondly, me taking control of the conversation. As noted by Rice (1931), “a defect in the interview for the purpose of fact-finding in scientific research is, then, that the questioner takes the lead” (p. 561) To address these concerns and limit my influence on the process, I entered the focus group with only a few preset questions. “Can you share your experiences about how you have had to schedule your schooling (technical training)?”, “How has it gone for you?”, “Have you had any good or bad experiences? My intention after asking these questions was to allow the conversation to flow naturally with limited input from myself. I intervened only to encourage responses, prompt for further information or if a prolonged silence warranted further questions.

Another reason for opting for the focus group format was to ensure that the participants' statements constituted the primary data, thereby reducing bias from my perspective. By documenting their statements, I could maintain objectivity and refer solely to the recorded information.

The focus group met after class hours in a neutral classroom where I arranged the tables in a square to promote equality among participants. After I posed the first question, the group naturally adopted a roundtable discussion style. As the conversation progressed, three participants took the lead, while others contributed to their statements. Many participants began their remarks with phrases like “as participant #2 said...” or “I feel the same as participant #5...” indicating they were building on each other's ideas.

Participants #1 and #2 shared personal family matters, whereas participant #3 expressed political views, criticizing “our failing government” and discussing the cost of living and commuting issues. Participants #5, #6, and #7 mainly reacted to others' comments or responded directly to questions. Participant #4 thoughtfully referenced two alternative apprenticeship systems, besides British Columbia's, showing an understanding of a variety of perspectives.

My plan to ask only one question quickly changed. Several long silences forced me to interject with new questions based on the previous discussion. At one point, Participant #4 stated, “I was saying that because you're looking to equate work or training hours to competency, right?” At this point, I had to clarify that I only wanted to hear the participants' stories.

At the end of the focus group, I thanked each participant for their time and input, explained the next steps for the data, and wished them well in writing their Red Seal exam soon.

Data Analysis

The conversation was recorded and transcribed by my phone using the application Otter.ai. Following the focus group, I transferred the recording and transcript to my laptop computer where I converted the transcript into document (Word) format. Otter.ai exported the audio files to my computer in usable MP3 format.

I edited the transcript using conventions provided by my professor, Dr. Rebecca (Becky) Cox and guided by processes outlined by Krueger and Casey (2015). During editing, I referred to the audio files to correct transcription inaccuracies adding clarification and context from field notes where required.

I employed three processes as described by Miles et al. (2019) in my analysis of the focus group transcript. I first counted the number of occurrences of applicable descriptors within the conversation. Next, I noted patterns and themes and finally I noted relations between variables.

The first process consisted of counting the number of repeatable instances as described by the participants. While counting may not seem to be a cornerstone of qualitative study where we often look for richness of data rather than how much data, Miles et al. (2019) explain that this practice helps to see the general area in which the conversation flows and allows you to see how much content exists. It also performs the important role of keeping yourself analytically honest, protecting against bias.

In applying this process, I counted the number of times a given subject came up and if a new participant joined the conversation. A hypothetical example: If Participant A speaks about enjoying gardening, the conversation transitions to speaking about the weather, then five minutes later Participant A again spoke about enjoying gardening, this would count as two instances. If, during either instance, Participant C added that they too enjoy gardening, this would total three instances. If a participant expresses an opposing view by saying they dislike gardening, they will reduce the number of descriptors. This action tends to lessen the impact of a common subject, which helps to

better represent the group. Analysis of the focus group transcript did not find any instances of this situation.

For each identified topic I created a “descriptor”; a short term or sentence concisely describing the subject. A total of fourteen descriptors were identified within the focus group transcript.

As part of the second process, the descriptors were then used to note patterns and themes. I used the descriptors for this purpose as “patterns don’t just happen; we construct them from our observations of recurring phenomena” (Miles et al., 2019, p. 275). In using this process, I extrapolated three main themes from the descriptors. The discovered themes closely matched some descriptors and not all descriptors were “used” in this process.

The final process compared the three themes to the unused descriptors to “note the relations between variables” (Miles et al., 2019, p. 283). Performing this step of analysis required me to make many references back to the original transcript searching for context of participant statements. This ensured my personal understanding of the subject matter was not imparting bias to the focus group’s comments. Using this process resulted in a series of directly proportional and inversely proportional relations within the transcript data and served as a validation technique by only using focus group comments in the analysis.

Findings

In my analysis of the focus group transcript, I identified the 14 descriptors shown in Table 2, most of which have affected timing of participants scheduling of technical training. While not all descriptors appear often within the data, those with a lower number of occurrences are often variables related to those occurring with more frequency. Individual descriptors exist which do not appear to be direct variables yet provide context both supporting or conflicting with the predominant themes within the data.

Table 2. Descriptors: Number of Occurrences

Descriptor	Number of Occurrences
1. Work based training hours are relevant	1
2. Work Based training hours are not relevant	2
3. Travel Issues	2
4. Negative experiences scheduling training	2
5. Recognition of other apprenticeship systems	2
6. Cost of attending technical training	3
7. Family issues	3
8. Employer denying release for training	3
9. Employer support	4
10. Positive experiences scheduling training	4
11. Housing issues while attending training	4
12. Course availability	5
13. Attending training in a back-to-back format	5
14. Obtaining wage increase upon level completion	9

Within the data I found three predominant themes affecting why apprentices choose specific times to schedule technical training.

- Apprentices schedule training, accelerated or not accelerated, due to course availability.
- Apprentices schedule training, accelerated or not accelerated, based on the availability of housing while attending technical training.
- Apprentices schedule training on an accelerated timeline for monetary gain.

To generate these themes, I first counted the number of descriptor instances and then analyzed how the focus group participants related the descriptors throughout the group discussion. During this analysis, I observed many instances where descriptors supported one another in generating a theme.

Some descriptors, however, might not support each other. For instance, descriptor #13, which refers to an apprentice attending back-to-back training, does not align with descriptor #8, which involves an employer not allowing an apprentice release time for training. Although the focus group transcript did not reveal instances of this

mismatch, I found cases where a descriptor that typically would not support a theme actually played a crucial role in supporting it. For example, descriptor #7, which relates to family issues, would usually be expected to hinder an apprentice from attending technical training. However, there were two cases where family issues prompted the apprentice to complete technical training more quickly than usual, enabling them to address the family issue afterward.

Table 3 shows the individual descriptors which combined to support a theme:

Table 3. Descriptors Supporting Themes

Theme	Descriptors
Apprentices schedule training, accelerated or not accelerated, due to course availability.	12. Course availability 11. Housing issues while attending training 10. Positive issues scheduling training 9. Employer support 7. Family issues
Apprentices schedule training, accelerated or not accelerated, based on the availability of housing while attending technical training.	11. Housing issues while attending training 12. Course availability 10. Positive issues scheduling training 9. Employer support 7. Family issues 4. Negative experiences scheduling training
Apprentices schedule training on an accelerated timeline for monetary gain.	14. Obtaining wage increase upon level completion 13. Attending training in a back-to-back format 12. Course availability 9. Employer support

The defined themes regarding course availability and housing are similar in that they both include external factors beyond the apprentice’s control. Delving further into the two themes shows that the availability of housing is dependent on course availability and therefore these two themes are related variables. If an apprentice does not have access to courses locally, the next option is to travel to training providers further away necessitating the need for housing. When this occurs, the apprentice may be required to enroll into a course earlier than desired as it is the only time they can also find housing.

Within British Columbia, the availability of apprentice technical training courses is very dependent on the geographic area in which the apprentice lives. While post-secondary institutions are generally placed based on overall population demand, this does not always correlate to apprentice demand. In many instances the availability of courses is much lower than demand as there may be only one training provider in a geographic area. In these cases, a training provider may only employ one instructor for the required courses, yet it may also be the center of an apprentice laden industry and have the apprentice demand for more courses. As an example, Table 2 shows that the Lower Mainland has two technical training providers with a total of nine instructors addressing the needs of 39.46% of apprentices or 4.38% of the provincial apprentices per instructor. The southeast interior of British Columbia has 24.19% of the Industrial Mechanic (Millwright) apprentice population with two separate training providers, each with one instructor, resulting in each instructor addressing the needs of 12.5% of the provincial apprentices. With a regular course load, these instructors can only offer courses for 160 of the 312 active local apprentices.

Table 4. Millwright – Apprentices by Region, April 1, 2023

Region	Total Number of Apprentices (Active and Inactive)	Number of active apprentices based on standardized 60%* Active Status	Number of Apprentices as a Percentage
North	525	315	24.41
Southeast Interior	520	312	24.19
Vancouver Island	164	98	7.59
Lower Mainland	849	509	39.46
Unknown	49	29	2.24
Other	45	27	2.09
Total	2152	1290	100

Source: Skilled Trades BC (email Communication, April 1, 2023)

*Standardized value as supplied by Skilled Trades BC

The large population of the Lower Mainland has two main effects on course availability. First, the institutes themselves are larger to serve more overall students in a wide variety of disciplines, and second, they have a larger population pool to draw on to hire instructors. This results in the Lower Mainland training providers having larger

trades departments offering more courses per year as compared to those in remote parts of the province.

Course availability being concentrated in the Lower Mainland creates a dynamic where many apprentices compete to register first for local courses and then, if unable to enroll, they then compete for those course offerings where travel will be necessary. Participant #1 expressed frustration with the lack of courses available in the Kootenays where he would have had to wait over one year to attend class. He opted to travel to a training provider eight hours from his home to attend each of the last three levels of technical training.

Participant #2 also had to travel to the Lower Mainland to attend his last two levels of technical training. His situation was different in that he was close enough where he could travel home for the weekends, but he admitted it was a difficult task being over four hours driving each way. He was determined to complete this travel as his wife was home with a three-year-old and a newborn child. The relief he could offer her during the weekends made it worthwhile for his family.

Participant #6 travelled from Williams Lake without any expressed issues. This illustrates that travel may be a burden for some, and often due to other extenuating circumstances, it may not be a burden for others.

As the issue of course availability is driven by training provider size and instructor availability based on apprentice population, the question becomes, what can be done to increase the course offerings in the areas where apprentices are concentrated?

When exploring this question, the first issue is to determine if there is a desire by Skilled Trades BC to do so. If Skilled Trades BC simply see the lack of course availability as part of the system, there can be no further steps taken. If there is desire to address the issue, the next, and biggest obstacle is funding. An increase in training provider size requires an influx of capital dollars for buildings, equipment, and wages for instructors to provide the training. Who provides these funds, where funds come from, and how funds are allocated are all questions where further discussion would be required.

When course availability or personal choice determine that travel becomes necessary, the issue of where they will stay when attending technical training becomes

the next issue the apprentice must overcome. Housing for these students is usually available in three forms; stay with family, if possible, rental housing in campus residence, and rental housing off campus.

What I see in campus housing is that British Columbia is playing catch up to provide more affordable housing to students. Authorities have identified the student housing shortage, and since 2019, post-secondary institutes across the province have built over 2500 new beds and are currently constructing 2333 more (Province of British Columbia, 2024). On the BCIT campus where this research took place, construction is currently underway for a 477-bed student housing building. Although institutes are playing catch up, apprentices are still struggling with housing. Participant #6 decided to stay in an off-campus Airbnb rental while attending both Levels 3 and 4, resulting in significant financial outlay. Again, this scenario is very apprentice-specific; some may have the financial resources to do this, yet for others, they simply would not be able to attend their course.

During the focus group I heard the most extreme example of a student housing issue in my 21 years at BCIT. When the group was speaking about the student housing residences, participant #1 stated “I was put on the waitlist here for six months for the student housing and I never got in. I ended up sleeping in the box in my truck for my third year here.”

To solve the student housing issue, government and stakeholders must take many sources of information into account. First, the cost of building student housing is immense. BCIT’s 12-story student residence has an initial cost of \$120 million (Gangdev, 2023). This is the cost to house 470 students each year. This is an extreme cost and with this, one must consider if using this money to offer better course availability in remote areas, therefore reducing the necessity of travel is an option.

Apprentices scheduling training on an accelerated timeline for monetary gain is the only theme where apprentices have total control of the decision without external influences within the apprenticeship system. The focus group participants were clear they purposefully accelerate their technical training timelines for monetary gain which comes in two forms. It is available to most apprentices as a “level raise”; an increase to their hourly rate of pay upon returning to work from a session of technical training and is

equated with being a Year 1, Year 2, or Year 3 apprentice. This raise is often in the two to three dollars per hour range. The other form of monetary gain occurs when they successfully complete their Red Seal Exam and receive their Red Seal endorsement certifying them as a journeyman within their trade. This results in a much larger raise, in the range of \$10-\$15 per hour.

Accelerating their training timeline for monetary gain was supported within the group by several statements. Participant #1 stated “Why would somebody want to work for 70% of a wage that they could make for taking seven weeks to finish?” and participant #3 indicated a belief that apprentices should be permitted to write their Red Seal exam with only 3000 work-based training hours; less than half or the hours required for Red Seal eligibility. Other participant statements devalue the significance of work-based training hours which is an inversely relating variable to accelerating training timelines. Two participants indicated that if they could go back in time to do it all again, they would have worked harder to accelerate their technical training timelines.

In my experience with thousands of apprentices, I have recognized there are risks to accelerating one’s training timeline. In addition to Jesse, as mentioned at the beginning of this paper, I have witnessed approximately 20 apprentices who have accelerated their training time and subsequently failed their Red Seal exam. When this happens, these apprentices are left without support from the system. Training providers do not support these apprentices as they are no longer fee-paying students, and most employers are ill-equipped to provide support at the required level.

Although the apprentice may have gained a raise of \$2-\$3 per hour for each level of training they have completed, accelerating their training timeline has prevented them from earning the higher wage for a substantial length of time. Therefore, they benefit from the raises for a shorter duration and earn less financial reward from their raise. If they fail the Red Seal exam, they miss out on the largest monetary gain of \$10-\$15 per hour, which comes with certification.

Another issue with accelerating the training timeline occurs if the apprentice passes the Red Seal exam. In this instance, they must still obtain the required work-based training hours before receiving certification. From the monetary standpoint, the employer will typically not pay the Red Seal rate of pay until the apprentice earns the

Red Seal. This situation exemplifies the risk versus reward of accelerating training timelines. If the apprentice fails, they do not get the larger raise and must go through the stress of rewriting their Red Seal Exam. If they pass, they still do not get the raise until they complete the required work-based training hours, which may take substantial time.

Within the focus group, I played devil's advocate and described the above scenario to the participants, asking them if it changes their opinion on accelerating their training timelines. They responded that if this happens, they should study harder and pass the Red Seal exam next time. Again, my experience tells me that apprentices at this point struggle immensely with determining what and how to study without the support of a technical trainer.

Many apprentices in this situation fail several times before passing the exam, and when they eventually pass, they have already accrued the required hours of work-based training. Whether they would have passed the Red Seal exam without accelerating their technical training is unknown. Yet, if they have gone considerably over their work-based training before successfully passing on their second or third attempt, waiting until they have the required hours would not have hurt them in the first place.

Currently, accelerating one's training timeline is a personal choice apprentices in British Columbia can make, yet doing so comes with risk. Discussing this point serves a purpose, but without Skilled Trades BC deciding to address this issue, it will remain a conversation. With British Columbia having the second-lowest apprentice completion rate in Canada at 46% and Skilled Trades BC's reports estimating a 36% completion rate (BC Chamber of Commerce, 2021), one could conclude that the system should do everything it can to ensure the highest number of apprentices pass the Red Seal exam.

In a focus group setting, what is not said is often as important as what is said. I found that to be true within this focus group, and based on my experience, two factors were not included in the conversation, and one factor, although stated, was disregarded. While these factors do not directly address accelerated timelines, they show apprentices do not have an in-depth understanding of the apprenticeship system they are part of. The first factor is that some participants lack understanding of the British Columbia apprenticeship system and how it compares to other provinces. Several statements made within the group show this.

Participant #3 made the statement "...of having at least more than 3000 (work-based training) hours, by the time you do your Red Seal exam, then it would make sense to allow people to do that." This statement shows that the focus group participant lacks understanding of the British Columbia system. In fact, British Columbia is the only province where regulations allow an apprentice to write their Red Seal exam before accumulating the majority, if not all, work-based training hours. All other provinces have measures to ensure apprentices perform a minimum number of work-based training hours. Participant #4 noted this when speaking about a recent encounter with an apprentice from Alberta. He discovered that in Alberta, you must complete one level of technical training before enrolling in the next level. When training providers combine this regulation with the course dates they offer, it ensures apprentices perform approximately one year of work-based training hours before attending the next level of technical training.

Other provinces in Canada require apprentices to complete all required hours before writing the Red Seal exam. On their provincial apprenticeship website (2024), Newfoundland and Labrador state that an apprentice "must have the required work experience recorded" and "have the hours signed by a journeyman mentor." As a result, all apprentices must have verified and vouched-for work-based training hours before attempting the Red Seal exam.

Another example of lack of system knowledge came from participant #3, who suggested that technical training providers should allow anyone who passes a minimum standard to enroll in apprenticeship courses, whether they are an apprentice or not.

This shows two disconnects with the system. First, educational facilities do not control who enrolls in apprentice courses. Skilled Trades BC controls these courses and contracts educational facilities, through funding, to deliver a predetermined number of cohorts per year for the apprentices within Skilled Trades BC's system. Suggesting that training providers may open apprenticeship courses to anyone shows a misunderstanding of the training system.

The second disconnect is the misunderstanding of the number of available courses for apprentices compared to the number of apprentices. Historically, there has been a lack of training seats within the trades. For example, as of April 1, 2023 (personal

communication, V. Weber), there are 1346 active apprentices within the Industrial Mechanic (Millwright) trade. BCIT offers 304 seats per year, while other training providers offer approximately 700 seats per year. This results in a seat deficit of approximately 300 seats per year. With an existing deficit in available seats, suggesting that courses be opened to anyone would only worsen the problem.

It is interesting that while speaking about accelerating their training, none of the participants mentioned the 'scope of trade,' which refers to the tasks and skills that make up a trade. For example, an Industrial Mechanic (Millwright) scope of trade includes installing, diagnosing, repairing, and maintaining a variety of machines such as pumps, steam turbines, gas turbines, conveyors, hydraulic and pneumatic systems, and many more. Where apprentices work determines their scope of trade. An apprentice working for a hydraulic company may gain all their required experience in hydraulics, but they may never see a turbine or conveyor. Exposure, or lack of exposure, to trade-related concepts at their workplace may be the most important factor influencing the quality of an apprentice's work-based training hours. Not mentioning the scope of trade may indicate a lack of understanding regarding the purpose and design of the Red Seal exam, which prioritizes evaluating apprentices' workplace knowledge of the full scope of trade. In my engagement with apprentices, I often witness those who believe that the scope of work they perform at their workplace encompasses the entire scope of trade for an Industrial Mechanic (Millwright), when, in reality, they are exposed to only a small portion of the entire scope of trade.

The focus group participants did not mention the value of work-based training hours. I prompted a discussion within the focus group about work-based training hours in response to scenarios shared by participant #4, who described New Zealand's system requiring 8400 work-based training hours and specific competency checks. When I asked participant #4 about work-based training hours and their value, he first replied, "I found in our apprenticeship, there's really only the schooling or whatever when you get to see what you know, and don't know," indicating that his work-based training hours did not provide him with feedback on his actual competency. When I asked if he would prefer the New Zealand model with competency checks and 8400 work-based training hours, he replied, 'So I'm not sure what it would look like. I would probably keep it (the hours) the same. I would just try to improve training standards.'

The only other reference to work-based training hours came from participant #3. I asked, 'So, I see a lot of heads nodding. Was that your agreement that if you advance and get the money earlier, it's that much better for you?' Within his reply, he stated, "...having at least more than 3000 hours, by the time you do your Red Seal exam, then it would make sense." In this participant's mind, compared to the 6360 work-based training hours required for certification in British Columbia, he believes apprentices need less than half to be prepared for the Red Seal exam.

In all conversations I have about the apprenticeship system, scope of trade and work-based training hours are key topics. The fact that the focus group did not mention them is unusual. This omission relates to comments dismissing the relevance of work-based training hours, which supports the opinion that accelerating training is prioritized over training quality.

Conclusion

In direct response to my research question "What factors influence apprentices' decisions to accelerate their technical training schedules within the British Columbia apprenticeship system?" I found that short-term monetary gain, course availability, and housing when traveling for technical training are the top three factors.

Short-term monetary gain is the largest single factor causing apprentices to accelerate their technical training schedules. While current policies enable apprentices to accelerate their technical training schedules, they do not mention the potential negative effects of doing so. If apprentices are given the opportunity to accelerate their training, some will do so despite the risk of failing the Red Seal exam.

Researchers should conduct a quantitative study to determine exactly how much this phenomenon affects Red Seal exam success rates by comparing accumulated work-based training hours at the time of writing the exam. This understanding could inform policy decisions if desired.

Although course availability and student housing may influence apprentices to accelerate their technical training, the issue is complex and cannot be solved by a single

policy change or by training providers alone. Stakeholders must collaborate at a high level to develop effective policies addressing these issues.

The focus group omitted any conversation about the scope of trade and expressed a desire to reduce work-based training hours. This suggests that apprentices within the system may devalue both aspects, driven by the sometimes-flawed desire to accelerate training for monetary benefit. Apprentices' devaluation of the scope of trade and work-based training hours reflects longstanding government policy, which has been in place for 21 years, longer than some apprentices have been alive. Because these policies do not emphasize the need for employers to provide a broad scope of trade and allow for accelerated training timelines, it is not surprising that apprentices' views have come to align with policy. Another effect of devaluing work-based hours and the scope of trade is that apprentices increasingly rely on technical training providers to learn the concepts and context needed to pass the Red Seal exam.

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