SUPPORTING APPRENTICES WITH LEARNING DISABILITIES & DIFFERENCES

Executive Summary

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INNOVATION • EXPERIMENTATION • EVALUATION

Project Overview

The Supporting Apprentices with Learning Disabilities initiative was a collaboration between SkillPlan and the Social Research and Demonstration Corporation (SRDC), partially funded by the Government of Canada's Skills for Success program.

This project aimed to explore, develop, and evaluate support systems for pre-apprentices and apprentices facing learning disabilities and differences.

The project's objectives were to:

- Research and design a support model
- Integrate screening tools and provide supports in tutoring and technical training
- Expand and enhance training and support through professional development
- Evaluate the support model, including the integration of tools across SkillPlan supports and technology platform

Why was this project needed?

The construction industry is a major driver of the Canadian economy, where employment exceeded 1.5 million people in 2023 and accounted for seven percent of Canada's gross domestic product.[1] According to BuildForce Canada's construction sector forecast for 2024 to 2033, changing demographics and rising demand will contribute to skilled labour shortages at unprecedented levels.

Learning disabilities impact at least ten percent of the population and research suggests that this is higher among apprentices.[2]

A more structured approach to identifying and supporting apprentices with learning disabilities is essential to improve completion rates and address industry needs.

What are learning disabilities and learning differences?

Learning disabilities are "specific [differences] in an individual's ability to perceive or process information".[3]

They affect the learning of foundational academic skills in reading, writing, mathematics.

They often co-occur with conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD), a separate neurodevelopmental condition. According to the Canadian Survey on Disability, nearly a quarter of all youth with disabilities had both learning disabilities and mental health-related disabilities.[4]

This report references both learning disabilities and learning differences, acknowledging that not everyone has a formal diagnosis, while emphasizing a continuum of challenges that may also impact learning, such as mental health challenges.

What was the support model?

With the goal of supporting successful outcomes in the skilled trades, SkillPlan developed a support model informed by industry and subject matter experts across Canada. The initial project phase included a comprehensive needs analysis led by SRDC to understand the current landscape, challenges, and opportunities for support. Building on these research insights, the project team developed the initial concept of the support model and tools for pilot testing.

The support model was developed and designed to identify diverse needs of learners, but not dependent on a medical diagnosis of a learning disability or a lengthy "assessment-first" approach. The support model also emphasized an environment where individual learning supports and accommodations were explored and implemented in a learner-centered way, while building the capacity of instructors and tutors to support learning disabilities/differences and apply Universal Design for Learning (UDL) grounded strategies for educational design.

Key components of the model were the following:

Professional Development: a training course and resources were developed for skilled trades instructors and tutors, including guidance for conducting an intake or exit interview with learners; reviewing essential skills assessment results; accommodations fact sheets; and support for administering learning support tools.

Intake Tools: building on promising practices identified in the needs analysis, intake tools were developed, including a questionnaire and a screening tool for learning disabilities/differences and learner consents. Following intake (including interviews to review learner histories) an instructor summary document and classroom accommodations summary supported the implementation of learner-centered supports and strategies in class or tutoring contexts.

What is Universal Design for Learning?

Universal Design for Learning (UDL) promotes universal access and participation in learning and was developed and championed by CAST (originally the Center for Applied Special Technology), a non-profit education research and development organization.

UDL is based on cognitive principles, grounded in neuroanatomy, and three broad stages of learning engagement, representation, and action and expression.[5]

Research consistently demonstrates the benefits of UDL to address learner variability including learning disabilities/differences by removing barriers and by providing flexibility, autonomy, and choice through multiple means of engagement, representation, and action and expression.[6]

Taking a proactive, universal approach to educational design also reduces the need for a formal diagnosis of a learning disability and removes the pressure for apprentices to self-identify so they can access supports.[7]

In UDL, the goal is to support "expert learners" who are resourceful, purposeful and motivated in their education or training
journey.

Pre- and Post- Skills for Success Assessment: trades-contextualized assessments of essential skills (i.e., reading, document use, and numeracy), were administered prior to training and following training. Patterns of assessment responses were reviewed to identify potential learning disabilities or differences, for example, time spent on a question, or patterns of unanswered or incorrect answers where response values were unrealistically too high or too low.

Accommodations and Supports: accommodations and supports were made available both in the classroom and in assessment (exam) settings. Many universal supports were made available to all learners (e.g., glossaries, peer support, calculators, sample problems, and instructor check-ins). In addition, an extensive list of individualized supports was made available on an as-needed basis. These included tutoring, text-to-speech devices, customized worksheets (e.g., with keywords, enlarged font, extra space), computers, highlighter strips, math manipulatives, and fidget tools. A range of other adjustments (e.g., simplified instructions, extra time, preferential seating, etc.) were also provided. Instructors received a summary of accommodations and supports for each cohort, and these were reflected in student success and transition plans.

I**nstructor/Tutor and Learner Resources:** additional supports offered to all learners (i.e., pre-apprentices, apprentices in training, apprentices between levels, and apprentices preparing for provincially administered exams), included tutoring supports (virtual or in-person tutoring), as well as additional resources in the Build Your Skills Learning Hub.

A key feature of the support model was to allow for individual tools to be adapted according to different delivery contexts (e.g., short or longer deliveries, within tutoring contexts, by other training providers/partners, or online). The focus was on the realities of trades training and an emphasis on learner-centered supports, acknowledging that not all tools needed to be used in each context, but that there should be resources to support implementation.

Evaluation Approach and Findings

Following the initial design, development and testing of the support model, SRDC and SkillPlan collaboratively reviewed initial outcomes, and an accessibility expert assessed and validated support resources and tools. Refinements were made based on feedback from instructors, learners, and partners. The support model was then delivered during SkillPlan pre-apprenticeship training short (1-2 week) and long (8-week) deliveries and in apprenticeship tutoring contexts (e.g., during technical training or preparing for a certification exam). During this phase, the evaluation aimed to address the following questions:

- **Design and delivery:** What is effective in the design and what did it take to implement the model?
- **Learner outcomes:** What were the benefits and changes experienced by learners?
- **Instructor, tutor and stakeholder outcomes:** How did instructors/tutors benefit and what is the value to other partners and stakeholders?

Methods for continuous data collection and monitoring (both quantitative and qualitative) included:

- Proof-of-concept surveys, learner surveys for different delivery contexts (i.e., tutoring contexts, long-format courses, and short-format courses), instructor/tutor surveys (in person, online)
- Observation, checklists, and program monitoring tools
- Program administrative data and skills assessments
- Learner interviews, focus groups with instructors and tutors, reflection sessions with the project team and instructors, and partner interviews

The final phase of the project consisted of analyzing and synthesizing findings from all project phases for dissemination of key findings, lessons learned, and overall recommendations. This final phase also focused on refining and finalizing the technology system, tools, resources, and supports on SkillPlan's Build Your Skills Learning Hub. These enhancements aimed to ensure that the support model not only met the goals of the project but also provided the ongoing delivery of resources and tools for SkillPlan and its partners across the construction industry.

Design and delivery findings

Screening and Learner Support

- A total of 1,459 pre-apprentices and apprentices were screened and provided with instruction and tutoring supports.
- Tutors and instructors delivering these supports received professional development on learning disabilities/differences and Universal Design for Learning (UDL).

Learner Demographics

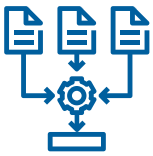
- Survey data indicated diverse backgrounds among learners:
  - 63% had no post-secondary education.
  - 49% identified as Indigenous.
  - 27% identified as racialized.
  - 26% identified as women.
- 71% of survey respondents reported having at least one learning disability or difference.

Trainer Professional Development

- In-person training was completed by 40 technical trainers.
- Online professional development was completed by over 60 trainers from across Canada, with ongoing offerings.
- Trainers had varied experience:
  - 45% had less than five years in their role.
  - 45% had six years or more in their role.

Partner and Stakeholder Engagement

- Partners and stakeholders were engaged through webinars that provided a project overview and awareness training on learning disabilities/differences.
- Presentations to partners included lessons learned on support model design, delivery, and outcomes.



Model Flexibility and Effective Communication

- The support model featured flexibility, allowing it to be tailored to individual partner needs and contexts.
- Early and proactive communication with partners and stakeholders about the project, its goals, and tool implementation was beneficial.
- Personalizing engagement for learners, partners, and unions was critical for achieving buy-in and creating conditions for success.

Learner outcomes

Across various survey measures, 86 percent of learners indicated that they had access to in-class learning tools (e.g., formula sheets, conversion sheets or cards, highlighters and highlighter strips) and supports (e.g., tutoring, exam accommodations). In long-format training, 78 percent of learners rated the tools and supports provided as "quite" or "extremely" useful. For example, tutoring support and learning tools, such as text-to-speech-audio, calculators, highlighter strips, were rated as quite/extremely useful by 91 percent and 85 percent of learners who used these supports, respectively.

In interviews, learners highlighted the benefits of a supportive learning environment where they felt both instructors and SkillPlan as an organization were genuinely invested in their success. One learner contrasted this with past classroom experiences, where they were often left to “figure it out” on their own. By comparison, they noted help was readily available whenever needed, fostering a sense of encouragement and accessibility that had been missing in previous learning experiences.

In long deliveries, learners were also asked to reflect on their experiences with UDL-grounded strategies and supports, reflecting multiple means of representation, engagement, and action/expression. Across measures, 80 percent agreed that they frequently encountered various UDL-focused learning activities i.e., “often” to “always” and 91 percent agreed that UDL-grounded strategies and supports were offered.

> *“It was a lot more helpful this time around than it was in high school. Whereas in high school I was just told, you know, figure it out. It'll come to you when it comes to you. Just take your time on it. Whereas here it was like if I needed the help, it was there. And I wasn't just told you'll figure it out when you figure it out.”*
>
> (Learner interview)

Across all delivery formats 79 percent of learners agreed with statements that reflected a strong self-awareness of their learning strengths and needs. For in-class deliveries, 70 percent of learners also agreed with statements that reflected various aspects of their self-efficacy, including growing confidence to advocate for their needs by asking for help.

A sense of belonging is crucial for a learner’s success and continuation in the trades because it directly impacts their motivation, confidence, and persistence. When learners feel accepted, valued, and supported in their environment, they are more likely to stay engaged and overcome barriers along their apprenticeship journey. Across all deliveries, 90 percent of learners agreed with statements that measured their sense of belonging in the trades. Additionally, 94 percent said they were “likely” or “very likely” to continue in their apprenticeship journey. In interviews, learners conveyed a strong sense of pride in their learning achievements and optimism in continuing their training. They expressed newfound confidence in skills required for their trades (e.g., algebra, applied concepts) and a sense of optimism for their future careers.

Instructor, tutor, stakeholder outcomes

After professional development training, 89 percent of instructors, tutors, and other stakeholders rated their awareness of learning disabilities at a high level, with an average rating of 8 out of 10. Additionally, 95 percent reported feeling well-prepared to support learners with disabilities and differences, with 97 percent prepared to adapt their instruction to meet diverse learning needs. Stakeholders also emphasized the benefits of professional development and saw opportunities to train senior leadership, industry training authorities, and administrators on learning disabilities and differences.

Post-training, professional development participants also reported high levels of confidence in addressing and supporting learning disabilities and differences.

Overall, 87 percent agreed or strongly agreed that they felt confident, with high levels of agreement on their ability to support learners, handle questions, and offer tailored learning strategies and supports. Following training, 92 percent of participants expressed interest (i.e., agree or strongly agree) in learning more about UDL, and 95 percent felt motivated to apply UDL strategies in their training.

> *"This should be presented to everyone to build knowledge and understanding around learning disabilities. If there are ways to help people understand that these are differences in our brains, not something they are making up."*
>
> (Stakeholder survey respondent)

Lessons Learned

Partners and other stakeholders emphasized the unique expertise SkillPlan brought to the support model, combining an understanding of inclusive and accessible education with the industry and trades expertise to make it relevant for apprenticeship training.

A flexible, trades-contextualized support model

One of the unique strengths of the support model is that it is both flexible and responsive to indivdual and situational needs of learners that vary widely within a trades training context, without the need for a diagnosis or assessment of a learning disability. The approach emphasized the importance of adaptable supports to align to different partners and the realities of both the classroom and on-the-job, while maintaining essential skills requirements. By having both the subject matter expertise in the construction trades, combined with a deep understanding of learning disabilities/differences and UDL principles and supports, SkillPlan's dual expertise was recognized by partners as both rare and highly valued.

Empowering expert learners

The support model created a more flexible, collaborative, and supportive learning environment, operationalizing UDL principles in a variety of contexts and with specific use of tools and adjustments (e.g., math manipulatives, graph paper, formula sheets, Build Your Skills Learning Hub, and other teaching strategies). By integrating UDL and learning disability supports intentionally with technical training, the support model ensured that pre- apprentices and apprentices experienced the conditions to more deeply engage with their learning and succeed.

Across the various delivery contexts (i.e., short deliveries, long deliveries, and in tutoring contexts), the support model achieved its objectives across measures of awareness, self-awareness, self-efficacy and sense of belonging in the trades. Pre-apprentices and apprentices noted that they had access to learning supports, thus increasing their overall awareness of them within a trades training context. Overall, these supports were valued by learners who rated them as useful or highly useful. Both qualitative and quantitative findings also pointed to increased confidence among learners, including strong essential skills, indicating the promise of the support model in contributing to skills gains in apprenticeship training.

Empowering inclusive trainers

The project's professional development training (in-person and online), resources, and supports provided trainers with practical tools to better understand learning disabilities/differences and apply UDL principles. Trainers indicated they felt more prepared to support apprentices with learning disabilities/differences, adapt their instruction to diverse needs, and confidently provide appropriate learning adjustments and resources. Additionally, trainers reported feeling highly motivated to implement UDL principles and approaches in their training.

Systems change

Findings emphasize that implementing UDL strategies and learning disability supports is not the sole responsibility of individual instructors or tutors. Key challenges included limited time and organizational resources for adapting training, inconsistent accommodation practices from training authorities, and persistent stigma in trades workplaces. Professional development must go hand-in-hand with broader systemic change and a strong commitment to accessibility and inclusion. Project findings point to the importance of continuing to build awareness on learning disabilities/differences, coordinate support, and design for inclusion across the apprenticeship system.

Future research

With promising results, there is an opportunity to scale and extend the support model, which could also include trades employers and in on-the-job learning contexts. While the project focused primarily on in-class and tutoring contexts, the transition of these inclusive learning strategies to the workplace remains largely unexamined. This represents a promising avenue for future research with the potential to enhance outcomes for both pre- apprentices and apprentices in Canada.

Future research could identify practical ways for employers to adopt the support model, such as incorporating flexible training methods, developing accessible tools and resources, and creating policies that normalize and support accommodations. Studies should also examine the challenges and barriers employers face in implementing these practices, offering insights into the resources, training, and systems change required to make the support model viable in workplace settings. By bridging the gap between classroom and on-the-job learning, this research could not only enhance learning outcomes for apprentices but also contribute to broader changes in apprenticeship training to promote accessibility and inclusion for all.

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Project Partners

SkillPlan is a nationally recognized leader in workforce development programming, committed to building the workforce of today and tomorrow. Their diverse group of experts build strong partnerships with unions, contractors, training providers, government and other organizations to create workforce solutions for industry.

The **Social Research and Demonstration Corporation** (SRDC) is a non-profit research organization created specifically to develop, field test, and rigorously evaluate new programs. Their mission is to help policymakers and practitioners identify policies and programs that improve the well-being of all Canadians, with a special concern for the effects on the disadvantaged, and to raise the standards of evidence that are used in assessing these policies.

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1-866-896-7732
info@srdc.org | www.srdc.org