Learning Brief for “Shockproofing Post-Secondary: Digital Transformation in Applied Learning”

SRDC’s Learning Support for Future Skills Projects

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INTRODUCTION

Through a number of thematic calls for proposals, the Future Skills Centre (FSC) has supported the development, refinement, or expansion of approaches to develop skills for workers from a variety of backgrounds and in a variety of sectors and regions. These projects identify emerging and in-demand skills, and test new methods of training delivery. The insights that come from these projects will help inform governments, the private sector, labour, educational training institutions, non-profits, and academics on the broader adoption of novel approaches to training and skills development. Furthermore, the projects are required to mobilize knowledge and evidence among key stakeholders, institutions, and decision-makers for the purposes of improving policies and practices in Canada. FSC has engaged SRDC to support this process by developing and then implementing a customized learning support plan for each of several projects, based on past activities and current status.

This document presents the learning brief for Shockproofing Post-Secondary: Digital Transformation in Applied Learning, a project delivered by Saskatchewan Polytechnic, running from March 2021 to March 2023. Saskatchewan Polytechnic is a post-secondary institution with campuses in Saskatoon, Moose Jaw, Regina, and Prince Albert. Shockproofing Post-Secondary focuses mainly on Saskatchewan Polytechnic's online education programming associated with the Information & Technology, Agriculture & Food Chain Supply, Health Care, Manufacturing and Warehousing sectors. See Appendix B for a project Theory of Change.

Saskatchewan Polytechnic sees Shockproofing Post-Secondary as an evolution of other similar projects they have implemented, notably, their ESDC-funded Flexibility in Innovation and Apprenticeship Technical Training (FIATT) project. FIATT reduced in-class training time for apprenticeships by providing online training prior to in-class sessions. Also similar to Shockproofing Post-Secondary, FIATT offered apprenticeship programming for free, removing financial barriers to students.

Saskatchewan Polytechnic developed and implemented the Shockproofing Post-Secondary project – one of many funded by the Future Skills Centre as part of a larger strategy to address the need for shock-proofing the future of work–with a particular focus on vulnerable populations in the Canadian workforce.

SRDC began its research on the project by reviewing all the available documentation related to the project, including the proposal, quarterly and annual reports, project information sheet prepared by FSC, work plan, and learning reflection. Using a standardized template, SRDC worked collaboratively with both FSC and Saskatchewan Polytechnic to develop learning questions related to each of the four learning stages of the project: discovery, defining,

designing, and testing (See Appendix A). We then worked through a process to answer each of the questions. Beyond analysis of these documents, SRDC completed an interview with the Saskatchewan Polytechnic lead in September 2023. Finally, SRDC shared and discussed with Saskatchewan Polytechnic the findings to ensure their accuracy and appropriateness.

This learning brief presents a synthesis of the answers to the questions posed in the learning support plan. For each of the four stages the project engaged in, this document presents what the project has achieved, lessons learned, and recommendations with respect to future evidence generation that the FSC can utilize, filter, and distill for its ongoing dissemination projects.

OBJECTIVES

Shockproofing Post-Secondary aimed to enhance Saskatchewan Polytechnic's online education model through an interactive, social and applied learning experience. See Appendix B for a project Theory of Change. More specifically, the project aimed to connect underemployed and under-represented groups to new training and education opportunities by:

- Improving student course completion and satisfaction;
- Increasing digital skills and adaptability;
- Removing barriers and increasing accessibility
- Improving employer engagement;
- Sharing project model and results;
- Providing wrap-around supports to students and faculty;
- Engaging learners with adaptable, interactive, learning experiences;
- Providing opportunities to experience lifelong learning skills;
- Promoting equity, diversity, and inclusion.

DISCOVERY PHASE

SUMMARY OF THE DISCOVERY PHASE

In this section, we review the approach the project used to obtain and include the needs of its target population.

Through previous programming of a similar nature (i.e., FIATT), Saskatchewan Polytechnic has learned that online training can be incorporated into applied learning in an engaging and effective way. Further, as underrepresented groups including women, Indigenous peoples, newcomers, and people with disabilities are disproportionately marginalized in the labour market, they may require more flexible training options. Shockproofing Post-Secondary targeted these groups in particular to provide online programming that is suitable for a diverse array of students, including those requiring accessibility accommodations.

Saskatchewan Polytechnic established partnerships with several regional organizations including Saskatchewan Apprenticeship, Saskatchewan Construction Safety Association, Agricultural Implement Dealers Association, Saskatchewan Automotive Dealers Association, Saskatchewan provincial care homes, local non-profit organizations, and local employers. These partnerships supported Saskatchewan Polytechnic with both recruitment initiatives and providing student placements. Further, Saskatchewan Polytechnic shared their project findings (i.e., online learning best practices) with relevant organizations including Polytechnics Canada, Colleges and Institutes Canada (CICan), CERIC, and the Canadian Apprenticeships Forum.

What worked, what didn't, and why?

Saskatchewan Polytechnic has a long history of online learning. Specifically, the parts person program has been available online for almost 20 years. Since moving this program online, Saskatchewan Polytechnic has noted the following benefits to the program:

- Student grades have increased;
- Students have benefited from reduced financial barriers (i.e., being able to study at home);
- The diversity of cohorts has increased, including an increase in underrepresented groups;
- Students are able to enroll from all across Canada;
- Students are more able to share information between each other and faculty;

- Interactions with industry are more accessible;
- There has been a measured increase in Essential Skills;
- There is increased access to student supports.

Saskatchewan Polytechnic used the best practices framework they had developed with their online education to build engaging and interactive content as part of the Shockproofing Post-Secondary project. They note that their online programming has been evolving quickly over the past few years in particular, due to the need for alternative training formats necessitated by COVID-19. Saskatchewan Polytechnic also noted that online training enrollment actually increased during the COVID-19 pandemic.

DEFINING PHASE

SUMMARY OF THE DEFINING PHASE

Defining the main intervention and how to reach the target populations is crucial for the successful design and implementation of any project. It is also important to identify critical barriers and enablers to support the expected change. In this project, the main intervention was designing and delivering online programming to students at no cost to them.

Shockproofing Post-Secondary aimed to digitally support learners through the full cycle of education, from career and education planning through to professional development and retraining. To do so, Saskatchewan Polytechnic offered online programming appropriate for a diverse range of learners tuition free.

Shockproofing Post-Secondary funded seven programs at Saskatchewan Polytechnic, outlined in Table 1.

Table 1 Shockproofing Post-Secondary: Program offerings

Name of program	Outcome	Format	Enrollment (2022)
Agricultural Equipment Technician	▪ Certificate ▪ Levels 1 and 2 apprenticeship	Hybrid (virtual and in-person)	15
Auto Body Technician	▪ Certificate	Hybrid (virtual and in-person)	14

	▪ Levels 1 and 2 apprenticeship		
Carpentry	▪ Applied Certificate ▪ Level 1 apprenticeship	Hybrid (virtual and in-person)	42
Continuing Care Assistant	▪ Certificate	Hybrid (virtual and in-person)	38
Parts Person	▪ Applied Certificate	Online	28
Warehouse worker	▪ Certificate of Achievement	Hybrid (virtual and in-person)	130
Website design	▪ Applied certificate	Online	25

Source: Saskatchewan Polytechnic annual and quarterly reports (2022)

To assist with recruitment, Saskatchewan Polytechnic hosted information sessions for both prospective students and organizational partners. In 2021, there were 150 student participants and 300 organizational participants in these information sessions. Saskatchewan Polytechnic also advertised in print, on social media, and on their website.

In addition to programming outlined in Table 1, Saskatchewan Polytechnic also offered two exploratory workshops in 2022. They offered these in partnership with Women in Trades and Technology (WITT) to give women, youth, and other underrepresented groups an opportunity to explore multiple trade areas. Combined, these workshops had a total of 124 participants.

What worked, what didn't, and why?

Saskatchewan Polytechnic noted that offering fully funded programming removed financial barriers for students. They shared that many students reported that they would not otherwise have the means to participate in this programming.

Saskatchewan Polytechnic also found that working with local organizations was effective for recruitment, specifically in targeting underrepresented groups. Saskatchewan Polytechnic worked with Open Door Saskatoon, Radius Community Centre, and the Saskatoon Tribal Council to target specific equity deserving groups served by these organizations.

Shockproofing Post-Secondary was successful in its recruitment efforts, finding that there was such high demand for the project that they were not able to provide programming to all interested participants. Saskatchewan Polytechnic suggested that additional funding may be necessary to meet this high demand.

DESIGNING PHASE

SUMMARY OF THE DESIGNING PHASE

In developing the programming, Saskatchewan Polytechnic recruited faculty from across Canada. They also consulted with organizational partners regarding recruitment and training to support curriculum development.

Saskatchewan Polytechnic consulted with subject matter experts (SMEs) and 25 online curriculum developers to develop and deliver content. These developers collaborated with SMEs to build interactive online content for diverse students.

Saskatchewan Polytechnic also provided additional wraparound supports to better assist students. Further, Saskatchewan Polytechnic consulted with two Indigenous faculty members, who vetted curriculum content and ensured its appropriateness for Indigenous students. Finally, Saskatchewan Polytechnic facilitated program accessibility by using universal design principles, such as closed captioning on videos, providing transcripts, screen reader options, and providing accommodation equipment to students at no cost.

In their project rationale, Saskatchewan Polytechnic suggested that in-person education usually had quite low engagement, with a relatively low proportion of students in a given classroom actually engaging with the content. In contrast, they suggested that if online learning is designed and delivered appropriately, it has the potential to engage with all students. In particular, online learning can be better adapted to accommodate those with differing abilities.

In contrast to students only engaging with course content, Saskatchewan Polytechnic encouraged student engagement in their programming in multiple ways:

- With course content
- With instructors
- With other students
- With business and industry
- With wraparound institutional and community services

Saskatchewan Polytechnic focused on building engaging courses with lots of visual media to best target underrepresented groups. For example, Saskatchewan Polytechnic filmed and shared 360

degree, interactive videos of workshops relevant to each program. They reported that without FSC funding, they would not have had the capacity to build such learning tools.

What worked, what didn't, and why?

Saskatchewan Polytechnic noted that adaptations were required for existing programming to offer more engaging online learning. For example, the existing web design online program was adapted to offer the program asynchronously, making it more flexible for students. FSC funding allowed these existing programs to expand and build more interactive and engaging online content. Saskatchewan Polytechnic also found that keeping content engaging meant keeping videos relatively short (3-5 minutes maximum) and providing interactive activities.

Saskatchewan Polytechnic noted that generally, there are not enough counseling supports for post-secondary students at their institutions due to limited funding. However, they found that providing additional supports and accommodations within online programming helped to reduce the workload for counselors as students did not need as many outside supports.

Saskatchewan Polytechnic suggested that they could make a minor refinement to course timelines. They felt that shorter programming that does not need to run through the summer months may be beneficial, as summer programming could be difficult due to less support on campus at this time.

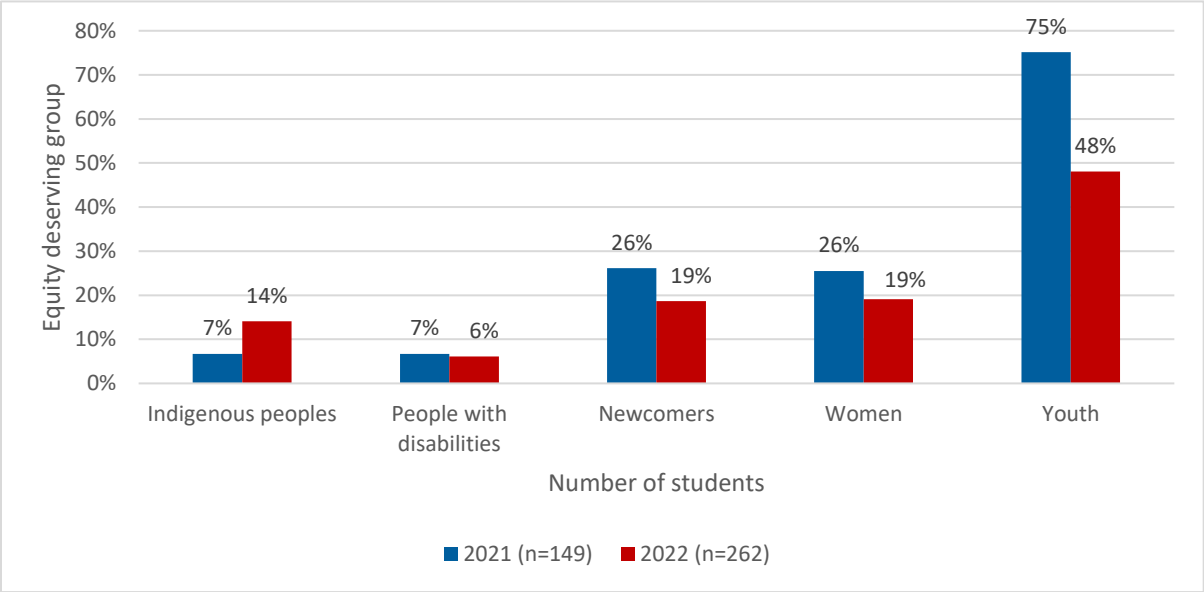
Saskatchewan Polytechnic also suggested that engaging with outside organizations and industry to develop courses was important. This was in order to determine what training is required to help the workforce adjust to changing industries, as well as supporting employers to stay ahead of technology and skill advancement.

TESTING PHASE

SUMMARY OF TESTING PHASE

The questions related to the testing phase focused initially on the extent to which this project helped Saskatchewan Polytechnic achieve its goals of offering engaging online programming to a diverse array of students. Saskatchewan Polytechnic aimed to demonstrate that a diverse group of students could learn effectively through online programming as opposed to solely in-person formats.

Figure 1 Shockproofing Post-Secondary programming registration by equity deserving group



Source: Compiled by SRDC based on Saskatchewan Polytechnic's annual FSC reports.

As shown in Figure 1, Shockproofing Post-Secondary was able to target multiple equity deserving groups including people with disabilities, women, newcomers, youth and Indigenous peoples. Enrollment for both 2021 (n=149) and 2022 (n=262) showed a sizable proportion of students identifying with most of these groups.

In addition to the enrollment data in Table 1, Saskatchewan Polytechnic reported that they intended to collect the following data:

- Student interactions with online materials
- Program completion
- Participant satisfaction
- Self-assessment of student skills

However, the above data was not available in Saskatchewan Polytechnic's documentation. During an interview, Saskatchewan Polytechnic did state that they had received good feedback from both faculty and students on course programming.

What worked, what didn't, and why?

Saskatchewan Polytechnic noted that most feedback from both students and faculty was very positive. Students valued the free tuition, noting that it was an opportunity they would not have had otherwise. Students also benefited from the flexibility allowed by asynchronous online learning. They were able to work through programming on their own time, as well as have the ability to go back and review content multiple times as needed.

Saskatchewan Polytechnic suggested that more flexibility with budgeting would be beneficial. For example, if they did not use all the budget for salary, they would like to be able to use it on something else as needed.

SUMMARY OF PROJECT LEARNING

Meeting original objectives

As set out above, the key objective for the project was to **design and deliver interactive and engaging online content to a diverse array of students at no cost to them**.

The project **met its key objective** by offering seven programs as part of the Shockproofing Post-Secondary initiative.

SRDC was unable to assess some of the project objectives due to unavailable participant data. Therefore, SRDC cannot draw conclusions at the present time with respect to the success of the following project objectives:

- **Improving** student course completion and satisfaction;
- **Increasing** digital skills and adaptability.

SRDC is not implying that the project was unsuccessful in meeting the above objectives. From assessments of project documentation, it is clear that Saskatchewan Polytechnic continued to keep the above objectives in mind when designing and implementing the project.

SRDC considered each of the remaining objectives in turn:

- **Removing** barriers and increasing accessibility.

Saskatchewan Polytechnic was **successful** in this objective. By offering more content online, they were able to implement accessibility accommodations. Further, they removed financial barriers by offering programming tuition free.

- **Improving** employer engagement.

Saskatchewan Polytechnic was **successful** in this objective. They partnered with multiple organizations to assist with recruitment initiatives and student placements.

- **Sharing** project model and results.

Saskatchewan Polytechnic was **successful** in this objective, sharing findings with Polytechnics Canada, CICan, CERIC, and the Canadian Apprenticeships Forum.

- **Providing** wrap-around supports to students and faculty.

Saskatchewan Polytechnic was **successful** in this objective. Additionally, providing improved accommodations within online programming reduced the need for external supports.

- **Engaging** learners with adaptable, interactive learning experiences.

Saskatchewan Polytechnic was **successful** in this objective, noting positive feedback from both students and faculty.

- **Providing** opportunities to experience lifelong learning skills.

Saskatchewan Polytechnic was **successful** in this objective by removing barriers for students to participate in its programming.

- **Promoting** equity, diversity, and inclusion.

Saskatchewan Polytechnic was **successful** in this objective, specifically through its partnership with relevant organizations targeting underrepresented groups.

Practices that seemed effective

Firstly, Saskatchewan Polytechnic found that collaboration was key in building and delivering content. This includes both collaboration with organizations to support in student recruitment and placement, as well as collaboration between SMEs and online curriculum developers to develop and deliver content.

Secondly, removing barriers for students was important to improve their participation and engagement with programming. This includes both financial barriers as well as learning barriers requiring accessibility accommodations.

Finally, providing ample opportunities for engagement as a part of online programming was essential for student engagement and interaction with content. Engaging not only with content, but with the instructor, each other, industry and wraparound supports enhanced student experience.

Practices to revise

Firstly, Saskatchewan Polytechnic found that they did not have the capacity to meet student demand for Shockproofing Post-Secondary programming. They suggested that increasing funding would be beneficial in helping meet this high demand.

Secondly, Saskatchewan Polytechnic noted that in the future they may refine course timelines to better coincide with when support is available during the academic year.

IMPLICATIONS FOR THOSE WORKING IN THIS AREA IN THE FUTURE

- Online learning can be very effective in applied fields (e.g., the trades) if it is developed and delivered appropriately;
- Partnerships are key in online curriculum development, particularly collaboration between subject matter experts (for content) and online developers (for delivery).

APPENDIX A: LEARNING SUPPORT PLAN

The Learning Support Plan structured questions according to the learning stages the project included. There could be up to five learning stages:

- **Discovery** with a focus on understanding the issues and/or needs (FSC Innovation Stage: Needs Assessment)

  This includes approaches intended to gain real insights into the lived experiences of the target population and to build an understanding of the opportunity space prior to designing skills interventions.

- **Defining** with a focus on project rationale and/or how to address the issue (FSC Innovation Stage: Concept Generation)

  This includes approaches intended to frame the opportunity(ies) identified (e.g., as a result of a prior discovery) for changing future outcomes, define target population and/or outcomes, and determine the most critical barriers and enablers to supporting change.

- **Designing** with a focus on program logic/design or "bringing the concept to life" (FSC Innovation Stage: Research/design/prototype)

  This includes approaches intended to develop solutions: setting out how to prototype potential solutions and validate these with those in the target population.

- **Testing** with a focus on initial delivery (FSC Innovation Stage: Delivery and Iteration)

  This includes approaches intended to be used to test solutions or otherwise support collective ability across the ecosystem to learn what works, adapt and refine.

- **Scaling** with a focus on scale and spread (FSC Innovation Stages: Scaling and Sustainable Scaling)

This includes approaches intended to increase the support for and/or adoption of known solutions or that would assist in identifying and persuading public and/or private funders and/or partners to dedicate their resources to increase the reach and/or impact of known interventions.

SRDC concluded that the Shockproofing Post-Secondary project included four learning stages: discovery, defining, designing, and testing.

			Possible information sources				
Learning Stage	**Learning and Gapfilling Questions**	**Is more information required?**	**Documentation**	**Project Lead**	**Participants**	**Project Partners**	**Other Stakeholders**
Discovery	How was the need or rationale for this project defined? What evidence or information was used to identify the nature and extent of the need/issue/problem, and how thorough, credible, and transferable is it? To what extent does the project meet an identified need or take advantage of a specific opportunity? How does this project build upon previous projects?	Yes. What sources of information or knowledge was gathered to identify and/or understand the needs and issues (i.e., literature reviews, environmental scans)? What previous projects were used as examples? What are the enhancements or innovations from these projects? How were they selected?	Proposal and Theory of Change	Interview		Interviews with project dept. heads and/or instructors	
	Additional/Gapfilling Questions						

			Possible information sources				
Learning Stage	**Learning and Gapfilling Questions**	**Is more information required?**	**Documentation**	**Project Lead**	**Participants**	**Project Partners**	**Other Stakeholders**
Discovery	What kind of UDL practices were implemented?	Yes. The components of UDL (Universal Design for Learning) that were implemented are not clear. What kinds of UDL practices were implemented (i.e., closed captions, regular feedback, assignment options)?	Annual Report	Interview	Interviews, focus groups, survey	Interviews with program dept. heads and/or instructors	
Discovery	How is the model of the project different from other models of online learning?	Yes. The proposal is to take the current "unique" model of online learning and expand its use for disadvantaged students. How is this program different from other online programs and what makes it especially unique?	Proposal	Interview		Interviews with program dept. heads and/or instructors	

Learning Stage	Learning and Gapfilling Questions	Is more information required?	Possible information sources: Documentation	Project Lead	Participants	Project Partners	Other Stakeholders
Defining	Of the target population, who was prioritized, and what specific needs was this project designed to address?	Yes. It is unclear how the project supported, engaged or connected with underrepresented students in a way that was different from how they deliver online programming to the general student body.	Annual report	Interview	Interviews, focus groups, survey		
Defining	The ultimate goal or vision of the project—what is it, and how is the intervention or program intended to help achieve it? Does the vision (and the project) advance equity and social justice in a meaningful way, or what structural disadvantage does it address/have potential to address?	Yes. What components of the project were key to promoting access, work exposure, informed career choices and skills? What specific structural disadvantages faced by underrepresented groups can be met through this online training model?	Proposal and Annual report	Interview			
	Additional/Gapfilling Questions						

Learning Stage	Learning and Gapfilling Questions	Is more information required?	Possible information sources: Documentation	Project Lead	Participants	Project Partners	Other Stakeholders
Defining	What courses or components of the program were provided and/or delivered to the students?	Yes. It would be good to get a list of all the course offerings by date.	Annual report	Interview		Interviews with program dept. heads and/or instructors	
Design	Engaging stakeholders and community members in design of the program and the overall project—whose voices have been included or are missing? How have different perspectives been reconciled, and to what effect?	Yes. It would be useful to see survey results from baseline and follow-up.	Annual report				
Additional/Gapfilling Questions							
Design	As the project is demand-led and sector-specific as it targets the trades sector, how were the needs of each trade/employer identified? How was the experience of potential participants identified	Yes. What kinds of information were gathered from employers to understand their ongoing needs? After understanding employers' needs, what was done to	Proposal and annual report	Interview			Interview with employers

Learning Stage	Learning and Gapfilling Questions	Is more information required?	Possible information sources				
			Documentation	Project Lead	Participants	Project Partners	Other Stakeholders
	(e.g., education level, years of work experience, Canadian work experience)?	support students to strengthen their skills?					
Testing	What does successful implementation look like for this project? What changes have been made to address challenges with program delivery?	Yes. What have been the challenges and lessons learned from staff perspectives? Have there been any implementation changes made to the program that was different from the original design?	Proposal	Interview			
Testing	How did the program engage and recruit participants for this program, and optimize their participation?	Yes. How was recruitment conducted? How does the project specifically target underrepresented groups versus the general student body? The proposal indicated that students across Canada could participate in the program; however, the	Annual report and quarterly report	Interview			

Learning Stage	Learning and Gapfilling Questions	Is more information required?	Possible information sources				
			Documentation	Project Lead	Participants	Project Partners	Other Stakeholders
		annual report indicates that all students came from Saskatchewan. Were any attempts made to recruit students outside of Saskatchewan?					
Testing	How effective was the intervention is (i.e., what outcomes were achieved)? To what extent did changes in knowledge, attitudes/beliefs, skills, or behaviour occur? To what extent did changes take place in terms of their environment (physical, social, economic, political) and the resources or supports to which they have access?	Yes. Were focus groups with students conducted? It would be useful to see the results of post-program surveys (if expectations were met and additional supports that students needed to find desired employment). What proportion of participants completed their program (and how does that compare to in-class learning)?	Proposal and annual report	Interview	Interviews, focus groups, and survey		
Testing	How do satisfaction and learning / academic achievement results compare to previous in-			Interview	Interviews, focus groups, and survey		

Learning Stage	Learning and Gapfilling Questions	Is more information required?	Possible information sources				
			Documentation	Project Lead	Participants	Project Partners	Other Stakeholders
	class approaches? Why do we think this was the case?						

APPENDIX B: THEORY OF CHANGE

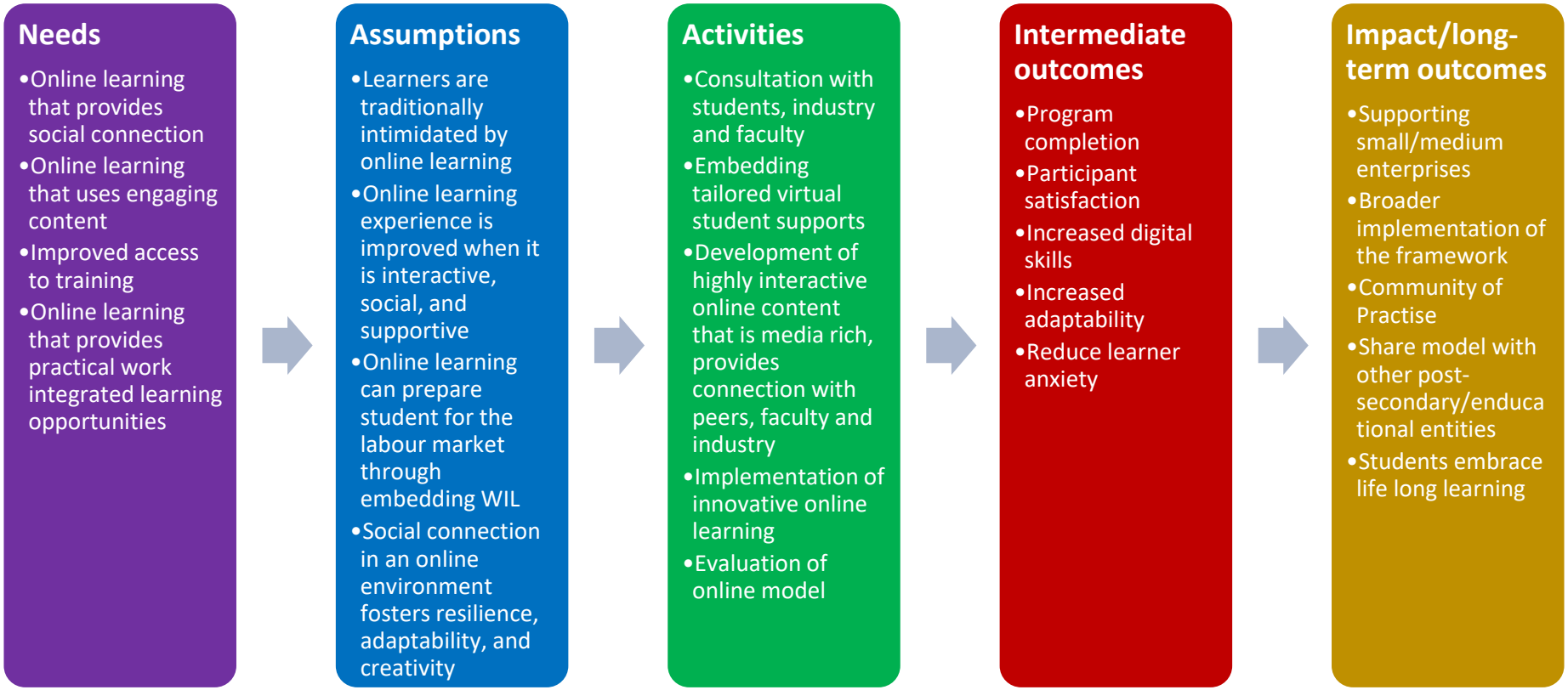


Figure 2 **Source: Saskatchewan Polytechnic Theory of Change**

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