

For-Credit InSTEM Program

Learning Brief – March 2022

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

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About the Future Skills Centre

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About Blueprint

Blueprint was founded on the simple idea that evidence is a powerful tool for change. We work with policymakers and practitioners to create and use evidence to solve complex policy and program challenges. Our vision is a social policy ecosystem where evidence is used to improve lives, build better systems and policies and drive social change.

Our team brings together a multidisciplinary group of professionals with diverse capabilities in policy research, data analysis, design, evaluation, implementation and knowledge mobilization.

As a consortium partner of the Future Skills Centre, Blueprint works with partners and stakeholders to generate evidence to help solve pressing future skills challenges.

Acknowledgements

We would like to warmly acknowledge the communities at Fort McPherson and Frog Lake, without whose welcoming spirit and generosity this report would not be possible. Frog Lake lies within Treaty 6 Territory, which encompasses the traditional territories of numerous western Canadian First Nations, including Cree, Dene, Stoney Nakota Sioux, Saulteaux and Ojibwe. Fort McPherson is located within Treaty 11 Territory, the traditional territories of the Dene, Gwich'in, Tlicho (Dogrib) and Sahtu peoples, amongst other Indigenous peoples. The Blueprint team is honoured to have been invited to spend time with these communities, and is dedicated to ensuring that the spirit of these traditional lands is honoured and respected.

Introduction

While Indigenous youth are one of the fastest-growing populations in Canada, their participation rates in the digital and science, technology, engineering and mathematics (STEM)-based economy are below the national average. Barriers to Indigenous engagement include low high school completion rates and lack of opportunities to participate in STEM programs where Indigenous culture and knowledge is recognized as the foundation for skills development.

To address this issue, **Actua** developed the For-Credit InSTEM program to provide Indigenous youth with a new approach to STEM education incorporating land camps and an in-class component. Actua is a national charity that engages youth in STEM experiences to build employability skills and confidence. In March 2019, Actua was awarded funding from the **Future Skills Centre (FSC)** for their proposed delivery of the program in three northern remote communities: Fort McPherson, Northwest Territories; Pelly Crossing, Yukon; and Frog Lake, Alberta.

As a consortium partner of FSC, **Blueprint** works with partners to generate research and evidence to solve future skills challenges. We collaborated with Actua to design and implement a participatory and culturally responsive evidence generation approach centred on continuous learning. Our approach focused on understanding what aspects of the program worked well, what could be improved and the impacts for participants. Due to logistic and safety challenges caused by the COVID-19 pandemic, the program was paused in 2020 and it was agreed that Blueprint would complete their evidence generation activities. This report shares the key insights and lessons from our learning activities after the first seven months of funding and the delivery of the land camps.

About the Pilot

The For-Credit InSTEM program aimed to provide formalized recognition for land-based activities already occurring in communities that contributed to STEM learning, and reduce barriers to education and careers in STEM fields for First Nations, Métis and Inuit youth. The program was designed to facilitate learning in a positive, supportive and culturally relevant environment, while providing Indigenous youth with high-school credit.

The program was designed with two delivery components: a set of on-the-land camps held in the summer of 2019, and an in-class component that was unable to launch during the 2019/2020 school year due to COVID-19 restrictions. The Pelly Crossing land camp location was also cancelled due to a local community tragedy.

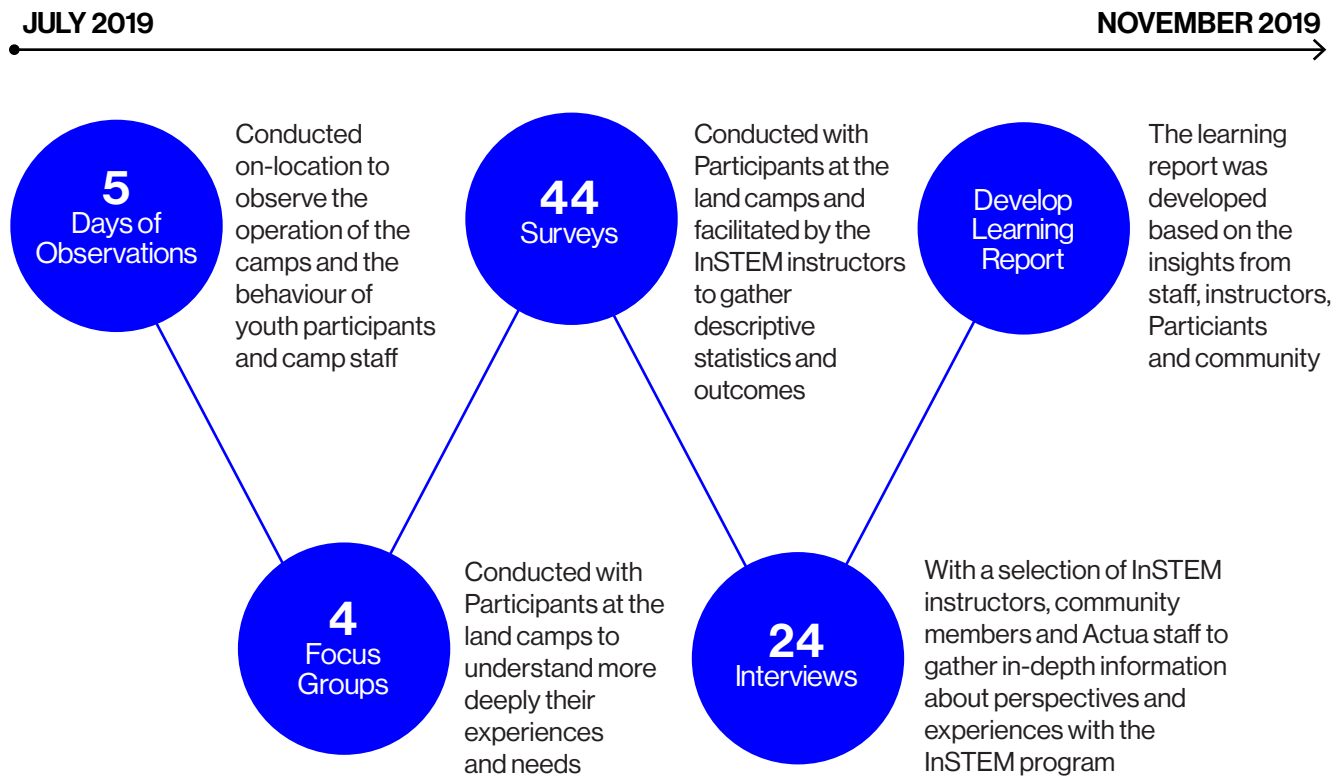
Culturally Responsive Learning Approach

Blueprint worked with Actua to design a continuous learning approach that was culturally relevant and collaborative. We followed the lead and direction of Actua's Indigenous-led InSTEM team and the Indigenous communities they serve, incorporating their feedback and direction in the design of the research approach.

As part of these efforts, we followed The First Nations Principles of OCAP™ (ownership, control, access and possession) to ensure that the communities receiving the program were involved in the design of the evaluation plan; were assured ownership over, access to, and possession of all evaluation materials; and that whenever possible, they were supported to collect their own data through participatory methods such as Indigenous instructor-led focus groups.

Although our initial evidence plan aimed to assess the process of implementing the program and the outcomes achieved by participants, we pivoted to a continuous learning approach as we better understood the need for evidence that could support real-time program adaptations. This approach allowed us to generate data to improve the experience of instructors, community members, staff and participants more quickly than through typical evaluations. We collected this data using a mixed-methods approach including participatory focus groups, observation, interviews and surveys.

Data Collection Timeline



In November 2019 we developed a learning report for Actua based on the perspectives and input of community members, youth participants and Actua staff who supported the Fort McPherson and Frog

Lake land camps. The learning report contained preliminary findings to inform the design, delivery and implementation of the For-Credit InSTEM land camp model moving forward.

Key Insights

This section provides an overview of the main findings from the experiences of participants, instructors, Actua staff and community members during the implementation of the land camps.

1. Instructors reported significant and profound impacts as a result of their experiences

Instructors felt that delivering the camps was a transformative experience that impacted how they understood their identity and future career plans, and improved their competencies and skillsets. Traveling across Canada and visiting multiple Indigenous communities increased the pride they felt in their own Indigeneity and pushed them to consider careers in areas such as Indigenous education, capacity-building and social justice. At the camps, they showed that they could successfully lead and manage their time and resources effectively, and they built significant interpersonal relationships with youth participants, other instructors and community members. The positivity of their experiences was attributed partially to the excellent professional and personal support that Actua staff extended to them throughout their time as Instructors.

2. Participants showed promising outcomes related to confidence and relationship- building

Activities that were hands-on, novel and fun supported engagement in STEM and increased interest in STEM education in the future. The activities also helped participants who attended the camps build strong relationships with participants

from other communities, instructors, teachers and other adult mentors. Land camps provided a space that supported forging community bonds and interpersonal connections, and sharing stories and experiences across generations. Community members and participants told us that the youth gained a lot of confidence by being on the land. Youth reported that it gave them an opportunity to be away from home, grow their independence, and learn how to become comfortable and confident in sometimes new and unfamiliar contexts.

3. Camp implementers and community representatives are the most effective groups for deep partnering

One of the strongest themes that emerged from camp implementers (high-school teachers, community members, Elders and camp staff) was a preference to be closer to the planning process for the InSTEM component. At both camps, camp managers were given one to two weeks to complete the task of incorporating the InSTEM content and preparing for the infrastructural and logistical needs of the Actua programming. Much of the upfront planning and preparation, community agreements and transfer of funds were executed at the level of the Regional Education Authority or the District, which created some challenges in coordination and delivery. Moving forward, camp implementers shared that there are opportunities to deepen their involvement to ensure program delivery is aligned with community needs.

Lessons Learned

This section summarizes some of the important lessons learned from our continuous learning activities.

1. Meaningful engagement at every step of the way is critical

We heard from instructors, Actua staff, community education representatives and community members that engagement based on trust, consistency and transparency is critical for meeting community needs. They consistently expressed that more time for engagement would have been valuable, particularly for camp managers and staff, Elders and other community members. This highlights the need to build an engagement approach that is community-specific and involves steps to inform, consult, involve, collaborate and empower.

2. Workplans that allow for sufficient time to design, develop and implement program elements are a central factor for success

Community members and Actua staff expressed that sufficient time to design and implement all program elements is vital to building a successful model. Future iterations of the program would benefit by moving away from funding schedules that divide attention across design and roll-out, to staging workplans and more flexible funding schedules that support a focus on design, development, testing and partnership-building prior to launch.

3. A curriculum and learning plan that strengthens and supports opportunities for Two-Eyed Seeing is foundational to the program's success

While we heard that aligning Indigenous knowledges with Western STEM education — an approach known as “Two-Eyed Seeing” — creates numerous challenges in a land camp setting, there was also strong support for the program to integrate STEM more fully with pre-existing Indigenous expertise. All groups involved with the camps agreed that the program should offer Indigenous concepts, explanations and practices of STEM whenever possible, and that drawing connections between the two institutions is important for the realities of the wider education and job market context. Starting with Indigenous knowledges and viewpoints can allow for greater Indigenous sovereignty within the context of the program and STEM education more broadly.

4. Indigenous-led programming is transformative

Actua staff, community members and participants reported an appreciation for the work Actua has done to build an Indigenous team to lead and support this program, recognizing that Indigenous perspectives, practices and relationships are core to the success of the initiative. Each group felt that continuing with these efforts to recruit and staff Indigenous individuals in all aspects of the program will further strengthen the expertise and value of the program. From logistics, to curriculum, to community engagement, to evidence generation, an ‘Indigenous first’ staffing strategy is a powerful way to move the initiative toward future success.

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