MINO BIMAADIZIWIN HOMEBUILDER PROGRAM'S IMPACT ON SUSTAINABLE LIVELIHOODS AMONG YOUTH IN GARDEN HILL AND WASAGAMACK FIRST NATIONS: AN EVALUATIVE STUDY

by

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Abstract

Housing in most First Nation communities is in a state of crisis. Federally-run programs cannot sufficiently address the housing crisis in these communities. Could a project-based, community-led education program offer a solution to the housing crisis on First Nation reserves and enhance youth's success in post-secondary education? Through the sustainable livelihood lens, this study evaluated the Mino Bimaadiziwin Homebuilder program's impact on the capacities and assets of youth in Garden Hill and Wasagamack First Nations. The two-year educational program focused on homebuilding in two remote First Nations with local wood involving 70 Indigenous youth.

Pre- and post-program evaluation surveys were analyzed, along with public program accounts and other literature, to measure whether the program moved participants towards a good life. The McNemar analysis for 45 of 70 (64% response rate in post-test) students showed a positive, statistically significant increase in the students' assets, including better social relationships, cultural development, financial advancement, housing improvements and certification of human resources. The students reported that the program: "saves lives," mends families, builds homes and creates resilience to COVID-19 impacts. This evaluation suggests that investing in Indigenous-led, post-secondary education improves multiple aspects of students' lives towards Mino Bimaadiziwin, which is an Anishinimowin word for a good life as destined by the Creator. These positive impacts from Indigenous-led education occurred despite the program being underfunded and COVID-19 lockdown that required shutting down the program early. Both community and individual student benefits resulted from this community-based education program. This study's results support the transformative potential of investing in culturally appropriate processes and designs for housing and education in First Nations to address overcrowding on-reserves and facilitate Indigenous peoples' participation and achievement in post-secondary education.

Keywords: Overcrowding, education, Indigenous, sustainable livelihood, housing.

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- Oni Babajide David (the Evidence of Diversity)

Dedication

I dedicate this thesis to the Sovereign Creator, the Sustainer of humanity, and the celestial determiner of livelihood.

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Abbreviations

Abbreviations	Full meaning
AFN	Assembly of First Nations
CIDA	Canadian International Development Agency
CIFSRF	Canadian International Food Security Research Fund
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
DFID	Department for International Development
FNHC	First Nations Health Council
FNIGC	First Nations Information Governance Centre
IDRC	International Development Research Centre
ILTC	Island Lake Tribal Council
INAC	Indigenous & Northern Affairs Canada
ISC	Indigenous Services Canada
LICOs	Low Income Cut-Offs
MBHB	Mino Bimaadiziwin Homebuilders
OCAP	Ownership, Control, Access, and Possession
RCAP	Royal Commission on Aboriginal Peoples
SDGs	Sustainable Development Goals
SL	Sustainable Livelihood

UIVs	Underutilized Indigenous Vegetables
WISE	Work Integration Social Enterprise

Glossary

Key Terms	Definitions
Colonization	Colonization is when a country superimposes their customs, values, traditions, and institutions on another country using a very coarse method (MacDonald & Steenbeek, 2015). In the Canadian context, colonization resulted in the loss of traditional, cultural, language, and medicinal ways of the First Nations people and the other Indigenous peoples. Most of their cultures, traditions, spirituality were eroded by European colonization.
Nopimink program	*Nopimink* program is a land-based education based on the central concept that traditional learning with Elders about A*ki* should be the foundation of academic learning (Michnik et al., 2021). *Nopimink* program is an on-the-land education that involves Indigenous knowledge systems sharing ancient teachings and providing people with a strong cultural foundation in a territory with ecological integrity.
Pimacihowin project	Pimacihowin is a Cree word meaning “to make a living” in English. This project prioritized training and skills building in trades, increasing trades employment opportunities, and preparing youths for work success (Heppener & Heppener, 2021).

1. Introduction

In Canada, housing in Indigenous communities is in a state of crisis, undermining the wellbeing of Indigenous people (Thompson et al., 2020a). A shift from a dependency-based approach for housing towards a sustainable one is needed to overcome housing shortages and unhealthy, culturally-inappropriate housing (Assembly of First Nations [AFN], 2020a; 2020b; First Nations Information Governance Centre [FNIGC], 2020). In Canada, half a million or more Indigenous people have poor or no housing, despite various federally-run programs (AFN, 2020a; 2020b). This housing crisis on First Nation reserves has negative impacts on the health, education, and economic development of First Nation people (AFN, 2020a; 2020b).

First Nation communities need sustainable interventions and solutions "determined by Indigenous peoples and with Indigenous peoples" compared to the problematic federally-run programs for Indigenous people (AFN, 2020a; 2020b; First Nations Information Governance Centre [FNIGC], 2020; First Nations Health Council [FNHC], 2020). Thus, sustainable responses need to be Indigenous-led development alternatives to address this dire need for housing on First Nation reserves. These alternatives require Indigenous-led education and training initiatives.

Education and training remain the key route out of poverty and an essential element of self-determination for Indigenous peoples (Gaudet, 2021; Hill et al., 2020; Heppener & Heppener, 2021; Levkoe et al., 2021; Raderschall et al., 2020; Trades Wind to Success, 2020). Indigenous-led education provides capacity development and knowledge transfer required to improve Indigenous peoples' housing situation and their quality of living (AFN, 2020a; 2020b; Ferreira et al., 2021; Heppener & Heppener, 2021; Michnik et al., 2021; Walker et al., 2021;). This thesis applied the sustainable livelihood research lens to evaluate the Mino Bimaadiziwin Homebuilder (MBHB) program's impact on the capacities and livelihoods of youth (between 20 and 40 years) in Garden Hill and Wasagamack First Nations in Manitoba, Canada.

1.1 Background

1.1.1 Indigenous Communities in Canada

The original peoples of North America and their descendants (INAC, 2021) are referred to as Indigenous or Aboriginal people. Over 1.6 million Indigenous people populate Canada (Statistics

Canada, 2016). Indigenous communities in Canada are territories populated by Indigenous people, with many unique beliefs, spiritualities, customs, histories, and languages (Skinner et al., 2018).

First Nations are one of the three groups of Indigenous people in Canada identified under The Constitution Act (1982) (Royal Commission on Aboriginal People [RCAP], 1996). Other groups of Indigenous people are the Metis and Inuit. The more than 630 First Nation communities in Canada represent more than 50 Nations, each with its own language – and so 50 Indigenous languages. Of the 630, 619 are registered and recognized by Indigenous Northern Affairs Canada (ISC) and Crown-Indigenous Relations & Northern Affairs Canada (CIRNAC) with Binche Whut'en in British Columbia, which was recently added and constituted in 2019 (INAC, 2021).

First Nations comprise many nations with diverse cultures, languages, economies, and histories. First Nations have different communities, cultures, and traditions as well as languages across Canada. For instance, in northern Manitoba, there are four major Indigenous language groups for the different tribes: Anishinaabe (Ojibway), Anishiniwuk (Oji-Cree), Dene, Mushkegowuk Cree (formerly known as Swampy Cree). The First Nations dispersed across Canada have different languages, cultures, and traditions.

Prior to colonization, the First Nation peoples living in the Prairies had unique settlements and relationships with the land (Forest, 2021). They moved throughout the prairies to hunt buffalo, to trade, and they had extensive settlements around fishing sites. The First Nation people invented teepees, a lightweight house made of poles arranged in a cone shape covered with animal skins and contributed to a number of advancements before 1867 (Ballard, 2012). In northern Manitoba, people lived in smaller settlements and invented many ecological technologies that allowed them to thrive and prosper (Ballard, 2012). For instance, birch bark canoes were used as a means of transportation while exploring and portaging through the dense forests.

Due to colonization, the First Nations (and other Indigenous communities) were dispossessed from the land, disrupting their relationship with and responsibility to the land that provides resources for them to thrive (Forest, 2021; Hill et al., 2020; Levi & Robin, 2020; Thompson et al., 2020b). The Indian Act and other paternalistic government policies created opportunities for the settlers to engage in land theft on a massive scale (Ballard, 2012; Hill et al., 2020; Thompson et al., 2020b). While settler colonialism has disrupted Indigenous peoples' lifestyles, land reparations and Indigenous programs are imperative for healing and reconciliation

(Blacksmith et al., 2021; Forest, 2021). Redistribution of land and resources to Indigenous peoples is required (RCAP, 1996). Indigenous-led programs foster land stewardship transfers, capacity development and sustainable livelihood in Indigenous communities in Canada (AFN, 2020a; 2020b; Forest, 2021).

1.1.2 Indigenous-led Actions

Indigenous communities across Canada are taking an Indigenous-led (right-based) approach to resolve long-term housing and other livelihood inequities. Social enterprises, including not-for-profit businesses, are largely absent to provide needed services, housing, and training (Stormhunter, 2020). Thus, First Nations have to develop customized solutions to tackle housing and livelihood inequities to achieve the desired goal of Mino Bimaadiziwin (living the good life).

The Assembly of First Nations' national housing strategy calls for more partnerships and investments for First Nation housing (AFN, 2020a). Adequate investment and partnership support for Indigenous-led strategies is needed for building capacity in the trades, specifically for housing. Provincially-run apprenticeship has not resulted in the capacity building to meet housing needs with Indigenous-appropriate designs and Indigenous labour (AFN, 2020a).

In the absence of social enterprise in First Nations, what Indigenous model and approaches could build capacity and homes? Two Indigenous school teachers, Emma and Victor Harper, from Wasagamack First Nation, called for post-secondary education programs led by communities to develop their communities in Island Lake since the 1970s (Thompson et al., 2020b). These two teachers had run a *Nopimink* program, which means "on the land education" in Island Lake for teachers, for many years (Thompson et al., 2020a). Their vision encompasses a community-led, culturally appropriate education that develops projects using land-based education. Similarly, other Indigenous communities, like Moose Cree First Nation's Project George, run *Nopimink* programs. These Indigenous education programs are in defiance of the western viewpoint that land-based learning programs are non-educational, economically unstable, and unworthy of long-term funding (Gaudet, 2021; Simpson & Coulthard, 2014).

To meet Island Lake's priorities for housing and post-secondary education, the focus for capacity building was on the trades. Many decades later, the employment training staff and education directors with teachers, Victor and Emma Harper, and Dr. Shirley Thompson, proposed the Mino Bimaadiziwin Homebuilders (MBHB) program. This education program was blended

with economic development projects to apply employment training dollars available to First Nations (Gaudet, 2021). This thesis evaluates the impact of the MBHB post-secondary education program on Indigenous youth participants.

1.1.3 Overview of the Mino Bimaadiziwin Homebuilder (MBHB) Program

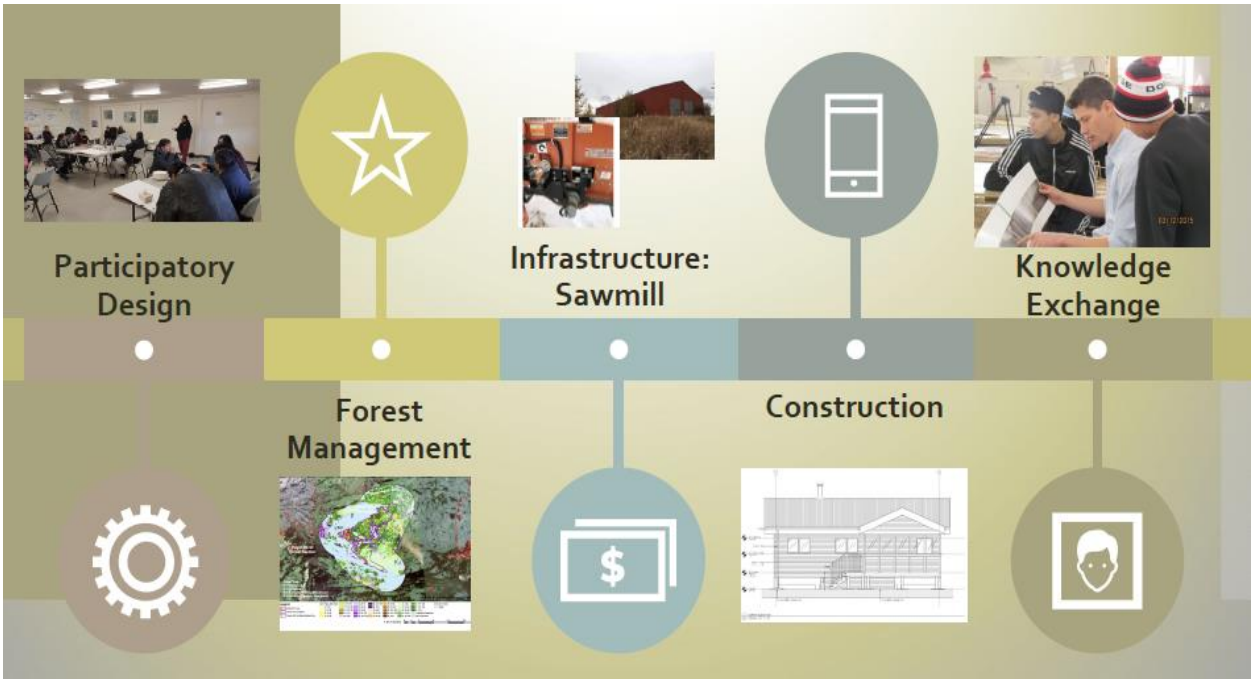
The Mino Bimaadiziwin Homebuilder (MBHB) program was a two-year program starting in the fall of 2018 to August 2020. The MBHB program was designed to build capacity in youth on learning how to build houses with local wood in Garden Hill and Wasagamack First Nations. Overcrowded housing is a major problem in these two communities, which is a problem in most First Nation communities (Statistics Canada, 2016). The provision of a post-secondary educational program was intended to build capacity and a sustainable housing model. The overarching goal was to improve the economic lives and social well-being of youth. Garden Hill and Wasagamack First Nations co-developed the MBHB program to address housing problems, including shortage of houses, lack of eco-friendly and culturally appropriate houses (Thompson et al., 2020b). The program name of Mino Bimaadiziwin, given by Anishininiwuk Elders, means "a good life as destined by the Creator" in English.

The MBHB program provided a livelihood strategy for building capacity and assets (human, physical, financial, natural, social, and cultural) in First Nation reserves. The program targeted improving youths' livelihood assets and capacity by engaging them in designing and constructing sustainable houses. The education program applied a value-chain capacity-building approach. The program provided a start-to-end process in building a house, from cutting a tree to sawmilling and construction. The project was implemented in two phases: phase one covered home design, forestry, logging, and job preparation, while the second phase focused on home construction.

The MBHB program started with project stakeholders conducting a workshop and community café to design a learning pathway for the program (see Figure 1.1) (CBC, 2020). With the ethics board's approval, video recordings of the workshops and community café were published on the Ecohealth Circle YouTube page (Mino Bimaadiziwin Partnership, 2019b). The program continued into rigorous capacity building, helping students design the house, then learn forestry, forest management and sawmilling to supply the wood to build the house. The students then learned carpentry as they built two houses in their community till the program ended in 2020

(see Appendix A). Then COVID-19 occurred, and the MBHB program, after several months of lockdown, ended in the summer of 2020.

Figure 1.1 Learning pathway for building homes and youth capacity in the Mino Bimaadiziwin Homebuilder program



Source: Mino Bimaadiziwin Partnership (2019b)

1.2 Research Purpose, Question and Objective

The main purpose of this research was to evaluate the impacts of a project-based education program on sustainable livelihoods in two First Nations communities. This research applied the sustainable livelihood research lens to evaluate the MBHB program. This MBHB education model was implemented in the two fly-in First Nation communities of Garden Hill and Wasagamack. The research objective was to evaluate the MBHB program's impact on capacities and livelihood assets of the Homebuilder groups in the two remote fly-in First Nation communities of Garden Hill and Wasagamack.

1.3 Significance of the Research

The Royal Commission on Aboriginal Peoples (RCAP, 1996) noted that initiatives tackling housing have the potential to make "housing a source of community healing and economic renewal." The MBHB program responded to this imperative to address housing and livelihood

needs in Indigenous communities. Evaluating the impact of the MBHB program on livelihood situations determined if this educational program facilitated "community healing and economic renewal" (RCAP, 1996).

This research questions how to build both community infrastructure and youth capacity, which is desperately needed in remote First Nations (Gaudet, 2021). Trade education has rarely been studied and never with a broad view of evaluating its impact on many assets considered by the sustainable livelihood framework (Gaudet, 2021). This study addressed this gap by documenting how the MBHB program impacted Indigenous youths' capacities and livelihood assets through a sustainable livelihood lens. Further, the study's outcome included recommendations to help other Indigenous communities adopt this education program model for sustainable livelihood development. The potential for this Indigenous-led model to resolve underdevelopment and meet the SDGs on First Nation reserves and other rural communities is discussed.

This evaluation focused on how this program achieved the fourth SDG of everyone having access to inclusive, quality education and lifelong learning opportunities. Education is the key that will allow many other SDGs to be achieved (Chankseliani & McCowan, 2021; Olim de Sousa et al., 2021). When people can access and acquire quality education, they can break away from ongoing structural inequalities and the cycle of poverty (Chankseliani & McCowan, 2021). This research bolstered decision-making on investments in community-based education for Indigenous people to acquire employment and have improved quality of life (Chankseliani & McCowan, 2021).

1.4 Researcher's Reflection and Standpoint

I am from Nigeria, and my background is in Agriculture with a specialization in Agricultural Economics. My motivation to study agriculture was derived from spotting the untapped potential of the agricultural sector for additional revenue, employment, and rural development as everyone is focused on crude oil revenue. The World Development Report emphasized the importance of agriculture for poverty reduction and growth in sub-Saharan Africa (World Bank, 2008). Therefore, in my bachelor's degree thesis, I examined the value-chain of Under-utilized Indigenous Vegetables (UIVs) on the economic development of rural and remote Indigenous communities in Southern Nigeria. The International Development Research Centre (IDRC) and

Canadian International Development Agency (CIDA) project sponsored this research through the Canadian International Food Security Research Fund (CIFSRF). This research project exposed me to the impact of community capacity development on sustainable development in Nigeria. Building community capacity will foster food security, economic development, and conservation of healthful vegetable species in rural communities.

Participating in the MBHB program provided me with an opportunity to reflect on how Nigeria may build community capacity to achieve SDGs by 2030, knowing that approximately 64% of Nigerians live in rural areas and only 36% of Nigerians live in urban areas. Nigeria is one of the low-income countries that subscribed to the SDGs developed from the United Nations (UN) general assembly meeting in 2015. Severe food insecurity and livelihood insecurity ravished the Yoruba Nation (my Indigenous root) and citizens in Nigeria (my home country). Though several resources have been channeled towards achieving these goals in Nigeria, problematic politics and governance inhibit success. If Nigeria could invest in community-based education, building sustainable livelihood at the community and individual levels would be achievable. Pondering on this, I decided to focus on community development and community capacity building. Researching development issues, I found that Canada also experiences many problems around housing, food, and education in Canada, especially among the Black population and Indigenous peoples, similar to Nigeria (Levkoe et al., 2021; Thompson et al., 2020a). This signals that I can contribute to this development process through active participation in development programs across Indigenous communities. Then, I became aware of Dr. Shirley Thompson's work with Indigenous communities on food sovereignty, housing, and health of Indigenous peoples through the Mino Bimaadiziwin Partnership. Immediately, I decided to approach Dr. Thompson about becoming a part of the Mino Bimaadiziwin Partnership change agents working assiduously to develop Indigenous communities and Canada as a whole.

Due to my desire to witness transformative improvement in the livelihoods of people living in Indigenous communities, I decided to focus my thesis on assessing the impact of community-led capacity-building on sustainable livelihood. I focused on two First Nation communities in Island Lake as a case study to narrow it down. Findings from this study will inform other projects that aim to enhance community-led capacity-building programs in partnership with Indigenous communities. Findings also identified a need for changes in policies and procedures within the

system, providing recommendations for the federal government and Canadians to scale-up resources and investments in Indigenous communities.

Building my capacity to conduct research in Indigenous communities was foundational to this research. I gained all requisite skillsets for carrying out the designed study from my advisor - Dr. Shirley Thompson. She guided me on all the research and community engagement procedures. As an entry point, I worked as Assistant Instructor for the MBHB project in the Wasagamack First Nation community in Island Lake, Manitoba. I visited the communities during fall 2019 to begin engagement and relationship-building as the foundation to conduct evaluation surveys for this study. I started by assisting with student retention in the MBHB program. From the first moment I arrived in Island Lake in summer 2019, I participated in many cultural activities. I built trusting and friendly relationships with the students or "Homebuilders" and other members of the communities. I participated in different ceremonies, treaty gatherings and community sports such as hockey and volleyball. I learned Anishinimowin words which are popularly known as Oji-Cree words. Also, I built a strong relationship with major stakeholders, including chief and council and employment training staff, in the community to enhance communications and supportive internal engagement.

I assisted with the programming during summer 2020 through fall 2020. My experience in the Island Lake communities was documented and shared in an article blog post entitled "My journey through the Islands of the North as a researcher" and published on the Ecohealth circle website for public access (See Appendix B). With COVID-19, I had to revise data collection methods from in-person to phone interviews. The revision process involved going through the rigor of amending ethics protocol. I also learned how to conduct phone interviews amidst the COVID-19 crisis, overcome unprecedented research barriers, and forge ahead with a research study. Overall, this work experience exposed me to the reality of a challenging life for Indigenous people living on reserves. Some of the issues include poor and inadequate housing and a lack of quality education. I learned a lot about Indigenous viewpoints and practices while teaching and mentoring the students in classrooms and on the construction and sawmill site in Garden Hill and Wasagamack First Nation communities. By my observation, youths can be highly productive when investments are made in strategies focused on improving their capacity. Also, these strategies must provide the youths with the right tools and a supportive environment. The MBHB program

provided youth with paid work and training opportunities, but these programs and employment opportunities are often lacking on First Nation reserves.

1.5 Organization of the Thesis

This thesis was organized in a sandwich format. Unlike a regular thesis, this sandwich format consists of a manuscript-style findings chapter comprised of a publishable paper. The other parts of the thesis remain the same – I have separate chapters for literature review and methodology before the manuscript-style findings chapter in addition to this introductory chapter. The manuscript-style findings chapter is followed by the discussion and conclusion chapters. The manuscript-style chapter is merged with other sections like a regular thesis - introduction and conclusions chapters.

Chapter four contains a manuscript submitted to a peer-reviewed journal. This manuscript addresses the objective of this research and is linked to other sections in the thesis - introduction, literature review, methodology, discussion, and conclusions - within the conceptual framework of applying the sustainable livelihood approach as an evaluative tool. The manuscript in chapter four, titled "Mino Bimaadiziwin Homebuilder Program's Impact on Sustainable Livelihoods Among Youth in Garden Hill and Wasagamack First Nations: An Evaluative Study," was submitted to the Canadian Journal of Nonprofit and Social Economy Research. This manuscript is co-authored with Anishiniwuk Elder Norman Wood, Dr. Shirley Thompson, Dr. Donna Martin, and Dr. Marleny Bonnycastle. Lastly, the conclusions in chapter six integrate the research objectives with insight from the findings, providing recommendations for a sustainable pathway to food and livelihood security.

1.6 Note on Author's Contribution

I am the lead author of the manuscript used in the findings chapter of this thesis. As the lead author, I led the processes of researching, writing, analyzing and submitting a paper for publication. Specifically, I was responsible for the survey collection and analysis of the data, as well as the writing and formatting of the manuscript. The chapter 4 manuscript is co-authored with Anishiniwuk Elder Norman Wood, Dr. Shirley Thompson, Dr. Donna Martin, and Dr. Marleny Bonnycastle. Norman Wood, an economic development advisor at the Island Lake Tribal Council (ILTC), provided feedback that ensures the manuscript is useful for the community and reflects

the Indigenous community's perspective. Drs. Shirley Thompson, Donna Martin, and Marleny Bonnycastle provided important academic and writing feedback. Dr. Thompson provided the project, ethics and research questions, which I then modified.

1.7 Chapter Summary

This introductory chapter provided the context and objectives. The layout of the sandwich thesis was described, noting all authors' contributions to the manuscript used in the findings chapter. Following this introductory chapter is the literature review chapter which further explains the application of sustainable livelihood framework to an Indigenous-led education program guiding this evaluative study.

2. Literature Review

2.0 Introduction to Literature Review

This literature review sets the study's context, providing literature on areas within the scope of the investigation (Georgiou, 2021). The literature review covers the following areas: housing, sustainable livelihood model and land-based training programs. This review was conducted using the University of Manitoba Library's A-Z Database system and Google Scholar. This review involved searching for keywords including but not limited to Mino Bimaadiziwin, education or employment training or housing or sustainable livelihood, considering these areas for Indigenous and Aboriginal communities in Canada or North America.

2.1 Mino Bimaadiziwin

Mino Bimaadiziwin means living a good life as destined by the Creator. Mino Bimaadiziwin refers to the original instructions from the Creator for Indigenous people. Mino Bimaadiziwin requires a person to attain health and goodness of spirit and relationships (Deer & Falkenberg, 2016). Mino Bimaadiziwin represents "the overall goal of healing, learning and life in general" (Hart, 2002, p. 44). Mino Bimaadiziwin engages people's spirit, heart, mind, and body to master feeling, get along, think, and act to attain healthy relationships and self-development (Deer & Falkenberg, 2016; Hart, 2002).

The traditional Anishinaabe philosophy articulates that evaluating education from an Indigenous perspective provides all the resources and capacities required to live the good life that creates wellbeing (Deer & Falkenberg, 2016). Mino Bimaadiziwin shows people their gifts and that they possess the answers to their vulnerabilities interfering with good living (Deer & Falkenberg, 2016). Education is required for youth to recognize and bring their gifts to fruition. Reaching the good life, therefore, involves community actions in addition to personal development. The process of achieving Mino Bimaadiziwin requires taking responsibility for one's own healing (Hart, 2002).

2.2 Community-led Education Programs

Land-based education initiatives inspired and drove Indigenous communities to foster sustainable well-being based on the land, culture, and self-determination post-COVID-19 (Gaudet, 2021; Walker et al., 2021). Gaudet (2021) studied Indigenous resilience within the context of culturally responsive land-based learning or education programming called Project George, led by Moose Cree First Nation. Community fundraising was key to project success, underscoring the importance of communities taking the lead in education programs blended with economic development projects (Gaudet, 2021). However, the western viewpoint of land-based learning programs being non-educational, economically unstable, and unworthy of long-term funding (Simpson & Coulthard, 2014) still affects the lack of funding for land-based learning initiatives.

Reconnecting youth to the land through formal, land-based community-led education programming, Gaudet (2021) noted the method of delivering Project George's was different from similar programs conducted in non-Indigenous institutions. This project defied the rules of teaching in the classroom using western methods. This project involved taking adolescents out on the land where they learned by doing, observing, learning the Cree language, elder wisdom, and land-based skills such as fishing, trapping, hunting, and visiting one another during leisure time (Gaudet, 2021). Courses, skills, and knowledge training were adapted based on weather conditions, environmental and climate changes, participants' skill levels and emergent needs in the community. The training included first aid, chainsaw and firearms safety, safe driving on snow and ice, Moose Cree safety and survival skills.

Three aspects of land-based learning initiatives were observed in Project George as the land was considered 1) a healer, 2) a teacher and 3) a connector to their ancestors (Gaudet, 20201). Gaudet (2021) summarized that land-based education initiatives provide the opportunity for youth and the community to take back their lives by taking responsibility for the process of recovering from their losses and being of service to the community (Gaudet, 2021). Land-based education initiatives support the four key tenets of Indigenous food sovereignty – the sacredness of food, participation in food systems, self-determination, policy, and legislative reform (Gaudet, 2021).

Michnik et al. (2021) studied Meechim Farm in Garden Hill First Nation, considering youth education applied to Indigenous food sovereignty. Michnik et al. (2021) identified four key elements in youth education programs which are the tenets of Indigenous food sovereignty. These

four elements are: 1) rekindling the fire; 2) moving your body, soul, and heart; 3) self-determination; and 4) land-based education barriers. On this note, the study established the importance of developing community-based and applied Indigenous education for youths rooted in traditional and spiritual beliefs, land-based learning, cultural identity, sustainable ways of living, self-determination, and achieving Indigenous food sovereignty. Similarly, Gaudet (2021) stated that *Pimatisiwin* (the good life) is attained by learning new skills, interacting with, and living off the land, visiting one another, and sharing knowledge with other community members.

Indigenous, community-based education programs integrate values of self-reliance, traditional ecological knowledge, life-stage teachings, elder wisdom, intergenerational learning, and land-based skill training (Ferreira et al., 2021). These values eliminate the devastating intergenerational effect of colonial policies on Indigenous people's connection to the land, access to food, kinship systems and cultural identity (Gaudet, 2021). Land-based community-led education transfers Indigenous knowledge foundational for structural and critical social changes by creating a learning environment that promotes recovery and personal for youths and other community members at risk of external stressors from existing structural inequalities (Kepkiewicz & Dale, 2019; Settee & Shukla, 2020).

Ferreira et al. (2021) examined the northern communities' food initiatives, specifically studying a garden program to comprehend how building local capacity will engender local food sustainability. These authors noted that community-based initiatives operate within the "learning by doing" framework to build local capacity when people learn, observe, listen, and share knowledge in layers. Indigenous communities, through participatory action-based research, have shown the need to consolidate education programs, new technologies and development projects into a comprehensive food sustainability plan (i.e., Indigenous food sovereignty is the end goal) (Ferreira et al., 2021; Gaudet, 2021).

2.3 Educational Attainment Limited by Structural Inequalities

Western or European-based education programs are failing Indigenous youth (Ferreira et al., 2021; Heppener & Heppener, 2021). The OECD (2018) highlighted Indigenous youths' participation and graduation rate to be one-quarter of non-Indigenous youths due to unsafe cultural pedagogy and environments in non-Indigenous post-secondary educational institutions in Canada. Further, the OECD (2018) reported educational programs often provide unsafe learning environments. Courses

do not match Indigenous students' needs. Support for participants facing personal and family responsibilities is not provided.

Funding for education for First Nation communities is significantly lower compared to any other jurisdiction in Canada (Olsen Harper & Thompson, 2017). Correspondingly, Indigenous people have a lower graduation rate at 28% less than the national average (Statistics Canada, 2016). Young Indigenous people often face discrimination in education and employment (OECD, 2019). Culturally appropriate education and training are key for Indigenous people to escape poverty and enable labour market success (Raderschall et al., 2020). Raderschall et al. (2020) explored Indigenous education and training programs called "Trades Wind to Success" in Indigenous communities in Australia and Canada. Raderschall et al. (2020) noted the program's four steps in preparing Indigenous apprenticeship candidates: 1) foundational skills, 2) academic preparation, 3) apprenticeship accreditation, and 4) career development towards achieving greater economic independence. Raderschall et al. (2020) concluded that building foundational skills of writing and math requires sufficient lead-time for upskilling. Structural inequalities within the Indigenous communities inhibit education attainment and skill development outcomes, such as employment and self-reliance (Deane & Szabo, 2020). Structural inequalities affect Indigenous youth's participation in educational training and skills programs.

Indigenous education programs typically provide limited funding and support with little ability; as a result, to provide customized support (Raderschall et al., 2020). Improving Indigenous youth's retention in education programs is key to better educational outcomes and holistic development (Organization for Economic Cooperation and Development [OECD], 2018). Therefore, Indigenous students need better access to good welfare conditions in a socially and psychologically safe and nurturing educational setting. This educational setting should be culturally appropriate and serve the needs of their communities (Deane & Szabo, 2020; OECD, 2018).

The Pimacihowin project was developed from within the Willow Cree First Nation community to address First Nation housing issues (Heppener & Heppener, 2021). Heppener and Heppener (2021) examined the Pimacihowin project framework for the political narratives that undermine the impact of community-based Indigenous education programs based on Stone's (1997) paradox of policy. They found that federal and provincial education policies undermined

Indigenous education at every step due to limited funding, lack of support or materials, and non-Indigenous delivery.

Negative experiences in non-Indigenous education programs trigger trauma and retention problems (Social Research and Demonstration Corporation [SRDC], 2021). Embedding trauma approaches with Elders' participation in delivering community-based youth employment and skills training is necessary. Culturally-safe environments for education program delivery are required to remove educational barriers to employment (SRDC, 2021; OECD, 2018). The SRDC (2021) highlighted that educational research tracking of Indigenous educational initiatives should apply a holistic and culturally respectful approach centred on individual and household level impact.

Deane and Szabo (2020) studied the Nisichawayasihk Cree Nation (NCN) training program designed to improve the education and employability of Indigenous youths across Canada. Foundational factors of education and gaining employment were linked to income retention, improved housing, and infrastructural development (Deane & Szabo, 2020). Through participatory research, Deane and Szabo (2020) identified housing shortages and unfair policies. These involve reallocating one's house while absent from the community for education —from Indigenous educational initiatives resulted in youth self-reliance and development, contributing to sustainable livelihoods of youth and their communities (Deane & Szabo, 2020; Michnik et al., 2021, Thompson et al., 2020b).

2.4 Sustainable Livelihood

The sustainable livelihood approach is people-centred (Mohammadi et al., 2021; Thompson et al., 2014). By identifying interventions that improve people's lives, a sustainable livelihood approach enhances capabilities, assets, equity, and sustainability to provide a safety net against uncertainties (Chhetri, 2019; Mohammadi et al., 2021). The sustainable livelihood approach focuses on capabilities, assets and activities required for an individual or a household for a good living (Chhetri, 2019; Mohammadi et al., 2021). This analytical framework explores how people build capabilities and assets through various interventions to build a good life resistant to stress or shocks (Fitrianto, 2021). For people to prosper, competent participation in the processes that affect their lives is necessary (United Nations, 2020). The development of people's livelihood depends on the quantity and quality of their empowerment and participation in actions to improve living outcomes (Spring et al., 2018).

The sustainable livelihood framework offers a holistic approach to evaluating programs. The sustainable livelihood framework is useful to evaluate different projects' impact on the capabilities of individuals, households and communities considering the environment (Mohammadi et al., 2021). The sustainable livelihood framework explores multifaceted dimensions of well-being (Fitrianto, 2021; Mohammadi et al., 2021) in five stages. These five stages are: 1) identifying the community's vulnerabilities, 2) mapping the community's current livelihood asset, 3) observing transformation in structures and processes, 4) evaluating community-based strategies, and 5) reporting their impact on livelihood assets. The sustainable livelihood concept demonstrates that assets are dynamically shaped by their community context (Snider, 2021). After mapping out the communities' assets (Mohammadi et al., 2021), an asset-based approach is used to enhance livelihoods and promote their sustainability (Snider, 2021).

The sustainable livelihood concept typically comprises five major assets: physical, human, financial, natural, and social. Social assets can subsume cultural and political contexts or be separated out to be their own categories under the sustainable livelihood framework (Spring et al., 2018). Since cultural assets influence various other assets and shape Indigenous worldviews, cultural assets need its category for evaluation in Indigenous communities (Thompson et al., 2012). Cultural assets value spiritual beliefs, land-based activities, Indigenous food systems, social organization, and epistemologies (Snider, 2021). Adding cultural assets fills the gaps in Sustainable Livelihoods Assessment (SLA) to acknowledge the primary importance of Indigenous knowledge and traditions to sustainable community development. Adding cultural assets in SLA is consistent with the community capitals framework (CCF) (Snider, 2021). Through the CCF, the SLA helps to recognize the importance of balance, synergy and interdependence among six important assets - physical, human, financial, natural, social, and cultural – in a research context involving Indigenous communities. (Gutierrez-Montes et al., 2009; Spring et al., 2018; Snider, 2021). Snider (2021) analyzed the six asset categories in northern Indigenous communities in Canada to generate recommendations for a project. Also, Spring et al. (2018) identified multiple stressors on the food system and assets required to build a more sustainable food system.

Identifying the status of six categories of community assets is foundational for strengthening livelihood and achieving sustainable community development. The six asset categories for northern Manitoba were found to be unbalanced (Thompson et al., 2012). These assets are reduced in many areas with: 1) Physical assets (infrastructure and equipment) are

insufficient in Northern Manitoba having no roads networks in many fly-in communities, overcrowded housing and unsafe drinking water; 2) Financial assets are generally small, considering their housing and land is the Crown's property; 3) Human assets are limited, given the relatively low educational attainment, high unemployment rates, and diseases than non-Indigenous communities in Canada; 4) Social assets have been weakened by the residential school and displacement to the reserve system; 5) Natural assets are substantial in the form of minerals, forests, non-timber, and fisheries on native land, but their rights to own or regulate resource use are compromised being "wards of the state" under the Indian Act (Thompson et al., 2012). 6) Cultural assets are affected by existing structural inequalities, such as loss of local languages due to residential school experience and colonization institutions (Kopp et al., 2021; Snider, 2021). However, northern Indigenous communities have been able to retain their language with most people speaking Anishiniimowin, compared to Indigenous communities in the southern region of Manitoba.

The sustainable livelihood approach provides insight into strategies for improving livelihoods considering the vulnerable context. A heightened vulnerability context exists for First Nation communities, subject to the Indian Act, which creates structural inequities and racism in Canadian society. These structural inequities need to be considered (Snider, 2021; Thompson et al., 2012; Thompson et al., 2020b), as well as other vulnerabilities, such as natural or manmade disasters and pandemic outbreaks. Exploring community-based strategies to address vulnerability context in the community requires also seeing the need for system change to reduce structural inequities and other vulnerabilities (Blacksmith et al., 2021).

2.5 Chapter Summary

This section covered education and sustainable livelihoods, which are key aspects of this thesis. The literature reviewed showed that community-led education programs based in and led by Indigenous communities engender livelihood improvement and achievement of Mino Bimaadiziwin, the good life destined on the land by the Creator. Further, the review covered the structural inequalities affecting various community-led education programs in different First Nation communities in Canada. The sustainable livelihood concept was reviewed as an evaluation tool for determining the holistic impact of a community-led education program on the people involved. Within the sustainable livelihood framework, education programs are considered people-

centred livelihood strategies which influence livelihood assets for sustainable wellbeing, despite the communities' vulnerability. This literature review helped determine the important livelihood assets to consider when applying the sustainable livelihood framework to an Indigenous program evaluation, which is the focus of the methodology section discussed in the next chapter.

3. Research Methodology

3.0 Introduction

This methodology section covers the research approach guiding the evaluation of the MBHB program's impacts on the Homebuilder group's livelihood. This section details how the sustainable livelihood approach was applied as the research lens for evaluating the MBHB program's impacts on the Homebuilder group, which is the study's objective. Details of the study area, sustainable livelihood approach guiding the evaluation of the MBHB program's impact, procedures for the pre-and post-program evaluation surveys, data collection and statistical analysis, ethical protocols followed, and study limitations are presented in subsequent sections.

3.1 Study Area and Communities

Island Lake, located in the northern region of Manitoba, is the case study area for this research. The four First Nation communities in the Island Lake region are – Garden Hill, Wasagamack, St Theresa Point, Red Sucker Lake First Nations. Each of the First Nation communities has their elected chief and council politically affiliated with Island Lake Tribal Council (ILTC), Assembly of Manitoba Chiefs (AMC) and Indian and Northern Affairs Canada (INAC). A chief and council members are elected through a Custom Electoral System in each of the four First Nation communities in the Island Lake area (Statistics Canada, 2019; Zahariuk, 2014). Specifically, Garden Hill and Wasagamack First Nation are two of the four First Nation communities explored in the case study area (see Figure 3.1).

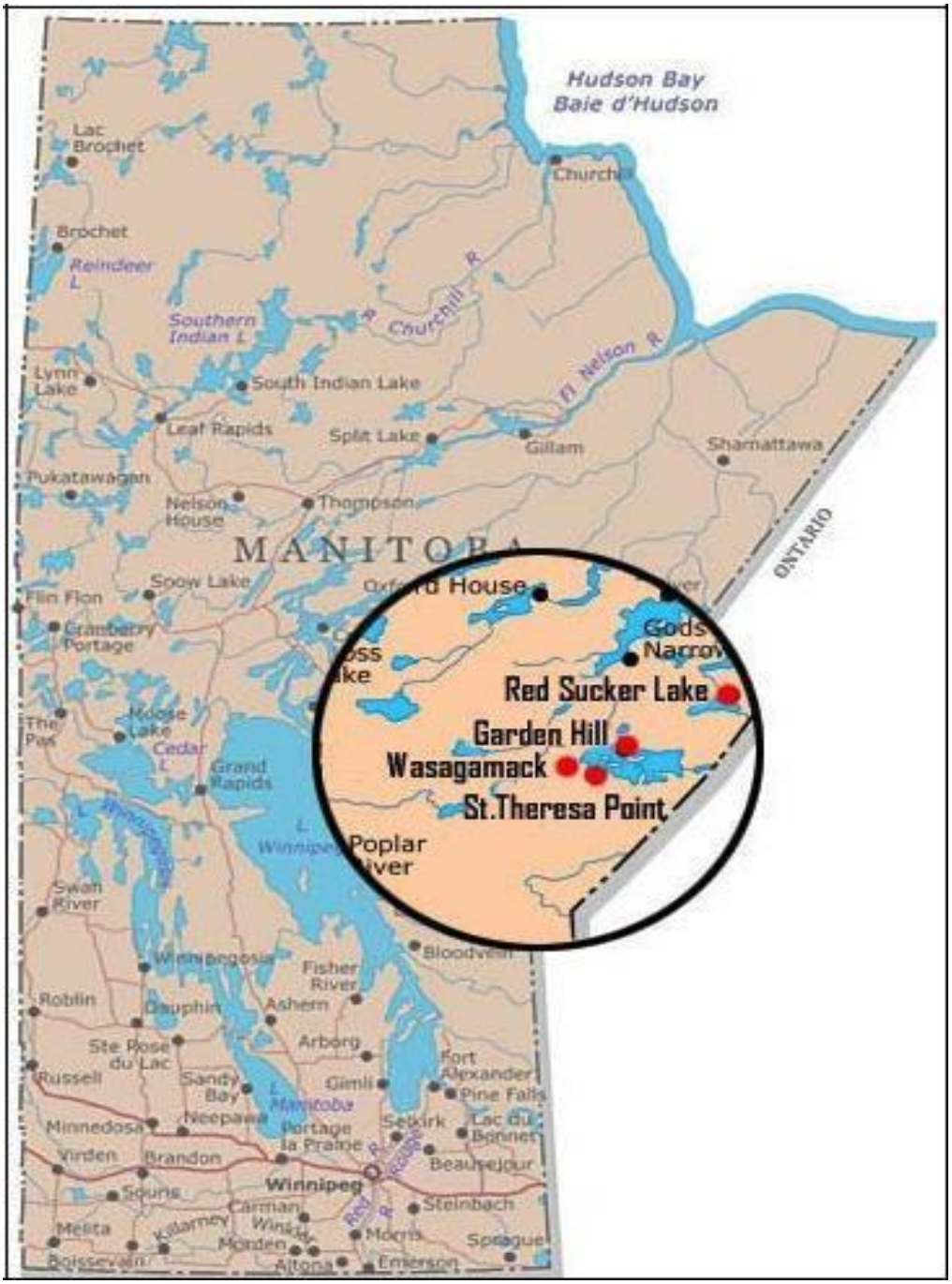
Garden Hill and Wasagamack First Nation communities are located on Treaty 5 territory 605 km northeast of Winnipeg, Manitoba. Both communities speak the Island Lake native dialect called Anishinimowin or Oji-Cree. Oji-Cree communities, unique to Manitoba and Ontario, were formed when the Ojibway people north of Lake Superior settled further north with the Lowland Cree (Michnik, 2018). These two communities are isolated without all-weather access roads on their island, requiring boats or planes with ice roads only available for driving in the winter (Zahariuk, 2014). Transportation depends on the season and is vulnerable to both climate change and settler development activities. Boats, trucks, and snowmobiles are the principal means of transportation within the communities and from one community to another (Statistics Canada, 2016).

Regarding housing units, Garden Hill First Nation community has 505 household units for 2591 people, while Wasagamack First Nation has 285 household units for 1403 people (Statistics Canada, 2016). Houses are overcrowded, with most housing rated not suitable in both communities (over 50%) (Statistics Canada, 2016). Table 3.1 contains the community profiles of Garden Hill and Wasagamack First Nation.

Colonialist policies with the fur trade crashing disrupted social, economic, and political structures in Indigenous communities. Both these Island Lake communities suffered the loss of traditional knowledge and teachings, poverty, a high unemployment rate, poor housing conditions, and food insecurity (Thompson et al., 2020a). Also, higher rates of chronic and contagious diseases in Garden Hill and Wasagamack First Nation communities are related to the lack of housing and other infrastructure (Adegun & Thompson, 2021; Thompson et al., 2020a). Tuberculosis has a 50 times higher prevalence among people on First Nation reserves than other Canadians (Thompson et al., 2020a). Another example is viral hepatitis, spread by contaminated water and food but related to the inadequate water systems and infrastructures on many reserves. The majority of the housing units in both communities lack regular water supply, with half of the houses (50%) depending on water supply from cisterns (Statistics Canada, 2016; Thompson et al., 2020a).

The two remote northern Indigenous communities remain roadless, accessible by winter road, plane, or canoe (Thompson et al., 2020b). The distance to Winnipeg, the largest urban center in Manitoba, is: by ice road, approximately 1500 km, taking 17 to 20 hours; or, by plane, approximately 610 km, taking 1.5 hours and currently costs $360 for a one-way ticket. Travel by plane is further complicated and expensive as the airport is located on different islands than both communities. To reach Wasagamack requires 12 kilometres to travel over water to the airport at St. Theresa Point. During the fall freeze-up and spring break-up, a helicopter is required to travel to the airport, costing as much as $700 one-way. A road to access a service center or other reserves is not expected until after 2050 (Thompson et al., 2012).

Figure 3.1 Location of Garden Hill and Wasagamack in Manitoba



Source: Four Arrows Regional Health Authority, 2012 in Thompson et al., 2012.

Table 3.1 Community Profiles for Garden Hill and Wasagamack First Nations.

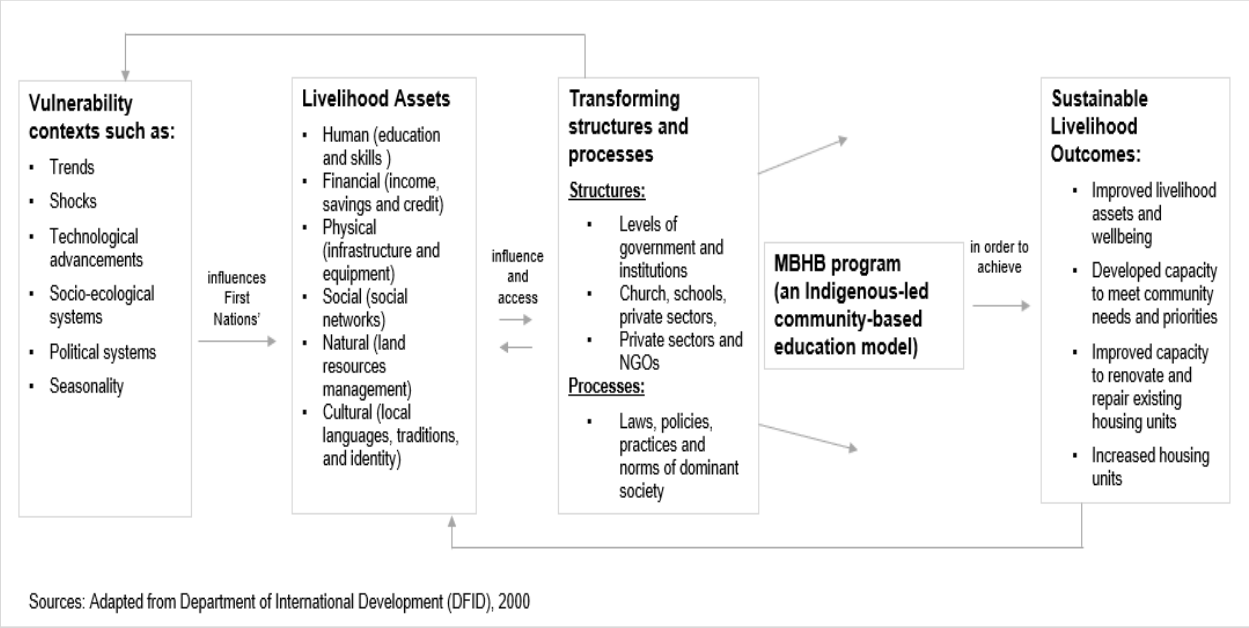
Variables	Garden Hill	Wasagamack
Population	2591	1403
Land area (km^2)	84.19	80.91
Population density (per km)	31	17
Median household income	$37,077	$35,712
Median individual income (over 15)	$10,693	$11,499
Households	505	285
Major repairs needed for households	315 (62%)	235(83%)
Average household size	5	5
Not suitable housing	275 (55%)	(53%)
Labour force (15 years and older)	24%	28%
Secondary school completion rate	25%	21%
Water supply by cisterns	Majority	
Waste disposal	Open garbage dumps and open-air burning	
Hospital	No	
Transportation	o No airport located on the Island o No all-weather roads. o No public transportation.	

Source: Statistics Canada Community Profiles, 2016.

3.2 Research Approach

This study was designed to evaluate the MBHB program's impact on the livelihood assets of students involved in the program through the sustainable livelihood research lens (Chambers & Conway, 1992; Ramirez, 2019; UNDP, 2017). Figure 3.2 illustrates the context of applying the sustainable livelihood framework to evaluate the MBHB program's impact on the sustainable livelihood of the youth group.

Figure 3.2 Sustainable Livelihood Framework applied to Mino Bimaadiziwin Homebuilders program (MBHB) program evaluation



Sources: Adapted from Department of International Development (DFID), 2000

The MBHB program was analyzed based on the participants' views of their livelihood asset changes before and after the program, public program records, and statistics (Chambers & Conway, 1992; Ramirez, 2019; Statistics Canada, 2016; UNDP, 2017). Participants' livelihood assets before and after the MBHB program were analyzed for the six livelihood asset categories (human, financial, physical, natural, social, and cultural) (Gaudet, 2021; Kopp et al., 2021; Snider, 2021). The indicators were defined from previous studies that applied the SLA framework to evaluate community programs (Chambers & Conway, 1992; DFID, 2000; Kamal et al., 2014; Ramirez, 2019; Snider, 2021; Thompson et al., 2012; UNDP, 2017). Each of the six livelihood asset categories was measured using indicators for each youth of:

1. Human assets by the postsecondary educational attainment and skills developed (Snider, 2021; Gaudet, 2021).

2. Financial assets by income and ability to pay their bills (Kamal et al., 2014; Snider, 2021; Thompson et al., 2012).
3. Physical assets by the suitability of housing (Kamal et al., 2014; Snider, 2021; Thompson et al., 2012).
4. Social assets by rating social bonds of family and neighbourhood relationships, which indicate the ability for collective action and sharing of resources (Kamal et al., 2014; Snider, 2021; Thompson et al., 2012).
5. Natural assets by survival jobs in forestry, non-timber, and fisheries (Kopp et al., 2021; Snider, 2021; Thompson et al., 2012).
6. Cultural assets by Indigenous knowledge transfer opportunities and Indigenous language use (Kopp et al., 2021; Snider, 2021).

Furthermore, the sustainable livelihood approach finds Work Integration Social Enterprise (WISE) longitudinal survey complementary in achieving the study's objective (Chambers & Conway, 1992; DFID, 2000). This WISE longitudinal survey is a standardized tool developed for research projects assessing whether education and training programs building the capacity of at-risk youth are achieving their goals across Canada. This WISE longitudinal survey was applied for data collection with the Homebuilder group participating in the pre-and post-program survey interviews. The Homebuilder group participating in the pre-and post-program surveys evaluated the MBHB program's impact based on people's view of the dynamic changes in their capacities and livelihood assets (Chambers & Conway, 1992; Ramirez, 2019; UNDP, 2017). Both pre-and post-program evaluation surveys contained open and closed questions, allowing the collection of qualitative and quantitative data from the Homebuilder group.

Descriptive and inferential statistical methods were applied for data analysis, helping to analyze the Homebuilder group's responses, available socio-economic data and program records when conducting complex livelihood analyses in rural and remote communities (Chambers & Conway, 1992; UNDP, 2017). McNemar test, as an inferential statistical method, was applied to identify asset dynamics among the Homebuilder group, accounting for livelihood changes before and after the MBHB program (Chambers & Conway, 1992; UNDP, 2017). The underlying assumption is that descriptive and inferential statistics bolster the sustainable livelihood approach to achieve the study objective more extensively (Chambers & Conway, 1992; Creswell & Plano-Clark, 2018; DFID, 2000; Ramirez, 2019). These two statistical methods are suitable for analyzing

complex, multifaceted issues such as health services interventions (Raven et al., 2011) and living with chronic illness (Creswell & Plano-Clark, 2018). Thus, applying descriptive and inferential statistical methods through the sustainable livelihood lens provided the holistic approach required to evaluate the MBHB program's impact on youth before and after the program (Chambers & Conway, 1992; Creswell & Plano-Clark, 2018; Ramirez, 2019).

3.3 Research Procedures

3.3.1 Method of Data Collection

Data collected to evaluate the MBHB program focus on the program's impact on livelihood assets of the Homebuilder group involved in the program. The WISE longitudinal survey was applied for data collection. This longitudinal survey comprises pre-and post-program evaluation surveys targeting the Homebuilder group. The Homebuilder group's responses to the pre-and post-program evaluation survey questionnaires provided the required data for achieving the study's objective. Survey questions were focused on the research objective (Snider, 2021) and consisted of open- and closed-ended questions. While the closed-ended questions provided participants with pre-determined answer choices, the open-ended questions helped clarify issues raised by the respondent (Ramirez, 2019; UNDP, 2017). Combining open-ended with closed-ended questions makes the survey suitable for determining the program's holistic impact, synchronizing individuals' perceptions, opinions, and experiences from their involvement in a particular program (Ramirez, 2019; Snider, 2021; UNDP, 2017). Appendix C shows the pre-and post-program evaluation survey questions in the WISE longitudinal survey applied in this study.

3.3.2 Survey Participation

Pre- and post-program evaluation surveys were collected to evaluate the MBHB program's impact on the six livelihood asset categories (human, financial, physical, natural, social, and cultural) of the Homebuilders in Garden Hill and Wasagamack First Nations communities. The Homebuilder group was invited to partake in the pre-and post-program evaluation surveys to see what difference the program made. The Homebuilder group consisted of 70 graduates from the Mino Bimaadiziwin Homebuilder program in Garden Hill and Wasagamack First Nations from 2018 to 2020. All 70 participants are referred to as Homebuilders in the program. The Homebuilders are mature with a median age of 27 years, ranging from 20 to 30 years. Of the 70 Homebuilders, 79% were males, and the remaining (21%) were females. Regarding marital status, 61% of the 70 Homebuilders

were single, 23% were married, and the remaining (4%) were divorced or separated. Regardless of gender and marital status, all Homebuilders were invited to partake in the evaluation surveys.

Further, pre-and post-program evaluation surveys were administered in English. All Homebuilders were required to speak, read, and write English to be part of the program. No interpreter was required. The MBHB program's eligibility requirement improved survey participation, ensuring Homebuilders could respond to the pre-and post-program evaluation survey questions (Chambers & Conway, 1992; DFID, 2000; Ramirez, 2019; UNDP, 2017).

In fall 2018 and 2019, all 70 Homebuilders were invited to participate in the pre-program evaluation survey in their communities when the two phases in the MBHB program started, respectively. The pre-program survey was administered in person, comprising 23 questions about the Homebuilder's livelihood status before joining the program. During the pre-program evaluation survey, all 70 Homebuilders responded to the survey questions in their communities, 33 Homebuilders from Garden Hill and 37 from Wasagamack. Table 3.2 shows the pre-program survey participation rate of the Homebuilder group is 100%.

During the post-program survey, the same 70 Homebuilders were invited for the post-program survey via phone interview between April and August 2020 due to COVID-19 restrictions preventing in-person survey administration. Jide Oni, the researcher, conducted the phone survey interviews. Forty-five (45) Homebuilders responded during COVID-19 to 33 questions. The post-program survey included additional survey questions, including the Household Food Security Survey Module (HFSSM) to capture food security during COVID-19 (Statistics Canada, 2021) and different livelihood assets. Table 3.2 shows the post-program survey participation rate of the Homebuilder group was 64%, with 21 Homebuilders participating from Garden Hill and 24 for Wasagamack, making these 64% and 65%, respectively.

Table 3.2 Number of Youth Homebuilders Participating in Post-Survey by Community

First Nation Communities	Total number of Homebuilders Students	Homebuilders conducting the post-program survey
Garden Hill	33	21 (64%)
Wasagamack	37	24 (65%)
Total	**70**	**45 (64%)**

3.3.3 Statistical Analysis

Data collected were coded and cleaned in Microsoft Excel v.2110 before being exported to STATA v.15 for analysis. The 45 Homebuilders' responses for both the pre-and post-program evaluation survey were analyzed in line with the objective of this research. Although no control group was in place in Island Lake to compare the Homebuilders to, we compared their situation to the First Nation statistics to see how they fared in relation to others.

Descriptive and inferential statistical analyses were conducted to evaluate the MBHB program's impact on the Homebuilder group's livelihood. STATA v.15 was statistical software employed for both analyses. Indicators considered for this evaluation were education outcomes and food security for human assets, ability to pay bills, including food for financial assets, housing and homebuilding for physical assets, access to forestry resources for natural assets and relations with family and neighbours for social assets and Indigenous knowledge for cultural assets (Mohammadi et al., 2021; Smyth & Vanclay, 2017; Snider, 2021).

Assets were compared using McNemar's test for paired nominal data with a p-value < 0.05 considered statistical significance (Nagata et al., 2016; Ugoni & Walker, 1995; UNDP, 2017). The McNemar test is suitable when the variables of interest are categorical and determines significant differences within a group before and after a program (Nagata et al., 2016; Ugoni & Walker, 1995; UNDP, 2017). Categorical variables are variables with two or more categories. The McNemar test can be considered similar to the paired-samples t-test, but for categorical variables with chi-square distribution rather than normally distributed continuous variables (Nagata et al., 2016; Ugoni & Walker, 1995; UNDP, 2017).

Three factors ensure the suitability of the McNemar test applied in this study. These three factors are: 1) variables of analytical interest (livelihood asset categories) are categorical in nature; 2) categories are mutually exclusive, preventing overlap within-group (that is, a participant can only be in one of the categories of the indicator); 3) applicable to a case study (that is the Homebuilders) involving a random sample of the population of interest (Indigenous youth). The McNemar test is a non-parametric test helpful to determine if the program significantly changed Homebuilders' livelihood assets. Results generated from McNemar analysis are presented as a crosstabulation table called the pre-training and post-training in this study.

In addition, the household food security status of the Homebuilder group's households provided an indicator of financial assets. In this context, the household food security status is an instrument that reinforces the importance of having a program impacting youth's livelihood assets amidst the poverty and high COVID-19 pandemic rates in Indigenous communities. The Household Food Security Survey Module (HFSSM) determined the household's food security status. The household was considered either: food secure, moderately food insecure (quality and quantity of food are compromised due to lack of money to buy food) or severely food insecure (meals missed or food intake reduced, and at the extreme, going day(s) without food) according to the indicators in Table 3.3 (Health Canada, 2020; Statistics Canada, 2021).

Table 3.3 Categories of Food security status based on Household Food Security Survey

Food security status	10 item adult food security scale	8 item child food security scale	Household status
Food secure	Zero to one affirmative response	Zero to one affirmative response	Both adult and child in the household are food secure
Moderate food insecure	Two to five affirmative responses	Two to four affirmative responses	Either adults or children in the household or both are moderately food insecure, and neither is severely food insecure
Severe food insecure	Six or more affirmative responses	Five or more affirmative responses	Either adult and/or children in the household are severely food insecure

Source: Health Canada, 2020.

3.4 Researcher's Positionality

Applying a sustainable livelihood framework to a case study evaluation involves building trust with participants involved and separating the researcher's influence or position during the research (DFID, 2000; UNDP, 2017). The lack of trust can cause data generated to be quite untrustworthy for the participants. This often happens when the researcher is involved in the program delivery or finding tailored answers to fit their perceived interests in the study. In such cases, researchers tend to be biased in their analysis and research procedures. The researcher's positionality was defined to prevent researcher bias. Researcher positionality "means setting out one's position in relation to the study and understanding that" (Snider, 2021, p. 41). I understand my positionality will

"influence various aspects of a research study, including the questions asked and the conclusions drawn" (Snider, 2021, p. 42).

Considering that the researcher (Jide Oni) had a dual role as a tutor during the fall of 2019 and the conductor of the evaluation for holistic impact, a conflict of interest may happen. As such, Jide Oni kept a journal that helped consistently reflect and delineate his position in the evaluative study from being involved in the program delivery. Important to note that during Jide's tutoring period, no evaluation of programming or impact occurred. His participation as tutor built rapport with the Homebuilders and informed him about the program. Visiting both Garden Hill and Wasagamack First Nations over fourteen weeks (intermittently) in the summer and fall of 2019, Jide had the opportunity to learn how to adapt to the Indigenous cultures. Building a connection to the land and relationship with the people is important for program monitoring and evaluation. This experience provided insights useful to this evaluative study. However, the connection to land and people continues to be a learning experience with much still unknown. However, this connection helped consider whether the research process, including analyses and conclusions, relates to the Anishiniwuk approach.

The reflective journal serves as a pedagogical instrument (Snider, 2021). Reflective journaling helped Jide reflect on his experience, criticize his biases about the seriousness of Indigenous youths, and do rigorous self-analysis throughout the research. By keeping a reflective journal, Jide became aware of his thoughts, positions, and feelings while instructing the Homebuilders, learning from the community, and evaluating the program's impact. Jide's journal detailed his experiences with the Homebuilders, community members and leaders during the fourteen weeks of intermittently visiting the two First Nation communities of Garden Hill and Wasagamack. Although many experiences were documented in Jide's reflective journal, he was able to summarize them, stating:

> "After spending the first two weeks in the two First Nation communities of Garden Hill and Wasagamack, I realized there is a Canada that is totally different from what I imagined as a young man from a West African country impoverished by corruption. I discovered the confinement of a people to a place called reserves. I interacted first-hand with people living in houses without windows, with poor livelihood systems and experiencing structural inequalities. While this discovery is an incredible

> experience, it was an opportunity to build a partnership towards making a sustainable impact. I had the opportunity to learn the Indigenous culture, go fishing, mentor youth. Also, I ate moose meat potato soup for the first time, exposing me to new food. Overall, my experience continually inspires me to be dedicated and committed to Indigenous development through a sustainable approach in Canada and across the world."

Furthermore, the reflective journal helped reconnect with program activities and adhere to evaluation ethics protocol throughout the research. Experiences documented in the journal were shared with Dr. Shirley Thompson. Some experiences are published in an online blog article called "My journey through the Islands of the North as a researcher" on the Ecohealth circle website for public access on December 4, 2019 (See Appendix B).

3.5 Research Ethics Approval and Ethical Considerations

Research ethics for this study was approved at the university and community levels. This ensures that the university and community approve the research ethics protocol before research. Dr. Thompson's research ethics protocol (#J2017:127 (HS21156)) was amended to include Jide Oni as a researcher with the University of Manitoba's Joint Faculty Research Ethics Board's approval to use the protocol for this study in September 2019. The protocol described the questions in the program evaluation survey used to gather data required for evaluating the MBHB program's impact on youth's sustainable livelihoods in the two First Nation communities of Garden Hill and Wasagamack. Survey participants were not identified to provide anonymity and confidentiality. Consent forms (also described in the protocol) were signed by participants to provide informed consent (see Appendix D for survey consent form).

Furthermore, the research procedure follows the Ownership, Control, Access, and Possession (OCAP) protocol. The OCAP protocols establish how First Nations' data and information was collected, protected, used, or shared (First Nations Information Governance Centre [FNIGC], 2020). Following the OCAP protocol started by seeking approval from Garden Hill and Wasagamack First Nation communities to conduct this research using the ethics protocol (#J2017:127 (HS21156)). A thesis proposal was developed and presented to the MBHB program partners during a partnership conference in September 2019. Among the MBHB program partners in attendance were Band Council members of Garden Hill and Wasagamack First Nation

communities, consultants from Anokiwiin Training Institute (ATI), and academics from the University of Manitoba. The presentation ensured community stakeholders were informed and provided recommendations and opportunities to address any concerns and questions. Feedback from presentations and meetings with MBHB program partners ensured research priorities, and the process followed the OCAP protocol. The research funding, ethics, and participatory research occurred only after many workshops and meetings with the community. The chief and council of both Garden Hill and Wasagamack First Nations provided a band council resolution supporting the project-based post-secondary education Homebuilder program and research.

The post-survey evaluating the MBHB program's impact on youth's sustainable livelihood coincided with the COVID-19 pandemic, requiring an ethics protocol approval to comply with COVID-19 protocols. Communities were under lockdown, and all in-person research activities and field travel were restricted by the First Nation and the University. The University of Manitoba's Joint Faculty Research Ethics Board required COVID-19 pandemic protocol amendments. The COVID-19 situation necessitated data collection via phone interview. Therefore, amendments were made to the ethics protocol with approval from the Research Ethics Board in April 2021 (see Appendix D for ethics approval document). Also, the researcher has a CORE TCPS2 certificate, signifying the capability to conduct research with humans ethically (see Appendix E). The findings of this research have been reviewed with Norman Wood from the Island Lake Tribal Council (ILTC) and Garden Hill First Nation to check accuracy. Norman is a co-author of the manuscript in the findings chapter of this thesis.

3.6 Strengths and Limitations of the Study

One of the strengths of this evaluative study is that it is community-driven. Throughout the research, the two First Nation communities had control of the program delivery and evaluative process, resources, and decision-making. Employing a community-driven approach strengthened this study's findings, presenting the opportunity to validate and cross-check Indigenous worldviews and opinions of program evaluation with Island Lake Tribal Council (ILTC) and other stakeholders involved in the program.

Applying the sustainable livelihood approach is another strength of this study. The sustainable livelihoods approach provided the evaluative framework for determining the holistic impact of Indigenous-led education programs on the livelihoods of youth in Canada. Through the

sustainable livelihood lens, this study was able to organize complex the pre-and post-program livelihood assets of the Homebuilders and evaluated the MBHB program's holistic impact (Chambers & Conway, 1992; Ramirez, 2019; UNDP, 2017).

COVID-19 lockdown and internet access were limitations to data collection, causing coverage bias. Coverage bias results from the typical exclusion of the segment of the population that does not have access to a telephone (either mobile or landline) (Stiegler & Biedinger, 2016). The return rate (64%), as shown in Table 3.2, signals that a phone survey provided decent results. The remaining 36% could not participate in the post-program survey due to many households having limited access to phones and the internet. More follow-up surveys are required to capture other possible impacts of the MBHB program affected by coverage bias experienced due to the COVID-19 lockdown.

Another limitation of the study may be related to the researcher's bias. A researcher is biased when their interest or subjective interpretation of data is attributable to their expectancies or preconceived beliefs (Creswell & Plano-Clark, 2018). Researcher bias causes unintended errors in the research process or the interpretation of its results. The researcher's bias often occurs when open-ended questions are included in the survey instrument. With open-ended questions, researchers tend to cause bias while probing participants for responses to difficult questions (Smyth et al., 2006). However, the researcher's biases were minimized by keeping a reflective journal to critically reflect on how to ask survey questions and minimize possible researcher's influence on the participant's responses, having built a relationship with them as a tutor (Creswell & Plano-Clark, 2018) throughout the research.

3.7 Chapter Summary

This chapter discusses the application of a sustainable livelihood framework guiding the evaluation of an education program developed to improve people's quality of living. The people-centred livelihood strategy required evaluating multiple livelihood assets in the community to provide a holistic measure. Further, the data collection methods, statistical analysis and research limitations were detailed. With COVID-19 impacts on survey data collection, ethical protocol transitioning from in-person to phone interviews was discussed. The next chapter presents the results of this study which is developed in the manuscript form and co-authored with Norman Wood, Drs. Shirley Thompson, Donna Martin and Marleny Bonnycastle. The manuscript titled "Mino Bimaadiziwin

Homebuilder Program's Impact on Sustainable Livelihoods Among Youth in Garden Hill and Wasagamack First Nations: An Evaluative Study" addresses the research objectives and follows the research procedures discussed in this chapter.

4. Findings

4.0 Mino Bimaadiziwin Homebuilder Program's Impact on Sustainable Livelihoods Among Youth in Garden Hill and Wasagamack First Nations: An Evaluative Study

Abstract

This paper describes the Mino Bimaadiziwin Homebuilders post-secondary education program in Garden Hill and Wasagamack First Nations. The program was evaluated using a pre/-post-sustainable livelihood survey to determine the impact among youth participants. The post-test response rate was 64%, with 45 out of the 70 completing telephone surveys due to the COVID-19 pandemic. Results indicated statistically significant improvements in students' assets, including social relationships, cultural development, finances, housing, and human resource, with certificates obtained either in forestry, homebuilding, or both. This account of the community-led educational program documents how investing in youth education, job opportunity, and housing improved multiple aspects of people's lives, despite underfunding, poverty, and the COVID-19 pandemic. Major investments in community-led educational programs are needed in First Nations, particularly remote First Nations, to build capacity and improve livelihood among First Nation youth through homebuilding.

Keywords

COVID-19 (coronavirus), First Nation, Homebuilder, sustainable livelihoods, inequity, poverty, remote communities.

4.1 Introduction and Literature Review

Overcrowded housing in Indigenous communities signals the need to shift from a dependency-based development approach to a sustainable one (Assembly of First Nations [AFN], 2020a; 2020b; First Nations Information Governance Centre [FNIGC], 2020). Currently, the housing deficit in First Nation communities is estimated at 130,000 units, resulting in half a million or more Indigenous people having poor or no housing due to the problems with various federally-run programs (AFN, 2020a; 2020b). This housing crisis on First Nation reserves has negative impacts on the health, education, economic development, and welfare of First Nation people (AFN, 2020a; 2020b). First Nation communities need sustainable interventions and solutions 'determined by

Indigenous people and with Indigenous people' rather than the imposed federally-run programs (AFN, 2020a; 2020b; First Nations Information Governance Centre [FNIGC], 2020; First Nations Health Council [FNHC], 2020). Thus, sustainable responses need to be Indigenous-led development alternatives to address this dire need for housing on First Nation reserves. Do these alternatives exist? If so, are these alternatives sustainable?

Through the sustainable livelihood research lens, this paper analyzed the impacts on 45 out of 70 youth who participated in a homebuilding education program named Mino Bimaadiziwin Homebuilders, which translates to "a good life as destined by the Creator." The Mino Bimaadiziwin Homebuilders (MBHB) program was developed, implemented, and evaluated in two remote northern First Nation communities located in Manitoba, Canada. To determine the impact of the MBHB program among participating youth, pre-and post- sustainable livelihood surveys were conducted and analyzed. This study evaluated whether sustainable livelihood benefits for First Nations students resulted from this community-based education.

This paper starts by defining First Nation people and Indigenous people, introducing the role of the Indian Act in underdevelopment. We explain the overcrowded housing, low educational attainment, and the limited social enterprises on First Nation reserves in light of the Indian Act and other colonial policies. We discuss the impact of COVID-19 on First Nations as the post-program survey was completed during the COVID-19 pandemic. The case study of the MBHB program in Garden Hill and Wasagamack First Nations is introduced before describing the evaluative methods. The findings document the MBHB program impacts on all six sustainable livelihoods as reported by students. The discussion and conclusion focus on recommendations aimed to resolve the multiple crises of housing, education, health, and unemployment, which intersect in First Nation communities.

4.1.1 Indigenous Communities in Canada

First Nation people are one of the three Indigenous peoples in Canada identified under the Constitution Act (1982) (Royal Commission on Aboriginal People [RCAP], 2004). Other designated Indigenous groups are the Metis and Inuit. First Nations in Canada include over 600 nations with many diverse cultures, languages, economies, and histories (Nelson & Wilson, 2017). Indigenous communities face vulnerabilities due to colonization creating social, economic and health inequalities (Levi & Robin, 2020).

First Nation people are governed by the Federal government of Canada under the Indian Act as "wards of the state." The Indian Act legislated uneven human and economic rights for First Nation people, compared to other Canadians, by holding in trust Native land and resources. The Crown's role as the land trustee to Native people spawns human rights abuses, underfunding, underdevelopment, and inadequate health care (Blacksmith et al., 2021). Most rural and remote First Nation communities in Canada lack hospitals, safe drinking water, drinking water pipes, adequate housing, all-weather roads, and the bandwidth needed for distance education (Adegun & Thompson, 2021; Hill et al., 2020).

Lack of health services and housing infrastructure contribute to health concerns such as tuberculosis, diabetes, cancer, addictions, COVID-19 transmission, and mental health issues. Overcrowding in housing, lack of domiciliary water and limited health services are inequalities experienced by First Nations at much higher rates compared to other Canadians (Statistics Canada, 2016). COVID-19 exposed existing socio-economic and health inequalities, with poor housing contributing to higher COVID-19 rates (Adegun & Thompson, 2021; Hill et al., 2020; Levi & Robin, 2020; Pasternak et al., 2020; Power et al., 2020). These factors are blamed for the higher risk and death rates in northern and remote FNs reserves due to COVID-19 than other Canadian communities (Adegun & Thompson, 2021). Additionally, the lack of communication infrastructure and resources, such as the lack of bandwidth, has caused some First Nation communities to lose their 2020/21 school year under lockdown (Schleicher, 2020; CBC, 2021). These inequalities against First Nation people contravene the human right to a decent living standard and education (Blacksmith et al., 2021).

4.1.2 On-reserve Housing

Housing on-reserve is in a "state of crisis" due to past and present-day colonial policies. Colonial policies sabotage Indigenous communities' accessing financial loans for housing and other infrastructure (AFN, 2020a). The Indian Act restricts financing of infrastructure on-reserve due to the reserve land being in trust to the Crown rather than being fee-simple ownership by the band or the homeowner (Blacksmith et al., 2021). The Crown holds the title to the First Nation reserve land and all the land of Canada, which is native land, controlled through the Indian Act (Blacksmith et al., 2021). With the Crown claiming ownership of native land, First Nation people cannot mortgage their native land to obtain credit to afford building houses. The inability to get a mortgage

from banks for on-reserve housing makes financing a home virtually impossible for the band or an individual, particularly with the high costs of building on reserve. Funding is limited to a few houses each year by loans from the Canada Mortgage and Housing Corporation (CMHC) to the band. Although funding provided for housing is less, oppositely building costs are elevated from market value as much as ten times with low or no resale value (Agrawal & Zoe, 2021).

Overcrowded housing is common on-reserve due to housing shortages and lack of ownership resulting in disrepair (SSCAP, 2015; Thompson et al., 2020a). Severe overcrowding of housing is measured by the National Occupancy Standard (NOS) crowding indicator. The suitability is decided by whether "the dwelling has enough bedrooms for the household's size and composition," as defined by NOS (Statistics Canada, 2019; Statistics Canada, 2020). Overcrowding, according to NOS, was nine times higher among First Nations (37%) than non-First Nations households (4%) in Manitoba (Statistics Canada, 2020). Unsuitable housing rates of 40% to 60% in remote communities indicate that most homes on remote reserves are overcrowded (Statistics Canada, 2016). This overcrowding increases the risk of COVID-19 and other diseases being spread (Thompson et al., 2020a). With overcrowding and poverty as contributing factors, First Nation people are experiencing a high rate of precarious housing and homelessness (Thompson et al., 2020a). This on-reserve housing crisis has forced many youth and young adults to live in shelters, transitional housing, and residential facilities where they are prone to risks of abuse, violence, and gangs (Gaudet, 2021; Thompson et al., 2020a).

Due to housing shortages impacting half a million people, as well as cultural aspects of large extended families, multiple generations frequently live together in reserve homes. One in four First Nation people on-reserve (25%) lived in multigenerational houses in 2016, which include grandparents, elevating the risk of severe COVID-19 impacts. This high rate of people living in multigenerational homes is four times the 6% rate for off-reserve housing and an indicator of overcrowding as First Nation houses are typically small (Statistics Canada, 2020).

During COVID-19, overcrowding on-reserve has worsened. Many First Nation people had to return to their reserves with the emptying of university residences, secondary schools' residences, and prisons, which were deemed high-risk for COVID-19 (Palmater, 2021). As First Nation people are disproportionately incarcerated due to systemic racism in the justice system,

releasing people with misdemeanors to lower the risks from COVID-19 in jails increased overcrowding and risks on-reserve (Palmater, 2021).

Funding for new homes on the reserve from CMHC is limited to a few houses for each reserve yearly. This housing provision is not keeping up with the housing demand created by high birth rates in First Nations. As a result, the 130,000 housing units critically needed now are expanding yearly to higher and higher needs (AFN, 2020a). Similarly, the need to renovate (44%) or replace (18%) existing reserve homes grows, particularly with the poor housing designs, which quickly deteriorate (Statistics Canada, 2016).

With the high need for housing development and other critical infrastructure, Indigenous communities are demanding housing strategies and programs 'for Indigenous people and by Indigenous people' (AFN, 2020a). The call is for local people to have the capacity and funding to build homes in First Nation communities to make "housing a source of community healing and economic renewal" (RCAP, 1996, p. 341).

4.1.3 Capacity Building through Post-Secondary Education

While many First Nations have a dire need for education and infrastructure, funding and training options from social enterprises and other non-government organizations are largely absent. The philanthropic and not-for-profit organizations are largely absent in providing needed services to make up for government shortfalls in First Nations (Stormhunter, 2020). One of the barriers is that First Nations are not automatically qualified donees by Canada's Tax Revenue Agency. Oppositely every other government level in Canada, including towns, municipalities, and cities, is automatically given this donee status, which is required to receive charity funding (Thompson et al., 2020b; Canada Revenue Agency [CRA], 2017). Thus, philanthropy, charitable funding, and non-government organizations (NGOs) are scarce or completely lacking for developing housing, water, education, training, and other services in First Nations (Stormhunter, 2020).

Indigenous education programs respond to community needs in the absence of NGOs. Emma and Victor Harper, two Wasagamack school teachers, led land-based post-secondary education programs in Island Lake in the 1970s to deal with addictions, called a Nopimink program, which means "on the land education" in Island Lake (Thompson et al., 2020). The Harpers with employment training and education directors in Island Lake asked for the Mino Bimaadiziwin Homebuilder (MBHB) program to develop land-based and Indigenous-led housing

programs. Key elements, according to youth and community Elders from Island Lake, are that Indigenous youth education should be rooted in traditional beliefs, land-based learning, cultural identity, self-determination to build culturally-appropriate livelihoods (Michnik et al., 2020). Gaudet (2021) summarized that land-based education initiatives provide the opportunity for youth and the community to take back their lives by taking responsibility for the process of recovering from their losses and being of service to the community (Gaudet, 2021). Indigenous community-based education programs integrate values of self-reliance, traditional ecological knowledge, life-stage teachings, elder wisdom, intergenerational learning, and land-based skill training (Ferreira et al., 2021).

Mino Bimaadiziwin offers the "overall goal of healing, learning and life in general" (Hart, 2002, p. 44). Mino Bimaadiziwin asks individuals to develop their spirit, heart, mind, and body in order to attain healthy relationships with the self and others (Deer & Falkenberg, 2016; Hart, 2002). This philosophy articulates that creating wellbeing (Deer & Falkenberg, 2016) involves education, helping youth recognize their unique gifts and overcoming vulnerabilities preventing living the good life (Deer & Falkenberg, 2016; Hart, 2002). Indigenous education is based on the land, culture, and self-determination and frequently applied *Nopimink* teachings (Gaudet, 2021; Walker et al., 2021). Nopimink programs defy the western viewpoint that land-based learning programs are non-educational, economically unstable, and unworthy of long-term funding (Gaudet, 2021; Simpson & Coulthard, 2014). These values eliminate the devastating intergenerational effect of colonial policies on Indigenous people's connection to the land, traditional food, kinship systems and cultural identity (Gaudet, 2021). This education is foundational for structural and critical social change to remove structural inequalities (Kepkiewicz & Dale, 2019; Settee & Shukla, 2020).

4.1.4 Educational Attainment Limited by Structural Inequalities

Education programs are failing Indigenous youth. Funding for education for First Nation communities is significantly lower compared to any other jurisdiction in Canada (Olsen Harper & Thompson, 2017). Correspondingly, Indigenous people have a lower graduation rate at 28% less than the national average (Statistics Canada, 2016), with the unsafe cultural pedagogy in non-Indigenous postsecondary educational institutions in Canada to blame (Organization for Economic Cooperation and Development [OECD], 2018). Courses do not match Indigenous students' needs, without support for participants facing personal and family responsibilities (OECD, 2018).

Indigenous education programs typically provide limited funding and no customized support (Raderschall et al., 2020). Improving Indigenous youth's retention in education programs is key to better educational outcomes and holistic development (OECD, 2018).

Culturally appropriate education and training are key for Indigenous people to escape poverty and enable labour market success (Raderschall et al., 2020). Raderschall et al. (2020) explored Indigenous education and training programs called "Trades Wind to Success" in Indigenous communities in Australia and Canada. Raderschall et al. (2020) noted the program's four steps in preparing Indigenous apprenticeship candidates: 1) building foundational skills, 2) academic preparation, 3) apprenticeship accreditation, and 4) career development towards achieving greater economic independence. Raderschall et al. (2020) concluded that building foundational skills of writing and math requires sufficient lead-time for upskilling.

4.1.5 Mino Bimaadiziwin Homebuilder (MBHB) Program as a Case Study

The Mino Bimaadiziwin Homebuilders program (MBHB) was led by Garden Hill and Wasagamack First Nations, located on Island Lake in northeast Manitoba. The community members in Garden Hill and Wasagamack speak their Island Lake dialect fluently called Anishinimowin. Although the people in Island Lake are called Oji-Cree by settlers and Canada's government, their correct name is Anishiniwuk (Winnipeg Free Press, 2018). These Anishiniwuk communities are so remote as to be considered as isolated as the north pole before planes (Fiddler & Stevens, 2003). The MBHB program originated with education and employment training directors identifying the need for community-led education and trades. These communities had previously engaged in Nopimink education (on-the-land education), training to install cisterns in communities and house building. The education directors approached Dr. Thompson to help build trades programs. Workshops in Wasagamack and Garden Hill First Nations showed that 18 out of 20 youth wanted to stay in the community to go to college or university due to their fear of experiencing racism in the city (Thompson et al., 2017). Educational attainment is low when Island Lake people go for post-secondary education out of the community, according to the Wasagamack principal. The principal explained that only 1 in 20 (5%) students are successful outside of the community (Klatt & Thompson, 2016).

After many meetings and workshops, a Social Science and Humanities Research Council (SSHRC) partnership proposal was funded in 2017 to fund the MBHB education pilot. The

Homebuilder program started in the Fall of 2018 to build students' capacity and homes in Island Lake. The Employment and Training departments provided the building materials, equipment, and classrooms in each community. The goal was to build two homes in each community. Anokiiwin Training Institute (ATI) Indigenous instructors and local train-the-trainers taught the post-secondary education program to students. Jide Oni, the lead author, helped with the participatory research, staying in Island Lake for over 14 weeks (intermittently) in the summer and fall of 2019.

4.1.6 Sustainable Livelihood Framework

The sustainable livelihood approach provides a people-centred evaluation considering different assets for living well, termed Mino Bimaadiziwin in Anishinimowin. A livelihood approach must maintain or increase opportunities for people to improve their current and future capacities and assets to be deemed sustainable (Mohammadi et al., 2021; Snider, 2021). Within the sustainable livelihood framework, peoples' livelihoods are comprised of their assets (Mohammadi et al., 2021; Snider, 2021). Education programs boost capacities and are generally considered a good investment (Chambers & Conway, 1992; Gaudet, 2021; Snider, 2021; Trade Winds to Success, 2020). Assets are resources or capitals categorized into the human, financial, physical, natural, social, cultural, and political, depending on the evaluation context (Chambers & Conway, 1992; Snider, 2021). For Indigenous communities, cultural assets (local languages) are very important to their identity (Forest, 2021; Kopp et al., 2021; Snider, 2021). The community capitals framework (CCF) includes cultural assets in the Indigenous context of program evaluation (Kopp et al., 2021; Snider, 2021). The SL framework has effectively been applied to assess the synergy and interdependence of six assets – human, financial, physical, natural, social, and cultural - in Indigenous communities in Canada (Snider, 2021).

Needs and priorities differ across communities based on their situation. Programming or initiatives should respond to the priorities and specific needs of the community (Michnik et al., 2021). Educational programs can increase assets at the individual and community level (AFN, 2020a; Gaudet, 2021; Kopp et al., 2021; Snider, 2021). The SL framework provides a holistic, multi-faceted approach to evaluating a program's impact on the well-being of the community or participants or both (Fitrianto, 2021; Mohammadi et al., 2021). While academic grades, business plans and financial reports provide important information about the state of an education program

or community development project, these do not capture the program's impact on holistic wellbeing (Chambers & Conway, 1992; Ramirez, 2019).

The SL model is adaptable to different local contexts of evaluating projects for impact. The SL model does not prescribe indicators within each asset category, allowing program evaluators or researchers to define their livelihood asset categories within the project's local context (Ramirez, 2019; Snider, 2021). Ramirez (2019) applied the sustainable livelihood framework to evaluate the impact of value-chain projects considering the local context, the influence of vulnerabilities, structures, and processes (Snider, 2021).

The SL framework is considered suitable when the change is monitored in a complex web-like livelihood system where long-term outcomes from a project can be challenging to predict (Ramirez, 2019). Nationally, the SL model helps analyze the Canadian Index of Wellbeing that combines federal and provincial data into eight interconnected domains (Ramirez, 2019; Statistics Canada, 2020). The SL model has also evaluated Indigenous youth education programming (Fulford & Thompson, 2014). See figure 4.1 for the analytical framework context for systematically evaluating an Indigenous-led community-based education program in Indigenous communities for livelihood impact on Indigenous peoples, especially youths. Figure 4.2 shows how the SL model can be applied to evaluate individual-level change and community-level change resulting from the implementation of a community-led education program.

Figure 4.1 Sustainable Livelihood Framework applied to Mino Bimaadiziwin Homebuilders program (MBHB) program evaluation

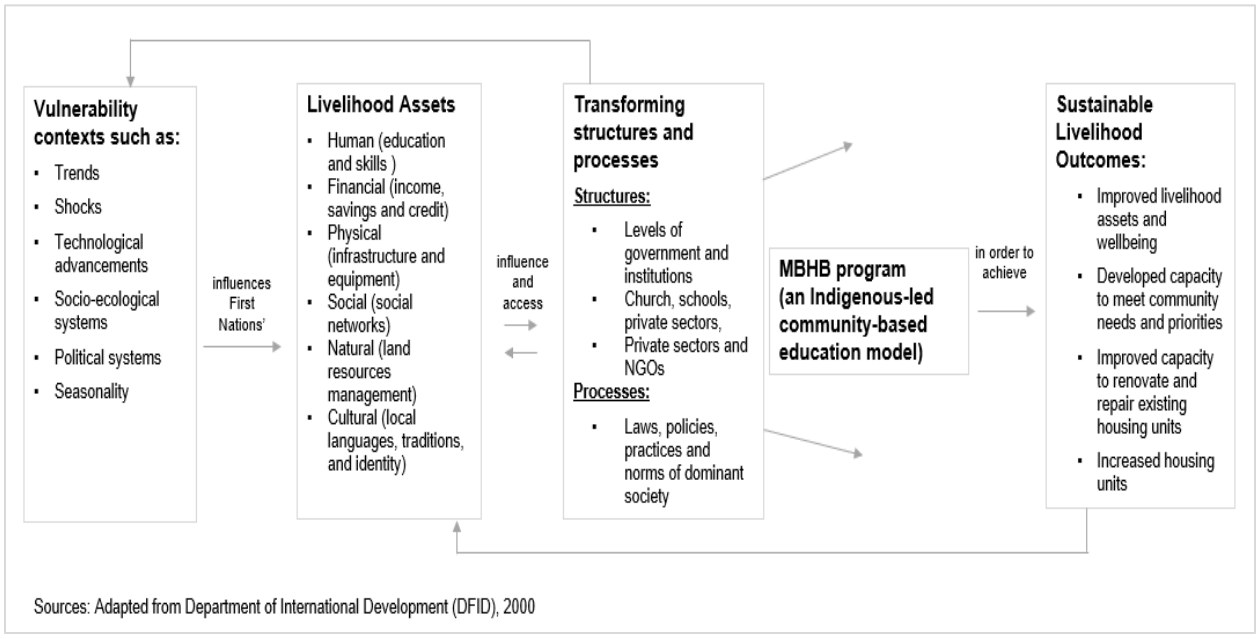
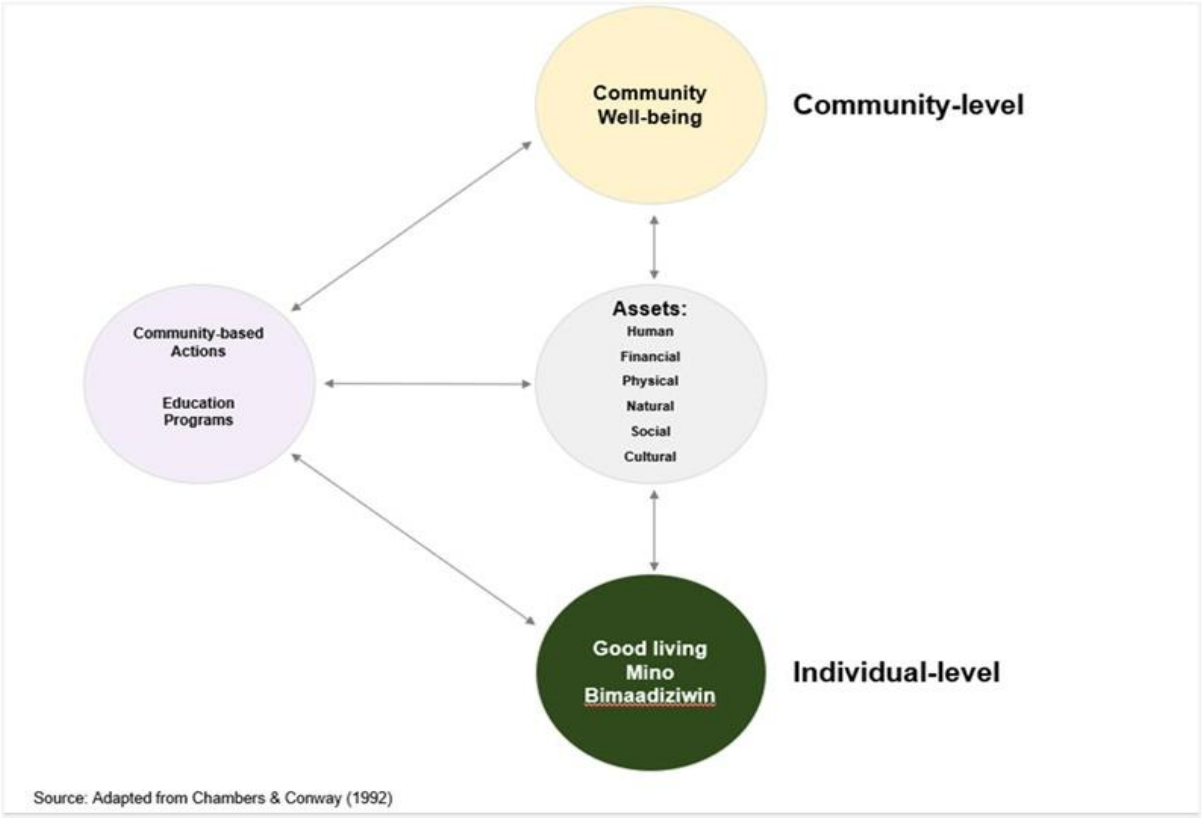


Figure 4.2 The sustainable livelihood model applied to Indigenous-led community-based education programs



4.2 Applied Research Methods

4.2.1 Ethical Considerations

This research team worked with the community towards their research priorities and process following the Ownership, Control, Access, and Possession (OCAP) protocol. Only after many workshops and meetings with the community did the funding proposal, ethics, and participatory research occur. The chief and council of both Garden Hill and Wasagamack First Nations provided a band council resolution in support of this research. The University of Manitoba Human Research Ethics Board approved the ethical protocol, which required informed consent and participants to be at least 18 years old.

4.2.2 Survey and Analysis

The study design aimed to measure whether the program moved Homebuilder youth towards Mino Bimaadiziwin. To achieve this aim, a program evaluation survey was conducted using pre-and post-program. The pre-and post-survey asked about the assets of the participants' livelihoods. The post-survey had 18 additional questions from the Canadian Community Health Survey (Statistics Canada, 2021) on food security and a few COVID-19 questions. Exploring household food security was an afterthought based on the assumption that a household's food situation is an important indicator of wellbeing, which is severely impacted at the community level by COVID-19. The survey questions were ethically approved for data collection through the research project titled - Northern Teaching Lodges: Learning Partnership for Community Development and Mino Bimaadiziwin in First Nation Communities.

Although the pre-survey was in-person, the post-survey was undertaken by phone due to COVID-19-restrictions of lockdown with the lack of computer and internet access. The pre-survey was administered at the start of training for all 70 students in the fall of 2018 or winter of 2019. The post-survey was conducted after training in summer 2020 with 45 youth, coinciding with the COVID-19 pandemic. A survey return rate for post-COVID-19 of 64% of 40 was obtained after the initial survey that reached all 70 students, 37 in Wasagamack and 33 in Garden Hill. This return rate for a post-survey is high, considering the communities were under lockdown during the COVID-19 pandemic and homes in these remote communities have limited low bandwidth or no internet access and phone. See Table 4.1.

Table 4.1 Number of Youth Homebuilders Participating in Post-Survey by Community

First Nation Communities	Total number of Homebuilders Students	Homebuilders conducting the post-program survey
Garden Hill	33	21 (64%)
Wasagamack	37	24 (65%)
Total	**70**	**45 (64%)**

Descriptive and inferential statistics were conducted using STATA v.15. We applied the sustainable livelihoods framework to measure the education program's impacts holistically, with a variety of indicators (Batal et al., 2021; Ballard, 2012; Marushka et al., 2021; Mohammadi et al., 2021; Morse & McNamara, 2013; Snider, 2021; UNDP, 2017). The assets included education outcomes for human assets; income and ability to pay bills for financial assets; housing situation for physical assets; relations with family and neighbours for social assets; ability to access resources for natural assets; and Anishiniwuk knowledge and language for the cultural asset (Morse & McNamara, 2013; Smyth and Vanclay, 2017; Snider, 2021). The study design focuses on documenting the program's impact on Homebuilders. Although no control group was in place in Island Lake to compare the Homebuilders, we compared their situation to the First Nation statistics to see how they fared in relation to others. To analyze the impact for each asset pre-and post-survey were compared using McNemar's test for paired nominal data with a p-value < 0.05 considering statistical significance (Nagata et al., 2016; Ugoni & Walker, 1995; UNDP, 2017). The McNemar test is a non-parametric test helpful to determine if the program significantly changed homebuilders' livelihood assets.

The Household Food Security Survey Module (HFSSM) determined the household's food security status. The household was considered either: food secure, moderately food insecure (quality and quantity of food are compromised due to lack of money to buy food) or severely food insecure (meals missed or food intake reduced, and at the extreme, going day(s) without food). These categories are clearly articulated in Table 4.2 (Health Canada, 2020; Statistics Canada, 2021).

Table 4.2 Categories of Food security status based on Household Food Security Survey

Food security status	10 item adult food security scale	8 item child food security scale	Household status
Food secure	Zero to one affirmative response	Zero to one affirmative response	Both adult and child in the household are food secure
Moderate food insecure	Two to five affirmative responses	Two to four affirmative responses	Either adults or children in the household or both are moderately food insecure, and neither is severely food insecure
Severe food insecure	Six or more affirmative responses	Five or more affirmative responses	Either adult and/or children in the household are severely food insecure

Source: Health Canada, 2020.

4.3 Findings and Discussion

4.3.1 Description of the Sample

The 45 Homebuilders surveyed ranged between 20 and 39, with an average age of 27 years. Of these, seven (16%) were female, and thirty-eight (84%) were male. This gender composition for the sample was reflective of the male-dominated Homebuilder program for all 70 students. Similarly, males dominate most employment training programs focused on construction, trades, and other male-dominated professions (Oloke, 2020).

4.3.2 Mino Bimaadiziwin Homebuilder Program's Holistic Impact

The MBHB program aimed to build homes and youth capacity in two First Nation communities through holistic education, which were evaluated by the change in six livelihood assets. The livelihood indicators in Table 4.3 show that people in First Nations livelihood assets are limited compared to non-First Nations people in Manitoba (Statistics Canada, 2016). The remote communities of Wasagamack (WFN) and Garden Hill (GFN) First Nations livelihood assets are reduced below other First Nations in Manitoba and Canada (Statistics Canada, 2016).

Before the MBHB training, most Homebuilder youths fared worse than others regarding their education, housing, income, and employment, compared to their community (Statistics Canada, 2016). Most of these youth were considered at-risk youth, living in poverty below the low

income cut-offs (LICOs) and having lower incomes than the average in their community (Statistics Canada, 2016). After training, the Homebuilders group fared slightly higher employment rates, incomes, and graduation rates from post-secondary than others in the community. However, these homebuilders remain underemployed and in poverty due to regional unemployment and COVID-19 lockdown. Also, the Homebuilder group experienced an increase in overcrowding (from 53% to 71%) due to family members relocating from urban areas and an increase in jail release during the COVID-19 outbreak. Table 4.4 shows the evaluation of the Homebuilder's livelihood assets prior to and after the Homebuilder program. Changes in the Homebuilder group's human, financial, physical, social, natural, and cultural assets are discussed.

Table 4.3 Livelihood indicators for Wasagamack (WFN) and Garden Hill First Nation compared to other Manitoba communities

Categories	Sustainable Livelihood Indicators	Home-builders before training [1]	Home-builders after training[1]	WFN[2]	GHFN[2]	Manitoba First Nations [2]	Manitoba non-First Nations[2]
Housing situation	Not suitable	82%	76%	53% (13X↑)	55% (14X↑)	37% (9X↑)	4%
	More than one person per room	53%	71%	46% (46X↑)	43% (43X↑)	26% (26X↑)	1%
	Need major repairs	80%	75%	82% (9X↑)	62% (7X↑)	51% (6X↑)	9%
Income status	Median employment/ training income	$4,446	$16,440	$11,499 (3X↓)	$10,693 (3X↓)	$13,909 (3X↓)	$35,488
Education attainment	Secondary school graduation rate	7%	18%	15% (2X↓)	18% (2X↓)	18% (2X↓)	30%
	Post-secondary school certificate/diploma	2%	84%	11% (4X↓)	12% (4X↓)	19% (2X↓)	44%
Employment status	Employment rate	8%	29%	20%	28%	33%	61%

Sources: [1]Homebuilders' Longitudinal survey (n = 45), [2] Statistics Canada (2016).

4.3.2.1 Human assets as improved post-secondary education attainment.

An applied Homebuilder curriculum was created to teach forestry, sawmilling, house design, safety, and house construction with the communities, ATI and the university (Mino Bimaadiziwin Partnership, 2020). This curriculum tried to cover all the processes in designing and building sustainably with local wood in Canada's boreal forest. This curriculum is publicly available to assist other community programs, with some elements adopted by Roseau River First Nation's project-based education.

Educational attainment was high. Most Homebuilders graduated with college-level certificates. 84% of the 45 Homebuilders graduated with one or both of the two college certificates of the Homebuilder program. A third (31%) of interns earned both the Homebuilder and the Forestry certificates (24-month program), with another 22% getting the nine-month forestry education certificate only and 31% receiving a 15-month Homebuilder college certificate. A few (7 of 45) students dropped out after taking the more general courses, such as the workplace health and safety and job readiness courses, but did not continue to get a college certificate. This achievement occurred despite many not having secondary school diplomas and poor success of community members in other programs.

The high completion rates from this community program contrast with only a few percent of people from these remote communities being successful in big urban centres. The program increased Homebuilders' post-secondary education rate from 2% at the beginning of the MBHB program to 84% at the end of the program. Community-based education was considered highly successful, compared to limited success when training outside the community.

Post-secondary education success among the sample surveyed (n=45) was almost identical to the total population of Homebuilders (n=70). The sample (n=45) had 84% graduating versus 85% of all Homebuilders (N=70) taking the program. However, our survey sample had a higher representation of students who successfully completed both parts of the Homebuilder program. The percent of those students obtaining both forestry and homebuilding was higher at 31% versus 20%. Also, the sample had fewer people who only received their forestry certificate, at 22% versus 39%.

The program provided many educational ladders. Different one-week to three-week training programs were part of this college program, providing workplace certificates immediately

upon completion, which increased students' employability. Success was rewarded with different workplace certificates. Every participant received workplace health and safety certificates and other smaller certificates, such as the small motor 40-hour course.

Most (76%) Homebuilders thought contributing to their community was an important aspect of this program. One Homebuilder talked about how this post-secondary education program connected learning with their environment and community:

> "I am happy this program is happening in our community. I have been to the college in Winnipeg, and I don't feel connected with the environment and learning. I am happy to recommend this program to other youth in the community because this program has taught me to face my fears."

The Homebuilder program was student-centred, teaching skills and work ethics for personal and professional success. The youth were coached to create short-term and long-term goals and develop foundational skills. Homebuilders recognized they were missing foundational skills, which resulted in 8 of the 45 (18%) deciding to finish their secondary school education degree through adult education. Three graduated from secondary school during the MBHB program to increase the high school graduates to 13% (6 of 45) in the sample.

Some highly marketable skills were learned. These skills included teachings to write a resume, prepare for job interviews, conduct job searches, numeracy, computer, and funding proposal development. In a Provincial contest with 63 other communities, two Homebuilders won $550,000 to execute their proposed project for the renovations and repairs to rescue the old George Knott school building from demolition (see Figure 4.3a, b and c). Interns reported learning useful work skills: "This Homebuilder's program is developing good workers from youth." Two Homebuilders and the community instructor from Garden Hill First Nation shared the program's impact at a conference, advising other First Nations to adopt similar programs:

> "The program changed my perspective about education with a good learning experience and opportunities to achieve as many certificates as possible... We need more builders in our communities, and this program is helping to develop good workers from youth."

This education and training program tried to do a lot with a little. The precarious, poor funding, dependent on many funding programs, meant much time was spent on funding proposals

and reporting to funders. All funding on First Nation reserves is proposal-driven, which required writing four different, complicated funding proposals to bring about this one program. One proposal was for student stipends. Another was for educational programming. A third was for materials. And a fourth for management. In addition, many letters and phone calls with ISC were required to request no social assistance be cut due to the small MBHB training allowance.

Funding was insufficient to provide all the necessary labour and equipment. The program funding was insufficient to fund a full-time teacher and a full-time coordinator in both communities. No funding for state-of-the-art equipment in both communities – but only for small tools- was available. The equipment, including the sawmill used, was old and frequently broke down. This underfunding was, in part, due to the lack of any funding coming from the Province of Manitoba, who, after many meetings and a few proposals, reneged on funding. With their primary role in training, apprenticeship, and education and after many meetings, the province providing no support or funding jeopardized this program.

Figure 4.3 Funding proposals a & b) Homebuilders receiving a $550,000 funding approval letter for their proposal writing for building/renovating. c) Training for proposal writing

Source: Mino Bimaadiziwin Partnership (2020)

4.3.2.2 Financial assets.

Youth financial assets were measured as income and ability to pay their bills. The training program improved Homebuilders' income slightly to above the average for the community. All 70 students and six train-the-trainers from Island Lake received a $1000/month training allowance for the Homebuilder program, with special arrangements made for students to retain their social welfare status without deductions. Typically, social welfare recipients lose their welfare benefits for their entire family, including their families' social housing, subsidized heat and power, and their social assistance income when they obtain a job or training allowance. Keeping their welfare benefits was critical for interns, allowing people to engage in education without losing everything. Homebuilders, without childcare costs, typically received $1370/month ($1000 training allowance and $370 welfare), while those with children to feed received slightly more. The income of Homebuilders on average quadrupled due to the training program but provided not even a minimum wage for these students who were expected to show up to learn and work 30 hours per week.

Homebuilders' satisfaction with their ability to pay for bills and housing significantly changed after training. Table 4.4 shows the statistically significant improvement in Homebuilders' satisfaction with their ability to pay for housing ($\chi^2 = 6.37$; $p < 0.05$) and bills ($\chi^2 = 5.44$; $p < 0.05$). Initially, 13% of the Homebuilders were satisfied with their ability to pay for housing bills, which increased to 20% after the training. Also, Homebuilders' satisfaction with their ability to pay for all bills increased from 4% to 13% after the training during COVID-19. A participant described how the income support from the program improved his wellbeing during the training:

> "Earning income from the Homebuilders program helped me to be mentally and emotionally stable. I do not have to stress myself thinking about how to cover my bills bi-weekly. I see myself making progress and getting a good job with my certificates to keep my income stable after training."

Homebuilders of all ages have many financial responsibilities. All have to contribute towards their families' bills of rent and hydro to make ends meet. The female participants frequently had to pay babysitters and feed their children. Many young men paid child support. One of the Homebuilders described how as a very young grandparent, he has financial responsibility for his wife, children, grandchildren, and siblings:

> "I am 31 years, and I am a grandfather already. I got married and had a daughter at 15 years [of age]. My daughter did the same but gave birth at 16. Having my daughter, her baby and my siblings stay with me has increased my household expenses, and most of my siblings do not have full-time jobs. So, I joined the program to improve my income level."

During the Homebuilder program, the Mino Bimaadiziwin partnership tried to develop housing social enterprises in both communities to retain wealth in the community by using local wood for building houses and employing local labour. However, these social enterprises quickly failed. Even after obtaining decent start-up grants, these enterprises failed due to the Indian Act's Chief and Council interference, COVID-19, and the severe poverty of the community.

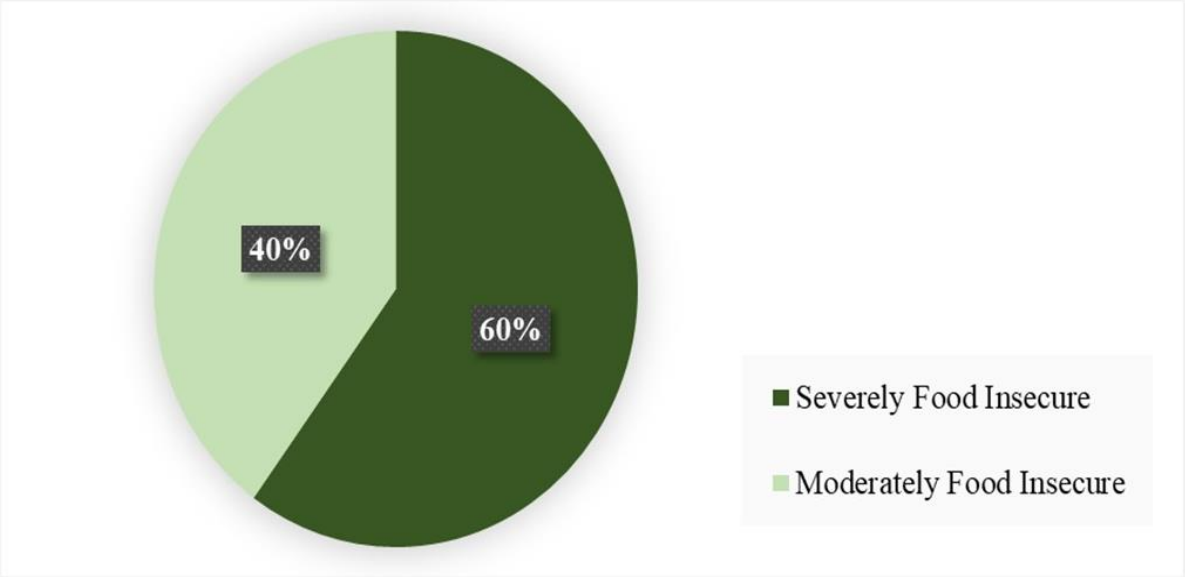
In the post-survey most (71%) Homebuilders reported a lack of job opportunities under COVID-19 lockdown conditions. Garden Hill rehired the Homebuilders to finish their house in August 2020 for three months before a second lockdown occurred in November: "I got a job with six other people from the Employment and Training and Band as Carpenter. However, I cannot work due to the COVID-19 lockdown. Also, I cannot use my carpentry skills from the housing program due to COVID-19. The lockdown had all non-frontline jobs stopped, including construction and homebuilding work curtailed. One Homebuilder explained how the lockdown policies affected their household income during COVID-19:

> "I do not have any paid employment or even assistance to get a job during COVID-19. Living on welfare, which is not enough, and I need support to get a job. I have been looking for work or training programs since COVID-19 started now."

Food prices and store access under COVID-19 made feeding the family more difficult (Statistics Canada, 2020). COVID-19 and poverty resulted in 100% household food insecurity for Homebuilders (n = 45), with 60% suffering severely food insecure and 40% experiencing moderate food insecurity. (see Figure 4.4). This rate is fourteen times worse than the food insecurity rate of one in seven Canadians under COVID-19 (Statistics Canada, 2020). This situation is reflective of the lack of food and income for the entire community, with lockdown preventing access to country foods or shopping. Despite their dire need for food, most Homebuilders did not access emergency benefits for fear of losing welfare benefits. Only one of the Homebuilders applied for Canada Emergency Response Benefit (CERB) to cover higher costs but returned the CERB payments: "I

got the Canada Emergency Response Benefit (CERB) during COVID-19, but I am paying it back because I am not sure if I am eligible to get it." Clearly, the threat of being cut off welfare restricted people's livelihoods and food security in a food desert made worse by lockdown and COVID-19.

Figure 4.4 Food security status for 45 households in First Nations (May-August 2020)



Source: Homebuilder Evaluation Survey

Table 4.4 Evaluating sustainable livelihood assets prior to and after the Homebuilder program

Sustainable Livelihood Assets	Indicators	Groups	Pre-training (%)	Post-training (%)	Mc Test χ^2	Nemar p-value
Physical	Housing situation	Living with parents	53	71	5.82	0.044*
		Living independent of parents	47	29		
Financial	Household income	Satisfied	13	9	0.40	0.527
		Dissatisfied	87	91		
	Ability to pay for housing	Satisfied	13	38	6.37	0.012*
		Dissatisfied	87	62		
	Ability to pay all bills	Satisfied	4	20	5.44	0.019*
		Dissatisfied	96	80		
Social	Family support	Satisfied	31	71	16.20	0.000*
		Dissatisfied	69	29		
	Relationship with neighbours	Satisfied	13	29	4.45	0.035*
		Dissatisfied	87	71		
Natural	Getting a survival job	Satisfied	36	22	2.25	0.134
		Dissatisfied	64	78		

*significant at $p<0.05$; n = 45

4.3.2.3 Physical assets as the capacity to upgrade the housing situation.

Most Homebuilders (80%) joined the Homebuilder education program to build their own homes. Homebuilders learned home design, repair, forest management, logging, sawmilling, house construction and workplace safety. The program was laddered with many nationally and internationally recognized course certificates (e.g., Red Cross Wilderness First Aid, Home repair, National Lumber Grading Certificate) to immediately increase their employability. Many Homebuilders (75%) reported applying their Homebuilder education to repair their home, including major repairs: "I am able to do major repairs in my house like fixing dry walls, building stairs for my porch, and help the community build a stage and teepees for gatherings." Another Homebuilder talked about being able to design and build his home: "The Homebuilder program taught me about safety in my environment. And, how to build a culturally appropriate house I can live in."

Homebuilders were engaged in designing and building energy-efficient homes with the lumber they felled and sawed. The Employment Training departments provided the building materials, equipment, and classrooms in the community. However, a fire in the community warehouse burned all building materials, with the material for this program not under insurance. As Wasagamack and Garden Hill First Nations were roadless when the building materials burned or did not arrive by winter road, the materials could not be easily replaced. The shortage of materials delayed finishing the interior until the winter road opened up, although homes' exteriors were complete.

Most Homebuilders experienced poor housing. Initially, roughly half of the Homebuilders (53%) lived with their parents in overcrowded conditions. The remaining (47%) lived independent of parents in poor housing and sheds needing major repair. After training, those living with their parents increased to 71%, which was a statistically significant change ($\chi^2 = 5.82$; $p < 0.05$). (see Table 4.4). A Homebuilder complained about overcrowding in his family's home prior to COVID-19, causing exhaustion and insomnia, as he had to sleep in shifts:

> "My wife, kids, and I are staying with my parents and other siblings in a two-bedroom [home]… I am having insomnia as I do take turns to sleep at night. And most times, I don't get to sleep until 4 am."

Another Homebuilder described how confinement in overcrowded homes during lockdown created stress: "Housing became too tight for space during COVID-19. We have close to ten people staying in four bedrooms. But we ensure no visitors." Also, most houses in Island Lake need major repairs, which typically pose safety concerns. A Homebuilder complained about his house being structurally unsafe: "The last major repair of my house was 12 years ago. The walls are thin, and floors are falling apart. During COVID-19, when we have to stay at home, I am worried about my family's safety."

4.3.2.4 Social assets as improved family and neighbourhood relationship.

Social benefits grew with the support, teachings, and fellowship of the homebuilding program. The three-week job-readiness training taught skills for work behaviours, team-work and human relations. Also, the Homebuilder instructors discussed the need for safe and healthy work and learning environment, with anti-harassment, anti-violence and anti-drug/alcohol policies to ensure workplace safety.

Homebuilders reported feeling isolated, with a lack of youth programming after secondary school until the Homebuilder program. A quarter (25%) of homebuilders joined the program to meet new people. The Homebuilder program organized sporting activities like volleyball and hockey to engage Homebuilders and social gatherings, such as feasts. The program provides a social life, according to one participant: "The program improved my social life, and I opened up myself to new things." One Homebuilder responded, stating: "This program is making lives better. Even saving lives."

The positive change in participants' social relations suggests that community-based post-secondary education programs can mend relationships, impact students' psycho-social wellbeing (LaRocque, 1994) and ability to establish trusting relationships (Goodman et al., 1998; Thibodeau, 2007). Further, two Homebuilders talked about how the program improved their ability to relate with people in the community:

- "This program enabled us to help one another in a friendly environment, doing good to each other and building great relationships with co-workers. Most of all, I am having fun relating with my friends and brothers in the program."
- "I have been able to talk to people I had never greeted before in this community since the program started. It built my confidence in our ability to work together as youth and contribute to our community's development. I love that we listen to each, watch out for

> each other during and after work. Now, I have hope that my dream of Wasagamack becoming Was Vegas, like Las Vegas, might come true.

Table 4.4 shows the change in Homebuilder's satisfaction with the level of support from family ($\chi^2 = 16.70$; $p < 0.05$) and their neighbours ($\chi^2 = 4.45$; $p < 0.05$) is statistically significant. Initially, only 31% and 13% of the Homebuilders were satisfied with their relations with family and neighbours, respectively. After training, 71% and 29% of the Homebuilders were more satisfied with their relations with family and neighbours, respectively.

4.3.2.5 Natural assets as improved access to forestry resources and the land.

The traditional territories of Indigenous peoples are abundant in timber and non-timber resources. Most of the land in the study area is covered by old-growth forests, considered the finest quality of wood for housing and furniture. However, the Crown interpretation that First Nations have lost ownership and governance rights to resources in their territories under the treaty is highly contested by First Nations (Ballard, 2012; LaDuke, 2002; TRC, 2015).

The Homebuilders program logged Native land beyond the reserve boundaries for housing material. The Homebuilders' forestry plan claimed their resource rights in their Native lands, contesting the Indian Act labelling them as wards of the state for the Crown to usurp land and resources. Manitoba Sustainable Development waived the "Stumpage dues for timber harvested, as this timber for housing is for community benefits" (Mino Bimaadiziwin Partnership, 2019a). The timber permit was sustainable due to logging less than 1% of the annual allowable cut.

The Homebuilder program delivered a sustainable forestry management course to use local logs for community housing development projects. A Homebuilder spoke about how the program impacted his understanding of environmental safety: "The Homebuilder program taught me about safety in my environment." Table 4.4 shows that the proportion of Homebuilders satisfied with getting a survival job decreased post-program under COVID-19, but not statistically significantly ($\chi^2 = 2.25$; $p > 0.05$). 78% of the Homebuilders could not get survival jobs due to not being able to leave their houses under community-imposed lockdown. Under home lockdown, they were not able to log for firewood, build docks, fish, do carpentry, or build homes. One Homebuilder talked about his inability to camp, fish, or hunt after the program:

> "There is no gathering during COVID-19 such as youth gatherings and elders gathering. I cannot even go hunting or fishing. But some people go hunting and fishing for the community. So, when they go hunting or trapping or fishing, they share anything they are able to catch from the land, which might not be enough to share."

4.3.2.6 Cultural assets as Indigenous knowledge transfer.

Garden Hill and Wasagamack First Nations incorporated local Indigenous knowledge and their Anishinimowin language into the MBHB program. The MBHB program was Indigenous-led, with six Indigenous instructors fluent in the Anishinimowin language hired to deliver certificate courses in sawmilling, chainsaw safety and homebuilding. Speaking in their native language, in which the Homebuilder students were fluent, allowed Indigenous teachings, cultural continuity and the ability to achieve educational goals (Gillies & Battiste, 2013; McCarty & Lee, 2014; Mmari et al., 2010).

The design workshops had Elders and youth sharing knowledge on homebuilding, history, and cultural values (Mino Bimaadiziwin Partnership, 2019b). Additionally, Homebuilders visited historic sites in the communities, treaty ceremonies and youth gatherings. In Wasagamack First Nations, an Indigenous Elder taught Homebuilders how to design and build teepees that are culturally and spiritually significant to the Indigenous peoples (Figure 4.5).

Figure 4.5 Indigenous Elders speaking to Homebuilders in Wasagamack First Nation

Source: Mino Bimaadiziwin Partnership (2020)

4.4 Conclusion and Recommendation

The sustainable livelihood evaluation was an appropriate frame offering multi-faceted dimensions of wellbeing (Fitrianto, 2021; Mohammadi et al., 2021; Snider, 2021). The evaluation showed the MBHB education program was effective in holistically building sustainable livelihoods. Many Homebuilders graduated with college-level certificates to increase their human assets, experienced better ability to pay for bills showing increased financial assets, applied their upgraded homebuilding skills to improve their home physical assets, mended relationships with family and neighbours, enhancing their social assets, upgraded skills to access resources with natural assets and expanded Anishiniwuk knowledge for cultural assets (Chambers and Conway, 1992; Smyth and Vanclay, 2017). At the community level, the MBHB program built homes and brought culturally-appropriate college education to the community and increased funding in the First Nation.

The sustainable livelihood analysis showed positive, statistically significant changes to increase all the sustainable livelihoods of students, except for natural assets. During COVID-19 lockdown, access to natural resources was limited as people were not allowed to leave their households unless workers considered essential. The qualitative aspect of the survey was most helpful in explaining the MBHB impact, with people explaining how this program: "saves lives," mends families, build homes and creates resilience to COVID-19 impacts.

An Indigenous-led educational setting would be culturally appropriate and serve the needs of their communities (Deane & Szabo, 2020; OECD, 2018). This MBHB responded to the priorities and specific needs of the community, which non-First Nation education and institutions frequently fail to do for First Nations (Michnik et al., 2021). The MBHB program increased assets at the individual through increasing student livelihood assets and community level by increasing housing (AFN, 2020a; Gaudet, 2021; Kopp et al., 2021; Snider, 2021). The success in Anishiniwuk communities, as isolated as the north pole (Fiddler & Stevens, 2003), shows this program can work anywhere.

4.4.1 Education

Education programs boost capacities (Chambers & Conway, 1992; Gaudet, 2021; Snider, 2021; Trade Winds to Success, 2020) for housing or other critical community issues. Educational programs are considered a good investment to improve people's livelihood (Chambers & Conway,

1992; Gaudet, 2021) and also offer self-development. This trades program met the "overall goal of healing, learning" (Hart, 2002, p. 44) by developing students' spirit, heart, mind, and body to be in good relations (Deer & Falkenberg, 2016; Hart, 2002; Michnik et al., 2020). Indigenous education, like MHBH, creates well-being through mentoring students to recognize their unique gifts and overcome vulnerabilities preventing a good living (Deer & Falkenberg, 2016; Gaudet, 2021; Hart, 2002). This Indigenous education incorporated the key aspects identified as needed in Anishiniwuk training programs of traditional beliefs, cultural teachings and land-based learning shared by Elders to build self-determination and culturally-appropriate livelihoods (Michnik et al., 2020).

The MBHB and other Nopimink education programs foster student well-being based on land, culture, and self-determination (Gaudet, 2021; Walker et al., 2021). While non-Indigenous education programs often fail Indigenous youth, MBHB provided good success on multiple levels with courses matching Indigenous students' needs and providing upgrading where needed. Supporting participants facing personal and family responsibilities was possible because the program was in their community with their family and offered flexibility (OECD, 2018). Other education programs fail Indigenous youth, but this did not with very high graduation rates of 84%, compared to 28% for the national average for Indigenous people (Statistics Canada, 2016). By improving Indigenous youth's retention in education programs, better educational outcomes and holistic development resulted (OECD, 2018).

As culturally-appropriate education and training are key for Indigenous people to escape poverty and enable labour market success (Raderschall et al., 2020), the MBHB provides a viable model. The MBHB program provided youth and their communities the opportunity to take back their lives by owning their educational process at both the individual and community level to heal and provide community service (Gaudet, 2021). This MBHB integrated the Indigenous values of self-reliance, traditional ecological knowledge, life-stage teachings, elder wisdom, intergenerational learning, and land-based skill training (Ferreira et al., 2021). These values helped counteract the devastating intergenerational effect of colonial policies on Indigenous people's connection to their home, land, kinship systems and cultural identity (Gaudet, 2021). The MBHB program, like other land-and community-based cultural learning, could not reverse the existing structural inequalities (Kepkiewicz & Dale, 2019; Settee & Shukla, 2020) but played a positive role.

The MBHB program was poorly funded, which limited its success and impact. This impoverishment of Indigenous education programs radically constrains community programming and offers no customized support (Raderschall et al., 2020). Educational funding for First Nation communities is significantly lower compared to any other jurisdictions in Canada (Olsen Harper & Thompson, 2017). The MBHB program would have benefited from funding, programming, and lead time to upskill students to: 1) develop foundational skills, 2) academic preparation, 3) apprenticeship accreditation, and 4) career development towards achieving greater economic independence (Raderschall et al., 2020). Western education policymakers and funders need to change their colonial views that Indigenous land-based learning is non-educational, economically unstable, and unworthy of long-term funding, based on this study and others (Gaudet, 2021; Simpson & Coulthard, 2014). Adequate funding for First Nation community colleges and Indigenous curriculum would provide an alternative to colonial education.

4.4.2 Housing by Indigenous People and for Indigenous Communities

Project-based post-secondary programs led by Indigenous communities provide an alternative to resolve First Nation housing and/or other critical issues (AFN, 2020a). Homebuilding community-led education has the possibility to address the multiple crises of housing, education, health, and unemployment in Indigenous communities (RCAP, 1996). Unsuitable housing rates of 40% to 60% in remote communities (Statistics Canada, 2016) require a solution to address overcrowded (Statistics Canada, 2016) for a good life and to reduce the risk of COVID-19 and other diseases being spread (Thompson et al., 2020a). Rather than the high social cost of precarious housing and homelessness (Thompson et al., 2020a), with many First Nation people staying in shelters, transitional housing, and residential facilities where they are at risk of abuse, violence, and gangs (Gaudet, 2021; Thompson et al., 2020a). Funding students and the education system to resolve the housing crisis makes social and economic sense.

The intersection of housing and education deserves enhanced funding for materials and labour beyond the limited CMHC loan financing for a couple of new homes each year on each First Nation reserve. Adding funding from employment training, education, and housing together to learn to build housing focuses this funding to meet local housing needs. However, all these added together cannot meet the high demand from high birth rates in First Nations. Further funding and support of education and social enterprise are needed to scale up to provide the 130,000

housing units critically needed now (AFN, 2020a) and renovate existing reserve homes (Statistics Canada, 2016). Indigenous-led education can build the local workforce to meet the high need for housing development and other critical infrastructure 'for Indigenous people and by Indigenous people' (AFN, 2020a) to make "housing a source of community healing and economic renewal" (RCAP, 1996, p. 341).

4.4.3 Recommendations

This Homebuilder program built youth capacity and homes and should be replicated with enhanced funding and support. This enhanced funding will provide land-based, project-based, and foundational skills. Indigenous communities need the resources to develop community-based colleges and apprenticeship training in secondary schools to fulfill community needs and priorities for local house-building. The Homebuilder program shoe-string budget, with many funding proposals cobbled together, lacked any wraparound or Provincial government supports. Although the Homebuilder funding was not ideal, the program showed the possibilities of what Indigenous-led, project-based education can do.

Community project-based education requires sufficient funding for teaching and materials, as well as a solid stipend for participants. A consideration is that there is little Indigenous curriculum or teaching resources. Sufficient funding to build capacity in trades and housing at both the secondary school through apprenticeship programming and through colleges in First Nation communities. This capacity building, along with funding social enterprises that result, offers an Indigenous-led way to meet the critical demand for housing in the next five to ten years (AFN, 2020a). This community-based education aligns with Articles 21 and 23 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), asserting Indigenous people's need to determine strategies for improving their well-being and education.

First Nation remote communities are at high risk of COVID-19 and other plagues and disasters due to overcrowded housing, poverty, and minimal infrastructure (Hill et al., 2020; Thompson et al., 2020). COVID-19 is considered a minor disruption compared to the major disruption expected from climate change (National Collaborating Centre for Indigenous Health, 2020; Wise, 2020). Massive upscaling and social investment support toward Indigenous-led education programs in First Nation communities to build resilience and Mino Bimaadiziwin is needed. The MBHB provides a viable model for sustainable livelihood development in rural and

remote communities and offers some curriculum for logging and homebuilding. Investing in project-based Indigenous-led educational programs will create the right conditions to ensure equity as required in Section 36 (1) of the Canadian Constitution.

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5. Discussion and Conclusion

5.0 Introduction

This case study provided a holistic evaluation of the MBHB program in Garden Hill and Wasagamack First Nations. To measure whether the program moved at-risk youth towards this good life, a pre/-post- sustainable livelihoods census survey was analyzed, along with public program accounts and other literature. The McNemar analysis for 45 of 70 (response rate for post-survey was 64%) students showed positive, statistically significant changes to increase student's assets, including social relationships, cultural opportunities, financial with increased incomes, physical improvements to housing and human resources with students obtaining many certificates. The program focused on homebuilding with local wood was reported to: "save lives," mend families, build homes and create resilience to COVID-19 impacts. This evaluation of a community-led education program provides an excellent account of how investing in youth, education, income, and other supports will improve lives in multiple spheres, despite underfunding and COVID-19 shock. Investments in community-led colleges in each First Nation provide the possibility of both culturally appropriate building capacity and housing, which are solid steps towards a good life.

5.1 Indigenous-led Education impacts Sustainable Livelihood

This evaluative study revealed that Indigenous-led education programs improve Indigenous youth groups' capacities and livelihood assets (Chambers & Conway, 1992; Gaudet, 2021; Snider, 2021; Trade Winds to Success, 2020) for housing or other critical community issues. Investment in educational programs is important for improving people's livelihood (Chambers & Conway, 1992; Gaudet, 2021) and also offers self-development. This Indigenous-led education program met the "overall goal of healing, learning and life in general" (Hart, 2002, p. 44) by developing students' spirit, heart, mind, and body to be good in relations (Deer & Falkenberg, 2016; Hart, 2002). Indigenous-led education, like the MBHB, creates a sustainable livelihood for improved wellbeing through mentoring. This involved working with students to build their unique gifts for overcoming vulnerabilities, inhibiting them from living the good life (Deer & Falkenberg, 2016; Gaudet, 2021; Hart, 2002).

The MBHB program provided youth and their communities the opportunity to take back their lives by owning their educational process at both the individual and community level to heal

and provide community service (Gaudet, 2021). While non-Indigenous education programs often fail Indigenous youth, MBHB provided good success on multiple levels. This MBHB integrated the Indigenous values of self-reliance, traditional ecological knowledge, life-stage teachings, elder wisdom, intergenerational learning, and land-based skill training (Ferreira et al., 2021). Courses matched Indigenous students' needs, and customized supports for participants facing personal and family responsibilities were possible due to the program being in their community with their family and providing flexibility (OECD, 2018). Other education programs fail Indigenous youth; however, the MBHB program did not with very high graduation rates of 84%, compared to 28% for the national average for Indigenous people (Statistics Canada, 2016). By improving Indigenous youth's retention in education programs, better educational outcomes and holistic development resulted (Organization for Economic Cooperation and Development [OECD], 2018).

The evaluation of the MBHB program revealed that when Indigenous people access and acquire quality education, they can improve capacities and assets required to break ongoing structural inequalities and the cycle of poverty (Chankseliani & McCowan, 2021). Through the sustainable livelihood lens, this research guides the investment decisions in Indigenous-led educational programs for closing the community wellbeing gap (in housing, education, employment, and household income), achieving Mino Bimaadiziwin (the good life), and reconciliation on a bigger scope in Canada. On a global scale, this program revealed that the community-led education model engenders the achievement of the fourth SDG of inclusive, quality education and lifelong learning opportunities for all. Also, this evaluative study showed that education is key to achieving many other SDGs such as zero poverty (SDG-1), reduced inequality (SDG-10), sustainable communities (SDG-11) and improving life on the land (SDG-15) (Chankseliani & McCowan, 2021; Olim de Sousa et al., 2021). Further, this research bolsters decision-making on global investments in community-based education for Indigenous people to acquire employment and have improved quality of life (Chankseliani & McCowan, 2021).

5.2 Indigenous-led Education Programs are Limited by Structural Inequalities

Despite having a positive impact on sustainable livelihood, the MBHB program (like other land- and community-based cultural learning) could not reverse the existing structural inequalities (Kepkiewicz & Dale, 2019; Settee & Shukla, 2020). The MBHB program had patchwork, poor funding, which limited its success and impact. This impoverishment of Indigenous education

programs radically constrains community programming and offers no customized support (Raderschall et al., 2020). Funding for education for First Nation communities is significantly lower compared to any other jurisdictions in Canada (Olsen Harper & Thompson, 2017). However, the MBHB program would have benefited from funding, programming, and lead time to upskill students to: 1) develop foundational skills, 2) academic preparation, 3) apprenticeship accreditation, and 4) career development towards achieving greater economic independence (Raderschall et al., 2020). Western viewpoints need to change their colonial views that Indigenous land-based learning is non-educational, economically unstable, and unworthy of long-term funding, based on this study and others (Simpson & Coulthard, 2014).

The intersection of housing and education deserves enhanced funding for materials and labour beyond the limited funding for a couple of new homes on each First Nation reserve from CMHC. Although adding employment training funding, educational funding and housing together help, much more funding is needed to meet the housing demand created by high birth rates in First Nations. This approach has to be scaled up through education and social enterprise to provide the 130,000 housing units critically needed now (AFN, 2020a) and renovate existing reserve homes (Statistics Canada, 2016). Indigenous-led education can build the local workforce to meet the high need for housing development and other critical infrastructure 'for Indigenous people and by Indigenous people' (AFN, 2020a) to make "housing a source of community healing and economic renewal" (RCAP, 1996, p. 341).

5.3 Recommendations

The Indigenous-led community-based housing education model is viable for building capacity and assets required to meet the community's desire for housing and sustainable livelihood. However, programs based on the model need adequate funding and other supports to achieve sustainable livelihood outcomes in the long term. For Indigenous-led educational programs to improve livelihood outcomes in Indigenous communities, the following actions are recommended:

1. Adequate funding and support are needed to grow community-based post-secondary education to develop housing and meet other needs. Indigenous Services Canada needs to provide adequate funding and welfare to Indigenous-led educational programs, particularly in remote communities where costs are incredibly high and customized supports are required for the program's success (Gaudet, 2021)

2. This project-based apprenticeship training for different trades should be funded and equipped to meet the standard in secondary schools as occurs in Norway House First Nation in Manitoba.
3. Indigenous organizations need to take over Indigenous training and apprenticeship, and education, as non-Indigenous colleges do not adequately serve First Nations. Indigenous-led Colleges, such as Yellowquill College University, should be provided funding and support to outreach and provide Indigenous-led trades training. This apprenticeship training can adapt this curriculum in building the foundation required for developing experts in plumbing, electrical, engineering, architecture, and carpentry, which takes many years.
4. A First Nation organization should be adequately funded to take on the primary role of training, apprenticeship and education. The Provincial government, taking the funding and primary role in training, apprenticeship, and education, has not served First Nation people well for many years (Hassan, 2020).
5. Increase federal funding flow to adequately invest in First Nations as part of the national housing strategy that ensures zero homelessness and overcrowding on First Nations. This funding should consider how Indigenous-led educational programs can help meet dire housing and food needs in Indigenous communities over the long term by building long-term labour capacity in communities and using local materials. For example, the Canada Mortgage and Housing Corporation (CMHC) needs to add Indigenous-led housing educational initiatives to the existing National Housing Co-Investment Fund and the Rapid Housing Initiative to achieve desired housing outcomes in Indigenous communities.

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Appendices

Appendix A. Mino Bimaadiziwin Homebuilders learning how to operate sawmill machine

Appendix B. Jide Oni's Reflection Article

BLOG

My journey through the Islands of the North as a researcher...

Posted by MINO BIMAADIZIWIN *on* DECEMBER 4, 2019

Image 1: Jide Oni (second from the right), researcher with Mino Bimaadiziwin Partnership posing with the Boreal Homebuilder students

I have had many transformative moments in my role as a researcher with the Mino Bimaadiziwin Partnership where I am learning to build capacity and housing as a mentor in the Boreal Homebuilder (BHB) post-secondary program in both Wasagamack and Garden Hill First Nations communities in Island Lakes, Manitoba. I flew in to these remote communities to mentor students in numeracy, computer use, problem solving; instilling real life job place trainings and motivation to succeed.

From my first visit, I immediately wanted to be part of these communities due to the warmth and care shown towards me in both communities. This attitude made me feel adopted! To better integrate into the community systems (traditions, values and culture), I attended different feasts, gatherings and started learning Oji-Cree. I know more than 50 words now. I regularly participate in different community sports like volleyball and floor hockey. This active participation engendered communal bonding which improved my relationship with the community leadership and members. Later, I was named "Mukawa" meaning Bear in Oji-Cree.

Source: Mino Bimaadiziwin Website URL - http://ecohealthcircle.com/my-journey-through-the-islands-of-the-north-as-a-researcher/

Appendix C. Evaluation Survey

I) Pre-program Evaluation Questionnaire

UNIVERSITY OF MANITOBA

Natural Resources Institute

70 Dysart Rd,

Winnipeg, Manitoba

CODE #_____

1. What is your age? _____
2. Gender (circle) Male Female Other
3. Highest level of education completed _____
4. Name the project-based post-secondary education you are attending:
   _____
5. List the three things you liked best so far about this program: (if any)
   _____
   _____
6. List the three things you like least so far about this program: (if any)
   _____
   _____
7. List three things you are looking forward to learning in this program: (if any)
   _____
   _____
8. Do you think you will use the materials & information learned after the course?
   Yes ( ) No ( ) Maybe ( ) Why? or Why not?
   _____
   _____
9. How would you rate your own participation so far in the program?

	Excellent	Very Good	Good	Fair	Poor
Attendance at course					

	Excellent	Very Good	Good	Fair	Poor
Reading of materials					
Participation in discussions					
Completion of exercises					
Understanding of material					

10. What obstacles or barriers, if any, did you have to overcome to participate in training?

    a. What did you do to overcome any obstacles/barriers?

    b. Were there any particular supports that assisted you?

    c. Are there any other supports that would have been helpful for your success?

11. How has the training impacted your life? (family, social, community, etc.)?

    d. Did you expect to be impacted this way?

    e. Did you experience any unexpected impacts? If so, what were they?

12. Do you feel you are receiving the support you need from the project partners to be successful and achieve your goals? Yes ( ) No ( ) Why/why not?

13. How would you rate the facilitator(s) so far in the program?

	Excellent	Very Good	Good	Fair	Poor
Knowledge of subject					
Style of presentation					
Ease of understanding					
Relevance of presentation					

14. How would you rate your learning from the educational programming in the following areas?

	Excellent	Very Good	Good	Fair	Poor
Environmental issues					
Small motors operation					
Wilderness First Aid and CPR					
Numeracy skills					
Computer usage					
Workplace safety and health					
Indigenous knowledge systems					
Land and Forest Management					
Housing design					

	Excellent	Very Good	Good	Fair	Poor
Construction knowledge					

15. How are you applying this new learning (e.g., repaired your home, applied first aid, sustainable living)?

    _____

    _____

16. How did the reward for attendance impact your learning and life?

    _____

    _____

17. What are the three most significant challenges facing your community?

18. What resources do you have, and what do you need to address these challenges?

19. What makes your community sustainable? And what factors make it not sustainable?

20. What projects focused on sustainability are needed in your community?

21. What are your plans going forward? (What is your job/career goal (long term and shorter terms of 1 to 5 years)? Is this based on your personal strengths? Are these job opportunities available to you? What action steps are needed to meet your career goals?)

    _____

    _____

22. Would you recommend this program to others? Yes ( ) No ( )

    Why? or Why not?

23. General comments about this program.

    Use the reverse side of the page if more space is required

II) Post-program Evaluation Questionnaire

UNIVERSITY OF MANITOBA

Natural Resources Institute

70 Dysart Rd,

Winnipeg, Manitoba

CODE #_____

1. What is your age? _____
2. Gender (circle) Male Female Other
3. Highest level of education completed _____
4. Name the project-based post-secondary education you are attending:
   _____
5. List the three things you liked best so far about this program: (if any)
   _____
   _____
6. List the three things you like least so far about this program: (if any)
   _____
   _____
7. List three things you are looking forward to learning in this program: (if any)
   _____
   _____
8. Do you think you will use the materials & information learned after the course?
   Yes ( ) No ( ) Maybe ( ) Why? or Why not?
   _____
   _____
9. How would you rate your own participation so far in the program?

	Excellent	Very Good	Good	Fair	Poor
Attendance at course					

	Excellent	Very Good	Good	Fair	Poor
Reading of materials					
Participation in discussions					
Completion of exercises					
Understanding of material					

10. What obstacles or barriers, if any, did you have to overcome to participate in training?

    f. What did you do to overcome any obstacles/barriers?

    g. Were there any particular supports that assisted you?

    h. Are there any other supports that would have been helpful for your success?

11. How has the training impacted your life? (family, social, community, etc.)?

    i. Did you expect to be impacted this way?

    j. Did you experience any unexpected impacts? If so, what were they?

12. Do you feel you are receiving the supports you need from the project partners to be successful and achieve your goals? Yes ( ) No ( ) Why/why not?

13. How would you rate the facilitator(s) so far in the program?

	Excellent	Very Good	Good	Fair	Poor
Knowledge of subject					
Style of presentation					
Ease of understanding					
Relevance of presentation					

14. How would you rate your learning from the educational programming in the following areas?

	Excellent	Very Good	Good	Fair	Poor
Environmental issues					
Small motors operation					
Wilderness First Aid and CPR					
Numeracy skills					
Computer usage					
Workplace safety and health					
Indigenous knowledge systems					
Land and Forest Management					
Housing design					

	Excellent	Very Good	Good	Fair	Poor
Construction knowledge					

15. How are you applying this new learning (e.g., repaired your home, applied first aid, sustainable living)?

_____

_____

16. How did the reward for attendance impact your learning and life?

_____

_____

17. Which statement best describes the food situation in your household over the last year (12 months since this month)?

    a. You and other household members always had enough of the kinds of foods you wanted to eat.
    b. You and other household members had enough to eat, but not always the kinds of food you wanted.
    c. Sometimes you and other household members did not have enough to eat.
    d. Often you and other household members didn't have enough to eat

18. If you answered b, c or d for 18 – answer these questions about whether these statements are true for your household over the last year (12 months since this month, 2019) based on having no money and no food?

	Often true	Sometimes true	Never true
Worried about households running out of food before getting money to buy more?			
Ran out of food with no money to buy more?			
Could not afford to eat balanced meals? - For you and adults in the household - For children under 18 in household			

Relied on a few kinds of low-cost food? - For you and other adults in the household - For children under 18 in household (if you have)			
Not eating enough as you just could not afford enough food? - For you and other adults in the household - For children under 18 in household (if you have)			
Hungry because could not afford enough food? - For adults - For children under 18 in household (if you have)			
Lose weight due to lack of food and money to buy food?			
	Almost every month	Some months but not every month	Only 1 or 2 months
Cut the size of food to stretch it or skip meals as you can't afford more food? - For you or other adults in the household - For children under 18 in household (if you have)			
Go without food for 24 hours or more due to lack of food and money? - For you and other adults - For children under 18 in household (if any)			

19. Did the homebuilder program improve your food situation? In what way? For example, do you often go to work/school without breakfast or lunch?

20. During the COVID 19 Lockdown, how has your food situation changed (e.g., higher prices, less food supply, going more without food, more country foods, going to the food bank or other)?

21. In addition to the Homebuilders' training allowance, do you receive less or receive more income since the COVID 19 outbreak? (Please provide a rough dollar estimate of each income source).

22. What is your housing situation, and has it improved since you started the homebuilding program? Yes ( ) No ( ) In what way?

    _____

    _____

23. Based on your housing and community situation, what obstacles are there to practice physical distancing with COVID 19 (e.g., how many people share your house and share your sleeping place, workspace, others, etc.)? Do your skills from the Homebuilder program help with your housing situation/ physical distancing?

24. Have you received any COVID-19 vaccines?

25. How did/will the vaccine change living conditions for you and your community?

26. What are the three most significant challenges facing your community?

27. What resources do you have, and what do you need to address these challenges?

28. What makes your community sustainable? And what factors make it not sustainable?

29. What projects focused on sustainability are needed in your community?

30. What are your plans going forward? (What is your job/career goal (long term and shorter terms of 1 to 5 years)? Is this based on your personal strengths? Are these job opportunities available to you? What action steps are needed to meet your career goals?)

31. Would you recommend this program to others? Yes ( ) No ( )

    Why? or Why not?

32. General comments about this program.

33. What is needed in future training programs to ensure success?

Use the reverse side of the page if more space is required

Appendix D. Evaluation Survey Consent Form

UNIVERSITY OF MANITOBA

Natural Resources Institute

70 Dysart Rd,

Winnipeg, Manitoba

Survey Consent form

Research Project Title: Northern Teaching Lodges: Learning Partnership for Community Development and Mino Bimaadiziwin in First Nation Communities

Principal Investigator and contact information: Dr. Shirley Thompson (204) 291-8413 or s.thompson@umanitoba.ca

Researcher and contact information:

1. Jide Oni, Masters Candidate, Natural Resources Institute, University of Manitoba. Phone: (204) 599-2112; E-mail: onib@myumanitoba.ca
2. Ajarat Adegun, Masters Candidate, Natural Resources Institute, University of Manitoba. Phone: (431) 588 - 7975; Email: adeguna@myumanitoba.ca
3. Catrina Sallese, Research Assistant, Natural Resources Institute, University of Manitoba. Phone: (204) 228-1982; Email: sallesec@myumanitoba.ca

Sponsor: Social Science and Humanities Research Council (SSHRC) Partnership Grant.

I will read the full script over the phone and ask for your consent. Your consent will be recorded along with the phone interview. This consent form will be sent to you prior to the phone interview and then again with the transcript for your records and reference. This, only, is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. Please pay attention while I read this carefully to you over the phone. If you would like more detail about something mentioned here, or information not included here, you should feel free to stop me to ask.

The purpose of this evaluation is to look at educational opportunities for community development and the community needs. You will not receive a financial reward. You will be asked to share how

you are impacted by the project-based post-secondary education. The information gathered from the evaluation may be used as educational material. The project findings will be used later to examine how such participant-generated visual data works at gaining public attention or influencing public opinion on such problems.

If you choose to participate in the evaluation, you will be interviewed over the phone and the researcher will record the conversation on their phone. The interview will take 15 to 60 minutes. All audio recordings will be transferred to the researcher's computer immediately after the interview. This computer is in the researcher's home office and will be password-protected and only accessible to the researchers. All electronic data will be encrypted. The researcher will keep the audio recordings until the data has been transcribed (up to 4 weeks after the interview). It will then be permanently deleted from their phone and stored in a password-protected computer until the project is finished.

RISKS and BENEFITS: There is minimal risk to this research. The questions asked should not cause any embarrassment or psychological discomfort. You may benefit from participating in the evaluation by reflecting on your personal experience related to the courses you are attending. Names or other personal identifiers will never be reported or shared to ensure confidentiality.

CONFIDENTIALITY: Your name will never be identified as participating in this survey to anyone or in any report. A unique code but no name will be assigned to your survey data in the database and on the survey form. Your name will only be stored under password protection until 2025 in a separate location on protected personal computers and in a locked file cabinet, so the survey responses cannot be linked to any name. The data will be released as grouped data, where there is concern about identifying people.

What and how are research findings going to be shared?: No names and no identifying information will ever be reported, with data grouped to hide identifying information. Summary results with all names and identifying information removed will be provided to the First Nation education director as well as the chief and council and the local postsecondary school for feedback within two months of completing the survey. After that, the research findings will be reported in posters, journals, conferences, as well as other ways that the education director and chief feel are appropriate to improve education outcomes, change educational policies and build community support services.

You consenting to participate on the phone indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate. By stating your consent to participate on the phone also indicates that you are 18 years old or older. In no way does consenting to participate over the phone waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You do not have to respond to any question you prefer not to. If you do not wish to complete the survey, you can simply leave it blank without any problem or negative result to you. Please feel free to ask for clarification or new information throughout your participation.

The University of Manitoba may look at your research record to see that the research is being done in a safe and proper way by the researchers.

This research has been approved by the Joint-Faculty Research Ethics Board. If you have any concerns or complaints about this project, you may contact any of the above-named persons or the Human Ethics Secretariat at 1-204-474-7122 or e-mail humanethics@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

To state your consent to participate over the phone, kindly repeat the following after me:

I, [Name of the participant], fully consent to participate in this evaluation survey over the phone with the [Researcher's name] on [Date].

Appendix E. Ethics Protocol (#J2017:127 (HS21156)) Amendment Approval

University of Manitoba | Research Ethics and Compliance

Human Ethics - Fort Garry
208-194 Dafoe Road
Winnipeg, MB R3T 2N2
T: 204 474 8872
humanethics@umanitoba.ca

AMENDMENT APPROVAL

May 6, 2020

To: **Shirley Thompson**
Principal Investigator

From: **Julia Witt, Chair**
Joint-Faculty Research Ethics Board (JFREB)

Re: **Protocol # J2017:127 (HS21156)**
Northern Teaching Lodges: Learning Partnership for Community Development and Mino Bimaadiziwin in First Nation Communities

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Joint-Faculty Research Ethics Board (JFREB) has reviewed and approved your Amendment Request received on **April 24, 2020** to the above-noted protocol. JFREB is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.

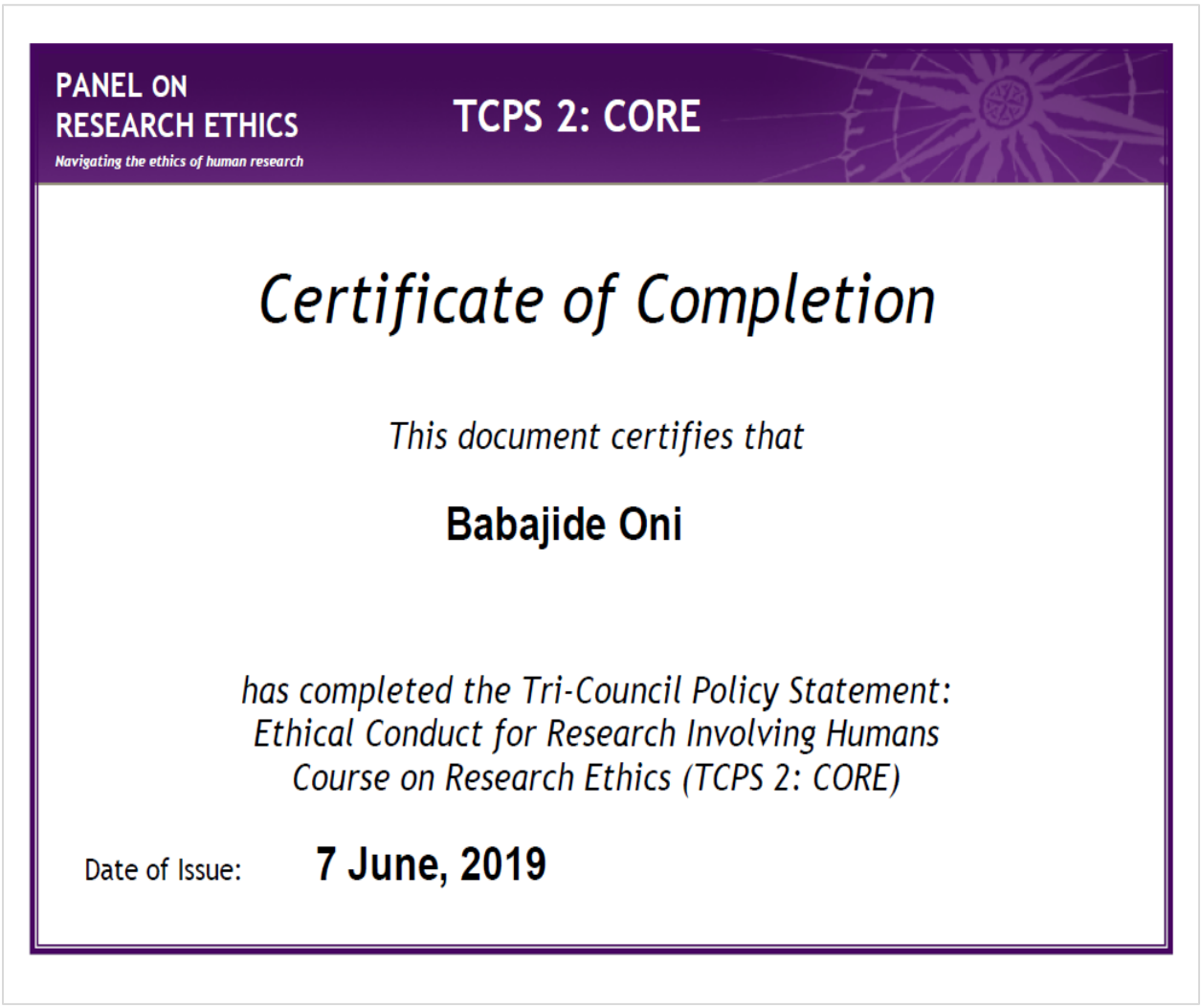
This approval is subject to the following conditions:

i. Approval is given for this amendment only. Any further changes to the protocol must be reported to the Human Ethics Coordinator in advance of implementation.

ii. Any deviations to the research or adverse events must be submitted to JFREB as soon as possible.

iii. Amendment Approvals do not change the protocol expiry date. Please refer to the original Protocol Approval or subsequent Renewal Approvals for the protocol expiry date.

Appendix F. TCPS 2 CORE Certificate



PANEL ON RESEARCH ETHICS

Navigating the ethics of human research

TCPS 2: CORE

Certificate of Completion

This document certifies that

Babajide Oni

has completed the Tri-Council Policy Statement:
Ethical Conduct for Research Involving Humans
Course on Research Ethics (TCPS 2: CORE)

Date of Issue: **7 June, 2019**