

Ziisabaakodakaan: The Place Where Sugar is Made

by

Deborah Theresa Pine

A thesis submitted in conformity with the requirements
for the degree of Masters of Arts

Geography and Planning
University of Toronto

© Copyright by Deborah Theresa Pine 2016

Ziisabaakodakaan: The Place Where Sugar is Made

Deborah Theresa Pine

Master of Arts

Geography and Planning
University of Toronto

2016

Abstract

One of the most pressing environmental challenges facing people around the world is climate change. Scientists have pointed out that in 100 years the maple trees (Ninaatigoog) will no longer produce sap for making maple syrup as a result of warmer climate. Anishinaabek have been dependent on the environment to produce maple syrup prior to contact. This thesis looks to engage with Elders from Wiigwaaskinigaa to address these questions. What will be the social and cultural impacts of the disappearance of Ziisabaakodakaan practices on Anishinabek well-being? Also, how can Anishinaabe Gkendaasowin assist Anishinabek in coping with ecological changes due to climate change? Anishinaabe knowledge is complex and it gathered from a lifetime of observation and engagement on the land. The research findings suggest that Anishinaabe elders are witnessing, the poor health of Sugar Maple trees and this may influence cultural resiliency and thus adaptation to climate change.

Acknowledgments

I would like to take this time to thank Dr. Brenda Murphy as her research on Maple Syrup made it possible for the *Ziisabaakodakaan* to happen. I would like to thank my supervisor Deb McGregor for blazing the way for other Anishinaabe scholars including myself. Her knowledge, patience, and guidance enabled me to finish the work I started. Also I would like to thank Sue Ruddick and Thembela Kepe for being on my committee and helping with my educational journey.

To my friends Sean Meades, Matt Hayman and Deb Woodman, I'd like to thank you for helping me edit, format and for engaging in theoretical discussions that guided me throughout this process. Thanks for listening to me, sometimes late into the night.

To my Post-Secondary Counsellor, Anne Marie Jones, without your support and encouragement over the years I never would have went back to school in the first place, thanks for doing your job and encouraging dreams I never knew I had.

To my best friend, Bunny, I could not have asked for a better friend, someone that pushed me to keep going and help me through all the low times with this process. Your friendship has helped me keep my sanity and your belief in me kept me going when I did not believe in myself.

To Uncle "Muzz", and Aunty Jean, Aunty Pauline, Uncle Ed (Bon), Uncle Jim, *miigwech* for letting me ask you a few questions about *Ziiwagamide* and wanting to share what you know with me. I have always appreciated what you have shared with even when I am not recording you, "*Aasnaa ntaa-anishinaabemoyik*".

To *n'gitziimak* (my parents) Fred and Louise Pine, *miigwech* for teaching me how to be a better person, for showing me that anyone can change. I will never forget you taking me out on the land and out on the water; for teaching me important things, that cannot be learned in books. Your knowledge and understanding of the world around you and your stories, have left a deep impression in my mind and you will be forever in my heart.

Table of Contents

Acknowledgments.....	iii
Table of Contents.....	iv
List of Appendices.....	vii
Chapter 1: Introduction.....	1
1.1 Context: Climate Change, Indigenous Peoples and cultural resiliency.....	1
1.2 Maple Syrup and Climate Change.....	2
1.3 Research Question.....	2
1.4 Community Contribution.....	3
1.5 Scholarly Contributions.....	3
Chapter 2: Literature Review.....	5
2.1 Indigenous Geography.....	5
2.1.1 What is Indigenous Geography.....	5
2.1.2 Indigenous Geography and Ethical Research.....	6
2.1.3 Climate change.....	7
2.2 Understanding Traditional Ecological Knowledge (TEK).....	8
2.2.1 Everything is relational.....	10
2.2.2 TEK and Western Science.....	11
2.2.3 TEK and MS and the Anishinaabek.....	13
2.2.4 Maple Sugar.....	16
2.2.5 Transitioning from TEK to Indigenous Knowledge.....	17
2.3 Anishinaabe Gkendaasowin.....	18
2.3.1 Anishinaabe Ontology and MS.....	20
2.3.2 Anishinaabemowin.....	23

2.3.3 The Role of Elders	24
2.4 Literature Review: Conclusion	26
Chapter 3: Anishinaabe Research Approach and Methods.....	28
3.1 Anishinaabe Research Methods.....	28
3.2 From Indigenous Research to Anishinaabe Research.....	29
3.3 Methods.....	31
3.4 Recruitment.....	35
3.5 Participants.....	35
3.6 Data Analysis and Limitations.....	36
Chapter 4: Gegoo ngiimkaan	38
4.1 Gegoo ngiimkaan (something I found)	38
4.2 Past Family Practice.....	38
4.3 Anishinaabemowin.....	42
4.4 Anishinaabe Gkendaasowin.....	45
4.5 Anishinaabe Nokiiwin.....	49
4.6 Observations of Climate Change	52
4.7 Change in the Sugar Bush.....	56
Chapter 5: Discussion	61
5.1 Connecting the dots.....	61
5.2 What value is <i>Anishinaabe Gkendaasowin</i> ?	64
5.3 Elders and AG.....	64
Chapter 6: Conclusion.....	66
6.1 Scholarly Contributions	66
6.2 Recommendations.....	67
6.3 Conclusion	70
Bibliography	71

Appendices.....	82
Appendix A: Glossary.....	82
Appendix B: Pronunciation Guide.....	84
Appendix C: Letter of Consent.....	87
Appendix D: List of Interview Questions.....	90

List of Appendices

Appendix A: Glossary of Anishinaabemowin

Appendix B: Pronunciation Guide

Appendix C: Copy of letter of consent

Appendix D: List of interview questions

Chapter 1: Introduction

1.1 Context: Climate Change, Indigenous Peoples and cultural resiliency

Indigenous peoples are regarded as the most vulnerable groups adversely impacted by climate change (Cherringo, 2008). In recent years, Indigenous peoples have become engaged in climate change discussions and fora internationally and nationally such as the *International Indigenous Peoples' forum on Climate Change*, an organization established in 2008 that offers a common voice relating to Indigenous peoples' concerns regarding climate change and promotes Indigenous voices and knowledge in global decision making.

In Canada, the national climate change agenda *Vancouver Declaration on Clean Growth and Climate Change* recognizes the role of Indigenous peoples and their traditional knowledge has in developing a sustainable path forward in light of climate change. The Vancouver Declaration also commits to broader engagement with Indigenous peoples to develop a pan-Canadian framework on clean growth and climate change.

In relation to food security, in 2009 the United Nations (UN) *Special Rapporteur on the Right to Food* indicated climate change is the biggest threat to food security. Little research has taken place in Canada linking climate change, food security and cultural resilience. Climate change and food security research tended to focus on the north. Existing research has shown, Indigenous peoples have shown immense adaptability to ensure continued access to traditional foods, yet changes are required in terms of accessibility and harvesting mechanisms (Guyot, Dickson, Paci, Furgal, Man Chan 2006). Furthermore, research in this area, reveals that food security is “is integral to cultural health and survival” (Power 2008, 96). In other words, it is more than just access to traditional foods that matters, harvesting and sharing traditional foods can foster individual, family and community adaptation and resiliency.

An important source of traditional food for the Anishinaabek is maple syrup. As weather patterns change and become increasingly more unpredictable there needs to be other realms of knowledge that are included in the discussion on climate change. By situating this research within the knowledge of Anishinaabe Elders and the production of MS it opens the door to the embodied

knowledge of the Anishinaabek. This area is just being introduced into the academy it offers a new way of seeing and knowing the world. The Elders for this project have vast ecological knowledge which is on par with science. The Elders are engaged at a personal, social and cultural level in practices that go beyond making MS and go beyond the parameters of scientific investigation. Anishinaabe Gkendaasowin was and is needed to reproduce cultural practices for survival since time immemorial and will continue to do so.

1.2 Maple Syrup and Climate Change

Indigenous people have been making Maple Syrup (MS) in North America long before the arrival of Europeans (Huron, 2014). One of the distinct Indigenous groups that have been producing Maple Syrup are the Anishinaabek. However, Western modes of production dominate the narrative of MS with little, if any reference to the historical production of MS by Indigenous peoples in North America (Murphy, Chretien, & Laura, 2009). Regardless of what research does and does not exist on MS, may be a moot point, as climate change research is saying that drastic environmental change may mean that MS may no longer be able to be produced (Comerford, et al., 2013). As the production of MS requires predictable weather patterns in order for maple sap to flow and then be processed for MS production.

1.3 Research Question

The purpose of the Ziisabaakodakaan project is to engage with a family of Anishinaabek Elders from Waagaaskinigaa (Whitefish River First Nation) that have operated a family Maple Sugar camp for countless generations. This project gives voice to the Anishinaabe people and their knowledge in the area of MS production. The research project overall question is:

How can the Anishinaabe Gkendaasowin of the Elders of Waagaaskinigaa (Whitefish River First Nation) contribute to discussion of the production of MS in the face of climate change?

To answer the main research question, three objectives were identified, these are:

1. To document Ziisabaakodakaan practices of family operated maple syrup camp, located in Whitefish River First Nation, Ontario, how Ziisabaakodakaan practices changed over time and if these changes are reflected in changes in the Anishinaabemowin language.

2. To document Anishinaabemowin (Ojibwe language) of the Ziisabaakodakaan and how language changes as practices do. Many scholars point to the fact that knowledge is lost in the translation from Anishinaabemowin to English (Corbiere 2014).

3. To determine how the practice of Ziisabaakodakaan and speaking Anishinaabemowin contributes to community well-being and resilience in the face of climate change.

For the purpose of this research Indigenous knowledge (IK) in the areas of Indigenous Geography (IG), Traditional Ecological Knowledge (TEK), and the emerging concept of Anishinaabe Gkendaasowin (AG) within Indigenous studies will be examined in greater depth in the literature review. These three related, yet distinct areas of study form the theoretical foundation of this project. IG is an evolving sub-discipline that looks to engage and center Indigenous knowledge in the field of geography. TEK is defined as ecological knowledge that comes from Indigenous people and their direct relationship with the land. Currently AG is knowledge that comes from the Anishinaabek¹.

1.4 Community Contribution

This project offers a significant contribution for the Anishinaabek. The ability to engage with Anishinaabek Elders in their homes is paramount to the survival of Anishinaabemowin and Anishinaabe cultural practices. Since Elders hold knowledge not only in the area MS but in many related areas as well. Anishinaabe Gkendaasowin is situated in context, in community and cannot be separated from the people. The importance of Anishinaabemowin and in TK projects like this can offer examples for community based research in Anishinaabek communities. Moreover, this project exemplifies the importance of the younger generations engaging with Elders for Anishinaabe cultural continuity.

1.5 Scholarly Contributions

This project contributes to a paucity of research available on the Anishinaabe production of MS and Anishinaabemowin. The five primary findings for this research endeavor were interrelated,

¹ IG, TEK and AG will be discussed and defined in the literature review

and it is difficult to discuss each finding independently as that does not reflect Anishinaabe ontology, nor the methodology employed in this project. For example, one key finding reflected the importance of “past family practice” in Ziisabaakodakaan, yet past family practice includes a discussion of the importance of Anishinaabemowin, in particular fluency, as the language of instruction. In its own right, Anishinaabemowin cannot be extracted from past family practice, nor from Anishinaabe Gkendaasowin as language acts as a vehicle for instruction of cultural practices.

Past family practice contributes to the current literature on MS, as there is little scholarship on Anishinaabe production of MS. Anishinaabemowin is required to document the stories, to provide the appropriate ontological frame. Anishinaabemowin provides the meanings and understandings that cannot be translated into English or expressed in English, Anishinaabe Gkendaasowin (AG) as specific, located Anishinaabe knowledge, is about the natural world and gives the Anishinaabe understanding the human position within this frame. Anishinaabe Nokiiwin reinforces AG as an embodied form of knowledge. Observations of climate changes documents the effects of different kinds of pollution and how that pollution affects MS trees. Changes in the Sugar Bush documents how adapted technology of the process of MS changed over time and how that adaptation influences the cultural practice of Ziisabaakodakaan. These scholarly contributions and findings will be examined throughout this paper.

Chapter 2: Literature Review

2.1 Indigenous Geography

Fittingly a brief literature review on the tenants of Indigenous Geography (IG) is necessary to locate the Ziisabaakodakaan project. IG is a paradigm shift from traditional forms of geography, engaging with Indigenous knowledge and Indigenous people at the periphery of research. IG looks to engage with Indigenous knowledge (IK) and Indigenous knowledge holders as the center of research. This being said it represents an ontological shift that changes research goals, practices and procedures to reflect localized practice and needs of Indigenous peoples. IG avoids the extractive knowledge practice of historical geographical research (and other research practices). The need for and development of IG has coincided with the *United Nations Declaration on the Rights of Indigenous Peoples* (Louis, Johnson and Pramono, 2007), the Indigenous Peoples Specialty Group of the American Association of Geographers (Castree, 2004, 136), the Canadian Association of Canadian Geographers and the International Geographical Unions commission on Indigenous Peoples Knowledges and Rights (Johnson, Cant, Howitt, & Peters, 2007).

2.1.1 What is Indigenous Geography

Early contributors to the development of IG expressed reservations about defining it as a sub-discipline (Coombes, Johnson & Howitt 2012), preferring instead to conceive of it as a theme within geographies, though others have been identifying it as a discipline (Frantz & Howitt, 2012). A growing number of scholars identify themselves as Indigenous Geographers such as Pualani Louis, Jay Johnson, Zoltan Grossman, Evelyn Peters, Brad Coombes, Sarah Hunt and Chantelle Richmond. However, the burgeoning body of literature pertaining specifically to the understandings of space and place offered by Indigenous knowledge holders demonstrates the reification of IG scholarship into a distinct sub-discipline.

As a result, a denotative definition of IG is not useful; IG scholarship is defined by shared properties, examples of which include, but are not limited to;

- Indigenous knowledge (IK) as central research focus (Castree, 2004, Coombes et al, 2014; Johnson et al, 2016);
- The value of IK and IK systems as equal, if not paramount to Western science (Palmer, 2016, 14). IG scholars have taken from the field of traditional ecological knowledge (TEK) and positioned IK systems to help to inform IG;
- The meaningful inclusion of Indigenous peoples and IK knowledge holders (Frantz and Howitt, 2012,728) in geographic inquiry;
- Utilizing IK research as part of an activist platform (Daigle, 2016) to emphasize an applied approach (i.e. community benefit).

Indigenous Geography necessitates a place based approach with knowledge rooted in location. There is great diversity across IG because of the diversity of Indigenous nations (Louis 2007); this is one reason that limits the need for a discrete definition of IG. In addition, defining IK within IG in an academic realm can confine the nature of Indigenous voices. Indigenous geographer Sarah Hunt (2014) states, “The heterogeneity of Indigenous voices and worldviews can easily become lost in efforts to understand Indigeneity in ways that fix Indigenous knowledge, suppressing its dynamic nature (29).” Therefore, confining and limiting IG to a discrete definition also suppresses its expression and evolution.

2.1.2 Indigenous Geography and Ethical Research

There are three components that are linked to the development of the sub-discipline of IG as identified in the literature; the colonial history of geography, the non-inclusion of Indigenous voices in the discipline of geography and the importance of ethical research with and for Indigenous peoples.

The need to conduct ethical research with Indigenous people is a direct result of the colonial history of geography (Coombes et, 2014, Louis, 2007, Frantz & Howitt, 2012, Johnson et al, 2007). An explanation for the colonial approach one most often encounters is the implicit process of “othering”. As Frantz and Howitt (2012) state, “Colonial geography facilitated the occupation and possession of Indigenous peoples’ lands, waters and resources by the colonizing

‘other’ (727).” The process of othering and producing research that continues to colonize Indigenous people is partially due to the non-inclusion of Indigenous scholars in the academy. As noted by Johnson et al., “Entry of Indigenous voices into both the academy and political institutions has been—and typically remains—contingent and conditional (2016, 2).” In order to move forward from this approach many in the area of IG are looking to engage in ethical geographic research; a form of geography that looks to engage Indigenous peoples for their benefit (Coombes et al, 2014, Louis, 2007, Kershaw, Castleden, & Laroque, 2014). Conducting and having meaningful engagement and participation with Indigenous peoples is a central tenant of IG.

An approach taken and encouraged by Indigenous Geographers is to engage in interdisciplinary scholarship; in particular Indigenous studies and the type of research regarded as ethical as determined by Indigenous peoples and their communities.

2.1.3 Climate change

Another aspect to this research that is represented in IG is climate change. Johnson et al (2016) states, “Climate change has had significant effects on cultural ways of life and place based rights. For example, land based traditional hunting and gathering has been affected (4).” As a land based activity, MS production can and is affected by climate change. Frantz and Howitt (2012) state,

Recognition of Indigenous knowledges and their importance in global cultural diversity and human futures, for example, has fostered a range of responses across geography and the social sciences from serious engagement with Indigenous involvement in biodiversity conservation to development of the ecological humanities as an approach to ontological pluralism (728).

In relative terms, understanding Indigenous peoples in IG can offer a global lens. Johnson et al (2016) assert, “In many ways, the fate of Indigenous peoples in their quest to develop the capacity to re-build the social ecology of their communities through their attempts at self-determination and re-asserting their communal Indigeneity in thought and action is indicative of the broader fate of human communities worldwide (4).” The inclusion of IK in the climate change discussion can and will broaden the lens of the broader climate change discussion. As

this research is concerned with climate change and the production of MS, IG is quite applicable to the discussion. However, notably absent from the IG literature is a discussion on MS or how MS knowledge from IK holders can help broaden the discussion. This research proposes to address this critical gap in knowledge by documenting Anishinaabek MS production.

The formation of IG is a work in progress but many of the IG scholars work in a multi-disciplinary arena as Indigenous peoples are heterogeneous and so are many of the problems that IG looks to investigate. Correspondingly, TEK is a field of study that has been informed by Indigenous peoples' aspirations in recent years. TEK has been concerned with documenting environmental/ecological knowledge of Indigenous peoples for over four decades and can serve a useful starting place to situate Anishinaabe knowledge in the broader environmental sustainability scholarship.

2.2 Understanding Traditional Ecological Knowledge (TEK)

The vast scholarship in the field of TEK² has also made significant contributions too Indigenous environmental and ecological research. While TEK has played a significant role in valuing the traditional knowledge of Indigenous peoples, the roots of this field of inquiry reach well beyond the field of geography, bringing together scholars across disciplines. Understanding the field of Traditional Ecological Knowledge (TEK) is essential to understanding the merits of this research project.

As with most research involving Indigenous peoples, TEK research was initially conducted primarily by non-Indigenous scholars largely through the environment and resource management field. One of the first to gain an international reputation for studying TEK is Fikret Berkes, initially a common property scholar. Berkes (2000) defined TEK as "a cumulative body of knowledge, belief, and practice, evolving by accumulation of TEK and handed down through generations through traditional songs, stories and beliefs. [It concerns] the relationship of living beings (including human) with their traditional groups and with their environment (8)." The conception of TEK provided by Berkes has been taken up by many scholars and has widespread

² TEK is also called Traditional knowledge, (Mason et al, 2012, Ellis, 2005, McGregor, 2009, Maldonado, et al., 2016, Popova, 2014)

influence. Many scholars use this definition in their research, either fully or the starting point of how they define TEK in their work (Whyte, 2013, Mason et al., 2012, Ellis 2005, Siahayaa, Hutaarukb, Hendrik, & Mardhanied, 2016). However, as Berkes is often credited with this definition, Pierotti and Wildcat (2000) note that ecological knowledge is multi-disciplinary in nature making TEK hard to define. Furthermore, another problem that arises with Berkes' definition is that it is the result of a Western positivistic worldview. To solely describe TEK as a "body of knowledge" implies that TEK can be extracted using Western research methods and scientists can learn all there is to know about Indigenous environmental/ecological through generative research models.

As a result of this initial conception by Berkes many scholars working with Indigenous people in the field of TEK are creating more nuanced definitions and conceptions. Indigenous scholars like Kimmerer (2002), McGregor (2009), Turner, Ignace, & Ronald (2000), describe TEK as knowledge that is situated in Indigenous peoples' lives that is derived from an inter-dependency and respect for the environment that is holistic, practiced and includes Indigenous spirituality. One recent shift in the reifying of TEK comes from Lauer & Matera (2016) who choose to simply rename TEK, selecting the referent 'Indigenous ecological knowledge' (IEK) to locate the knowledge within Indigenous peoples. IEK is a possible definition of the former TEK that could be applied to this research project to encapsulate an aspect of Anishinaabe knowledge. Yet, as this renaming holds possibilities for the future, it does not change the impact or the discursive inertia of a more fully-formed, Western conception of TEK that currently dominates the field. Additionally, Martin, Roy, Diemont, & Bruce (2010) look to create a fuller definition of TEK and note there is an emphasis on interconnection and cycles that recognizes not only human dependence on non-human ecosystem components, but also the reverse (842). As the literature evolves with continued scholarship it looks to encompass a more meaningful definition. TEK essentially is from Indigenous people and it demonstrates ecological knowledge that is informed by a deep relationship with the land. However, despite the reconceptualization by Indigenous scholars, TEK still has no universally accepted definition (Berkes, 2000). Generally, Berkes is used as a starting point and additional qualities are added (or sometimes not) to make TEK reflect the complexity and diversity of Indigenous peoples' ways of life (Martin et al, 2010, Whyte, 2013, Reo, 2011). Much like IG then, TEK and its scholars choose how to define TEK in their research, either accepting a full Berkes definition, or modifying it according to their own

axiological position. Scholars in the field of TEK are engaging in research in a myriad of problems in diverse Indigenous communities globally so the diversity of Indigenous people, places and knowledge is difficult to encapsulate in one coherent definition.

2.2.1 Everything is relational

A central theme found in the TEK literature is the concept that everything is relational (Pierotti & Wildcat 2009, Watson & Huntington 2008, Castelden, et al 2009, McGregor 2009, Siahayaa et al 2016). Pierotti and Wildcat (2000) state, “Ecological connectedness is culturally and ceremonially acknowledged through clan names, totems, and ceremonies (1337).” The idea of the environment being relational means that the natural world is not something that is full of wonder so much as it is full of familiarity (Watson & Huntington, 2008). Castelden et al (2009) describe the relationality of life forms as a shared “sacredness by having a common origin (795).” Not only is the relationality of Indigenous peoples to the natural world “spiritual”, it is formed out of interacting with their environment. Siahayaa et al (2016) expand on the theme of relationality and state, “Consequently, vast and longstanding knowledge of people in relation to interacting with their environments and responding to changes is an integrated part of many indigenous and local cultures (14).” There are similarities between Indigenous peoples concerning relationality, however there is little to no research in the TEK literature on MS and Anishinaabe people(s). Also, TEK represents another way of knowing how to relate to the world, a different ontology. Kimmerer (2012) states, “Engaging TEK in all its dimensions can support students in the process of envisioning alternative sociocultural systems and creating frameworks based upon respect and responsibility for the more than human world (323).” The use of TEK in the Ziisabaakodakaan research could bring an alternative Anishinaabe narrative that supports the broader discussion of MS literature. The spiritual or meta-physical aspects that ultimately form the basis of TEK is often excluded from scientific inquiry (Johnson, Cajete, Berkes, Louis, & Kliskey, 2016). As an Anishinaabe scholar, I have the ability to engage in Anishinaabe ways of knowing and Anishinaabemowin, that is not reflected in the literature of TEK or MS.

2.2.2 TEK and Western Science

TEK and Western science are different; they produce knowledge in different ways and for different reasons (Kendrick & Manseau, 2008). Mason et al (2012) and Houde (2007) posit that the difference in knowledge production is based upon differing world views; TEK is holistic and positions humans in ecology and SEK (scientific ecological knowledge) is compartmentalized and conceptually separates humans from the environment. Whyte (2013) states, “Indigenous knowledge, while it may produce important knowledge, does so in ways that scientific disciplines do not (6).” Moreover, Kimmerer (2002) states, “Western science is conducted in academic culture in which nature is viewed strictly objectively (433).” If Western science is viewed by many scholars as objective, then TEK is often viewed by the academy as subjective. The two intellectual traditions are positioned in opposition to each other. This is a slippery slope for TEK because it can then be further devalued as irrational for its component of spirituality versus Western science and its rationality (Takeda & Ropke, 2010), which is based on the premise of being “value free”. Moreover, Whyte (2013) states, “In the case of scientific disciplines, values of objectivity are based on cosmological assumptions about there being subjects and objects in the world and which beings, entities and phenomena fall under one or the other (7).” Western science has its own history of constructing nature, as Watson & Huntington (2008) state, “For Enlightenment humanism produced a version of human nature by tethering to humanness the requirement of rationality (258).” Often times, this dichotomy creates conflict in the areas where TEK and science meet and come to opposing conclusions.

As Western science is a powerful discourse, it is often difficult for TEK to be given respectful consideration. Kimmerer (2002) states, “Biological research is moving to explore these approaches, yet acknowledgment or understanding of traditional ecological knowledge is rare in the scientific community (432).” The sciences dominate the areas of conservation and natural resource management in which TEK has been mandated for inclusion (Houde, 2007). Since many of the conservations areas border or include Indigenous people, TEK is being brought to the table as a viable source of knowledge to inform management decisions (Pierotti & Wildcat, 2000, Turner, Ignace, & Ronald, 2000, Whyte, 2013, Weiss, Hamann, & Marsh, 2013, Mason et al., 2012, Castelden, Garvin, & Nation, 2009, Houde, 2007, Ellis, 2005). Although, as Weiss et al (2013) point out, “IK can thus serve as a validation of Indigenous identity, and in some cases

as a threat to the established approach to Western resource management (287).” Where once science was viewed as the only source of valid knowledge in environmental and resource management decisions, TEK has been mandated through legislation to contribute (McGregor 2009). Including TEK, necessitates the involvement of Indigenous people and their knowledge. Often times this creates tension between the academy and Indigenous people since Indigenous people often seek to protect their knowledge from those who wish to exploit it or apply it inappropriately. Since TEK and science can have very different philosophies, Martin et al (2010) address this idea,

More specifically, philosophies that frame the human–environment relationship and guide knowledge-making processes can largely determine how ecosystems are managed and whether or not technological design is sustainable in the long term. There are often distinct differences between the guiding philosophies of TEK and those prevalent in Western science (842).

Although the inclusion of TEK is positive step, it is also challenging because TEK is often only recognized as valid if it fits into an already established scientific discourse (Ellis, 2005). TEK at times can and is a useful lens to discuss the knowledge of Indigenous people but is limited as external interests institutionalize it through policy, protocols and guidelines. The field of TEK is not framed from an Indigenous ontology, the field developed external to Indigenous communities. I propose in my research on Anishinaabe knowledge/ language and MS to frame the study from an Anishinaabe ontology.

According to Houde (2007), TEK is used in the management of natural resources “Because knowledge about the complexity of eco-systems is incomplete within state bureaucracies and elsewhere... (34).” The richness of TEK is derived from generations of Indigenous people knowing and experiencing land based activities. As such, it can only aid in the area of conservation and ecological knowledge. As Ziisabaakodakaan is situated within a larger project linked to climate change and how climate change is expected to negatively affect the production of MS, it is anticipated that TEK will also inform new understandings of how climate change has affected the production of Ziiwaagamide and how Anishinaabe knowledge/language may ground individuals and communities in resilience.

Although both TEK and Western science contain valuable knowledge, Western science has been historically favoured by Euro-centric dominant societies (Mason et al, 2012). By bringing TEK to the management table that is based upon Western institutional frameworks can be problematic because of the underlying power imbalance (Castelden, Garvin, & Nation, 2009). Takeda and Ropke (2010) indicate, “These forms of structural power are ‘materialised’ in the institutions of the state, market and civil society giving rise to structural bias and the consequent relations of power and powerlessness (180).” According to Bryan (2009), this power imbalance is evident through colonialism and the creation of what he calls a “savage slot” (26) for Indigenous people, that is denoted by their closeness to nature and their perceived lack of technology. By allowing this imagery, Pierotti and Wildcat (2000) explain, “Such descriptions project a rather amorphous, sentimental, and romanticized character to this relationship, but overlook the empirical knowledge of the lives of plants and animals that was such a major component of the daily lives of native peoples (1337).” Even today the “savage slot” juxtaposes Indigenous people against the modernity and civilization of the West and their hegemonic power (Bryan, 2009). Therefore, by undertaking research as an Anishinaabe scholar, I can help to resist the overarching power imbalance by bringing TEK into the discussion from an Anishinaabe worldview and ontological perspective. It is essential to disrupt these power imbalances directly as an Anishinaabe scholar.

2.2.3 TEK and MS and the Anishinaabek

The lack of literature on MS in the field of TEK is one reason that makes this research project so valuable. In order to produce MS, intimate knowledge of weather, tree, and fire is required; it is the interrelatedness of those factors that has been practiced by generations of Anishinaabek.

While Davidson-Hunt & Berkes discuss TEK in great detail in the article “Learning as You Journey: Anishinaabe Perception of Social-ecological Environments and Adaptive Learning” (2003), they speak briefly about how the Anishinaabe people of Shoal Lake created their own sugar bush by relocating trees from one area to another (p.17). As the sugaring bush did not exist on Shoal Lake, the people of Shoal Lake planted their own; a process requiring detailed knowledge of the biophysical landscape conditions needed for the trees to survive so far north (Davidson-Hunt & Berkes, 2003). In this instance, “creating a sugarbush” is an excellent example of the utilization of TEK by working directly with TK knowledge holders in the community, however there is little to no literature on the Anishinaabe production of MS. As a

result, this is where my research looks to connect to the Anishinaabe production of MS, TEK and climate change.

As mentioned earlier, TEK is multi-disciplinary. Therefore, in order to expand the literature review on MS and Anishinaabe people, areas other than TEK were explored. I also engaged with scholarship in related disciplines such as archaeology environmental studies, philosophy and Indigenous studies (Thomas & Silbernagel, 2003, Thomas M. M., 2005, Huron, 2014, Reo, 2011, Whyte, 2014).

Anishinaabe scholar Reo has contributed to the field of TEK. The extent of his research does not encompass the area of MS. Instead he speaks to systems of Anishinaabe knowledge required to make MS,

While hunting can outwardly appear to be a purely practical thing, hunters embody broader systems of traditional knowledge that are quite complex and multifaceted. The same can be said for systems of gathering (e.g., wild rice, maple syrup, medicinals, craft materials), trapping, fishing, whaling and habitat management. These knowledge-practice-belief systems evolved within particular families within particular communities over the course of many generations. Depending on how many different resource activities one participates in, an individual's knowledge may be relatively narrow, but great depth of knowledge accompanies the dozens to hundreds of generations of family practice. Such individuals are a tribal community's most respected content experts (p.1).

Reo is discusses the complex relationship that Anishinaabe people had with the land, and this includes MS, however he does not elaborate on the Anishinaabe process of making MS.

In addition Huron (2014), notes the production of MS by various Indigneous groups, including Ojibwe, Iroquois, Anishinaabe, Mississauga, and Mohawk Nations. Yet Huron, does not go into the Indigenous production of MS with great detail and notably absent is an Anishinaabe ontological undertanding of MS. From historical research Huron writes on Aboriginal techniques of producing syrup by using clay pots and dropping stones (71), yet he does not distinguish which Aboriginal group is using this technique. Ostensibly, Huron is discussing TEK but he does not use the term explicitly or attribute the knowledge to a distinct Indigenous group and proceeds to describe practices forms of Aboriginal techniques. The research for this project looks to address this gap and create a clear, informed culturally specific Anishinaabe perspective on the produciton of MS.

Philosopher Whyte (2013) writes on TEK, “On the role of traditional ecological knowledge as a collaborative concept: a philosophical study”, only adds a small notation on MS being a holistic, multi-dimensional process that reflects a deep understanding of the relatedness of the natural world. Whyte states, “Disruptions of webs of responsibilities involved in relations with Elders, berries, and maple trees jeopardize some of what is valued intrinsically and extrinsically by certain Indigenous peoples (604).” Although Whyte makes a salient point with regards to larger Indigenous perspective, he does not specifically mention the Anishinaabe perspective or production of MS.

As an archaeologist, Thomas notes, “Throughout the eighteenth and nineteenth centuries, American Indians in the Lake Superior region produced thousands of pounds of maple sugar by boiling sap of the maple tree each spring (Henry in Thomas 2005, 300).” While the academic construction of “Traditional Ecological Knowledge” is not expressed explicitly, given its relatively recent inception into the academy, similar constructions of knowledge have been observed as early as the eighteenth and nineteenth century;

... the Grand Island Ojibwe likely tapped the maple trees by making a cut in the tree with an axe and directing the sap along cedar slats inserted into the tree below the cut. Sap was collected in small baskets formed from folded and stitched sheets of birch bark, and gathered in larger birch bark pails or mukuks that were brought to the sugar camp for storage in wooden barrels, large hollowed-out logs, or moose skin vats. Boiling was carried out in a series of copper, brass, or iron trade kettles that hung from a frame over an open fire (Thomas & Silbernagel, 2003, p. 141).

Clearly there is evidence of TEK from the detailed observations being made, however the narrative voice is not one of a locally engaged researcher. Furthermore, there is no deep research being conducted that expresses an Anishinaabe (Ojibwe) ontology from the Anishinaabe people themselves. My research looks to address this gap and engage with Anishinaabe producers of MS directly and by observing appropriate knowledge sharing protocols.

The production was clearly observed and documented in historical records,

A maple sugaring lodge made with a sapling frame covered with birch bark, which had a large roof opening, and interior sleeping platforms may have been built over the boiling area. Sugaring equipment was likely stored in a small birch bark-covered cache in the sugarbush. The Grand Island Ojibwe’s maple production was likely entirely focused on the

making of granulated and molded cakes of maple sugar, which were easier for a seasonally mobile people to store and transport than the liquid maple syrup. Producing nearly two tons of maple sugar would necessitate the tapping of hundreds of trees (Thomas & Silbernagel, 2003,141).

One note of interest was the difference between making MS and Maple sugar, “Although American Indian populations had been making maple sugar in the region for many earlier generations, there does not appear to have been a significant direct knowledge transfer between the Euro-American and American Indian populations in regards to maple sugaring (Thomas M.M 2004, 61).” Since the production of MS is and was dependent upon the Anishinaabe process of making sugar this historical literature is important, yet incomplete because it does not engage with the Anishinaabe producers.

This historical literature speaks to how widespread geographically Maple Sugaring actually was in the early 1900s. In “The Evolution of a Maple Sugaring Landscape on Lake Superior’s Grand Island”, Thomas & Silbernagel state,

However, the history of maple production in Michigan begins with the state’s first indigenous residents, long before the first tabulation of maple production statistics. Once an important activity in the Native American seasonal round, the tapping of maple trees and boiling of maple sap into maple sugar was carried out each spring in all parts of the state (2003,135).

Sorensen corroborates the geography of MS production in the Minnesota area, “The Anishinaabe (Ojibwe) people of the White Earth Reservation in White Earth, MN have always been involved in the harvesting of rice, maple syrup, and berries (Sorensen 2011,1). However observation and historical data is not enough to fully understand the production of MS and the cultural importance it has to the Anishinaabek. The research for this project will address the gap in the literature by engaging directly with Anishinaabe MS producers.

2.2.4 Maple Sugar

Prior to contact and up until the use of the bottle for storing MS, maple sugar was the end result of boiling the sap down for consumption by Anishinaabe people. There is some literature on the production of maple sugar but none of the research is in the TEK scholarship nor does it fully describe the process of MS from an Anishinaabe perspective.

As Thomas (historian) writes, “In spite of its decline, maple production in American Indian communities continues to serve as an important symbolic element in the development and maintenance of an Indian identity, solidifying the relationships of individuals and communities in the present with land and their ancestors” (2004, ii).” The holistic nature and value of MS goes far beyond a simple commodity. The production of Maple sugar was done “Over the course of its American Indian history, maple sugar was produced for personal or household consumption, gift giving and feasting, and for trade or sale (Thomas M.M., 2004, 44).” MS or Maple sugar was and is valued as sacred food, as Thomas states, “In the Lac du Flambeau Ojibwe community today, maple sugar is considered a sacred food, alongside wild rice, venison, fish and berries (2004, 45).” Furthermore, “It was not uncommon to have celebrations and ceremonies at the end of winter during the sugaring season. In 1932 Wojta witnessed an Ojibwe ceremony in honor of and in preparation for the coming maple sugar harvest (Thomas M.M., 2004, 45).” Maple sugar was not a one-dimensional food product as it had ceremonial and trade purpose as well. Maple sugar made contributions to the ceremonial, social, cultural and economic life of the Anishinaabek.

Despite, the literature on the Anishinaabe production of MS not being robust there is evidence that MS is still a staple of cultural transmission and the knowledge of MS will be passed on to future generations. Sorensen writes, “The other knowledge-rice, maple syrup, berries-is in no danger of disappearing... (2011, 2).” Despite Sorensen’s statement about the continuity of the Anishinaabe production of MS, there is not a wealth of literature that confirms her assertion. This is another reason that makes this research project valuable, because it can confirm whether or not the practice of the Ziisabaakodakaan will continue under the threat of climate change.

TEK literature that engages with MS production is not extensive (Murphy, Chretien, & Laura, 2009) and in order to expand and locate the discussion within the Anishinaabe community we need to move the discussion Anishinaabe Gkendaasowin-Anishinaabe specific knowledge as understood by the Anishinaabek.

2.2.5 Transitioning from TEK to Indigenous Knowledge

The difference between defining TEK as a body of knowledge and situating TEK in that of an Indigenous group is one of the main debates in the field of TEK. However, the multi-disciplinary

nature of TEK allows each (Western) discipline to create a definition that suits its particular needs (Whyte, 2013). This is problematic because many authors discuss the value of TEK in relation to a specific academic discipline such as biology (Kimmerer, 2002), geography (Bryan, 2009), post-humanism (Watson & Huntington, 2008), conservation (Popova, 2014) or to the academy in general. Defining TEK in relation to a specific discipline then outweighs the importance of TEK to the Indigenous community. In an attempt to protect and solidify Indigenous knowledge (IK) through an Indigenous lens, some authors in the field of TEK have looked to locate their research and work within the field of Indigenous Knowledge (IK). This shift firmly grounds the IK to that of a group of Indigenous people (McGregor, 2000). This may seem trivial but it is of the utmost importance to Indigenous scholars. IK can be defined as knowledge of Indigenous people that has been gathered through respect and interaction with their diverse natural environments. This includes a deep spiritual component as well (Lauer & Matera, 2016 , McGregor & Plain, 2013, Johnson et al, 2016).

The multi-disciplinary nature of TEK, and the move to broaden the scope of Indigenous knowledge to IK would serve adequately as the theoretical area for this research project. However, a deeper analysis illustrates the deficiencies in each as described in the preceding sections. Rather than exclusively situating this research project in the Western discourse of IG, IK or TEK, a further examination of specific Anishinaabe thought must be undertaken.

The elements of Anishinaabe life are intertwined, fluid and form the basis of cultural continuity for Anishinaabe people. The production of MS and the practice of the Ziisabaakodakaan as a result integrate three areas of Anishinaabe thought to be discussed further: Anishinaabe Gkendaasowin, Anishinaabemowin and the role of Elders. These areas also intertwine and are not easily separated. One theoretical area flows and overlaps with the others.

2.3 Anishinaabe Gkendaasowin

The cumulative efforts of many Indigenous scholars across diverse fields in the academy in the areas of Indigenous research methods (Smith, 2005), Indigenous systems (Hart, 2010) and Indigenous knowledge (McGregor, 2014) have created space in the academy for Indigenous thought. Ultimately this project stands on the shoulder of others but instead of drawing upon all IK relevant literature, it is of the utmost importance to engage and examine Anishinaabe

scholarship for in-depth examination of Anishinaabe Gkendaasowin (AG). This being said as research and scholarship has developed within the Anishinaabe scholarly community, our AG has been included and discussed without explicitly describing it as such. Many Anishinaabe scholars and researchers simply have chosen IK or other appropriate scholarly acceptable terminology; whatever the term being used, they all fall into the larger paradigm of AG. As a working definition, I choose to define AG by drawing on the work of Basil Johnston, an Elder and prolific writer. He states that within Anishinaabe culture and society we obtain knowledge, about plants, animals, weather, people and the world around us through interaction (Johnston, 1976). Collectively and individually, we form relationships with the world around us (McGregor & Plain, 2013). Ontologically, our own spirits as Anishinaabek are fostered by these relationships (Wilson, 2008), there is a great respect for all the Maanidoog and Gzhe-waadizi Maanidoo (roughly translated as kind spirit) that look to help us. Some of this knowledge is gifted from the spirits and the spirit world; this knowledge and relationship constitutes Anishinaabe Gkendaasowin.

AG is the knowledge of Anishinaabe people that has been accumulated and practiced since time immemorial by the Anishinaabek on Turtle Island (Geniusz 2009). According to Geniusz (2009), Anishinaabe Gkendaasowin is multi-faceted, there can be practical knowledge, spiritual knowledge of plants, animals, water etc.... It is quite diverse. Because of this diversity it is not simply enough to say that Anishinaabe Gkendaasowin and Western knowledge are the same. Or that AG and TEK for that matter are the same. The methods for learning and accumulating the different knowledges are not always different; observation and trial and error are similar techniques. However, in AG, methods and information can be gathered from reliable sources that are not necessarily considered appropriate in a Western ontology. For example, Anishinaabe scholar Brent Debassige in “Building on Conceptual Interpretations of Aboriginal Literacy in Anishinaabe Research: A Turtle Shaker Model” (2013) speaks to how a vision of the Turtle Shaker informed him on how to develop a research model to understand, teach, and conduct research as an oshkaabewis (loosely translated as helper from Anishinaabemowin) academic. The acquisition of knowledge from the spirit world to the individual seeking knowledge is profound and forms the basis of how one accumulates AG throughout their lifetime. In my research, I am in essence conducting research to document Anishinaabe Gkendaasowin and like Debassige, I was often a helper in the process of making MS.

It is clear through the literature that Anishinaabe people produced maple sugar. However, a gap exists in understanding the meaning of the practice of the Ziisabaakodakaan for Anishinaabe people. In order to understand this relationship, it is necessary to understand not only the relationship that Anishinaabe people had with the production of MS, but of the complex relationship Anishinaabek had with the trees themselves. There are three Anishinaabek theoretical areas that are interconnected and necessary to better examine the practice of the Ziisabaakodakaan, they are Anishinaabe ontology, Anishinaabemowin and Elders (the practitioners).

2.3.1 Anishinaabe Ontology and MS

For the purpose of this research, ontology as Cree scholar Shawn Wilson defines it (2008), in “Research as Ceremony” will be applied. He states,

Ontology is the theory of the nature of existence, or the nature of reality. Is there on “real” world that each of us observes differently through our own senses, or do various worlds exist, depending upon the point of view of the observer? There is no way to come to a definitive answer to this question, so people believe an ontological set of beliefs and take it on faith from there. Once a set of beliefs is established regarding just what is “real”, research then follows these beliefs in an attempt to discover more about this agreed reality (33),

Simply put, ontology means what we consider real in our world. What do the Anishinaabek consider real in relation to Ziisabaakodakaan? To answer the questions, it is essential to understand the relationship that Anishinaabek have with the world around them and how beliefs shape and reflect Anishinaabe ontology. As Anishinaabek we have a place in creation, and responsibility to the all of the beings in creation (McGregor & Plain, 2013). It is essential to understand Anishinaabe ontology on its own terms as often times Anishinaabe ontology is compared or held up to the standard of Western academic thought. Rather than imploring this method, it is better to understand what Anishinaabe Elders have said about their reality (in Anishinaabemowin) on their own terms. It is better to draw on what Anishinaabe scholars have interpreted their experience (what is real), learning and understanding.

A good starting point in understanding Anishinaabek ontology and MS production is to understand how Anishinaabek related to plants. It is necessary to understand the placement of

plant life in the order of creation. According to Anishinaabe author Basil Johnston (1976), plant life was the fourth act of creation for Kitche Manitou. Johnston (1976) writes that plant life in four forms was created by Kitche Manitou, “There were four kinds: flowers, grasses, trees and vegetables. To each he gave a spirit of life, growth, healing and beauty (12).” Plant also came before Anishinaabe in creation and as such, they are often referred to as our older brother. The knowledge and gifts of plants were obtained through a reciprocal relationship, including prayer, ceremony and reliance by the Anishinaabek over the course of millennia (Geniusz, 2009).

Although Johnston speaks to initial placement of trees in the creation story, he does not go into detail of specific trees, especially Maple Trees. He references the four gifts of trees that were given, but the exploration of those gifts for each plant or tree is not addressed in detail.

Anishinaabe scholar Margaret Noori sheds light on the importance of trees to the Anishinaabe people. Noori (2013), while referring to Elder Angeline Williams states, “Williams refers to the way trees were used as signs and often signifiers of important events and ideas. She [reference to Williams] describes the way trees were named, marked or became part of the lives of mythic and real characters in her stories (72).” As a result, ontologically Anishinaabek view trees as an integral part of creation, each having their own story, each having a gift for the Anishinaabek and creation. To develop a relationship with the trees and learn knowledge of the trees is part of Anishinaabe ontology. As an Anishinaabe researcher, I am conducting myself inside this ontology.

As a result, the placement of “ninaatig” (Maple Tree) in that of creation is also understood in a relational form. In other words, we consider our relationship to the trees. Absolon (2011) states, “Indigenous Knowledge lives in the animals, birds, land, plants, trees, and Creation (51).” As such, Anishinaabe people are dependent on the knowledge contained within creation, including trees. This knowledge is a practical observation and multi-faceted. In regards to the Ziisabaakodakaan (loosely translated as sugar bush), McGregor and Plain state that,

Running the camp requires much ecological and environmental knowledge: you have to know when to open camp, which trees to tap, when to stop, what weather (humidity and sun) is good for boiling, and what wood is required. Knowledge of these indicators requires patience, keen observation, experience and listening skills (2013,103).

Furthermore, not only is the knowledge not only practical and observational, it is also spiritual. Davidson-Hunt, Jack, Mandamin, & Wapioke (2005) state, “An Anishinaabe person is

embedded within an environment that is both material and spiritual (196).” The interconnectedness of the material and spiritual is always occurring in the Anishinaabe ontology. This spiritual aspect has yet to be explored in great depth in relation to Anishinaabek and Ziiwaagamide.

Another view that Davidson-Hunt et al (2005) collected from Anishinaabe Elders of Shoal Lake was that of “manitoo ogitigan” (Creator’s Garden). The totality of creation and the interconnectedness are reflected in this concept as the Creator’s Garden is a gift to the people of the earth (Davidson-Hunt et al, 2005). Also, Noori (2013) states, in reference to elder Dan Pine (Ojibwe Healer) that, “His views of the Anishinaabeg connection to the land reaffirm the belief that the earth is a kitigan (field) of resources (1400).” The process of making Maple Syrup also fits into this realm of understanding the natural world according to an Anishinaabe ontology. It only makes sense that the world created for Anishinaabe people would be thought of also as a garden. Since the Anishinaabek are and were dependent on the world around for life. Indigenous scholar Absolon (2011) writes, “By following the examples of the plants and animals, we remain attuned to the harmony and balance of Creation. The survival of our people relied on the kindness, pity and generosity of Creation (57).” Therefore, the process of making Ziiwaagamide puts the Anishinaabek in the midst of dependence upon the Ninaatigoog themselves. Absolon indicates this relationship, but does not look to solve or address the knowledge that comes from the process of making Ziiwaagamide itself.

As mentioned earlier, Western Science and TEK produce knowledge but with different agendas and by different means (Bartlett, Marshall, & Marshall, 2012). It is important to understand that Anishinaabe ontology is holistic and based on spiritual relationships (Johnston, 1976). The environment is not outside the world of the Anishinaabek, it is the reason for the Anishinaabek. The plants, animals, fish, ancestors, rocks and waters are always present in the lives of the Anishinaabek. The Anishinaabek are and were guided by the spirits all around and much care was taken as to not offend these spirits. Therefore, a relationship of more than survival or dependence on the natural world around them was cultivated. An Anishinaabek ontological perspective was and is constituted out of respect for the maanidoog (spirits) that exist in our natural world and our continued reliance on the two for our continuity as a people. A relationship with the maanidoog and the natural world frames Anishinaabe ontology and offers a closer understanding of this research project. This includes what is missing in IG, TEK or IK as

theoretical frames. A world view that is spiritual in nature is vastly different than the world view of the dominant hegemonic paradigm.

As I was conducting research within Anishinaabe society and culture, it is understood that Elders carry the most Anishinaabe Gkendaasowin and are the ones to be sought out for answers. Because of their lifetime of experience engaging in relationships on the land, learning from previous generations, and their fluency as speakers of Anishinaabemowin, they are experts far beyond what the academy requires of its scholars.

2.3.2 Anishinaabemowin

Language is the conduit for cultural transmission and conveys the ontology of a people. Therefore, it is important to engage and understand how Anishinaabemowin, the language of the Anishinaabek, informs the research on the Anishinaabe production of MS.

Anishinaabemowin is instrumental to studying Ziiwaagamide because not all the meanings of Anishinaabemowin can be fully translated into English. Fluent speaker, Elder and language professor, Mary Ann Corbiere (2013) states, “Many terms don’t have an exact equivalent in the other language; often times the other language has words that are only near equivalent to varying degrees (140).” Translation from Anishinaabemowin is further complicated because “...a word’s meaning often needs to be conveyed by translating it as phrases rather than as a single word (Corbiere 2013,140).” While conducting research within the Anishinaabe scholarly literature, Anishinaabe ontology is revealed often times through the translation of Anishinaabemowin. The ontological differences between that of English and Anishinaabemowin become evident as we explore some of the key concepts in Anishinaabemowin that relate to the area of Ziiwaagamide.

Anishinaabe author Basil Johnston states (2013), “Without the benefit of knowing the language of the Indian nation that they are investigating, scholars can never get into their minds the heart and soul and spirit of a culture and understand the Native’s perceptions and interpretations (p.96).” The Indigenous knowledge that is woven into an Indigenous language is the best way to understand Anishinaabe knowledge. Many Anishinaabe scholars have been bringing concepts and theories into academia, through the use of Anishinaabemowin in order to frame discourses in the academy. Anishinaabemowin is one of the most powerful vehicles through which

Anishinaabe Gkendaasowin (knowledge) is expressed and transferred. As mentioned earlier, because translation offers a rudimentary understanding, Anishinaabe ontology and therefore research endeavors must be framed within the ontological frame of Anishinaabemowin meaning and practice. Debassige (2010) uses the Anishinaabe phrase *mino-bimaadiziwin* (loosely translated as the good life) to frame research in Anishinaabe society. Debassige states, "...Anishinaabe *mino-bimaadiziwin* is a holistic way of daily living and should not be reduced to only an intellectualizing project (2011, 17)." Therefore, making *Ziiwaagamide* is just a part of a holistic way of living for Anishinaabe people. In addition, McGregor reiterates the Anishinaabe worldview, "For Aboriginal peoples, traditional knowledge is not just about understanding relationships; it is the relationship with Creation. Traditional knowledge is something one does (2009, 75)." Anishinaabemowin is used in cultural activities, as Anishinaabe people are constantly transforming and recreating cultural and ecological knowledge by being involved in *mino-bimaadiziwin*.

The process of making of *Ziiwaagamide* arises out of the geography of the land where it takes place. The description of this process has been understood and conveyed via Anishinaabemowin through fluent speakers. *Ziiwaagamide* communicates deeper meanings that have not been examined before and cannot be examined strictly in English. Noori illustrates this from a linguistic perspective, "By reading and writing in Anishinaabemowin, we are able to use sounds, morphemes and transitive animate constructions that do not even exist in English (2013, unpaginated eBook)." However, even as Noori makes a strong case for the inclusion of Anishinaabemowin, the weight of her research is not about *Ziiwaagamide*. Therefore, by including and examining Anishinaabemowin in the study of *Ziiwaagamide*, the possibilities for new meanings to come from the language emerges as a new possibility.

2.3.3 The Role of Elders

Anishinaabe Elders embody AG through their lived experiences and use of Anishinaabemowin. The Report of the Royal Commission on Aboriginal Peoples (RCAP), (1996) states that, "Elders are living embodiments of Aboriginal traditions and cultures (n.p)." Some Anishinaabe Elders have survived the impacts of colonization and still carry Anishinaabemowin and IK of former generations (RCAP 1996). The importance of Anishinaabe Elders to understanding Anishinaabe thought and ontology is inextricable (Debassige, 2010, Absolon, 2011, Davidson-Hunt et al,

2005). Elders that are fluent speakers of Anishinaabemowin are often cited as knowledge keepers (Debassige, 2010, Absolon, 2011, Davidson-Hunt et al, 2005). There is a wealth of knowledge that Elders who are also fluent speakers have derived from their lived experience.

Linguistic Research

Maude Kegg was a respected fluent speaker and Elder from Portage Lake, she was a folk artist and cultural interpreter (Nichols, 1991). She was fortunate to spend time making maple sugar with her grandmother in the early 1900's and J.D. Nichols, translated the Anishinaabemowin stories in the book "Portage Lake: Memories of an Ojibwe Childhood." What follows is an excerpt from one of her stories of making Maple Sugar with her grandmother, "*Mii endasombigamiziged, aangodinong gaye niizhing ombigamiziged, giishpin mino-giizhigadinig, gigizheb mizhakwadinig. "Onizhishin i'iw ziinizibakwaad" ikido, mizhakwak ombigamiziged* (1991,18), translation, "She sugared off every time it boiled down, sometimes twice if it was a nice day, if it was clear in the morning. That sugar is nice," she said when she sugared off in clear weather (1991, 19)." Maude Keggs' stories were collected for the purpose of linguistic description. As Nichols was a linguist, his main concern was documenting the language, not engaging or recording AG. One act of linguists includes gathering and recording dying languages. As such, Nichols engaged with fluent Anishinaabemowin speakers as prototypes for a historical archive.

From this brief excerpt, it's obvious that Anishinaabe people understood the relevance of weather patterns and systems affecting the making of "*ziinizibakwaad*" (loosely translated as Maple Sugar). In retrospect, examining the ecological conditions necessary for making "nice" sugar as Maude's grandmother puts it, would have been a key question to ask to better understand AG and MS production. The process of making Maple Sugar was the more prevalent practice of Anishinaabe people prior to the arrival of Europeans, as the hard sugar was easier to store than Maple Syrup. Another story from Maude Kegg speaks to this, "*Miish i'iw ezhi-ziiga'iganiked, wiigwaasan-sh iko ogii aabijitoonan, wiigwaas ezhi-bajiishkinang* (1991, 16)" (translation), "She [her grandmother] used birch bark then to make sugar molds forming the bark into cones (1991, 17)." There is a great deal of AG that is contained in these transcribed stories. Also, there are many avenues for questions that are left unanswered. For instance, when did the Anishinaabe people start changing their production of primarily Maple Sugar to that of Maple

Syrup? How do weather patterns affect the production of Maple Syrup? These topics are not covered in these stories as Nichols was not interested in the knowledge, just the dictionary. However, they represent an excellent starting point for research in the area of Ziiwaagamide. While translation of stories from fluent Anishinaabe Elders clearly validates this type of research, the Ziisabaakodakaan project goes past treating participants as prototypes of Anishinaabemowin. This research seeks to introduce and validate AG from Elders as an academic field of its own.

Elders carry *dibaajimowin* (stories); stories that are multi-dimensional layers of knowledge derived from embodied knowledge of the land but also the knowledge of past generations. Deductively, AG would be necessary in the production of the birch bark containers for the Maple Sugar. The collection and gathering of birch bark to make the cones requires intimate knowledge of the land and trees in order to harvest birch bark correctly. When did the making of the birch containers occur? Was it during the long periods that occur during boiling? Or was gathering the birch bark for the containers done prior to the collecting of sap? The transcribed stories of Elder Maude Kegg speaks to the knowledge of her own grandmother. The aspect of relationality and transmission of generational knowledge is how knowledge is passed in Anishinaabe family relations. The intimacy and importance of AG is gained from direct involvement with Anishinaabe Elders.

2.4 Literature Review: Conclusion

The limited literature that exists on Anishinaabe production of Ziiwaagamide is one of the main reasons to conduct research in this area, particularly as Anishinaabe way of life may be negatively affected by climate change. The disappearance of the maple trees represents more than a loss of the knowledge obtained during the production of maple syrup and sugar, there is far more at stake from an Anishinaabek perspective. The TEK literature was important to situate the discourse of ecological knowledge in Indigenous research. However, TEK is largely a Western construction and cannot fully encapsulate Anishinaabe thought. Anishinaabek research is a holistic undertaking that is evident in the areas of IK, Anishinaabe-Gkendaasowin, and Ziiwaagamide (MS). The complexity of a holistic multi-faceted area of research that Ziiwaagamide contains is situated within systems of Indigenous knowledge, including how people embody knowledge. Indigenous knowledge is lived and experienced in the world around

us and is transmitted by years of ‘doing’. Anishinaabe Gkendaasowin is a specific IK, located in place and the lived experience of families and communities and passed from one generation to the next vis-a-vis the seasonal activities that replenished and sustained life for Anishinaabek through living knowledge keepers. The knowledge of the land, both practical and spiritual, cannot be separated from the Elders and the language that exists. As noted earlier by Johnston, Anishinaabek were placed last in the Creation of the earth. As a people, the Anishinaabek were given all of creation to learn and gather knowledge from. The proposed area of study of Ziiwaagamide is similar to that of Maple Syrup production, but culturally quite different. The way of seeing and knowing the world that comes from Anishinaabe Elders represents key ontological differences. The literature in the area of Ziiwaagamide and even Maple Syrup is lacking with the proper inclusion of an Anishinaabe perspective. This literature reflects the need for further investigation and research into the area of Ziiwaagamide.

Chapter 3: Anishinaabe Research Approach and Methods

3.1 Anishinaabe Research Methods

It is important to recognize the history of research within Indigenous communities to understand why past practices of non-Indigenous researchers in Indigenous communities have warranted the protection of Aboriginal peoples in Canada in research as evidenced in the Tri-Council Policy Chapter 9 *Research Involving the First Nations, Inuit and Métis Peoples of Canada* (<http://www.pre.ethics.gc.ca/>, 2015).

Aboriginal peoples have been deemed vulnerable populations because of cultural misrepresentation and research exploitation by non-Aboriginal scholars claiming ownership of Aboriginal knowledge and modes of knowledge production (Smith 1999). Past (and unfortunately still very much in the present) research conducted by non-Indigenous scholars (and admittedly Indigenous scholars) is characterized by the overall lack of commitment to community benefit and engagement (Ermine, Sinclair, & Jeffrey, 2004). In order to rectify this imbalance, it is of the utmost importance that Anishinaabe scholars participate in conducting research in their own communities in appropriate ways (Teays, Gordon, Renteln, & Dundes Renteln, Alison, 2014, Geniusz 2009). Teays et al (2014) state that many of the past unethical research problems can be rectified when Aboriginal researchers conduct research in their own communities and if they remain accountable to the communities in the process. Therefore, as part of the larger Anishinaabe community and my extended family, I used an Indigenous methodological framework to carry out research that mitigates this power imbalance to a large extent. I acknowledge that this framework will not completely eliminate the power imbalance.

The research approach taken for my study falls within the parameters of an Indigenous research paradigm. Cree scholar Shawn Wilson frames an Indigenous paradigm as:

An Indigenous paradigm comes from the fundamental belief that knowledge is relational. Knowledge is shared with all of creation. It is not just interpersonal relationships, not just with the research subjects I may be working with, but it is a relationship with all of creation. It is with the cosmos, it is with the animals, with the plants, with the earth that we share this knowledge. It goes beyond the idea of individual knowledge to concept of relational knowledge (177).

Indigenous scholars have created a shift in the academy to be more culturally appropriate when conducting research with Indigenous people (Hart, 2010, 1). Indigenous geography in part emerged and responded to the call for a shift in a research paradigm in research involving Indigenous communities. Coombes et al write, “The colonial histories of geographical research mark the discipline deeply and inevitably complicate present attempts to engage with Indigenous communities (2014, 1).” Moreover, Indigenous geographers are starting to call for change. “In order for geographic scholarship to keep pace and remain relevant to Indigenous communities and societies in the 21st century, we must engage with Indigenous methodologies (Louis, 2007, 132).”

In addition, because some (not all) Indigenous researchers operate out of an Indigenous paradigm, there are other concerns. Shawn Wilson (2001) speaks to the importance of the Indigenous paradigm being rooted in an axiology of “...doing something beneficial in this world (p.175).” Including and validating Anishinaabe Elders fits this criterion in several ways. As mentioned earlier, this research project is part of a new discourse in Anishinaabe research where the principle investigators have lifelong commitments not only to the participants through family connection but as carriers of the Anishinaabe knowledge also (Archibald, 2008). Therefore, as carriers and practitioners, the knowledge shared with Elders and myself as a researcher, I am obligated to use and share with those who will one day come to ask what I know. As Anishinaabe people in Canada, we fit within the larger academic world of Indigenous studies and Indigenous research in a variety of disciplines and areas of study, but we are also working towards implementing our own Anishinaabe methods while conducting research to undo the colonial history of previous geographical inquiry. As a result, the research questions of the Ziisabaakodakaan project were carried out with this in mind; to practice and use appropriate research methods associated with Anishinaabe people and developed by Anishinaabe scholars.

3.2 From Indigenous Research to Anishinaabe Research

Boozhoo, *Waasnodekwe nd'zhinikaaz. Kitigaansiibiing ndoo'njibaa. Bineshiin'doodem. Nswi'mshkodek niin, Anishinaabe n'daaw.*

My name is Northern Lights woman; I am from Garden River First Nation. I am of the bird clan. I am three fires (Bodewattamii, Odawa, and Ojibwe). I am Anishinaabe. I have participated in

making MS many times in my life. I have helped my father re-vitalize the production of MS in our own family. I have visited and gone into my maternal family's sugar camp in Waagaaskinigaa (Whitefish River First Nation) at various times throughout my life and will continue to do so. My maternal family are carriers of Anishinaabemowin, and represent the last entire generation of fluent Anishinaabe speakers in the community at this time. They are knowledge carriers and Elders that have a wealth of knowledge of the world around them and it has been my honour to have them share some of their knowledge of the Ziisabaakodakaan (the place where sugar is made) with me as part of this research project. At the heart of this project, for myself, is the chance to formally record and validate the knowledge of fluent speakers who have been making Ziiwaagamide (MS) in the Ziisabaakodakaan. I am not a fluent speaker yet. I hold a teaching diploma in Anishinaabemowin. In my lived experience, I have been actively engaging with fluent speakers my whole life, both in and out of the classroom. Consistent with Cree and Anishinaabe scholars Wendy Geniusz and Margaret Kovach, assertions that it is important for Anishinaabe/Indigenous scholars to locate themselves not only in relationship to the research but in the research process itself.

I was optimally suited to conduct this research because of my personal, familial, and academic background. Growing up, I divided my time between Garden River First Nation and Birch Island, in Whitefish River First Nation, my mother's home community. I would help my uncles and aunts in the sugar bush as they harvested and boiled sap to make syrup for the family. As multi-generational Anishinaabe MS and maple sugar producers, my family were prime candidates to participate in this research. My family has witnessed massive changes over the course of their lives to the MS production process, and the socio-ecological context of its production. Similarly, their awareness of my own knowledge and experience of the process allowed them to share more freely and in greater detail.

In this environment and at home I was continually exposed to Anishinaabemowin and developed the beginnings of a receptive capacity in the language. This was supplemented by years of personal and academic study to improve my Anishinaabemowin skills. In addition to attaining an Associate of Applied Science in Ojibwe Language Instruction from Bay Mills Community College, from the time I was able to speak I would visit my aunts and uncles I would try to converse with them in Anishinaabemowin. I would ask questions about the language, listen to them converse with each other, trying earnestly to understand what they said. While I feel far

from fluent, I am able to understand much of what is conveyed to me in real time and can maintain conversations. This skill is increasingly rare and exceptionally important to this project, as subsequent chapters will demonstrate.

In addition to my Anishinaabemowin education, my undergraduate studies in Community Economic and Social Development and Sociology developed my critical analysis and theoretical grounding.

3.3 Methods

One of the first methods used was the offerings of tobacco and or a gift to the Elders to initiate the research. Each Elder was given a small gift of tobacco and or a gift in order to maintain Anishinaabe cultural protocols for knowledge exchange (Absolon 2011, 32). The exchanging of gifts is referred to as “Gimiigiwemin” (Tobias & Richmond, 2016). As every Elder is a unique human being and depending on their religious affiliation, each received tobacco or a small gift. For example, one of the gifts given was two tea towels. The exchange between giver and receiver is an Anishinaabe custom that predates contact. The one who seeks the knowledge from Elders must offer something in exchange, maintaining a reciprocal relationship and demonstrating the appreciation and respect the knowledge seeker has for the Elder, this is to “Gimiigiwemin”. A custom in my community and family has been to take small gifts when visiting an Elder, such as a box of tea or coffee (F. Pine, personal communication, September 14, 2014). It is of the utmost importance to understand and develop a relationship with each Elder to know which gift would be acceptable to the knowledge keeper. As cultural norms and values have shifted over time and some Elders, while knowledge keepers, may also be of Christian faith and may be offended with a gift of tobacco. Ultimately, their Anishinaabe Gkendaasowin (Anishinaabe Knowledge) has not changed. Their knowledge is just as valuable as others’ whose faith is not Western based, yet it may change what a researcher offers as a gift.

I drew on Jo-Ann Archibald’s “Research as Storywork” (2008) in the development of a mixed methodology using storytelling, visiting, and interviews. Visiting and revisiting Elders to gather knowledge is pivotal to the Indigenous ontology (Archibald, 2008). Additionally, Coombes (2014) states, “To imagine across and to maneuver within multi-natures and their transcultural connexions, geographers increasingly turn to storytelling (p.849).” Storytelling is also being

used in the field of IG. As an Anishinaabe person it is of the utmost importance to learn from the stories of Elders, which often happens in the Elders' homes. A level of comfort and commitment is established and knowledge then can be passed to the recipient. It takes time to develop this relationship, and gathering oral histories, expertise and knowledge from Elders requires a lifetime commitment for the researcher, just as it would in a normal Anishinaabe context. The Anishinaabe term "*boochwaa*" reflects aspects of this process, conveying not only the act of visiting someone, but of being actively engaged and invested in the interaction. The literal translation into English of Anishinaabemowin words is not necessarily the best method and there is often a deeper cultural meaning that speakers understand the words and phrases to mean. To "*boochwaa*" as a method involves being with the Elders as a visitor in the home; helping Elders with chores as they see fit. An example would be making tea or helping with supper; this is part of the reciprocity found within Anishinaabe teachings (Archibald, 2008). There is a time element to a visit as well, it is not done in haste and a feeling of good communication and shared experience encompasses the time shared.

Furthermore, as Genuisz (2009) states, "Many First Nations story tellers use their personal life experience as teaching stories in a manner similar to how they use traditional stories. These story tellers help to carry on the oral tradition's obligation of educational reciprocity (129)." Personal experiences relayed by Elders are thus also critical components to traditional pedagogies and such contributions still require the same reciprocal protocols that one would expect when seeking traditional creation stories.

In conjunction with visiting, I used semi-directive interviews to encourage Elders to share stories. I prepared a series of questions in advance to elicit information relevant to the topic of the traditional production of maple syrup and climate change. The questions were prepared and asked in English, though participants had the option of responding in English or Anishinaabemowin. Being family members, they were aware of my proficiency levels in both languages. Some questions would be omitted during the interview if participants, in response to another question, previously implicitly answered them, while additional questions were posed where I felt responses needed clarification or brought forward additional insights than I had anticipated when writing my initial list of questions.

I chose to conduct interviews because the process of interviewing facilitates storytelling and the sharing of personal experiences through direct elicitation. Because of the depth and breadth of knowledge that Elders carry, less structured interview techniques allow the knowledge of Elders to flow more naturally from these stories and life experiences that are shared, emulating the holistic fashion in which they would have typically been shared with a visitor (Huntington, 1998). The main difference between stories shared while visiting and the interview process was the act of recording responses, its academic purpose and having a pre-determined list of questions. With respect to this last distinction it would not be uncommon for someone to visit Elders with an idea of the questions they wanted to ask. However, here the difference lies in my having to type up the questions and submit them with other materials through the university's ethics review process. Similarly, all participants signed written consent forms, though they were given the option of doing an oral consent should they be so inclined. Nonetheless, these differences did not significantly interrupt the storytelling process. The presence of the recorder, while initially distracting, was eventually ignored after approximately 5-10 minutes when participants in group interviews developed a natural rhythm to their discussions. The interview process was also rendered more natural by my having memorized the questions and not bringing additional notes, maintaining the informal conversation typical in a household environment.

Questions covered a broad range of topic areas to provide as full a picture as possible of Anishinaabe Gkendaasowin in the sugar bush. Topics included childhood memories pertaining to MS production, ecological and technological changes witnessed over time, the social and family dynamics of MS production, and language use in the sugar bush. These questions revealed the multitude of changes at work over the recent history of the production process in a given Anishinaabe community. The nature of the stories shared by participants would be considered *dibaaJimowin*, which is a category of narratives referring to historical events and lived experiences (Phillips Valentine 1996, 171).

Interviews took place in the homes of participants in Whitefish River First Nation. I travelled to the community in October of 2014 and stayed for a week to conduct interviews and visit. In addition to interviewing, I would set net (for fishing), hunt, and run errands with my aunts and uncles and help with chores throughout the week. This contributed to the reciprocal relationship integral to the research and to knowledge acquisition in Anishinaabe communities, as well as strengthening and maintaining our familial bonds and understanding of one another.

I conducted follow up interviews within the same week with three out of the six participants, who I asked additional questions upon reflecting on their initial contributions and to provide time for reflection as well. After each initial interview, I returned to each Elder and asked if they had more stories to share about the Ziisabaakodakaan. Since the Maple Syrup season was over, I asked research participants to reflect or comment on their knowledge and experience over time. This type of knowledge is referred to as diachronic, because “it is a record of observation from one locale over a single period of time (Kimmerer, 2002, 433).” Two participants were interviewed together and only once based upon their rich and extensive interview that was conducted solely in Anishinaabemowin. The participants, who have been married to each other for over 40 years, made the interview process relatively easy, filling in each other’s stories and maintaining a natural rhythm of mutual story telling. The other two Elders were also interviewed together, but were re-interviewed two days later. One Elder was initially interviewed alone, however after this initial interview I realized the need for a second or third person to generate more discussion on his experience making MS. The visiting aspect and desire to tell stories is reproduced more efficiently in a group setting. The group interview process allowed participants in each group to prompt one another for additional information and to fill in any relevant omissions while allowing one another to visit and share more freely. Since the experiences of the participants were based in family practice, group interviews offered a collective means to reflect on shared collective experiences.

Interviews averaged approximately a little over a half hour in length, with the shortest lasting twenty minutes and the longest lasting fifty-five minutes. All interviews were audio recorded on a Sony digital recorder, which I later transcribed. While for most interviews the recorder was sufficient, a higher quality instrument would have been beneficial, as background noise and low voice pitch rendered one of the interviews difficult to transcribe. I resolved this issue by consulting with and playing the recording for other speakers, who provided clarification. Transcribing the interviews for this project proved difficult for me, as a high level of translation skills required. Reaching out to other speakers assisted a great deal in maintaining accuracy. Once the transcriptions were complete, they were given back to the Elders for review and the community of Whitefish River First Nation.

3.4 Recruitment

I personally recruited each research participant and invited each Elder to participate in the Ziisabaakodakaan project. I went to each potential research participant's home and offered tobacco or a gift to ask for their permission to gather their stories about past and present practices about the production of Ziiwaagamide. The cultural practice of using sacred tobacco to ask Elders to share their knowledge is common in Anishinaabek communities. According to Anishinaabe scholars Danard and Restoule (2010), it is of the utmost importance to engage in the traditional practice of using sacred tobacco when beginning to engage with Elders in the Anishinaabe community. After giving tobacco or a gift I verbally explained the research project and received either written or verbal permission to conduct research, depending on the participants' preference. As each potential research participant speaks and writes in English, translation of the consent forms was not necessary. However, explaining the consent form was necessary due to the technical language of the letter.

3.5 Participants

The research participants included my extended family, more specifically, my aunts and uncles who live in Whitefish River First Nation. I invited five members of my extended family to participate in this study. The inclusion criteria were: fluency in Anishinaabemowin, age (60+), experience with making Ziiwaagamide and accessibility. The sample size for this project is sufficient as each participant contains a wealth of Anishinaabe Gkendaasowin and also matched the previously stated criteria. It is essential to reflect the years of experience and stages of making syrup, beginning as an observer (baby, toddler), then camp worker, and later a series of progressions such as sap hauler, wood splitter, master boiler, culminating with one's role as a finisher. Throughout the participants' lives, they mastered each job through instruction, observation, and gathering knowledge. In addition to the manual labour, AG concerning patterns of weather were gathered that supplement knowledge and the production of MS. I have already established a respectful and reciprocal relationship with each and every one of them through participation in the MS production over my lifetime and my engagement with them over the course of my whole life. The stories about Ziiwaagamide, past and current practices will be collected in the homes of the recruited participants. Storywork, as described by Archibald (2008)

employs a research process based in establishing and maintaining relationships. The ethics of this approach, that even when the research process is complete, the relationships still need to be maintained. The researcher does not disappear once the project is completed, accountability for the knowledge remains (Kovach 2009).

3.6 Data Analysis and Limitations

After all of the interviews were transcribed, I utilized content analysis to identify common themes. Each transcript was reviewed and common themes, concepts and processes discussed by the participants were noted.

Engaging in qualitative research often reveals problems or technical situations that could not have possibly been foreseen. One of these problems was the quality of the recorder I used. One participant had an unusually deep voice which made for difficult transcription and translation. It became quite labour intensive to double check the words and phrases that he used. Common problems that occur in story telling concern starting or remembering - essentially repeating common phrases as one remembers the story - created difficulty translating into English from Anishinaabemowin. Much of this information is then rendered useless for the transcription. It was only after laboriously translating several minutes from a speaker with a very deep voice using a lower quality voice recorder that it was revealed the words were only repetitive and not answering a question.

For example, a complex fluent speaker phrase, "*Gonimaa go. gonimaa so gonaaa, gonnaa idiik*" may have several meanings. This phrase means 'really', 'maybe' or 'maybe really'. The intonation of other words in Anishinaabemowin that are quite similar can change sentence structure and meaning quite easily. Translation proved challenging.

Additionally, another challenge was when I chose to ask a question that would guide the interview. I asked one participant a particular academic question. It was too complex in English so he asked his wife in Anishinaabemowin to translate for him or to explain what I was saying. His response was (translated), "What is she trying to say?" His wife explained the question more clearly. However, I learned from this incident and only made this mistake once. In retrospect, I can quite easily slip into an academic mind frame, as the education and training I have received has helped me develop those skills. However, the participants for this project have a strong sense

of identity associated with the knowledge and culture that is rooted in Anishinaabemowin and this participant clearly demonstrated that there was something wrong with my ability to communicate with them and not the other way around; his natural response was reassuring.

In summary, Indigenous methods and methodology are integral to situating this research in an Indigenous context and more specifically, an Anishinaabe context. Engaging with Elders, the foremost knowledge experts in Anishinaabe culture, should be undertaken with the utmost respect. Protecting the Elders and AG they hold is paramount to this research project, as the two cannot and should not be separated. This research looks to build upon the foundations of engaging with Elders and AG in a respectful and ethical way that situates the Elders as the focal point of engagement and lifelong commitment.

Chapter 4: Gegoo ngiimkaan

4.1 Gegoo ngiimkaan (something I found)

Chapter 4 reveals the findings as they relate to the main research questions and goals according to the five themes identified in Chapter 3. The six themes to emerge from the research are: Past family practice, Anishinaabemowin, Anishinaabe Gkendaasowin, Anishinaabe Nokiiwin, observations of climate change and changes in the sugar bush. The following themes reflect engagement with Elders and their knowledge gathered over the course of their lifetimes in the unique location of Waagaaskinigaa. As a result, rich multi-dimensional observations and interaction with the local environment through the lens of MS production are revealed. The inter-connection of themes is evident as family, community, language and environment are interconnected in the lives of these Anishinaabe Elders. Each theme will be discussed in turn.

4.2 Past Family Practice

Among the first goals of this study was to document Ziisabaakodakaan practices of a family operated maple syrup camp in Whitefish River First Nation. While often taken-for-granted, the definition of ‘practice’ used in this work is drawn from the work of applied linguist Alastair Pennycook in his elaboration of a theory of language based on the notion of localized practice. He describes practices as “bundles of everyday (or not so every day) activities as we cook, go to school, work, attend religious services, engage in recreational activities and so on (2010, 26).” While drawing on the work of a linguist in this research may seem curious in this context, the rationale will become apparent in the conclusion of this section. By documenting these practices, we can evaluate how they have changed over time and draw understandings of the multifaceted dimensions of the changing context of MS production in Anishinaabe communities.

As technology has changed over the years, the use of implements has changed as well where producers previously relied more on what was at hand. The use of whatever was available was a prominent theme, as one Participant-Pauline offers an example of her parents’ resourcefulness, noting, “they had those flour bags cotton flour bags that’s what they used to [...] sieve the syrup.”

With the introduction of contemporary mass-produced tools, the overall products of Maple Sugar or Maple Syrup did not change substantially, but the implements - and the knowledge and worldviews associated with the collection and application of those implements - shifted from those drawn from the natural world to those accessible through the western globalized capitalist market. Yet in many instances, these shifts were integrated gradually. Pauline's story about the flour bags demonstrates that already her family was habituated to packaged flour and the conventional resourcefulness continued over the course of this shift. Offering a similar depiction of her parents' adaptations of new technologies she explains, "now they [parents] use those chains to hold up those pails, [but] they used to use wood looked like a 'Y' like that before to hold the pails up." This process of adaptation can be seen as a natural extension of the resourcefulness of Anishinaabe MS producers, drawing on and maximizing the resources at their disposal when it provides efficiencies, such as saved time.

The need to keep wood dry and the greater accessibility of prepared building materials provoked a shift to permanent sugar shacks in place of lean-tos. My uncle Ed explained, "they had fire on the outside, that was hard, [they] couldn't do anything when it rained, couldn't even feed the fire when it rained, [they would have] wet wood. Not like now, the ones [sugar shacks] they have over there, the wood's all inside." The move from a lean-to shack to a more spacious, permanent structure allowed the family to store greater quantities of wood, keep it dry, and maintain production through rain and other types of weather that would have otherwise interrupted production.

Many changes occurred with the gradual incorporation of mass-produced tools. My eldest uncle Lawrence recalled how his family fashioned homemade spiles from maple wood. He explained, "*Gaawii gegoo ngiiwaaziinaa ni'in egmikwaanensan eshchigaadegin ne'ii negimikwaanensan* [We didn't have metal spiles, we had to make spiles]." Likewise, Pauline's recollection also noted the absence of commercial metal spiles: "I don't even know if they had spiles at that time *na gii-yaan na spiles* [did they have]? way back maybe just use a stick there."

Similarly, the family did not have commercially produced pails. Lawrence notes, "*gaye kikoonsag gii-bisiwag ngii-yo-waa-sii-naanig kikoonsag, nii-ii gi-zhi-chigaadenoona* [they did not have pails they did not use pails]". While traditionally, Anishinaabe used *wiigwaas naaganan* [birch bark bowls] to collect sap, the participants' own experience reflected a

transitional stage where the family was using cans to collect sap instead, as Pauline explains, “All I remember is ah like he says they used to use those big cans.” The use of cans also demonstrates the resourcefulness employed in the Ziisabaakodakaan, as materials were repurposed for use in the sugar bush before eventually being replaced by mass-produced goods that served one sole specific purpose.

Some changes in practice however, reveal potential changes beyond mere efficacy, with implications for changes to more profound cultural differences. Describing the older process of cleaning pots, my uncle Jim explains, “I remember parents used to use stones, little wee round stones to scrape all the sugar out of the finish pot and that used to have a lot of sugar after you’re done your syrup.” Nowadays the participants use contemporary tools to clean and scrape the pots, such as wire brushes and sandpaper. This shift in tools demonstrates an increasing propensity to draw on mass-produced goods that became available throughout the industrialization of the Canadian colonies. Where once those “wee” round stones were kept and taken care of at the sugar camp, participants now purchase items with comparatively shorter lifespans. While this shift may seem practical with immediate purchasing potential eliminating the need to seek, collect, and care for the small stones, many Anishinaabe believe that stones have spirit and that their collection and use of natural tools has spiritual ramifications.

The shift away from these cleaning stones demonstrates a potential ontological shift, as Anishinaabe in the Ziisabaakodakaan no longer have to engage with the spiritual dimension of these particular tools. This subtle shift from a tool drawn from the local environment to one that is mass produced and available only in stores parallels a shift that, while not necessarily eschewing the spiritual and natural worlds, incorporates the market-based consumption of goods proper to modern capitalism and an ontological shift with respect to understanding these tools as “goods” rather than “beings”.

The previous practice of using pork fat to stop the sap from over boiling also demonstrates a change over time that reflects an increasing separation between MS and its natural site of production. Describing the process for using fat to reduce the rate of a boil, Edward said “he [his father] had the line come down there, right about here they had a piece of pork rind or something [suspended over the pot], when that thing touches [the boiling sap], it [the sap] doesn’t boil anymore, it goes down again.” Darren Corbiere, Anishinaabe Language Teacher, explains that

pork fat displaced the traditional use of squirrel fat as pork became increasingly accessible (Darren Corbiere, personal communication, March 15, 2016). Edward also notes how others used a stick or branch instead of the fat, "...with Pauline and them, they use a stick when the sap comes up and starts boiling over, just hit it with that balsam branch, it knocks the things [the boil] down." Anishinaabe Gkendaasowin, however, guided the choice of implement, as the producer could draw from multiple possible implements depending on the conditions of the boil. Striped maple [*acer pensylvanicum*] or a balsam [*abies balsamea*] bough, for instance, were also used as preventions for over boiling a pot, yet each with attributes that motivated their use in particular circumstances. Jim explained, "It's when you leave the sugar camp, when you come down, when you come home you put that stick [in] if your pots are still boiling really hard, that's striped maple." The balsam was only used when the sap was boiling down and was still quite watery. Jim continued, "When you're finishing your syrup [...] if it's too hot under the pot it will just start bubbling up, boiling over eh, and that's no good, you can't dip your balsam in there you pull the pot out of fire."

Conventional, commercial production methods, by contrast, do not draw from this knowledge of the natural world. While conventional commercial practices may produce more 'pure' syrup in the sense that it has not made contact with fat or balsam. An alternative interpretation of this change is that the syrup is increasingly divorced from its context of production and contact with natural implements.

Another past practice was the making of lots of maple sugar by their father, Aabdaasang. Jim explained that his father would make so much sugar that there was "enough to put a big sign out the door there, 'for sale, homemade sugar'." But the surplus was redistributed within the community. Jim continued, "He never sold it...[and] he never sold any syrup, never." When asked if their father traded or gave away the surplus, Pauline said, "Just to family members eh, just to family members, he never sold any." Jim also mentioned how his father always used maple sugar in his tea throughout the year so it was important to have enough to last year around for this purpose. Yet the family was not motivated to produce as much as possible for its own sake. In an extended discussion Pauline explained, "I think it was mostly, whatever they made I think we probably used it up fast eh, but then I don't remember them making like a whole bunch eh, but they used to make those little cakes, they made toffee right outside the sugar camp." The emphasis on making lots of syrup was not a past practice by the previous generation; however, it

was accompanied by site-specific use in the form of this taffy, or Ziisabaakodake. Jim stresses the importance of Ziisabaakodake as a “big thing,” explaining, “my dad used to make that [...] taffy.” This is not as common among current generations in the sugar bush, but all the participants remember and validate how prized the Maple sugar candies, taffy or cake were. Production, then, was not pursued for profit or participation in the market, but rather for personal and familial use and in the creation of site-contingent treats that were enjoyed by the families and youth engaged in the production process.

Importance of passing practices on and the risks of not doing so

My aunts’ and uncles’ generation had assumed that the practice of the Ziisabaakodakaan would continue, as Pauline expresses, “I think it was just automatic, that we would take over making syrup.” This sentiment of continuity is evident when she looks toward the next generation, as she articulates, “Oh I think it’s really important, I don’t want the traditional way of making maple syrup to die, like these young peoples should be able to [...] take over, they think they know, they know what to do but ah, but to do it the way he [Edward] does eh.” There is a grave worry in this sentiment that the next generation will not do it in the way that Edward has maintained, though she is certain that it will continue. Future research can reveal much about the impacts of socio-economic and cultural change by investigating the degree of automaticity taken up by the subsequent generation of MS producers in Birch Island.

4.3 Anishinaabemowin

Another goal of this project was to document the use of Anishinaabemowin in the Ziisabaakodakaan and examine the inter-generational transmission of the language. Because assimilation policies (economic, education, and linguistic) have interrupted the inter-generational transmission of Indigenous languages thereby drastically reducing the number of fluent speakers of Anishinaabemowin (Truth and Reconciliation Commission of Canada, 2015).

In the context of the Ziisabaakodakaan, the ‘bundles of activities’ reported by my family have included the use of various natural materials in production, methods of drying wood, and the surplus production and sharing of Maple Sugar and other products within the family network. But crucially these activities also include linguistic practices. Evident in the interviews was the primary use of Anishinaabemowin in the Ziisabaakodakaan while the Elders were growing up.

The change in family practices over the last 60 years is demonstrated by Jim's reflection on contemporary cross-generational dialogue, as he expresses, "It's really, really sad because now when you talk to kids in Ojibwe they just look at you [laughter] 'what the heck are you saying, what the hell do you mean?' What do you say [to that]?" Growing up, all of the participants spoke Anishinaabemowin generally, including at the Ziisabaakodakaan. Requests, instructions, and most other communication was conducted in Anishinaabemowin, with its unique referents and expressive conventions.

Today, the practice of the Ziisabaakodakaan continues to be conveyed but through English. The increasing dominance of English in the region has led to an intergenerational shift away from Anishinaabemowin. While Jim expresses reticence about using English to convey the full scope of his intended directions, he is still able to transmit long-established family practices to the next generation. Describing his use of English to provide direction, he explains, "At least they [young people] understand what I am saying, but they pick up, [...] whatever I am trying to convey to them eh?" Nonetheless, he still maintains Anishinaabemowin as the optimal means for communication. Despite his strong English skills, he recognizes a gap in the wholeness of what he wishes to convey and what youth are able to comprehend. Describing the past predominance of Ojibwe, he states, "Everybody was talking Ojibwe, it was a lot better to speak Ojibwe." Here Pennycook's notion of practice, and particularly the interrelationship of language and practice, is important as he notes that many 'bundles of activities' are actually linguistically contingent. He explains, "Many [...] practices can only be achieved with accompanying language practices, and some practices, particularly in domains such as schooling, work and religion, may be predominantly language based (2010, 26)."

The linguistic dimension of Ziisabaakodakaan is that the use of Anishinaabemowin, particularly, but not limited to, instruction with respect to the processes, tools, and knowledge integral to Maple Sugar and Maple Syrup production. The linguistic dimension is tied intimately with Anishinaabe Gkendaasowin and the unique means of understanding the world embodied therein. Language shift, then, poses a threat not only to the long term viability of the Anishinaabe language, but to the transmission of knowledge, practices, and their full significance to future generations.

Another participant Jean, when asked if it was better to speak Anishinaabemowin or English to the next generation, Jean replies, “*Aabideg sa go, aabideg sa go* (Of course, of course)”. Although Anishinaabemowin is the optimal language, the speakers cannot give instructions to the younger generation in Anishinaabemowin. Jean talks about the younger generation that makes *Ziiwagamide* and states, “*Gaashowiigo naasab dashi nsastazii’naa’aa gewiinwaa wi gegiinwi gaa-zhi-nsastamong* (they do not understand, they cannot understand.” Logically, if the younger generation only speaks English then you have to use English. As Jean explains, “*Zhaagonaashiimong giinwi ezhikidying. Gegoo Gaye sho-wii-go maanda gondag eshkiniigjig waa-zisbaakodikejig.* (We speak English when we are there, for the younger generation who want to make sugar).” Although the Elders interviewed are bilingual and can offer instruction in the practice of the *Ziisabaakodakaan* in English, the overall wealth of Anishinaabe ontology has universal merits when expressed in Anishinaabemowin. As Johnson et al write, “Indeed, the accelerated disappearance of Indigenous cultures, languages and communities, in and of itself, reflects a profound dysfunctional state in the integrated social–physical ecology of our global societies (2016).”

Western Education

Another reason why the *Ziisabaakodakaan* practices have changed is the introduction of the Western educational system. Since all of the participants for this project were from one family, they all have similar memories of how they used to participate in the *Ziisabaakodakaan* practices. “As children we went to the sugar bush after school and helped collect sap, sometimes we would run over for lunch too,” said one participant. Prior to the introduction of a western education system, the children would have participated in the entirety of the sugar bush activities. As children they would have needed to gather fire wood and help with the process. Yet as a result of the introduction of western tools, such as axes and saws, the much necessary labour was not as essential. Instead of having to have many people to gather firewood it would take less because of the western tools. Changing technology enables more work to be done by a few. This changes how maple syrup is produced. One Elder noted that his brother, when much younger, was able to make MS all alone. Deductively, not having children or many people in the *Ziisabaakodakaan* reduces the exposure to the Anishinaabemowin language. In addition, the participants sadly noted that none of the next generation of MS producers speak Anishinaabemowin and this effects the impact of translating Anishinaabe Gkendaasowin.

4.4 Anishinaabe Gkendaasowin

Anishinaabe Gkendaasowin, as identified earlier is knowledge of the Anishinaabe people. AG is derived from several dimensions: observation, lived experience that forms an intimate relationship with the land, animals, plants, bird and maanidoog. As the Elders share and recall valuable information, much of the information could be examined under the theme of past practice. However due to the unique nature of AG it deserves its own arena for discussion. Some of the AG revealed in this research can be corroborated within the literature, yet because of the originality of this research and the emerging discipline of AG in the academy some of the information is original.

Anishinaabe Ecological Indicators

There are multiple of ways to gather knowledge about the world around you. An ontological difference between that of western and Anishinaabe knowledge is the reliance on the natural world around them for signs. This reliance was based on the recognition of the knowledge of animals and birds for ecological indicators. As Pauline says in recalling a memory from the Ziisabaakodakaan, “*Aa baakwemoon noondaagozid* (the woodpecker is yelling) she asked me...*wenish na indik* (who is that) that’s what my mother used to say. *Mii-zhaazhi biishkwanjigaak ziisabaakadaabo ...niin gii-noondaagozi baakwemoon.* (the sap will stop running.... I heard the woodpecker yell).” This ecological indicator comes before the sap turns cloudy, it is a sign to shut down the sugar camp. An act that may seem inconsequential or ordinary as a bird yelling to the untrained ear is actually advice from the *Baakwemoon* (woodpecker). Being in the sugar bush and having a relationship that goes beyond a “producer” of MS is what differentiates the practice of the Ziisabaakodakaan from simply making MS. The deep relationship and AG that is formed from the relationships with the land, birds and animals is one that extends beyond just the production of MS. For the Anishinaabek, animals and birds carry knowledge and share this knowledge with people as well. Direct communication from non-human living beings was and is possible (Johnston 1976), and is an Anishinaabe ontological method for acquiring knowledge. The animals and birds would share knowledge with the Anishinaabek, they too held AG.

Additionally, when sharing this memory, Pauline notes that her mother is explaining who is yelling, and Pauline is also hearing the sound, she too is also being taught the knowledge of the *Baakwemoon*. Hearing, witnessing and being active on the land is one way in which AG is accumulated. Pauline and her mother are both given instruction from the *Baakwemoon*, because of the relationship of spirit. In this instance it would be up to Pauline to add this knowledge to her own repository of AG.

Jim mentions another well-known ecological indicator for the sap being no longer viable for use in making MS when he says, "...but when the sap starts getting cloudy not clear anymore that's when too, to stop operations." This is an example of a visual indicator that occurs when the sap is no longer viable to boil. Many producers, both Anishinaabe and non-Anishinaabe, readily recognize this visual indicator, however it contrasts the ecological indicator that Pauline shared. Every MS producer knows that when the sap is cloudy, it is no longer viable. Not every MS producer will recognize the communication of *Baakwemoon*. The Anishinaabe people were informed by spiritual relationships with the world around them. Often this meant receiving signs that forecasted a future occurrence in order to prepare for change. Although the cloudy sap signifies the end of tapping, the *Baakwemoon* gives advance notification of the change that is coming.

Observation from birds and animals is another method the Anishinaabek had for learning about the world around. Another ecological indicator that the Anishinaabek use during MS production came from squirrels. When I asked what kind of signs were used to indicate when it's time to tap the trees, Lawrence says, "*Ndinaa miimaa jigaag ndinaa miish o jiidamoons bebaa nooskwaanaad mitigoon ndinaa miish go geget pii mijoong wi ii'ii zisabaakodaaboo miigo ko bigidaake'e'aad miinwaa maanda bigizhidek go* (Translation, the squirrels run up the trees and bite the tree to also get the sap. They are all biting and climbing the trees)." These unique Anishinaabe ecological indicators are not investigated in the scholarly literature.

Food as Medicine

Food that Anishinaabe people participated in making or gathering was often more than nourishment, it was often medicinal. Edward noted that even gathering and drinking the sap was medicinal when he states, "They used that sap...it cured everything on your inside when you used that sap, I don't know what it does though...." Even though the Elders do not know exactly

what the sap does, they clearly know it was viewed a medicine. Pauline expresses a similar sentiment about the boiling of syrup when she mentioned, “When the syrup was boiling they used to get that white stuff, they used to skim it...looked like a foam but once you put in a little dish it gets hard, my mother used to bring that, I think they used it for well for medicinal purposes....” When asked what her mother used it for, Pauline stated, “The kids they used to feed it to the kids...” Pauline did not delve into further explanation of the medicinal values of the foam but understood that her mother viewed it as medicine for children.

As the Elders from this research project bring forth memories and practice from their youth and share their parent’s knowledge, AG is revealed. Jean recalls the knowledge of her parents and laments the opportunity for this knowledge loss if the young people do not continue making MS. She says,

Miinaa gaa ndaadizi’ad iwi ziisbaakwad, ziisbaakwadoonsan, Gii-zhichigaadenoona Miiniwaa maanda minikweng maanda ziisbaakodaaboo Chishkiki gii-kidoog iwi. Nongo shiigo naa gaye memkaaj geyaa bi nindowendiziinaa’a iwi gaye nasaab zhi maadizisii’og eshkiniijig. Gaashiwiigo daanji Boontaasii’oog iwi ii’ii giishpiin yaa’aa gowa wii-zhichiged iwi Monpii go gii-gijitoonaa’aa eshkiniigjig iwi wii-ziisbaakodike’ad.

(Translation: We used to make sugar and sugar candies and drank the sap. This was big medicine; they use to say (her parents). Now, the young people do not know this (or believe this) this is not how the young people live. It would be terrible if the young people did not make maple syrup. The young people should not stop making maple syrup.)

Another aspect of AG is the knowledge that is obtained from doing and learning from master knowledge holders of the previous generation. The repetition and sedimentation that occurs from interacting and learning the practice of Ziisabaakodakaan ensures the continuity from one generation to the next. One example that the participants noted comes from their mother who was an expert fire keeper. Jim observed this behavior from her mother and remembered, “She’s always standing around the fire with that big stick, be poking it there, get that thing right-(just) [so so] and then she would let it go for a while. Then she’d be there again poking around with that damn big stick, putting some wood in there.” So his mother was actively watching the fire and engaged with the process of keeping the syrup just “so so” as Jim recalls. If one does not watch the fire correctly it changes the end product of the quality of the syrup. Jim explains, “You see people with the flames are shooting way up like this and it’s just a waste of firewood

and plus your burning your pots and the pots burn around the top and they get black and your syrup gets black.” Ed corroborates the knowledge of making fire correctly to be able to finish the syrup when he describes what happens when the sap is boiling too hard. In order to correct the process, you pull the pot off the fire and what happens he states, “It’s a heavy pot, so soon as it settles down you put it back over the fire again, you use the dry maple or oak just put a few sticks there eh just make sure it’s boiling just boiling a little bit when you’re finishing it you can’t just throw some chunks of maple there and get a big fire going.” This process is learned by making Ziiwagamide. When asked if you need lots of experience like her mother Pauline states, “To look after the fire anyway.”

Another aspect of AG is the observations of the world around them that Anishinaabek would make by being on the land seasonally. Ed states, “Look at the beaver, there’s lots of food on the beaver house.” I had to ask what this sign meant and Edward stated there would be a “long winter.” As a researcher, I did not really understand this and it was Jim who clarified, “you get lots of maple syrup if you see lots of food on the beaver house.” Ecological indicators of upcoming weather conditions are observed while engaging in other land based activities out on the land and applied to future practices. AG has helped Anishinaabek adapt to changing weather patterns, but you must be able to read the signs. This comes from years of experience and knowledge being out on the land actively engaged. It is not just interpretation and understanding of the natural world it is the gathering from other sources and other activities, in this case the beaver. Only proficient holders and users of AG can implement and make these connections and read the information that is available in one season to the next. Since food gathered at beaver lodges would only be observable in seasons other than winter. The participants interviewed are reading AG from sources other than those directly found in the Zisabaakodakaan.

Another example of reading the signs around is when Pauline notes, “Well all you looked at was the sun or the moon tell you what the weather’s gonna be eh.” Since weather plays a prominent role in Anishinaabek and the practice of the Zisabaakodakaan is what was important to be able to read the weather. Jim notes the complexity of this process and how it is changing. He observes,

There’s people that really follow that, they look at the old guy who is looking up at the sky and wondering what the hell he is doing, maybe *you* (gestures towards me) think he is high on something, but he’s studying

something maybe clouds, you never know.... But then there's lot of people that don't want to pass this on. It's up to you to figure it out. But who's got the time to stop and look up... or even at night look at the stars maybe or the moon.

The complexity of this statement should not be misunderstood by Jim's direct reference. He is saying that often times people do not recognize the gathering of information today; it seems odd or out of place. As a result, people do not want to pass this information along. If we want this knowledge, it is up to the individual to learn. Yet even if we want to learn he laments the lack of "time" to even stop to look or to look at the stars or moon. Clearly the influence of the modern day compression of time and space affects the transmission of AG.

4.5 Anishinaabe Nokiiwin

Anishinaabe *Nokiiwin*, or Anishinaabe work, was another central theme that emerged from the recollections of Elders who engaged in the lifelong practice of the *Ziisabaakodakaan*. The work entailed in the production of *Ziiwaagamide* was extremely labour intensive, particularly in the time of the participants' youth, when their families drew from only a few of the commercial implements that are today commonly used in MS production. One of the most physically exhausting aspects to the making of *Ziiwaagamide* was obtaining firewood. Ed states, "The hardest part was getting wood, sometimes you had to get wood, cut some little trees like that maybe three to four inches, carry it all the way to the sugar camp, one long tree, start cutting and then splitting, you had to split all the time, cut and split all the time." Most of the time the boys were asked to take responsibility for this job in the family. While the constant physical labour could be perceived as exhausting by contemporary standards, another participant, Jim, contests this depiction when he states, "There's no such thing as exhausting when you're making maple syrup. When you're up there, you're doing your stuff. You don't even know you're exhausted. But you weren't exhausted. You paced yourself. As long as there was wood there, it was okay."

The goal of making *Ziiwagamide* was paramount to the physicality of the work. The participants described valuing the process of making of *Ziiwaagamide* over their own feelings of exhaustion. Indeed, the physical demands of the process were normalized through collective and habitual participation. It was an ordinary practice of the *Ziisabaakodakaan* to push oneself physically in order to make the *Ziiwaagamide*.

The idealized notions of the Anishinaabek being in tune with nature and that everything was easy or idyllic is a simplified cartoon, erasing the difficulty of traditional lifeways. Even the chore of making fire was time consuming as Ed notes, “My mom [and I] just sat in the sugar camp and we just fed the fire all the time, but there was lots to eat there.” As Ed alludes in this excerpt, given there was so much work to be done the sugar camp, the *Ziisabaakodakaan* was multifunctional. Pauline, for instance, recalled “They used to smoke fish there too.” Thus the use of the *Ziisabaakodakaan* extended well beyond the production of maple syrup, sugar, and related products.

The *Nokiiwin* was manual and difficult, but out of this seasonal hard work, several aspects of Anishinaabe life were engendered, paramount of which was a mental resilience to complete difficult tasks. This mental resilience was necessary for previous generations in order to keep on living, to maintain the principles of *nga-mino bimaadizimi* (that “we will live well together”). The notion of *nga-mino bimaadizimi* compelled individuals to push themselves to contribute to a collective goal of survival through mutual support.

Often the Elders note that it’s in the “doing” of the *Ziisabaakodakaan* activity that one learns. This embodiment of knowledge was derived from that lifelong engagement in the practices of the *Ziisabaakodakaan*. Renowned gender theorist Judith Butler was one of the first feminist theorists to introduced the idea of “embodied knowledge” through performativity as it is applied to gender (Judith, 1993). Several authors have used the basis of Butler’s theory to expand beyond the discourse of gender, including Ben Spatz. In “In What a Body Can Do” Spatz develops, for the first time, a rigorous theory of embodied technique as knowledge. He argues that viewing technique as both training and research has much to offer in current debates over the role of practice in the academy. Spatz explains that the practices and perceived possibilities of one’s embodied form, mediated by the forces of power and history are “concretely realized in the body as technique: knowledge of what to do, ways of doing things, pathways through the world (2015, 198).” If we were to consider this in reference to the practice of “doing” *Ziisabaakodakaan*, the knowledge of this practice is embodied through repetition through the physical and cultural *Nokiiwin*. Spatz argues that the sedimentation of “technique “in particular is part of the

embodiment process that renders “technique” apparently natural, despite its cultural and historical roots (2015, p. 198). He elaborates,

By way of comparison, it is clear that years of training in ballet or martial arts can lead to an embodied state in which one “is” a practitioner of those forms in a way that goes far beyond conscious choice (or explicit identification). A ballet dancer can wake up one day and decide to stop performing, to stop practicing, and to stop identifying as a dancer - but the deep sedimentation of technique within that dancer’s body is not thereby removed. (Spatz 2015, p. 198-9).

Likewise, for the Elder practitioners of the *Ziisabaakodakaan*, while tools and processes have changed over time, adapting to new technologies, the sedimented labour - as well as the awareness of the natural world, of Manidoog, and other aspects integral to *Anishinaabe Gkendaasowin* - cultivated from youth into adulthood remains accessible and integral to their knowledge of making *Ziawaagamide* and associated production. The Anishinaabek “know” to make *Ziawaagamide* at a level (bodily and unconsciously) that is more than reading about “how” from a textbook.

The participation of youth was also an integral component to the *Ziisabaakodakaan* practice, as young people were expected to take up often physically arduous work along with their parents and the rest of the family. These practices were evident among the experiences of participants as Jim recalls, “We went to school over here and everyday lunch time, we’d scoot up to the sugar camp and have lunch over there (laughter). And then right after school we’d go back up there to gather sap.” Walking and hauling of sap was a normal aspect of their youth, repeated daily during the production season, year after year. Each of the participants attended Shawanosewe School, which at that time encompassed grades from kindergarten to grade eight. Since Jim is the youngest of the interviewed siblings, he would have been raised to make this trip daily during times of making *Ziawaagamide*, along with his siblings. The notion of children being too small to participate was not a consideration as the process was so laborious that all hands were needed to complete the *Ziawaagamide*. Children were taught to help and participate as young as possible. From an early age youth developed the techniques essential for production, observing as small children, and taking active roles soon thereafter. The repeated action actualized the sedimentation of these techniques and the embodiment of *Ziisabaakodakaan* practices. Jim reiterates these ideas when he says,

You just pick up how it's done, well you watch and you learn, well you do it, you have to do it yourself eh. It's just like anything else, you have to do it, if you want to learn, you can't just sit there and watch people do it, come time for you to do it, [...] you have to chip in and help out when you can, and then you just pick it up and see how it's done, and you get to show your own kids how it's done.

Integral to the *Ziisabaakodakaan* is the inclusion of the next generation. The work and practice of *Ziisabaakodakaan* is an important aspect of Anishinaabe parenting and teaching the next generation in *Waagaaskinigaa*. Significantly, the embodiment of *Ziisabaakodakaan* practice is location-specific and one of many processes that is necessary to pass on to the next generation, as the *Ziisabaakodakaan* is not only a process of MS production, but an ancestral practice of survival.

The demanding manual work that the Elders of *Waagaaskinigaa* interviewed for this project described is a type of labour embedded in Anishinaabe culture. This embodiment of knowledge is a central aspect of AG, demonstrating that the performative embodied practices that Butler ties to gender (1993), and that Spatz draws parallels to other physical embodied practices (2015), is also integral to performing cultural identity. Similarly, noting the distinct means by which embodied knowledge was deployed among the Maori, Ballantyne (who is...) highlights how knowledge pertaining to specialized areas with “a strong ritual component or that related to the interface with the supernatural and natural worlds was compartmentalized, restricted, and embodied” and contributed to the cultural integrity and distinctiveness of Maori peoples (2011, p. 239). While bearing in mind that the embodied practices that contribute to Anishinaabe identity are manifold, the *Ziisabaakodakaan* and the *Nokiiwin* and *Gkendaasowin* that it entails were not only integral to ancestral survival, but contribute to the intelligibility of Anishinaabek as a people or nation. While a fuller exploration of the embodiment of Anishinaabe *Gkendaasowin* and its relation to the distinctiveness of Anishinaabek as a people is beyond the scope of this research, it nonetheless demonstrates the importance of the *Ziisabaakodakaan* and Anishinaabe *Nokiiwin* to Anishinaabe people.

4.6 Observations of Climate Change

The environmental changes that have been noted by the Elders interviewed for this project have largely been the result of mining-related pollution. Sudbury has been a center for nickel mining

since the early 1900s, the pollution from which has had negative environmental effects throughout the Sudbury District and nearby regions (Mudd, 2010). Western science corroborates the negative impact reported by the Elders, as nickel mining has been identified as a large contributor to the production of sulfur dioxide (Mudd, 2010). When the sulfur dioxide rises high into the atmosphere it is mixed with water, oxygen, and other pollutants to cause acid rain (Mudd, 2010). The completion of the Inco Superstack in Sudbury in 1972 increased the geographic range of smoke (including sulfur dioxide) from industrial mining, as well as the damaging effects of its consequential pollution.

The Elders interviewed have made several observations regarding the health of trees in the area. The main ecosystem change that they have observed directly in the sugar bush is the diminished lifespans of trees. While the direct causes are difficult to know with certainty, Jim suspects the impact has “something to do with the big super stack and the pollution from Sudbury mines.” The impact of acid rain and other forms of pollution has rendered many trees unsuitable for tapping. Ed explained, “All the trees are dying and don’t get that big anymore [...] it must be that pollution.” In some cases, trees may appear to be alive and running well, but certain signs point to their unsuitability for tapping. Describing the signs that a tree has been impacted, Jim explains,

Every once in awhile you look up there and see there’s one good tree going, you see dead branches up on top, you don’t even want to tap that, if you tap it, you’ll get sap for a while, but after it’ll run dry, you won’t get anymore, so in that case you have to pull the spile out, and go re-tap some other tree.

This observation of the Elders matches the description of what forestry scientists refer to as “crown damage” (Allen, Dalton, Nyland, & Bevilacqua, 2016). Crown damage affects the health of trees and it may cause premature maple tree death (Allen, et al., 2016). This environmental change and its consequences on tree health have altered the natural life cycle of trees with which Elders would have been familiar with from the time of their youth.

Another reason for poor tree health is the impact of invasive species. As the ranges of certain pests have moved further and further Northward, more such pests have a negative impact on tree health in *Waagaaskinigaa*. Currently, the most obvious is the Emerald Ash Borer [*agrilus planipennis*] due to the significant destruction it causes, however Jim notes pests have also affected maple trees in the past, “a bug goes around every once and while from maple trees, now

it's ash bugs. They are attacking the ash trees, white ash." Allen et al (2016) corroborate the role of insects and note that their extension in range is partly attributable to the impacts of acid rain, noting, "Organisms like these are more likely to establish in trees debilitated by crown loss (183)." Thus, the increased crown damage that the Elders are witnessing makes the trees more susceptible to insect damage. Likewise, large birch trees have become increasingly uncommon in *Waagaaskinigaa* as the local climate continues to change. While adaptations to the use of commercially produced sap pails has decreased the need for birch bark in the MS production process, due to environmental conditions, it may be a practice that would have soon been difficult to maintain. Jim notes that any effort to employ traditional birch bark sap buckets would run into difficulty in locating the materials to produce enough buckets, "I don't know if anybody would get enough bark for that, I don't know if there is enough trees around to make all them *wiigwaas naaganan*." Jean corroborates this notion when she talks about the health of the trees,

Zhichigaadek, miiwaa gonda mitigoog aa'int giin boobiniik maampii mii go gonda birch, maples, noonch go giin boobiniik maampii, mii go naa gonimaa maanda pollution ezhinikaajigaadeg. Gaa'ii shii go nonga geyaabi, zaakii'ok go nonga ge'ok gonda gebeying sha wii go da jitaawok shwii jinigonowaad gonaa owi, ji ni zisabaakodakeying gwaji, biwok shwii go geyaabi gchi-mitigoog geniin wi geyaabijing gidiwaa, miinwaa ngoding a'iint naabijiyaa naanik miinwaa ngoji pkaan miinwaa pkaan miinwaa a'iint ge'ii go niizh sa go kikoonsak goojinook maa debinaanaa sha go maa iw, chi-tig gonaa nswi go degoojinook ge'ii yaa'aag kikoonsak, mooshkinebiyok.

(Translation: There was big trees growing before the big birch, maples all the different kinds of trees. Now they aren't big anymore, they are all dying. It's probably due to pollution. Today there are no big trees. They used to be able to hang two or three pots from the trees and the sap flowed good.)

The growth rate of trees was also observed to be negatively impacted by the effects of acid rain on the soil, limiting the growth and prevalence of larger trees that Jean describes as having been more prevalent in the past.

While weather patterns naturally vary from year to year, participants, particularly Jim, noticed some larger similarities to the changes he witnessed over the years, especially with respect to

snowfall. Discussing today's weather compared to when he was growing up, Jim said that the climate is "way different." He explained, "There's lot more snow before. I don't know why it's like - well everybody says it's global warming. But last winter we had lots of snow. But before that there wasn't that much snow." While noting the anomaly of the 2014-15 winter, Jim still places his observations within the context of a changing climate with decreasing levels of snow over time (decades). While he hasn't observed the direct cause for this change, he also places it within the larger public concern over "global warming." This change has significant implications for MS production, including most notably the shorter or erratic production seasons, but also changing the conditions under which tasks would have to be carried out. Comerford et al. in their research state that decreased snow pack also contributes to soil in northern hardwood forest 'freezing' and that increases soil acidification (Comerford, et al., 2013). As Jim elaborates, describing the process of hauling sap, "Most of the time we were able to walk on the crust of the snow. That was easier [than now], hauling sap. But you were hauling sap at the end of the day." Hauling sap was the only means by which to collect it and bring it to the *Ziisabaakodakaan*, a job that would be increasingly difficult to do today as the snow does not consistently develop the hard crust that it once did. Given the significant evidence tying carbon emissions to increasingly erratic weather patterns and a global average increase in temperature (Eckelman, 2010, 256) and that the participants in this project consider recent weather patterns to be erratic in the context of their life-long experience, I suggest that anthropogenic climate change is a cause of the changes to the snow depth and crust that the Elders have observed.

Anishinaabe *Gkendaasowin* has been integral to the adaptations of Anishinaabek with respect to climate change as it is an inherently adaptive ontological framework, responding to the varying changes that occur between the seasons of one year to the next. There has always been fluctuation in snow levels and temperatures. Relaying the importance of AG, one participant asked, "What are you going to do if you don't have a thermometer, calendar, something else to tell you what and when to do it?" Many Elders argue that AG is indeed more reliable than western science, as AG is used to monitor the environment as it unfolds and adapts to those changing conditions. Yet, for this project, the environmental changes that have been noted by the participants have focused on the result of acid rain, the increasing range of invasive species, and global warming.

To date, the AG held by participants has not changed dramatically beyond the use of commercial tools and processes discussed in previous pages, which is to say that the embodied knowledge of the *Ziisabaakodakaan* acquired in their youth has not been lost. Nonetheless, the future developments in AG always depend on current happenings. This notion of responsiveness demonstrates the immense value of AG, as it carries the possibility of predicting the impacts of environmental change provided enough data (i.e. observations) could be collected. Yet contemporary political and economic conditions have placed significant constraints on Anishinaabek which have had implications on the continuing adaptation of AG (such as the continued encroachment of private property and development on previously undeveloped lands). The future predictive capacity of AG depends largely on the ongoing observations of future generations as we continue to witness the changes at work in our environment and climate.

While AG is inherently adaptive, this should not be construed as a passive acceptance of the impacts of climate change. Many of the participants expressed hesitance to complain about such impacts, as they feel their voices will not be heard, given the connection of the causes to large-scale political and economic processes that have largely historically excluded and marginalized Anishinaabe people. Nonetheless, participants were concerned about the impacts of climate change and wished to abate them.

4.7 Change in the Sugar Bush

As previous pages have demonstrated, *Ziisabaakodakaan* practices have changed over time with the introduction and use of Western tools, and changing social, economic and environmental conditions. Among the most notable changes noted by the participants was the introduction of commercially produced pails and spiles. Prior to metal pails and spiles, the Anishinaabek used *wiigwaas naaganan* (birch bark bowls) that sat on the snow to collect sap and splints of wood that were attached to a tree by making a gouge in the tree and then tapping a splint of wood in that gouge, which allowed the sap to drip into the birch bark baskets. The use of these tools changed some of the skills and knowledge that were required in order to make MS. Because some AG is no longer used by the next generation and *Anishinaabemowin* is no longer spoken by the emerging generation of *Ziisbaakodikejig*, the social relations of how *Ziwaagamide* is produced are undergoing considerable change.

Chief among these changes is that technology is making our livelihoods less dependent on physical work. Yet while processes become physically easier, this does not necessarily mean that more people participate in older generational practices. As Lawrence says, “*Aapichi-shigo wenpanad, gash-owii go ooshme baatiinsii’og e-zisbaakodikejig monpii gona ge’ii bangii eta gonaa yaa’oog zisbaakodikejig.* (It’s really easy to make syrup, but there aren’t a lot of sugar makers, there’s only a little who make syrup).” Even though Lawrence describes how much easier it is to make MS, there are fewer people actually engaged in the production. The reasons and consequences of this change have much to do with the transitions to industrialization that have placed certain pressures on younger generations with respect to their mobility and altered the dominant means of MS production, and consequently, the route to accessing MS as a product.

The development of wage-labour as a means of survival has placed considerable pressure on the Ziisabaakodakaan as a growing number of people relocate to cities further and further away from the sugar bush. Jean explains,

*Miish ganabuch maanda aanind gwandak gaa so gonaa yaasioog
maampii ji nokiitoo’aad ii’ii zisbaakodakaan maage skoonweok gaa
kidiyaango maage ngoji o’nookii’ok gchi-waasa odi nokiiwok ngji gaash
maamdaa wii bidezhaat maa mii go ge’ii.*

(Translation: People do not work near the sugar bush, or they go school or they work very far away. They cannot take the time to come to the sugar bush).

Jean clearly observes two real threats to the practice of the Ziisabaakodakaan, time and place. The contemporary reality of Anishinaabek is that many of us live, work and go to school, not on our traditional territories, but in cities removed from easy access to the *Ziisabaakodakaan*. Whereas some cultural practices are mobile, the *Ziisabaakodakaan* is rooted in a specific geography and is based on seasonal timing and readiness. As weather patterns may be getting increasingly difficult to predict, so too does it become harder to plan traveling between, for example, Sudbury or Toronto and *Waagaaskinigaa*. As a result, Anishinaabek living outside of their community are significantly less likely and able to take up *Ziisabaakodakaan* practices. Lawrence reaffirmed Jean’s statement and explains,

*Giishpin yaa’aa gowa wii-zhichiged iwi maapii go gii-gijitoonaa’aa
eshkiniigjig iwi wii-zisbaakodike’ad Gaash go na, jina gona eta da*

mzhiikaanaa 'a iwi mii-mkaan miiniwaa ngoji pkaan, gchi-waaaso odi oonji-nokii 'og mii sa gaye maamda wii-ziisbaakodike 'aad. Miigo naa eta gonda getchi piidizijig Monpii gnaa pane eyaajig mii gondag zaasbaakodikejig.

(Translation: If the young people make Maple syrup, it is less than what used to be made. The young people live differently, they work far away, not right near the sugar bush, there are just old people left that live near the sugar bush).

Clearly one of the challenges to producing MS is the time constraints on the younger generation which are amplified by the necessity of traveling significant distances between work and *Ziisabaakodakaan*. Yet the new economy also makes MS easily accessible to city-dwellers through commercial production and distribution, easing the imperative of engaging in the *Ziisabaakodakaan* for accessing MS.

Nonetheless, Elders emphasized that the traditional way of making MS is very important to them. Pauline expressed,

I don't like to see it see it die down you know, I want these young people to take over and I told that to the Chief when he wanted to start that commercial way of making maple syrup, I told him that may be a darn shame if that should die down because these people should know how to do it.

The ability to produce *Ziisabaakodakaan* speaks to one's capacity for self-sufficiency in addition to other cultural considerations, such as carrying on Elders' practices and maintaining connection to one's territory. Ed recalls that increasing engagement in the *Ziisabaakodakaan* was a response to food rationing during WWII, notin,:

They had to only get so much sugar [...] and meat. When you buy meat you had to buy rations, some kind of coupons, to buy everything: sugar, meat. and that's when they made lots of maple syrup, we used it for porridge you know?

Part of the cultural significance of the *Ziisabaakodakaan* extended beyond maintaining inherited practices and cultivating AG, and includes the ability to provide for oneself and one's family and community.

The ability to make tools that were necessary prior to the use of commercially produced tools was considered similarly important. When asked who could carve the wooden splints prior to using spiles, Ed responded, "Oh everybody that had a sugar camp made those," and when asked

who had a sugar camp, Ed said, “Everybody had a sugar camp.” The skill for the making of tools was thus quite common in Ed’s generation and those before it. The capacity to make tools was necessary even as new technology was incorporated, as Lawrence says,

Gii-zhichigaademgog wi ni’ii tikwan, ezhinaagok tikwan, maanda giigoodeg gii=bigonedaagegin mitig, mii-mgewaaj maagego ooshme mchaadig ½ inch, aabito-dibagaanhs peg, peg was like this “maanda” miinwaa odi gii-temgok wi ni’ii gaa-zhinaagok wi ni’ii Ezhnikaademgok wi ni’ii kaad-ki-kwaan Gii-goojnawaad ge-aag kikoog zhinaagwad wi-ni’ii mitig odi maakshin gijeying odi, Goodemgok wi ni’ii that tikwan, naabaaksing tikwan. Ngojigo-ginakwaadig wi. Maanda bi-zhinaagok gonaa wi tikwan Naaksing, miizhiwe gii-giishboodemgok wi. Miish maanda ni’ii gaanakaazong wii goodemgok wi ni’ii Ga’ii go nii’ii.

(Translation: They used to have to make a stick to hang the pail. Maybe the crutch of the stick was about a half inch, it was like a peg sticking out for big pails to hang on. You could see these and how they looked over there. It was to hold the pot. It was how that pot was held, some of the pots had feet on them too over there).

The figure below represents the explanation more plainly. There needed be two V’s or crutches, one on which to hang the pot and the other to hang the pot over the fire. These were necessary before the use of chains to hold the pot.



The Elders described observing and engaging in work done with their hands. This was a necessary and common skill that made Anishinaabek self-reliant both prior to the availability of commercially produced tools, as well as when such conveniences broke or when they were inaccessible. Even when new technology was incorporated, Anishinaabe technology such as that in Diagram 1 above was made and used. The result of such processes may make the setup and processing at the Ziisabaakodakaan slower, however it maintained the participants’ intimate

familiarity with each component of the production process and their ability to maintain their self-reliance in the most inhospitable of conditions.

Chapter 5: Discussion

5.1 Connecting the dots

Conceptually, how I understand the world best is through story. It is how I have been instructed by parents, family and other Anishinaabe people. At my parents' home the kitchen table and visitors meant that stories would be shared when people came to visit and even as child I looked forward to it immensely. The Anishinaabek transmit culture, knowledge, language, everyday skills, and personal life experience through stories. However, the stories and knowledge passed down from Elders can be described as non-linear and often times do not follow a typical Western narrative. The way in which Elders tell stories and transmit knowledge is not linear.

Words and ideas are mixed together and can be triggers for describing and telling other stories. In the moment of telling a story something happens and time becomes irrelevant and the spontaneity of the moment what is meant to pass on to listener gets passed on. Stories are complex, nuanced and require much of the listener. Listening and engaging in Storywork requires engagement and taking responsibility. These ideas are demonstrated by two experiences I had in this research.

While translating a question in the transcription, I discovered a word and phrase that was problematic, the question I asked my Uncle Lawrence was, “What changes have you seen from making maple syrup before to making it now? His reply was,

*Nongo wiigona wenpanad nooj nongo ni'ii dinkaaznaa 'aa ne'iin kikoon.
Sagonaa bembizod ni'iing Ski-doo eshnikaazod. Miizhiwe enkaazowad
aawdowad wi ni'ii Ziisbaakodaaboo (searching for words) gnomaa gewii
maaba eshnikaazod yaa four wheeler (Quad). Miizhiwe boostowad wi
ni'ii gaashii-wiikaa ngiiyaamjigesii ni'ii jitemgok ni'ii eshnikaadegin
ne'in (searching for words) e-kidgomnenh eshnikaadegin ne'in
nagazhiinsan, gaaye wiika gii-tesnoon ne'in gaaye wiika iitesnoon ne'in
kikoonsan.*

(Translation; “It’s really easy now to make. They use pails and snow machines, Ski-doo they are called. They use a ski-doo to haul sap or a Quad (four-wheeler). We never used those things before. How do you say, what is called “tubes” Some even use those tubes now and not pails to collect the syrup.)

Once translated this seems relatively straightforward. But the process to get to this understanding took over an hour. I originally translated the word from that passage *nagazhiinsan* as sausage. As I listened to the recording and heard my Uncle search for words to describe something, he said *nagajiinsan*. The translation that immediately came to my mind was sausages. I knew this word from an Anishinaabemowin class I had and had simply memorized it. Over the course of regular interaction with my family I would hear it, like when making pancakes and sausages. I was confident then that my uncle was saying ‘sausages’. I listened to him over and over and could not understand why my Uncle would have said sausages at that time. So I had to seek out other sources, I phoned my mom. She told me to bring the recording over and she would have a listen. I went over and I played those few seconds about a 10 second clip and she kept trying to make sense of the word. We played it on super slow mode and she was as frustrated as I was. She was trying to make sense of that word and phrasing that (her brother) Lawrence was saying. My father just happened to come out and sit at the table and listen. My father exclaims, “He’s saying guts, that word means guts.” We all broke out in laughter.

Then my dad shared that, the word *nagajiinsan* was used when his father and uncle hunted and they shot a deer. But this information is boiled down from a lengthy story that involves walking and hunting along the way to log near Echo Lake. As my father, grandfather and great-uncle would have to walk to camp and shoot a deer to have meat to eat at camp. They knew where the deer would be because they gathered and fed near a place called “Oak Tree Landing”, to eat the acorns. As they made this trip often, it was inevitable that they would shoot a deer. So when his Uncle had told him to pull the *nagajiinsan* out of the deer cavity he did not know what they meant and his father quickly said, the guts. He then described how the meat would spoil if you didn’t pull those guts out right away. This led into another teaching of when you go hunting you have a responsibility to take care of that animal (this is also another abbreviated version of a responsibility we have to animals that offer you their life). Finally, my dad shared the story of how his Father and Uncle were always using two languages around him English and Ojibwe so he learned two at once and if something was not understood in one language it was explained in the other.

My mom said, “Just stay for supper and play the whole thing, we will figure out what he is trying to say.” After eating I played the entire question and answer, she looked at me and smiled. She said, “He’s talking about the tube that is used to carry the sap.” I had in fact been impeding her

translation by trying to be quick and asking her to translate this one word (in other words taking the concept/work out of context). She said my dad was correct in guts but more precisely it described the intestines. She recalled and told a story in Anishinaabemowin of making blood sausages with her father and mother and then asked if I understood. I replied yes and knew then why the correct translation obviously was not sausages. *Nagajiinsan* would describe the casing of the sausage, which was actually the intestines. She explained how it was her job to hold the bowl and collect the blood of the pig that her dad has slaughtered. Her mother showed her how to wash the intestines out good, so that sausages could be made. She told me of the importance of nothing going to waste and how her parents would use everything they could from that pig. This of course is a boiled down version, as she recalled a few memories of her mother's desire not to waste anything and how resourceful she was with anything she had. This was a central aspect to how her parents lived. She digressed a little and lamented how today everything gets thrown away and now Anishinaabe hardly live like that.

This one word evoked multiple meanings and stories from my parents. If the importance of understanding just one word in Anishinaabemowin is that integral to understanding even a brief story, how integral is Anishinaabemowin to understanding AG? Ontological, epistemological and axiological differences arise when translating from an Indigenous language to another dominant language. What then is to be learned from this story? Obviously, one of the first parts of the process is that understanding Anishinaabemowin and being able to translate requires a high level of proficiency (Toulouse, 2003). Yet more importantly, the adaptation of a single word carries multiple levels of meaning forward and takes AG into the contemporary realm. As AG is gathered from multiple methods and sources and can be interpreted in multiple ways. I would know *nagajiinsan* to be a sausage, because it is what was typically served for breakfast and more often than not with the pancakes and MS.

I am definitely not as proficient as my aunts, uncles or mother or my father with the translation and use of Anishinaabemowin as they grew up speaking and hearing Anishinaabemowin. It is my Mother's and her families first language, and my Father grew up as high-receptive and a partial Anishinaabemowin speaker. Their language mastery and translation would not be possible without the relationship that I have engaged in with them and other speakers. Their lived experience on the land, embodied knowledge, and Anishinaabemowin reflect the communal nature of Anishinaabe society and culture. Yammoto, Brenzinger and Villalon write,

Languages are spoken by individuals, but it is only through the community that they can flourish. However, knowing a language is a personal attribute that is of little use unless shared with others. Members of speech communities discuss how their languages are used and how the meanings are interpreted. Thus, language is personal and at the same time intensely social. (2008, p. 62).

The practice of the *Ziisabaakodakaan* is intensely social. The production of MS by Anishinaabek is collective and for the Elders involved in this project has been communal and culturally transmitted through the use of *Anishinaabemowin*. One word speaks to how practices change and reinforce social practice – and then this can be tied into embodied practice.

5.2 What value is *Anishinaabe Gkendaasowin*?

In this case one small word is carried forward and repurposed and applied in the contemporary world. *Anishinaabemowin* and AG are woven tightly together and the most truthful understanding of Anishinaabe practices come from understanding *Anishinaabemowin*. For my father it is a word associated with the AG of a hunter, and is a word used to aid in the dressing of wild game. The *nagajiinsan* have to be removed quickly to prevent the spoiling or wasting of meat. For my mother it is associated with her parents and how they knew how to raise animals and slaughter them on the farm. Her parent's AG was applied to their contemporary time of farming and making their own food. The *nagajiinsan* were washed by her mother as pigs were slaughtered in order to make sausages. My uncle took the descriptive nature of the word and placed it into the modern production of MS, as the tube that collects the sap. Therefore, the knowledge of deer intestines is used to describe the very new process of gathering MS through tubing.

5.3 Elders and AG

The ability of the Elder and their language mastery is what is revealed in the story. The word's meaning gets imparted in the act of living, as a hunter, or farmer, it becomes embodied knowledge. Through the act of instruction, living and doing with their own family's knowledge for the elders was culturally transmitted. Although the word can and does mean different things, it represents a microcosm into a further field of inquiry. The embodiment of AG within the Elders is accrued through a lifetime of observation, activity and interaction with the *Maanidoog*.

The use of Anishinaabemowin by the Elders allows for cultural transmission to happen as a whole. The practice and stories of the *Ziisabaakodakaan* in a world that is of and for Anishinaabek. Indeed, AG is revealed in stories, shared in *Anishinaabemowin* and the passing of information is done in a culturally appropriate matter.

As stories reveal different levels of meaning, from instruction, history, scientific like observations, and spiritual information, what becomes problematic is to break apart the stories because then we cannot understand anything fully beyond pieces. Just as I was isolating the word ‘*nagajiinsan*’ in the story and misinterpreted its meaning (or simply did not understand). The word had become an abstraction and I could not find the meaning. I had no options in the literature and I had to go back to see my parents, I had to seek out the advice of Elders.

By engaging with my parents, they shared stories to clarify and situate that one word in the context of their own lives and interaction with their parents. Elders hold the stories from their parents and their Elders as well and through this process, older generational knowledge gets carried forward. The process of even understanding one word is linked to deeper familial ties and collective cultural knowledge. AG is carried forward generationally because it was and is necessary to how Anishinaabe people lived. A seamless system of transmitting multi-faceted cultural knowledge not only helped them produce Maple Syrup but also helped them produce and reproduce their own culture.

Chapter 6: Conclusion

6.1 Scholarly Contributions

How can the Anishinaabe Gkendaasowin of the Elders of Waagaaskinigaa (Whitefish River First Nation) contribute to discussion of the production of MS in the face of climate change? This research question guided the Ziisabaakodakaan project and resulted in several scholarly contributions.

The first scholarly contribution involves the discipline of Indigenous Geography (IG). IG is concerned with conducting meaningful, ethical research that centers Indigenous peoples and their concerns in the project. The Ziisabaakodakaan project met this criterion and exemplified proper engagement with Anishinaabe Elders, through gift giving and relationship of reciprocity. Also, climate change is a significant area of IG and the Elders. Anishinaabe Gkendaasowin (AG) corroborated scientific research in this area. As much as AG could be inserted into the field of Indigenous Geography it needs its own field of inquiry.

The second scholarly contribution is that the Ziisabaakodakaan project helps to defining the emergent discourse of AG. AG should be an academic discipline of its own merit. Other scholarly Indigenous disciplines exist such as the principles of Kaupapa Maori research described in Indigenous scholar Linda Smith's ground breaking work *Decolonizing Methodologies: Research and Indigenous Peoples* offered a distinct Maori research paradigm/framework (Smith L. T., 2012). AG has the potential to establish and encompass holistic Anishinaabe research methods in a distinct Anishinaabe intellectual framework. This research has contributed to the growing body of scholarship in Anishinaabe studies. For example, in 2015, Algoma University in conjunction with Shingwauk Kinoomaage Gamig will develop a distinct Anishinaabe Studies BA. Anishinaabe scholars and editors for an edited volume titled, *Centering Anishinaabeg Studies: Understanding the World Through Stories*, edited Jill Doerfler, Heidi Kiiwetinepinesik Stark, Niigaanwewidam James Sinclair further established AG has its own area of study in Indigenous studies more broadly.

The third scholarly contribution was the documentation of the practice of the *Ziisabaakodakaan* and by the Anishinaabek. There is little research done that engages with Elders in this specific area of study. However, the AG that the Elders have about the production of MS and the practice of the *Ziisabaakodakaan*, is not meant to contribute ethnographic record or techniques of MS. The practice of the *Ziisabaakodakaan* stands on its own as distinct and holistic area of study.

As a result of this project the Elders' knowledge and mastery is developed and embodied, through years of *nookiiwin* (work). The misnomer of romanticized Anishinaabe MS production is clearly dispelled as the Elders describe this process as "hard work". The concept of embodied knowledge as integral to knowing how Anishinaabek produce MS adds to the knowledge of the Anishinaabek in scholarly research.

The final scholarly contribution is the importance of Anishinaabemowin in cultural resilience. The Elders and their AG is consolidated and transferred through Anishinaabemowin. Ostensibly, ecological and cultural knowledge is contained in Anishinaabemowin because of the dependence of the Anishinaabek on the natural world around them. The documentation of the stories is a first step, but the formation of deep meaningful relationship that engages with fluent speakers and Elders grounds the research in an ethical and reciprocal framework.

6.2 Recommendations

The practice of the *Ziisabaakodakaan* for the Anishinaabek needs to continue at a family and community level. This recommendation comes from the Elders interviewed; they want to see more young people involved in making MS. This idea was stressed throughout the interview process; the Elders need help producing the MS but also they need youth to pass on this culturally valuable practice.

The hard work, the skills, language and practice helped shape the Elders' identity as Anishinaabek in their youth. One of the ways to continue this practice is to incorporate the production of *Ziisabaakodakaan* into that of the educational institutional frameworks that currently exist. Many First Nations have daycares or schools of various levels. In order to continue the process of instruction and participation of youth, many First Nations schools should look to incorporate curriculum that supports the Anishinaabe production of MS.

Anishinaabemowin, science, mathematics, and physical education are four areas that could be easily covered in the current curriculum.

On a scholarly level there are several opportunities to investigate work in the areas of the Anishinaabek production of MS. Continued Anishinaabemowin research via story gathering is an important method that contribute more broadly to community development (e.g. incorporate into existing curriculum or develop new curriculum to incorporate AG). There is much to be learned about *Ziisabaakodakaan* with regards to past production, as there are many family run Anishinaabe camps still in operation in many communities. The contribution of many Elders and fluent speakers will provide additional perspectives, practices and observations. In my research I worked with my family but there are other families in Birch Island who also produce MS and have passed down their own practices from generation to generation. There needs to be more research in this area, especially as climate change continues to threaten the very existence of *Ziisabaakodakaan*.

As there is more and more research emerging specific to the Anishinaabek and AG, a symposium or conference for scholars and MS producers to interact and exchange ideas would be welcomed. What is our collective knowledge? What do we currently know? What do we need to know to address climate change? Collectively there is much knowledge to share.

Further research that engages with Elders in a collaborative way, would be beneficial because then the research is based upon a relationship with the Elders as opposed to knowledge extraction. Knowledge extraction is one of the main critiques of the traditional forms of research with Indigenous people within academic research. Furthermore, collaborative research supports a long term engagement, whereas research is not just a project, but a mutually beneficial “relationship”. The communities can then use the research results as well.

Researchers in collaboration with community leaders could train members to pass on valuable knowledge and skills for youth. Youth can be trained to engage with Elders, or training in multiple academic fields as part of ‘field work’. Field work can involve producing MS. The Anishinaabek and scholars would mutually benefit from long term relationships that have mutual goals.

Another recommendation is to use the Ziisabaakodakaan as a place of language immersion as there are still fluent Anishinaabe Elders who produce MS; this may mitigate language loss as it is best to learn Anishinaabemowin in context (Truth and Reconciliation 2015). The time and space of the Ziisabaakodakaan would be an ideal location and cultural practice that reinforces language skills and practice. Ziisabaakodakaan is a good place for language immersion. Therefore, students will not only learn and hear *Anishinaabemowin*, they have an opportunity to embody *Anishinaabemowin*.

The final recommendation that comes from this project is for further research to complement the ecological changes that the Elders have observed in relation to climate change. Although this project offers an excellent starting point there is a wealth of knowledge and questions left unanswered. Moreover, current scientific studies are incomplete and forestry scientists are not able to pin point how crown damage fully affects tree mortality. One of reasons is the synchronic observations of scientific methodology. Observation for a specific location over a short period of time. Koji et al. in “Predicting tree survival in Ontario sugar maple (*Acer saccharum*) forests based on crown condition” state, “Because including more information to predict survivorship will result in a more precise prediction, any relevant predictor variable should be used whenever available (1740).” Elders have made long term (diachronic) observations that are collected and integrated into the AG. There is a definite possibility that the Elders have relevant observations that can help scientists in many areas not just forest ecology. There is much scientists can learn from Elders and there is much science has to offer in terms of climate change predictions. Working in a complementary fashion would strengthen the collective body of knowledge on climate change and resiliency.

Elders, including the participants for this project, have additional ecological knowledge on weather patterns, animal populations, forest ecology, water ecology, bird populations and overall environmental change that they have witnessed in their lifetimes that can contribute to a further understanding of climate change impacts. As anthropogenic climate change affects us collectively, Elders have knowledge that could be shared and used to help us understand the affects that many of us do not see on a day to day basis or as a result of a short research study.

6.3 Conclusion

Current theoretical frameworks in the academy are just starting to recognize Indigenous knowledge systems on their own terms (without having to compare or hold against western theory that emerges from a different ontology). The emergent area of Indigenous Geography lends itself to this project by validating IK and IK systems as appropriate methods in academic research. As renowned Indigenous scholar, Linda Tuhiwai Smith points out, “Indigenous knowledge once denied by science as irrational and dogmatic is one of those new frontiers of knowledge (2005, 931).” Eleven years later, Smith is still right as some scholars view IK as a “frontier” to be conquered and mastered. I asked myself, “Does this project represent a frontier for MS production?” No, not in the sense that Linda Smith speaks of.

However, by engaging in an IG and Anishinaabe research paradigm and methods, I was able to advance a more genuine and grounded understanding of the practice of the *Ziisabaakodakaan*. It is important to understand *Ziisabaakodakaan* in relation to *Anishinaabemowin* and *Anishinaabe Gkendaasowin* and not just the technical aspects. Since climate change modelling has predicted that MS will no longer be produced within the next 100 years (Comerford, et al., 2013), and all producers of MS, even Anishinaabe producers will be affected, it is an important area of study. Furthermore, the AG of Elders is an additional resource to collectively contribute to our understanding of climate change. Yet additional research should look to center the Elders and AG and be a collaborative process with Western scientists. The Elders carry ecological knowledge that has been gathered over a lifetime of being active on the land, this is something that Western science cannot replicate. This knowledge should be taken seriously by the academic community as it is proven reliable and accessible with proper research methods. In conclusion, the *Ziisabaakodakaan* project does represent a frontier, yet a frontier that Anishinaabe scholars have the ability to govern through respectful engagement based on Anishinaabe ontology and values.

Bibliography

(n.d.). Retrieved from Unnana'ki Institute of Natural Resources:

<http://www.uinr.ca/2009/01/partnerships/>

Absolon, K. E. (2011). *Kaandossowin*. Black Point: Fernwood Publishing.

Akena, A. F. (2012). Critical Analysis of the Production of Western Knowledge and its implications for Indigenous Knowledge and Decolonization. *Journal of Black Studies*, 599-619.

Allen, D. C., Dalton, J., Nyland, R. D., & Bevilacqua, E. (2016). Response of the sugar maple borer to ice-damaged sugar maple. *The Forestry Chronicle*, 183-188.

Archibald, J. (2008). *Indigenous Storywork: Educating the Heart, Mind, Body, and Spirit*. Vancouver: UBC Press.

Armstrong, J. (1998). "Land Speaking." *Native Writers on Writing*, 174-195.

Ballantyne, T. (2011). Paper, pen and print; The transformation of the Kai Tahu knowledge order. *Comparative Studies in Society and History*, 232-260.

Bartlett, C., Marshall, M., & Marshall, A. (2012). Two-Eyed Seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and way of knowing. *Journal of Environmental Studies and Science*, 331-340.

Berkes, F. (2000). *Sacred Ecology: Traditional Ecology Knowledge and Resource Management*. Philadelphia: Taylor & Francis.

Booth, A. L., & Muir, B. R. (2011). Environmental and Land-Use Planning Approaches of Indigenous Groups in Canada: An Overview. *Journal of Environmental Policy & Planning*, 421-442.

Bryan, J. (2009). Where would we be without them? Knowledge, space and power in indigenous politics. *Futures*, 24-32.

- Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada. (December 2014). Tri-Council Policy Statement for the Ethical Conduct Research Involving Humans.
- Cargo, M. K., & Laurence, S. C. (2003). Healing traditions: culture, community and mental health promotion with Canadian Aboriginal peoples. *Australasian Psychiatry*, 14-22.
- Castelden, H., Garvin, T., & Nation, H.-a.-a. F. (2009). "Hishuk Tsawak" (Everything Is One/Connected): A Huu-ay-aht Worldview for Seeing Forestry in British Columbia Canada. *Society and Natural Resources*, 789-804.
- Castree, N. (2004). Differential Geographies: Place, indigenous rights and 'local' resources. *Political Geography*, 133-167.
- Chapin, M., L. Z., & Threlkeld, B. (2005). Mapping Indigenous Lands . *Annual Review of Anthropology* , 619-639.
- Cherringo, M. (2008). Indigenous Peoples and Climate Change. *Cultural Survival*. Retrieved from <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/indigenous-peoples-and-climate-change>
- Ciesla. (2002). *Non-wood forest products from temperate broad-leaved trees*. Food and Agriculture Organization of the United Nations.
- Coombes, B., Johnson, J. T., & Howitt, R. (2012). Indigenous geographies I: Mere resources conflicts? The complexities in Indigenous land and environmental claims. *Progress in Human Geography*, 810-812.
- Coombes, B., Johnson, J. T., & Howitt, R. (2012). Indigenous geographies II: The aspirational spaces in postcolonial politics-reconciliation, belonging and social provision. *Progress in Human Geography*, 691-700. doi:DOI: 10.1177/0309132512469590
- Coombes, B., Johnson, J. T., & Howitt, R. (2014). Indigenous geographies III: Methodological innovation and the unsettling of participatory research. *Progress in Human Geography*, 1-10. doi:10.1177/0309132513514723

- Corbiere, M. A. (2013). How do /ni/, /taa/, /se/ and /shin/ alter meanings of Nishinaabekidwinan? *Anishinaabewin Niiwin* (pp. 131-140). M'Chigeeng: Ojibwe Cultural Foundation.
- Daigle, M. (2016). Awawanenitakik: The spatial politics of recognition and relational geographies of Indigenous self-determination. *The Canadian Geographer*, 259-269. doi:DOI: 10.1111/cag.12260
- Danard, D., & Restoule, J.-P. (2010). Tobacco Ties: The Relationship of the Sacred to Research. *Canadian Journal of Native Education*, 29-45.
- Davidson-Hunt, I., & Berkes, F. (2003). Learning as You Journey: Anishinaabe Perception of Socio-ecological Environments and Adaptive Learning. *Conservation Ecology*, 1-21. Retrieved from <http://www.consecol.org/vol8/iss/art5>
- Debassige, B. (2010). Re-conceptualizing Anishinaabe Mino-bimaadiziwin (the good life) as Research Methodology: A spirit-centred way in Anishinaabe research. *Canadian Journal of Education*, 11-28.
- Debassige, B. (2013). Building on Conceptual Interpretations of Aboriginal Literacy in Anishinaabe Research: A Turtle Shaker Model. *Canadian Journal of Education*, 4-33.
- Doefler, J., Kiiwetinepinesiik, H., & Sinclair, J. N. (2013). *Centering Anishinaabeg Studies: Understanding the World Through Stories*. Winnipeg: University of Manitoba.
- Eckelman, M. J. (2010). Facility-level energy and greenhouse gas life-cycle assessment of the global. *Resources, Conservation and Recycling*, 256-266.
- Egan, B., & Place, J. (2013). Minding the gaps: Property, geography, and Indigenous peoples in Canada. *Geoforum*, 129-138.
- Ellis, S. (2005). Meaningful Consideration? A Review of Traditional Knowledge in Environmental Decision Making. *Arctic*, 66-77.
- Ermine, W. M., Sinclair, R. P., & Jeffrey, B. P. (2004). *The Ethics of Research Involving Indigenous Peoples*. Saskatoon: Indigenous Peoples' Health Research Centre.

- Frantz, K., & Howitt, R. (2012). Geography for and with indigenous peoples: indigenous geographies as challenge an invitaion. *GeoJournal*, 727-731. doi:10.1007/s10708-010-9378-2
- Frantz, K., & Howitt, R. (2012). Geography for and with indigenous peoples: indigenous geographies as challenge and invitation. *GeoJournal*, 727-731. doi:10.1007/s10708-010-9378-2
- Geniusz, W. M. (2009). *Our Knowledge is Not Primitive: Decolonizing Botanical Anishinaabe Teachings*. Syracuse: Syracuse University Press.
- Guyot, M., Dickson, C., Paci, C., Furgal, C., & Hing Man, C. (2006). Local Observations of Climate Change and Impacts on Traditional Food Security in Two Northern Aboriginal Communities. *International Journal of Circumpolar Health*, 403-415.
- Hart, M. A. (2010). Indigenous Worldviews Knowledge, and Research: The De. *Journal of Indigenous Voices in Social Work*, 1-16.
- Hinrich, C. C. (1998). Sideline and Lifeline: The Cultural Economy of Maple Syrup Production. *Rural Sociology*, 507-532.
- Hinton, L. (2011). Language Revitalization and language pedagogy: new teaching and learning strategies. *Language and Education*, 307-318.
- Houde, N. (2007). The Six Faces of Traditional Ecological Knowledge: Challenges and Opportunities for Canadian Co-Management Arrangements. *Ecology and Society*.
- <http://www.pre.ethics.gc.ca/>. (2015, February 13). Retrieved from Panel on Research Ethics: <http://www.pre.ethics.gc.ca/eng/policy-politique/initiatives/tcps2-eptc2/Default/>
- Hunt, S. (2014). Ontologies of Indigeneity: the politics of embodying a concept. *Cultural Geographies*, 27-32. doi:10.1177/1474474013500226
- Huntington, H. P. (1998). Observations on the Utility of the Semi-directive Interview for Documenting Traditional Ecological Knowledge. *Arctic*, 237-242.

- Huron, R. (2014). Historical Roots of Canadian and non-Aboriginal Maple Practices. *Wilfred Laurier*.
- Johnson, J. T., Cajete, G., Berkes, F., Louis, R. P., & Kliskey, A. (2016). Weaving Indigenous and sustainability sciences to diversify our methods. *Sustainable Science*, 1-11.
- Johnson, J. T., Cant, G., Howitt, R., & Peters, E. (2007). Guest Editorial Creating Anti-colonial Geographies: Embracing Indigenous Peoples' Knowledges and Rights. *Geographical Research*, 117-120.
- Johnston, B. (1976). *Ojibway Heritage*. New York: Columbia University Press.
- Johnston, B. H. (2013). Is that all there is? In J. Doefler, H. Kiiwetinepinesiik, & J. N. Sinclair, *Centering Anishinaabeg Studies: Understanding the World Through Stories*. Winnipeg: University of Manitoba.
- Judith, B. (1993). *Bodies that matter: On the discursive limits of sex*. London & New York: Routledge.
- Kegg, M. (1991). *Portage Lake: Memories of an Ojibwe Childhood*. Minneapolis: University of Minneapolis.
- Kendrick, A., & Manseau, M. (2008). Representing Traditional Knowledge: Resource Management and Inuit Knowledge of Barren-Ground Caribou. *Society and Natural Resources*, 404-418.
- Kershaw, G. G., Castleden, H., & Laroque, C. P. (2014). An argument for ethical physical geography research on Indigenous landscapes in Canada. *The Canadian Geographer*, 393-399. doi:10.1111/cag.12092
- Kimmerer. (2013). *Braiding Sweetgrass*. Minneapolis: Milkweed.
- Kimmerer, R. (2012). Searching for synergy: integrating traditional and scientific. *Journal Environmental Studies in Science*, 317-323.

- Kimmerer, R. W. (2002). Weaving Traditional Ecological Knowledge into Biological Education. *BioScience*, 432-438.
- Kirmayer, L. J., Dandean, S., Marshall, E., Phillips, M. K., & Williamson, K. J. (2011). Rethinking Resilience From Indigenous Perspectives. *Canadian Journal of Psychiatry*, 84-92.
- Kovach, M. (2009). *Indigenous Methodologies: Characteristics, Conversions and Contexts*. Toronto: University of Toronto Press.
- Lane, M. B. (2006). The role of planning in achieving indigenous land justice and community goals. *Land Use Policy*, 385-394.
- Lauer, M., & Matera, J. (2016). Who Detects Ecological Change After Catastrophic Events? Indigenous Knowledge, Social Networks, and Situated Practices. *Human Ecology*, 33-46. doi:10.1007/s10745-016-9811-3
- Lee, D. (2013). In conversation with Centering Anishinaabeg Studies. *Decolonization: Indigeneity, Education & Society*, 132-144.
- Louis, R. P. (2007). Can You Hear us Now? Voices from the Margin: Using Indigenous Methodologies in Geographic Research. *Geographical Research*, 130-139. doi:doi:10.1111/j.1745-5871.2007.00443.x
- Louis, R. P., Johnson, J. T., & Pramono, A. H. (2012). Introduction: Indigenous Cartographies and Counter Mapping. *Cartographica*, 77-79.
- Maldonado, J., Bennett T.M, B., Chief, K., Cochran, P., Cozzetto, K., Gough, B., . . . Voggesser, G. (2016). Engagement with indigenous peoples and honoring traditional knowledge systems. *Climate Change*, 111-126.
- Martin, J. F., Roy, E. D., Diemont, S. A., & Bruce, F. (2010). Traditional Ecological Knowledge (TEK) : Ideas, inspiration, and designs for ecological engineering. *Ecological Engineering*, 839-849.

- Mason, L. e. (2012). Listening and learning from Traditional Knowledge and Western Science: A Dialogue on Contemporary Challenges of Forest Health and Wildfire. *Journal of Forestry*, 187-193.
- McGregor, D. (2009). Linking Traditional Knowledge and Environmental Practice in Canada. *Journal of Canadian Studies*, 69-100.
- McGregor, D. (2014). Lessons for Collaboration Involving Traditional Knowledge and Environmental Governance in Ontario, Canada. *Alternative*, 340-351.
- McGregor, D. P. (2013). Anishinaabe theory and practice. *Anishinaabewin Niiwin* (pp. 93-112). Sudbury: Ojibwe Cultural Foundation.
- McGregor, D., & Plain, S. (2013). Anishinaabe Research Theory. *Anishinaabewin Niiwin: Four Strong Winds* (pp. 93-114). M'Chigeeng: Ojibwe Cultural Foundation.
- McNeil, K. (2004). The Vulnerability of Indigenous Land Rights in Australia and Canada. *Osgood Hall Law Journal*, 271-304.
- Mudd, G. M. (2010). Global trends and environmental issues in nickel mining: Sulfides versus laterites. *Ore Geology Reviews*, 9-26.
- Murphy, B., Chretien, A., & Laura, B. (2009). How Do We Come to Know? Exploring maple syrup production and climate change in near north Ontario. *Enviroments Journal*, 1-33.
- Nakashima, D., Prott, L., & Bridgewater, P. (2000). Tapping into the world's wisdom. *Sources*, 12-16. Retrieved from http://www.unesco.org/education/tlsf/mods/theme_c/mod11.html
- Nichols, J. D. (1991). *Portage Lake: Memories of an Ojibwe Childhood*. Minneapolis: University of Minnesota.
- Noori, M. (2013). Beshaabiiag G'gikenmaaigowag: Comets of Knowledge. In J. Doefler, H. Kiiwetinepinesiiik, & J. N. Sinclair, *Centering Anishinaabeg Studies: Understanding the World through stories*. Winnipeg: University of Manitoba.

- Palmer, M. (2016). Sustaining indigenous geographies through world heritage: a study of Uluru-Kata Tjuta National Park. *Sustainable Science*, 13-24. doi:DOI 10.1007/s11625-015-0307-7
- Patrick, D. (2007). Indigenous language endangerment and the unfinished business of nation states. . In A. Duchene, & M. Heller, *Discourses Of Endangerment: Ideology and Interest in the Defence of Languages* (pp. 35-56). London: Continuum.
- Peacock, T., & Wisuri, M. (2006). *Ojibwe Waasa Inaabidaa*. Afton: Afton Historical Society Press.
- Pennycook, A. (2010). *Language as Local Practice*. London: Routledge.
- Pierotti, R., & Wildcat, D. (2000). Traditional Ecological Knowledge: The Third Alternative (Commentary). *Ecological Applications*, 1333-1340.
- Popova, U. (2014). Conservation, Traditional Knowledge, and Indigenous Peoples. *American Behavioral Scientist*, 197-214.
- Power, E. M. (2008). Conceptualizing Food Security for Aboriginal People in Canada. *Canadian Journal of Public Health*, 95-97
- Ray, L., & Cormier, P. N. (2012). Killing the Weendigo with Maple Syrup: Anishinaabe Pedagogy and Post-secondary Research. *Canadian Journal of Native Education*, 163-176.
- Reo, N. J. (2011). The Importance of Belief Systems in Traditional Ecological Knowledge. *The International Indigenous Policy Journal*, 1-4.
- Report of the Royal Commission on Aboriginal Peoples*. (1996, May 21). Retrieved from caid.ca/RRCAP4.0.pdf
- Resources, P. f. (2007, March). *Unama'ki Institute of Natural Resources*. Retrieved from Aboriginal Sustainability Network: <http://www.aboriginalsustainabilitynetwork.org/wp-content/uploads/2009/01/protocol-for-the-use-of-mikmaq-knowledge-between-uinr-and-parks-canada.pdf>

- Robitaille, J.-F., & Linley, R. D. (2006). Structure of forests used by small mammals in the industrially damaged. *Forest Ecology and Management*, 160-167.
- Siahayaa, M. E., Hutaaurukb, T. R., Hendrik, A. S., & Mardhanied, A. B. (2016). Traditional ecological knowledge on shifting cultivation and forest management in East Borneo, Indonesia. *International Journal of Biodiversity Science, Ecosystem Services & Management* , 14-23 .
- Sletto, B. (2009). Special issue: Indigenous cartographies. *cultural geographies*, 147-152.
- Smith, L. (2008). Indigenous Geography, GIS and Land-Use Planning on the Bois Forte Reservation. *American Indian Culture and Research Journal* , 139-151.
- Smith, L. T. (2005). On Tricky Ground. In N. K. Denzin, *Handbook of Qualitative Research* (pp. 85-108). Thousand Oaks: Sage Publications.
- Sorensen, B. E. (2011). Wild Food Summit: Anishinaabe relearning traditional gathering practices. *Tribal College*, 32-34.
- Spatz, B. (2015). *What a body can do: technique as knowledge, practice as research*. New York & London: Routledge.
- Stevenson, M. G. (1997). Ignorance and Prejudice Threaten Environmental Assessment . *Options Politiques*, 25-28.
- Struthers, R. P. (2004). Sacred Tobacco Use in Ojibwe Communities. *Journal of Holistic Nursing*, 209-225. doi:10.1177/0898010104266735
- Struthers, R. P.-M. (2005). Phenomenological Research Among Canadian and United States Indigenous Population: Oral Tradition and Quintessence of Time. *Qualitative Health Research*, 1264-1276.
- Takeda, L., & Ropke, I. (2010). Power and contestation in collaborative ecosystem-based management: The case of Haida Gwaii. *Ecological Economics*, 178-188.

- Teays, W., Gordon, J.-S., Renteln, A. D., & (Eds). (2014). *Global Bioethics and Human Rights: Contemporary Issues*. Lanham: Rowman & Littlefield.
- Thomas, M. M. (2004). *Where the Forest Meets the Farm: A Comparison of Spatial and Historical Change in the Euro-American and American Indian Maple Production Landscape*. University of Wisconsin-Madison.
- Thomas, M. M. (2005). Historic American Indian Maple Sugar and Syrup Production: Boiling Arches in Michigan and Wisconsin. *Midcontinental Journal of Archaeology*, 299-326.
- Thomas, M. M., & Silbernagel, J. M. (2003). The Evolution of Maple Sugaring Landscape on Lake Superior's Grand Island. *Michigan Academician*, 135-158.
- Tobias, J. K., & Richmond, C. (2016). Gimiigiwemin; Putting knowledge Translation into Practice with Anishinaabe Communities. *International Journal of Indigenous Health*, 228-243. doi:10.18357/ijih111201616019
- Toulouse, I. B. (2003). Transference of Concepts from Ojibwe into English Contexts. *Canadian Journal of Native Education*, 84-88.
- Truth and Reconciliation Commission of Canada. (2015). *Canada's Residential Schools: The Legacy The Final Report of the Truth and Reconciliation Commission of Canada Volume 5*. Montreal & Kingston: McGill-Queen's University Press.
- Turner, N. J., & Clifton, H. (2009). "It's so different today": Climate change and indigenous lifeways in British Columbia Canada. *Global Environmental Change*, 180-190.
- Turner, N. J., & von Aderkas, P. (2012). Sustained by First Nations: European newcomers' use of Indigenous plant foods in temperate North America. *Acta Societatis Botanicorum Poloniae*, 295-315.
- Turner, N. J., Ignace, M. B., & Ronald, I. (2000). Traditional Ecological Knowledge and Wisdom of Aboriginal Peoples in British Columbia. *Ecological Application*, 1275-1287.
- United Nations University. (2013). *Traditional Knowledge & Climate Science Toolkit*. Retrieved from https://www.ias.unu.edu/sub_page.aspx?catID=732&ddlID=2587

- Valentine, J. (2004). *Nishnaabemwin Reference Grammar*. Toronto: University of Toronto Press.
- van den Berg, A. P. (2016). Growth rates of sugar maples trees tapped for maple syrup production using high yield sap collection practices. . *Forest Sciences*, 107-114.
- Watson, A., & Huntington, O. H. (2008). They'r here-I can feel them: the epistemic spaces of Indigeneous and Western Knowledges. *Social & Cultural Geograpy* , 257-281.
- Weiss, K., Hamann, M., & Marsh, H. (2013). Bridging Knowledges: Understanding and Applying Indigenous and Western Scientific Knowledge for Marine Wildlife management. *Society and Natural Resources* , 285-302.
- Whyte, K. P. (2013). On the role of traditional ecological knowledge as a collaborative concept: a philosophical study. *Ecological Processes*, 1-12.
- Whyte, K. P. (2014). Indigenous Women, Climate Change Impacts, Collective Action. *Hypatia*, 599-616.
- Wilson, S. (2001). What is an Indigenous Research Methodology? *Canadian Journal of Native Education*, 175-179.
- Wilson, S. (2008). *Research is Ceremony: Indigenous Research Methods*. Halifax: Fernwood Publishing.
- Yammoto, A., Brenzinger, M., & Villalon, M. E. (2008). A Place for All Languages; On Language Vitalilty and Revitalization. *Museum International*, 60-70. doi:10.1111/j. 1468-0033.2008.00653.x

Appendices

Appendix A: Glossary

Anishinaabe: Indigenous people of North America whose territory stretches from present day Western Québec to Saskatchewan, as well as states of Minnesota, Wisconsin, Michigan, and northern Illinois, Indiana and Ohio, as well as portions of Oklahoma and Kansas. Encompasses the people also known as Ojibwe, Odawa, and Potawatomi.

Anishinaabe Gkendaasowin: as per Anishinaabe scholar Wendy Geniusz AG is “specific knowledge, unique to the Anishinaabe people, which includes not just information but also the synthesis of our personal teachings. Anishinaabe Gkendaasowin has been around since before the birth of the first human being (Geniusz, 2009, 211)”

Anishinaabek: The plural form of Anishinaabe.

Anishinaabemowin: The language of Anishinaabe people.

Baakwemoon: Woodpecker.

Boochwaa: Visiting s.o., also conveys notions of being invested and engaged in the interaction.

Dibaajimowin: Narrative, story of events in the past.

Gkendaasowin: Knowledge, ontology.

Manidoo(g): Spirit(s) or supernatural being(s).

Manitoo ogitigan: Creator’s garden.

Mino-bimaadiziwin: (a) good life, to live in a good way.

Nga-mino bimaadizimi: We will live well together.

Ninaatig(oog): Sugar maple tree(s).

Nokiiwin: Work.

Waagaaskinigaa: Birch Island First Nation.

Wiigwaas naaganan: Birch bark pails or baskets.

Ziisabaakodakaan: Sugar shack, the place where sugar is made.

Ziisabaakodake: Sugar candies, taffy, or maple sugar cake.

Ziisbaakodikejig: Those who make sugar, who engage in the process of the Ziisabaakodakaan.

Ziwaagamide: (Maple) syrup

Appendix B: Pronunciation Guide

Vowels		
Anishinaabe orthography:	International Phonetic Alphabet (IPA) equivalent:	Approximate English orthographic equivalent:
i	/ɪ/	P <u>it</u>
a	/ʌ/	B <u>ut</u>
o	/ɔ/	B <u>ook</u>
ii	/i:/	<u>E</u> ast
e	/e:/	W <u>ay</u>
aa	/a:/	F <u>a</u> ther
oo	/o:/	B <u>o</u> at

Consonants		
Anishinaabe orthography:	International Phonetic Alphabet (IPA) equivalent:	Approximate English orthographic equivalent:
w	/j/	<u>W</u>ea ther
y	/w/	<u>Y</u>ou ng
b	/b/	<u>B</u>oo k
d	/d/	<u>D</u>oo r
g	/g/	<u>G</u>ea r
j	/dʒ/	<u>J</u>u mp
z	/z/	<u>Z</u>e bra
zh	/ʒ/	<i>Uncommon in English. Certain pronunciations of garage</i> <u>g</u>e
p	/p/	<u>P</u>ea r
t	/t/	<u>T</u>ru e

k	/k/	<u>C</u>up, <u>k</u>ite
ch	/tʃ/	<u>C</u>hild
s	/s/	<u>S</u>oup
sh	/ʃ/	<u>S</u>hare
m	/m/	<u>M</u>any
n	/n/	<u>N</u>ice
h	/h/	<u>H</u>appy

Appendix C: Letter of Consent



Geography & Program in Planning UNIVERSITY OF TORONTO

Appendix A: Introductory Letter

M.A. Candidate Deborah Pine
580c Hwy 17 East, Garden River
Ontario, P6A 6Z1

Dear _____,

I would like to take this opportunity to introduce myself and the research project I am undertaking at the University of Toronto. I am currently a Masters student at the University of Toronto in the Geography and Planning department. In addition, I am also a member of Garden River First Nation, yet I have close family ties with members of Whitefish River First Nation. I will be undertaking a research project titled Ziisabaakodakaan: The place where sugar is made. I am interested in this project because it is about including Anishinaabe traditional knowledge in the field of Maple Syrup

As a fluent Anishinaabemowin speaker your input and knowledge of the process of making Maple Syrup is invaluable to my proposed area of research. The purpose of this research is to gather stories about past, and present practices of the process of Ziiwaagamide, from a family run camp. This proposed research is undertaken a part of a SSHRC Insight grant awarded to Dr. Brenda Murphy as Wilfred Laurier, called, Maple Syrup, Climate Change and Resilience: A Longitudinal Study".

The primary goals of this project are:

1. To document Ziisabaakodakaan practices of family operated maple syrup camp, located in Whitefish River First Nation, Ontario. The MS family producers I will work with have long term oral histories about the production of MS and are likely to have intimate knowledge of ecosystem change as a result of climate change (Murphy, Chretien, & Laura, 2009).
2. To document Anishinaabemowin (Ojibwe language) and the practice of Ziisabaakodakaan. Many scholars point to the fact knowledge is lost in the translation (Corbiere 2014).
3. How have Ziisabaakodakaan practices changed over time? Why? Are these changes reflected in the Anishinaabemowin language?

In addition to these three research goals, I will also be sharing this information from this research with Whitefish River First Nation Chief and council via a summary report. In order to achieve these research goals, I intend to interview 5 fluent speakers from Whitefish River First Nation. At this time I would like to invite you to participate in this project. Your knowledge would contribute greatly I would be grateful is you to participate in my research

My general contact information is Deborah Pine, (705) 257-0657. In addition, you may wish to speak with my supervisor is Dr. Deborah McGregor her contact information is, (416) 978-2234 or email at d.mcgregor@utoronto.ca. Also at any time you feel necessary, you may wish to contact the Office of Research Ethics at ethics.review@utoronto.ca or (416) 946-3273.

Miigwech

Deborah Pine

Room 5047, Sidney Smith Hall, 100 St. George Street, Toronto, ON M5S 3G3 Canada
Tel: +1 416-978-3375 · Fax: +1 416-946-3886 · <http://geography.utoronto.ca/>



Geography & Program in Planning
UNIVERSITY OF TORONTO

Appendix C: Consent Form

Interview Consent Form

I hereby consent to participating in an interview with Deborah Pine for the purposes of her research project, "Zisabaakodakaan: The place where sugar made." I have read and understood the invitation and information letter. I understand that information obtained during this interview will become part of the information used in the research project. I also understand that the intent of this project is to explore the Anishinaabe traditional knowledge regarding the production of Maple Syrup.

I understand that the findings of this research and/or parts of the research may subsequently be published. In relation to this, I acknowledge that the specific information obtained in this interview will remain confidential. I also understand that due to the small size of the community of Whitefish River First Nation, my participation in this project will not remain confidential. By consenting to this process, I understand that I am under no obligation to share specific information; my participation is voluntarily and I may share whatever information within my comfort level. Lastly, I understand that I may withdraw from participation in the project at any time, including this interview.

I understand that researcher, Deborah Pine, Dr. Deborah McGregor and Dr. Brenda Murphy will have access to the research notes and recordings taken during the interview. Furthermore In the future, if any other uses of these data are desired, participants will be given the opportunity to approve such use through a new ethics process. Research documents (both written and recorded) will be returned to me if I so request and any remaining research notes will be destroyed after the research is completed.

Name of Participant (please print): _____

Signature: _____

Place and Date of Meeting: _____

Please Initial:

I agree to have the interview audio-recorded _____

I would like comment I make during the interview
to be attributed to me by name _____

I wish to review documents prior to
submission for publication _____

Unless otherwise indicated, all comments will be treated as anonymous



Geography & Program in Planning UNIVERSITY OF TORONTO

Appendix D: Letter for WRFN Chief and Council

M.A. Candidate Deborah Pine
580c Hwy 17 East, Garden River
Ontario, P6A 6Z1

Attention: Chief and Council Whitefish River First Nation

I would like to take this opportunity to introduce myself and the research project I am undertaking as a student at the University of Toronto. I will be undertaking a research project titled Ziisabaakodakaan: The place where sugar is made. I am interested in this project because it is about including Anishinaabe traditional knowledge in the field of Maple Syrup I am currently a Masters student in the Geography and Planning department. In addition, I am also a member of Garden River First Nation, yet I have close family ties with members of Whitefish River First Nation as my mother was originally from here.

The purpose of this research is to gather stories about past, and present practices of the process of Ziwaagamide, from a family run camp. This proposed research is undertaken a part of a SSHRC Insight grant awarded to Dr. Brenda Murphy as Wilfred Laurier, called, Maple Syrup, Climate Change and Resilience: A Longitudinal Study". In addition my research supervisor is Dr. Deborah McGregor, who is also from Whitefish River First Nation.

The primary goals of this project are:

1. To document Ziisabaakodakaan practices of family operated maple syrup camp, located in Whitefish River First Nation, Ontario. The MS family producers I will work with have long term oral histories about the production of MS and are likely to have intimate knowledge of ecosystem change as a result of climate change (Murphy, Chretien, & Laura, 2009).
2. To document Anishinaabemowin (Ojibwe language) and the practice of Ziisabaakodakaan. Many scholars point to the fact knowledge is lost in the translation (Corbiere 2014).
3. How have Ziisabaakodakaan practices changed over time? Why? Are these changes reflected in the Anishinaabemowin language?

In addition to these three research goals, I will also be sharing this information from this research with Whitefish River First Nation Chief and council via a summary report. In order to achieve these research goals, I intend to interview 5 fluent speakers from Whitefish River First Nation.

My general contact information is Deborah Pine, (705) 257-0657. In addition, you may wish to speak with my supervisor is Dr. Deborah McGregor her contact information is, (416) 978-2234 or email at d.mcgregor@utoronto.ca. Also, at any time you feel necessary, you may wish to contact the Office of Research Ethics at ethics.review@utoronto.ca or (416) 946-3273. Also if I would be happy to come speak with WRFN about the research or you may speak with my supervisor.

Miigwech

Deborah Pine

Room 5047, Sidney Smith Hall, 100 St. George Street, Toronto, ON M5S 3G3 Canada
Tel: +1 416-978-3375 · Fax: +1 416-946-3886 · <http://geography.utoronto.ca/>

Appendix D: List of Interview Questions

1. What memories do you have of making MS?
2. How has making MS changed?
3. How does the weather affected making MS?
4. What are some of the environmental indicators that help while making MS?
5. How long has MS been made in this location?
6. What are some of the observations that indicate the sap will run well?
7. When do you stop boiling MS?
8. What type of wood is used to boil the sap?
9. What is a typical year's production of MS?
10. How large do the MS trees have to be to tap?

