Niigani Miinigowiziiwin (we give these gifts to the future)

by

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AUTHOR'S DECLARATION

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

STATEMENT OF CONTRIBUTIONS

Melanie Goodchild was the sole author for Chapters One, Two, Three and Seven which were written under the supervision of Dan McCarthy, not written for publication. Chapters Four is a manuscript co-authored with Peter Senge, Otto Scharmer, Diane Longboat, Dan Longboat, Kevin Deer and Rick Hill. Goodchild was the lead author. Goodchild was the sole author for the published manuscript in Chapter Five and the published essay in Chapter Six. Goodchild was responsible for conceptualizing the paper focuses, carrying out data collection and analysis, and drafting and submitting manuscripts. Co-authors provided guidance and feedback during the initial drafting and revisioning of manuscripts based on peer review. Bibliographic citations for the co-authored chapter have been included below.

Chapter Four
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ABSTRACT

This dissertation is the *ni di-bah-ji-mo-win* (my personal story) of being an Anishinaabekwe (Ojibway woman) doctoral student, studying conventional systems thinking, complexity and transitions to sustainability discourse at a Canadian university. I problematize the traditional ecological knowledge (TEK) paradigm in transformations to sustainability discourse and explore the foundations of an Indigenous standpoint theory (relational systems thinking) to transcend the binary mental model that limits conventional approaches to decolonization of Western theory. *Relational systems thinking* has spirituality at its core, it is *naa-wi aki* (middle ground). It offers protocols and processes for *biin-di-go-daa-di-win* (To enter one another's lodge). Respecting *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) this research explores the pluralization of transformation discourse through *Anishinabe bish-kayn-di-ji-gay-win* (pedagogy). Offered protective space at the Waterloo Institute for Social Innovation and Resilience, I explore whether the standpoint theory of *relational systems thinking* is a pathbreaking innovation that supports the transition from systemic regimes of colonization to a systemic regime of Ojibway-*Anishinaabe bish-kayn-di-ji-gay-win* (pedagogy) at the niche or micro scale. What emerges is a realization that this work is land-based, language-and culture based and spiritual. The Spirits hear our distress and real systems change happens when we wake up the Spirits and they start to do their work. Yarning with Anishinaabe Knowledge Keepers, Language Speakers and Elders Eleanor Skead, Bert Landon, and Keith Boissoneau, I introduce readers to the beings/helpers I met on my journey, when I walked in the woods amongst the Ancestors. This dissertation recounts the living stories of my apprenticeship with complexity.

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I acknowledge all the living spirits, the spirit beings, who helped me during my learning journey. Our knowledge comes from a place of spirit, and so I petitioned the *manidoog* (spirits) to help me. Miigwech to *opwaagan* (Sacred Pipe), *mikinaak zhiishiigwan* (turtle rattle), *migizi miigwan* (eagle feather) and all of the other helpers in my medicine bundle.

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DEDICATION

In loving memory of David Lertzman. The human embodiment of sacred space, bridging the Indigenous and non-Indigenous worlds. Called home too early. My brother's brother, an ancestor now.

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Nitam igo (Introduction)

1.0 Minikwe niibish (the leaf we drink)

The first sound that was heard throughout the universe was a rattle, and then a song. Sitting in front of my iMac, cup of *minikwe niibish* (the leaf we drink) (see Grover, 2017, pp. 10-12) on the desk, I shake the *mikinaak zhiishiigwan* (turtle rattle), who helps me, up and down four times, side to side four times. The 13 *manitous* (spirits) inside honour that first sound and I petition to all the *manidoog* (spirit beings) to come help me as I write in this foreign language in this foreign way. I place a pinch of *asemaa* (sacred tobacco) by the rattle so it will listen to my thoughts and words. As you read my words on paper, together we are engaging in a process of *naa-wi aki* (Middle ground). I invite you to also pour yourself a bowl/cup of *niibiishaabo* (tea) because as I offer these words and you metabolize their meaning and significance, we are adhering to the Anishinabe protocol, principle and practice of *biin-di-go-daa-di-win* (To enter one another's lodge) (see Fontaine & McCaskill, 2022, p.19).

I am an Ojibwe-ikwe so my perspective in this dissertation is that of an *Anishinaabe* (Ojibwe) woman[1]. I bring a traditional Ojibwe worldview to this research. The following iterations of my spirit names are short, longer descriptions will take many more moons for me to meditate upon to understand. *Waabishki Ogichidaakwenz-anang indizhinikaaz* and *Waaba-anang Ikwe indizhinikaaz*. *Waabishki Ogichidaakwenz-anang indigoo Anishinabemong idash* and *Waaba-anang Ikwe indigoo Anishinabemong idash* (is what I am known by the Spirits in Ojibwe). As Gordon Jourdain explains, I stand before all of creation and when I am addressed, I am addressed by these names. *Mii wa'aw eyaawiyaan*! This is who I am! (Jourdain, 2018, p. 26).

Moonz indoodem (I am moose clan). My clan is moose, I belong to the moose clan through paternalistic lineage. I was born into this clan through my dad Delaney-baa. *Nimaamaa* (my mother) Melinda is *maang* (loon) clan. The Anishinaabe clan system is our governance framework that gave our ancestors strength and order. The seven original *o-do-i-daym'-i-wug'* (clans) were crane, loon, fish, bear, martin, deer, and bird. The Deer Clan was known as the clan of gentle people, the pacifists. They were not harsh; they were the poets of the people. There are those who say it was the moose not the deer who were the leaders of this clan (Benton-Banai, 1988, pp. 74-77). The importance of the *doodem* (clan system) can never be understated, says

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[1] I will be using a variety of writing systems to convey *Anishinaabemowin/Ojibwaymowin* (our original way of speaking), depending on the sources of the teachings. From makwa ogimaa, who chooses to "ignore the rules of those who invented the written language" as an acknowledgement of and resistance to linguistic colonization of our stories and memories (Fontaine & McCaskill, 2022, p. 221) the spelling will be phonetic; from other sources Ojibwaymowin will be spelled to reflect the Fiero system of orthography more familiar to contemporary second language acquisition (SLA) learners of Ojibwe (Jourdain, 2018, p. 7). In English, I will be using Anishinaabe, Anishinabe, Ojibway and Ojibwe/Ojibwa interchangeably depending on where the teachings come from, they all mean the same. See Appendix for a glossary of *Anishinaabemowin* that appears in this text.

Jerry Fontaine (makwa ogimaa), an Ojibway-Anishinabe from the community of Sagkeeng in Manitoba, for it represented everything that was and still is important to Ojibway-Anishinabe society because our society was firmly rooted with *g'doo-demonaanik ki-nah-mah-gay-win-nan* (teachings of our clan system) (Fontaine, 2020, p. 164).

Biigtigong Nishnaabeg (Pic River First Nation on the shores of Lake Superior) *indoonjibaa* and *Ketegaunseebee* (Garden River First Nation on the shores of St. Mary's River) *indoonjibaa* (is where I come from). *Biigtigong Nishnaabeg izhinikaade ishkonigan wenjiiyaan* (is the name of the First Nation that I come from), my dad's home community. My mom is from Garden River. Through Canada's Indian Act policy I was given membership into my dad's community instead of my mother's community in terms of Indian Status. My maternal *nookomis* (grandmother) Jane was from Couchiching First Nation (on the shores of Rainy Lake) in Treaty 3 and my paternal *nookomis* was from Aroland First Nation in Treaty 9. It is important to acknowledge my places of origin, the land where I come from. My names, clan, family relations, and geographical origins are vital to situate myself as an *Anishinaabe* (human being).

I currently reside and write in *Ba-wi-ti-gong* (Where the Fish Were Good and Lived Well, present day Sault Ste Marie) on the shores of the St. Mary's River (see Fontaine, 2020, p.164). Also known as *Baawaating* (place of the rapids), it is the traditional homelands of the Batchewana First Nation, part of the *N'swi-ish-ko-day-kawn Anishinabeg O'dish-ko-day-kawn* (Three Fires Confederacy) (see Fontaine & McCaskill, 2022, p. 171) and modern 1850 Robinson-Huron Treaty area. It is minutes away from my mom's home community of Garden River. This is where *Shingwauk*, an Ojibway-Anishinabe civil and war leader (*Ah-ji-jahk Odoodeman*) is from and where presently his vision of a teaching lodge is manifested in *Shingwauk Kinoomage Gamig*, a few minutes from my house. Shingwauk was a ceremonial man and one of the leading Medicine people of the *Midewigun* (Grand Medicine Lodge) and *Wa-ba-no-wi-win* (People of the Dawn Medicine Society) (Fontaine & McCaskill, 2022, p. 187). In many ways my research is about *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) as Shingwauk envisioned, because "relational systems thinking" (Goodchild, 2021; Goodchild, 2022) rekindles the philosophical tenets of *biin-di-go-daa-di-win* (To enter another's lodge) and the practicalities of the *naa-wi aki* (Middle ground) (Fontaine & McGaskill, 2022).

Here in Bawating I live a ceremonial way of life and use my *o-dah-bah-ji-gahn* (Medicine Bundle) to communicate with all living things and the world around me. I practice *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) and spiritual ways of thinking in ceremonies such as *ma-dood-sahn* (sweatlodge) with my brother Keith Boissoneau who is a lodge keeper in Garden River and *o-pwa-gun i-zhi-chi-gay-win* (Pipe way) (Fontaine & McCaskill, 2022, p. 201) as I have a turtle pipe, a woman's healing pipe, that I have carried for over 30 years, to acquire the knowledge I need for to live *mino bimaadiziwin* (the good life). Our language and ceremonies are "replete with teachings from the *gete-ayaa'aag* (Old ones), the wisdom keepers" (Jourdain, 2018, p.5). *Gakina indinawemaaganag* (all my relatives).

1.1 Ni di-bah-jim (I'll share my story)

In this part of our visit to each other's lodge I will share *ni di-bah-ji-mo-win* (my personal story) (see Fontaine & McGaskill, 2022, p. 170) about my experiences as a graduate student as I tried

to maintain respect for and practice our ancestral ways. I entered the School of Environment, Resources and Sustainability (SERS) in the Faculty of Environment at the University of Waterloo in the fall of 2015. The academy in general is characterized by prevalent *epistemic ignorance,* says Sami scholar Rauna Kuokkanen. Ignorance refers to academic practices and discourses that enable the continued exclusion of other than dominant Western epistemic and intellectual traditions (Kuokkanen, 2008). *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (ways of knowing and doing) is often the "casualty of a worldview" (Jourdain, 2018, p. 28) and memory expressed through colonialism, imperialism, and capitalism in the academy. Our lived experiences and interconnectedness to the world around us, says makwa ogimaa (Jerry Fontaine), often challenge the epistemic violence of mainstream pedagogy and its obligatory western philosophical and ideological underpinnings. This "inherent struggle" (Fontaine & McCaskill, 2022, p.200) manifested itself in so many ways in my personal experience in the academy. I share the stories of my experiences with this inherent struggle throughout this dissertation. A response to this struggle was offered by Stan Wilson, a Cree Elder and Educator, when he coined the term *Indigegogy*.[2] Indigegogy uses Indigenous Knowledge, literature and scholarship and is centred on land-based education. The term aptly captures the Indigenous nature of pedagogical processes that reflect the values, cultures, identities and knowledges of Anishinaabe peoples. My scholarship reflects Indigegogy because it is land-based, culturally rich and tradition-based (Hill &Wilkinson, 2014). *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) is Indigegogy.

I problematize the traditional ecological knowledge (TEK) paradigm in *transformations to sustainability* discourse as a decontextualization, colonization, and appropriation of *Ojibway-Anishinabe nah-nahn-dah-way ji-kayn-ji-gay-win* (areas of research). The Ojibway-Anishinabe worldview on the other hand, says makwa ogimaa, is articulated and grounded in three layers of tradition, with each layer having its specific meaning and purpose. Together they help us acquire an understanding about *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) and Indigegogy, doing things according to *our ancestral ways*. The first layer of tradition speaks to the origin of Anishinabeg and explains how this way of knowing shaped the understanding of our world and reality (Fontaine & McCaskill, 2022, p.200), our *Creation Story*. All creation stories are true and for the Indigenous peoples of *Mikinaako-minis* (Turtle Island) known as North America colonially, there is an understanding that we were placed on this face of *ni-maamaanaan Aki* (our Mother the Earth) by our Creator – *Naawe-ii wenji-waakaabig Manidoo* (at the centre of the one who initiated all of creation (Jourdain, 2018, sharing the teachings of Edward Benton-Banai). The second layer communicates strength of *manitou-kay* (spirituality). Together, they tell us where we came from, how we fit into this world, and our responsibilities to it. They are about knowing who we are and distinguishing between right and wrong. The third layer explores how we used *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) and spiritual ways of thinking and ceremony to acquire the knowledge for survival. This is how we learn and understand the world around us, the *manitou kay-wi-nan* (ceremonies) give us a rare opportunity to participate, observe, feel, taste, touch and hear things "from an entirely different dimension and place" (Fontaine & McCaskill, 2022, p. 201). We must accept, says makwa ogimaa, that any discussion about Anishinabe pedagogy must have *spirituality at its core* because pedagogy is a way of being that carries its own message. In our

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[2] See more about this concept at https://www.wlu.ca/academics/faculties/faculty-of-social-work/centre-for-indigegogy/index.html

spiritual ways we search for answers in another realm and state of consciousness. Further, Anishinabe critical consciousness is found in our spiritual history and oral traditions that are grounded in language and geography. "Everything that we know originates from Manitou Aki" (Fontaine & McCaskill, 2022, p. 186).

This dissertation is the *dibaajimowin* (story of personal experience, pronounced di-bah-ji-mo-win) of the Waterloo Institute for Indigenous Innovation (WIII) which today exists only in spirit and intent. This dissertation and the ideas shared within is an *offering*. In Anishinaabe tradition, an offering is a *gift*. It is a gesture of relationship between people, animals, Spirits, and other entities in the universe, given in the interests of creating ties, honouring them, or asking for assistance and direction. Offerings are also acts of responsibility. For most Anishinaabeg (human beings), explain Anishinaabe scholars Jill Doerfler, Niigaanwewidam James Sinclair and Heidi Kiiwetinepinesiik Stark (2013), offerings are the *currency of life*. In *Ojibwaymowin/Anishinaabeomowin* (our original way of speaking), the word for offering is *bagijigan* (plural: *bagijiganan*), and the act of making an offering is *bagijige*. Each of us Anishinaabeg has a *miinigowiziiwin* (sacred knowledge bundle). *Miinigowiziiwin* is realizing the gifts Creator has bestowed upon you. It comes from *miinigo* (you are given) and *iziiwin* (from someone else). *Miinigowiziiwin* is a teaching gifted to me by my sister Eleanor Skead, knowledge keeper[3] from Wauzhushk Onigum in Treaty 3 (2019). This dissertation then represents items gathered for my *miinigowiziiwin* and you are invited to gather anything you need from me for your *miinigowiziiwin* (and leave anything here that you do not need). This approach honours our *bish-kay-di-ji-gay-win* (pedagogy) for understanding our world (Fontaine & McCaskill, 2022).

Further, this dissertation honours the teachings and use of *Ojibway-Anishinabe o-dah-bah-ji-gahn* (Medicine Bundle) to speak about what is happening in the academy more generally and my personal experience in the academy. I use *Ojibwaymowin/Anishinaabemowin* (our original ways of speaking) with the disclaimer that I do not speak our language fluently, so I share words/concepts/ideas in Ojibwaymowin with the utmost respect and longing to know more. It is important to use Ojibwaymowin because it reflects an Ojibway systems thinking paradigm (Jourdain, 2018, p. 1). *Bimaadiziimagad kosha Ojibwemowin* is what his Nookomis (grandmother) used to say to Anishinaabe language teacher Gordon Jourdain, which means "Ojibwe is a living language, it is alive" (Jourdain, 2018, p. 21). I am what you might call a second language acquisition (SLA) learner (Jourdain, 2018, p. 7) of Ojibwaymowin, a direct result of settler-colonialism (both of my parents attended Indian residential school/Indian day school) and I was immersed in English as my primary language of instruction at home and at school throughout my life. That schooling from junior, elementary, secondary, up to post-secondary and graduate school was "void of Ojibwe epistemology" (Jourdain, 2018, p. 5). It is vital to keep speaking and sharing our language because as makwa ogimaa says, it is the Ojibway-Anishinabe way of talking with the universe (Fontaine & McCaskill, 2022, p. 170).

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[3] A Knowledge Keeper is a respected person to whom people go to gain help or understanding of Anishinaabe worldviews.

1.2 The Waterloo Institute for Indigenous Innovation (WIII)

Social innovation theory is a growing field of study that is concerned with projects that aim to address intractable problems and investigates how social systems can transform to respond to these problems. Social innovation theory is a whole systems and multi-scale approach that looks at the influence of micro-, meso-, and macro- level drivers of transformation (Tjornbo & Westley, 2012). The idea for the Waterloo Institute for Indigenous Innovation (WIII), as it was originally conceptualized and named in 2015, had its roots in the desire of both Indigenous and non-Indigenous actors in the *social innovation* space to work together for the transformation of Indigenous communities—who may face deeply-entrenched social and ecological problems. In the conceptualization of the Institute, social innovation was defined as "a complex process of introducing new products, processes or programs that profoundly change the basic routines, resource and authority flows, or beliefs of the social system in which the innovation occurs. Such successful innovations have durability and broad impact" (Westley & Antadze, 2010, p. 2). Through work with Indigenous communities dealing with mining companies in Northern Ontario, the Waterloo Institute of Social Innovation and Resilience (WISIR) at the University of Waterloo (UW) began to ask whether—and, if so, how—Western-based knowledge and practice in social innovation could be useful to Indigenous partners and informed by Indigenous knowledge and practice. The stated goal of the new Institute was to "bring together the latest research on, and practice of, social innovation with emerging ideas around critical Indigenous and decolonizing research approaches and insights from Indigenous Knowledge" (McCarthy & Westley, 2015). From this framing the intent of the Institute, perhaps, was to enhance the *Indigenous renaissance* (Battiste & Youngblood Henderson, 2009, p. 9; Battiste, Bell & Findlay, 2002, p. 84; Simpson, 2011, p. 16) of naturalizing Indigenous knowledge systems into Eurocentric education. Or put another way, to contribute to the project of *Indigenizing research* (Smith, 1999, p. 146; Gaudry, 2011, p. 116; Absolon, 2011, p. 9) ; and *Indigenizing the Academy* (Fontaine & McCaskill, 2022; Settee, 2013, p. 35; Mihesuah & Wilson, 2004, p. 5; Absolon & Willet, 2005, p. 115) that is intended to challenge colonialism and its ideological underpinnings (Gaudry, 2011, p. 117).

However, from the moment of its conceptualization, WIII failed this goal as it was not "firmly grounded in an Indigenous resurgence ideology" (Gaudry, 2011, p. 117). Indigenous knowledge systems are not resources to be exploited but rather can "help change the consciousness of Western academics" (Kincheloe & Steinberg, 2008, p. 152). Indigenizing education projects that do not undertake "an explicit discussion about the metaphysical foundation underlying our diverse indigenous worldviews" risk becoming "educational tokenism" (Deloria Jr. & Wildcat, 2001, p. 39). The university was acutely aware of its own lack of Indigenous grounding and leadership with no Indigenous professors at WISIR at the time. In June/July of 2015, I participated in the Getting to Maybe Social Innovation Residency (GTM) at the Banff Centre led by Dr. Frances Westley. Frances, now retired, was the J.W. McConnell chair in social innovation at UW at the time and was the former lead of the Dupont Canada-fostered think-tank on social innovation, based at McGill University's Desautels Faculty of Management. Frances is the co-author of *Getting to Maybe: How the World is Changed* (2006) along with Michael Quinn Patton and the late Brenda Zimmerman. At GTM, I was introduced to systems thinking and resilience theory and I was hooked. Thus began my journey as a systems and complexity geek. I accepted an invitation to pursue a doctorate in Social and Ecological Sustainability in the Faculty

of Environment at UW and began my studies in September of 2015. I was offered a full scholarship and became a Research Fellow at WISIR working with Frances and Dan. I wanted to learn more about social innovation, systems thinking and complexity science. I also wanted to explore the possibilities for WIII. Ultimately, we did not launch WIII at UW due to the poor state of *readiness*, at that time, for UW to accept the "gift" (Kuokkanen, 2008) of Indigenous epistemology[4] or Anishinabe pedagogy. However, my ongoing explorations of social innovation, systems thinking, complexity science and *transformations to sustainability* discourse remains robust! I am presently a consultant and Systems Changer in Residence with a global philanthropy. I am also a part of the faculty team at the Academy for Systems Change, the Presencing Institute and the Wolf Willow Institute for Systems Learning.

1.3 *Ojibway-Anishinabe nah-nahn-dah-way ji-kayn-ji-gay-win* (Areas of research)

In this dissertation I explore *transformations to sustainability* (see and Lam et al. 2020; Gram-Hanssen, Schafenacker & Bentz, 2022; Blythe et al. 2018; Olsson, Galaz & Boonstra, 2014) via the mechanism of *social innovation* (see Westley & Antadze, 2010) by examining how *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) and *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) generate the conditions for social innovation, particularly transformation, to occur. This means I practice an ethic of non-interference and I do not try to fit *Anishinaabe* ways of knowing into Western modern science (WMS) (Higgins & Kim, 2019). Instead, I honour the idea of *naa-wi aki* (middle ground) that still "excites *Anishinabeg* today because it speaks to the nuance of sharing and the Ojibway-Anishinabe concept of *biin-di-go-daa-di-win* (to enter one another's lodge)" and more succinctly, the principles of separation, which are entrenched in treaty (Fontaine & McCaskill, 2022, p. 225). An important Treaty is the Two-Row Wampum Belt, the central metaphor of my conceptualization of *relational systems thinking* as an Indigenous standpoint theoretical model. This research is guided by four overarching questions:

1. Is *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) a "game-changer" (see Olsson, Moore, Westley & McCarthy, 2017; Tjornbo & Westley, 2012) or "path breaking" (Smith & Raven, 2012) for social innovation and *transformations* to sustainability?
2. How do we *set the conditions* (see Westley et al. 2011) that support *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) to generate social innovation and *transformations* to sustainability?
3. How does *relational systems thinking* as an Indigenous standpoint theory, a practice, a pedagogy, and an emerging field stimulate movement towards social innovation and *transformations* to sustainability?
4. How do we bridge two epistemologies in a way that does not choose sides but rather enables multiple ways of knowing to *share ontological space* (Windchief & San Pedro, 2019) in the academy, thereby supporting the *pluralization* of *transformations* discourse?

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[4] Uncle Dan Longboat asked me about these terms, epistemology, ontology, axiology, and cosmology, is there an "ology" for action, for doing? Together we came up with the notion that there needs also to be an "actionology" because Indigenous ways of knowing and being are about the *doing*.

1.4 Nah-nahn-gah-dah-wayn-ji-gay-win (How we came to think this way about our reality)

My conceptual framework brings together *Anishinaabe gikendaasowin* (our original ways of knowing) and Western transitions theory. In 2012 Karen O'Brien argued the following on the pages of the journal *Progress in Human Geography*:

> Transformation is increasingly presented by scientists and activists as the 'solution' to environmental change and social sustainability. This raises a number of important questions. What exactly do we mean by transformation? What types of transformations are considered necessary and why? Who decides? Can transformations be carried out in a deliberative, participatory manner that is both ethical and sustainable? How can it occur at a scale that will make a difference? (O'Brien, 2012, p. 670).

O'Brien (2012) argued that insights on *deliberate transformation* at the scale and speed that is considered necessary to address environmental challenges that pose danger to humanity are "likely to benefit from transdisciplinary approaches that pay attention to the relationships between personal, organizational, cultural and systems transformations" (O'Brien, 2022, p. 671). It is not clear, she concluded, if the diverse strands of research to date were sufficient to inform strategies and actions for deliberate, ethical, and sustainable transformation. One thing was clear however—transformation was an area "ripe for research" (O'Brien, 2012, p. 672). Gram-Hanssen, Schafenacker & Bentz (2022) address directly the need to *decolonize* transformations through 'right relations.' Citing Karen O'Brien, they argue that climate change is a relationship problem (O'Brien, 2020, cited in Gram-Hanssen, Schafenacker & Bentz, 2022, p. 673). It is the result of a certain kind of relationship between humans and Earth characterized by exploitation and a short-sighted focus on growth. They argue that a growing number of scholars see climate change as a form and product of *colonialism*. The mindset that birthed colonialism is the same mindset that is wreaking havoc on ecosystems and the biosphere. This is due to the strong link between colonialism and capitalism. Colonialism paved the way for capitalism to emerge through the exploitation of natural resources and cheap forced labour, and together these two systems "enabled the extractivist and carbon-intensive economies that we know now to be the drivers of human-caused climate change" (Whyte, 2017, cited in Gram-Hanssen, Schafenacker & Bentz, 2022, p. 674).

The semantic shift away from resilience (defined as persistence) or adaptation (defined as incremental change) towards *transformation* (producing something fundamentally novel), the "transformative turn" (Dentoni et al. 2017, cited in Blythe et al. 2018) within sustainability science is a provocative trend. This transformative turn offers a window of opportunity for me to use *Ojibway-Anishinabe bish-kay-di-ji-gay-win* (pedagogy) in my research. Scientists concerned about the carrying capacity of earth's biosphere have for almost two decades now pointed to the urgent need for *sustainability transformations* (Olsson, Galaz & Boonstra, 2014). According to Blythe et al. (2018) common to most framings of transformation is the premise that to address the root causes of inequality and environmental degradation, "significant systemic changes that challenge existing structures are required" (Blythe et al., 2018, p. 1209). Blythe et al. (2018) and Lam et al. (2020) cite Patterson et al. (2017) as having identified four general framings (see Table 1.1) or prominent conceptual approaches of *transformations towards sustainability*:

transitions approaches, social-ecological transformations, sustainability pathways and transformative adaptation. This overview is meant to show how transformation is understood differently within the Western scientific knowledge system, says Lam et al. (2020).

1. Transitions Approaches	Roots in social-technological studies, complex systems thinking, and institutional economics; characterize transformation as multi-scalar, socio-technological transitions towards low-carbon futures	Geels and Schot, 2007; Geels et al. 2017; Loorbach 2010
2. Social-ecological transformations	Stockholm Resilience Centre pioneered much of the early theoretical thinking on transformation within the field of resilience; from a social-ecological perspective, social-ecological transformation results in novel, emergent system properties, changes in critical system feedbacks and a re-ordering of social-ecological relationships; it is recognized that any transformation will also involve unanticipated consequences that may make some conditions worse than before	Olsson et al. 2014; Westley et al. 2013; Chapin et al. 2009; Olsson et al. 2017; Moore et al. 2014
3. Sustainability pathways	Emerging from the intersection between critical development studies and resilience thinking on planetary boundaries the sustainable pathways approach emphasises the need for balance between human development objectives, justice, and ecological sustainability, with a particular focus on the power and politics of institutional change	Leach et al. 2012; Scoones et al. 2015; Rockström et al. 2009
4. Transformative adaptation	Developing from human geography and political ecology perspectives on vulnerability to climate change, transformative adaptation approaches shift the analytical focus on transformation research from accommodating change to contesting underlying social, political, and economic structures that produce marginalisation and inequality	Eriksen et al. 2015; O'Brien 2012; Pelling et al. 2015

Table 1.1 Overview of four general framings of transformations to sustainability as summarized by Blythe et al. (2018, p. 1209).

Blythe et al. (2018) identifies five latent *risks* associated with the notion of transformation within sustainability discourse that frames transformation as *apolitical*, *inevitable*, or *universally beneficial*. This is the "dark side" of transformation discourse: (1) transformation discourse risks shifting the burden of response to vulnerable parties; (2) transformation discourse may be used to justify business-as-usual; (3) transformation discourse pays insufficient attention to social differentiation; (4) transformation discourse can exclude the possibility of non-transformation or resistance; and, (5) insufficient treatment of power and politics threatens the legitimacy of transformation discourse. These risks have the potential to "produce significant material and

discursive consequences" (Blythe et al. 2018, p. 1218). Possible ways to mitigate these risks suggest Blythe et al. (2018), are inspired by critical scholars who are making intellectual advances in two important areas—the *politicization* and *pluralization* of transformation discourse. The politicization of transformation discourse and transformation narratives requires transformation scholars and practitioners to become more transparent about the political nature of transformation discourse and practice. The pluralization of transformation research and practice provides another mechanism to safeguard against the appropriation of the term by any single framing or perspective. Plurality includes a movement beyond the academy to include diverse voices in literature, film, art, and social and cultural movements, among others. The politicization and pluralization of transformation towards sustainability research and discourse is a "critical frontier" (Blythe et al. 2018, p.1218) for social scientists.

Lam et al. (2020) conducted a systematic literature review of the transformation discourse, and they found that Indigenous and Local Knowledge (ILK) systems are rarely involved in transformation research despite the fact ILK may contribute different insights to the scientific understandings of transformations. In their review only 81 papers that included ILK to understand transformations were among the reviewed scientific papers. A total of 17 papers explicitly mentioned "transformation" and only four papers used the term "transformation" in the sense of a *social-ecological system change*. Only 39 of the 81 papers explicitly defined ILK, of which 24 papers referenced literature from Fikret Berkes who defined ILK as "a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and their environment (Berkes, 2018, p. 8, cited in Lam et al. 2020, np).

The methodologies in the reviewed papers showed a strong tendency to employ qualitative methods; in 48 papers data analysis included both qualitative and quantitative methods, indicating that the data collected through qualitative methods often were analyzed through statistical methods. In 33 papers, solely qualitative methods were used, such as content analysis of the interviews. Lam et al. (2020) propose three major insights were gained via their literature review: 1) there is a lack of research to understand transformations from the perspective of ILK systems, 2) the challenges of researching ILK in contexts of change, and 3) a pledge for a more plural understanding of transformation. These they argue are relevant starting points for future research in transformation, seeking a more inclusive and plural understanding, which views transformation *from the perspective of diverse knowledge systems*. Lam et al. (2020) believe that including people with different knowledge systems can both enrichen and improve the sustainability transformation discourse and practices because it potentially widens the conceptual understanding and provides more variety for actions to foster just, equitable, and sustainable futures.

They outline their argument for pluralism as follows:

> In summary, we need a plural understanding of transformations because the sustainability challenges we face are as diverse as people are. It is important to be inclusive to different kinds of engagement with sustainability transformations to avoid a supremacy of Western scientific knowledge systems in identifying and prioritizing ways forward. Bridging

diverse knowledge systems concerning transformations, could lead to involvement of more people, increased mutual understanding, cocreation of actions across knowledge systems with stronger impact and effectiveness, and support collaborative research on transformative change. As the urgency to solve sustainability problems increases, collaborations between diverse knowledge systems may provide helpful ways of thinking about how to foster transformations… Sustainability transformation research needs to avoid the risk of neglecting non-scientific knowledge systems as we endeavor to foster transformations toward just, equitable, and sustainable futures (Lam et al. 2020, np).

Patterson et al. (2017) concluded that it is "not necessary or desirable to aspire to a single conceptual approach to transformations, and continued experimentation from multiple angles will be crucial to ongoing theory development" (p. 12). This notion of *experimentation* is key to my conceptual framework of exploring the mechanism of social innovation, anchored in *Anishinabe ah-zhay-di-bah-ji-mo-wi-nan* (traditions) (see Fontaine, & McCaskill, 2022, p. 7) to support transformations to sustainability. A key concern of sustainability is an exploration of the links between agency, institutions, and innovation in navigating the shifts and large-scale transformations toward global sustainability.

A central question posed by Westley et al. (2011) was whether social and technical innovations can reverse the trends that are challenging critical thresholds and creating tipping points in the earth system, and if not, what conditions are necessary to escape the current lock-in? (Westley et al. 2011, p. 762). A key argument at that time was that sustainability transitions may require "radical, systemic shifts in deeply held values and beliefs, patterns of social behavior, and multi-level governance and management regimes" (Westley et al. 2011, p. 762). A complex system perspective recognizes the dynamic links between the social, ecological, and technological subsystems. This perspective is required to understand what they call the "paradox of innovation: innovation is both a contributing cause for our current unsustainable trajectory and our hope for tipping in new more resilient directions" (Westley et al. 2011, p. 763). Human society may be locked-in to a technological innovation trajectory which leads to an optimization of existing systems rather than to system innovations toward sustainability.

My research is focused on how our *Anishinaabe* way of life supports conditions for innovation designed to address broad system concerns such as transitions/transformations to sustainability— but at what *scale*? The social innovation discourse identifies successful innovations at three inter-related levels, identified as regimes, landscapes, and niches (Geels and Schot 2007; Markland and Truffer 2008, cited in Westley et al. 2011, p. 767). *Regimes* are the dominant rulesets supported by incumbent social networks and organizations and embedded in dominant artifacts and prevailing infrastructures. *Landscapes* provide the environment in which regimes evolve and consist of features like the geographical position of the land, climate and available resources, and 'softer' features like political constellations and broad societal trends. Radical innovations originate in *niches*, small, protected spaces in which new practice can develop, protected from the harsh selection criteria and resistance from prevailing regimes. It is at the scale of niches that *relational systems thinking* developed and thus the scale at which my analysis is focused. Smith and Raven (2012), conceptualize *niches* in terms of protective space for path-breaking innovations. Their analysis identified effective protection as having three properties in wider transition processes: *shielding*, *nurturing,* and *empowerment*. Protective

space is needed to shield an innovation against some of the prevailing selection pressures. I, and by extension my ideas, were offered protection through the shielding, nurturing, and empowerment offered by WISIR, uplifted by the many medicine people, Elders, knowledge keepers, and language speakers who helped me along the way.

Like Levidow and Upham (2017), building on Smith and Raven, I could have chosen to narrow in on a multi-level perspective (MLP) that theorises technological change as a process of niche innovations competing with incumbent socio-technical regimes, or like Brem and Radziwon (2017), building on Smith and Raven, I could have explored how efficient Triple Helix collaboration (university-industry-government), could stimulate and support innovation diffusion in niche innovation projects. However, I find the MLP perspective that includes landscape-level change and the balanced triple helix configuration to both be too narrow a focus for my analysis. Rather, I am interested in exploring *relational systems thinking* as a *technology* of knowledge and social technology, and I explore the characteristics of the protective space WISIR made for me as an Indigenous graduate student, shielding me and my work from prevailing selection pressures. This dissertation thus contributes to theorizing about decolonization through a niche innovation lens. The path-breaking innovation is *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) exemplified in *relational systems thinking* and its unique approach to awareness-based systems change, at once a social technology, and a *dynamic interface* (Durie, 2005) theoretical model.

Transitions (changes from one stable regime to another) are conceptualized in the following model (see Figure 1) as occurring when the landscape pressures destabilize prevailing regimes, providing breakthrough opportunities for promising niches. This implies a non-linear process of change in which, after passing critical thresholds, elements of a previously dominant regime recombine, a process referred to as *bricolage* (see Olsson, Moore, Westley & McCarthy, 2017) with successful niches into a new dynamically stable configuration (Rotmans and Loorbach 2009, cited in Westley et al. 2011, p. 768). Processes of social innovation move through distinct stages that involve: first, the generation of new ideas in response to observed needs, and second, the establishment and diffusion of these ideas into an existing system (Tjornbo & Westley 2012, p. 176). The approach of *relational systems thinking* is the "new" idea that changes behaviour and is presently in the diffusion stage. Westley et al. (2011), argue that *institutional entrepreneurs* are key to systemic transformation. And that lens informs my *dibaajimowin* (personal story) of how *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) did not take shape through WIII but instead a *shadow network* emerged consisting of WISIR/UW, the University of Vermont/MLS[5], Royal Roads University Master of Arts in Leadership[6], the Academy for Systems Change, the Presencing Institute, the Society or Organizational Learning,

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[5] I taught a course, NR395 Relational Systems Thinking Summer 2022, in the Masters of Leadership for Sustainability (MLS) program at the University of Vermont. The course is an elective and around 14 students joined me for a collective wisdom journey around the medicine wheel, to explore *relational systems thinking* as an Indigenous/Indigenist standpoint theoretical model.

[6] See "Relational Systems Thinking," webinar recording. https://www.royalroads.ca/webinar-recordings/relational-systems-thinking

the Center for Systems Awareness, r3.0[7], and the Wolf Willow Institute for Systems Learning that are all *incubators* (Westley et al., 2011) of the new idea of *relational systems thinking*.

TIME 1 – Innovation regime (left) is shallow and unstable, dominant regime (right) is deep and stable.

Institutional entrepreneurs can open up new regimes

TIME 2 – Innovation regime's basin of attraction is deeper and more stable, dominant regime's basin becoming shallower and less stable

Institutional entrepreneurs can lower the threshold between regimes

Institutional entrepreneurs can make the dominant regime shallower

TIME 3 – Innovation regime's basin of attraction is deep and stable; resources of previous dominant regime now drawn into innovation regime to create a transformed system

Figure 1.1 Cross-scale dynamics of social (systemic) innovation and the role of institutional entrepreneurs (reprinted from Westley et al. 2011, p. 768)

According to this model (Figure 1.1), institutional entrepreneurs are key to systemic transformation. Their role is to question the institutional context, frame it for those working at more microscales, identify those inventions with potential to tip systems and sell these to institutional decision makers when the opportunity arises. Using this model as a heuristic, in Time 1 the dominant system regime with organizations and networks doing social innovation is settler-colonialism. In Time 2 the innovation regime's *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) basin of attraction is deeper and more stable while the dominant regime of settler-colonialism's basin is becoming shallower and less stable. In Time 3 the innovation regime of Anishinabe pedagogy's basin is deep and stable. Resources of the previous dominant regime are now drawn into the innovation regime to create a transformed system. Does *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy), a proposed innovation within the academy and other institutions, actively break from the *path-dependence* (neo-colonialism) of the system?

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[7] R3.0 promotes Redesign for Resilience and Regeneration, their Transformations Journey Program includes a *relational systems thinking* approach.

A key consideration here is whether *relational systems thinking*, reflecting *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy), is a niche innovation and/or a "game changer" (Tjornbo & Westley 2012; Olsson, Moore, Westley & McCarthy, 2017) for social innovation. The definition of game-changers are macrotrends that are perceived to change the rules of the game, that is, to change how society is organized and defined by today's understandings, values, institutions, and social relationships (Avelino et al. 2014, cited in Olsson, Moore, Westley & McCarthy, 2017). *Decolonization* in the academy (see Smith, 1999; Wilson, 2008; McGregor, Restoule & Johnston, 2018; Windchief & San Pedro, 2019; brown & strega, 2005; Wilson, Breen & Dupré, 2019; Kovach, 2009; Settee, 2013; Absolon, 2011; Drawson, Toombs, & Mushquash, 2017; Porsanger, 2004), connected to the works of "anticolonialist scholars" and "artists," (Denzin and Lincoln, 2008, p. xi) including First Nation, Native American, Alaskan, Australia Aboriginal, New Zealand Maori, native Hawaaiian, and Sami Indigenous peoples is certainly a macrotrend that opened up protective space for *Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) and *relational systems thinking* in the history of the academy. This dissertation also draws on existing literature in cultural theory, namely on creating space within tertiary institutions as part of a broader project of Indigenous renaissance (Dudgeon & Fielder, 2006).

My research on decolonizing social innovation fits neatly into the two important conceptual areas identified earlier by Blythe et al. (2018) as the *politicization* and *pluralisation* of transformations discourse to mitigate the risk of promoting palliative responses that address the symptoms of environmental degradation and instead contribute to the possibility for genuinely radical change. The politicization happens naturally as I confront the complicity of Western knowledge systems in maintaining ongoing settler-colonialism. This in turn leads to the pluralisation as I draw insights from *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) as an attempt to "deal with the dissimilarities between the western, non-Indian, mainstream political, social, and academic (authoritative) world and the Ojibway-Anishinabe world in a respectful way" (Fontaine & McCaskill, 2022, p. 194). As such, being an Anishinaabeg scholar, I must "challenge the notion of white, Eurocentric, and non-Indian diffusionism idea that everything flows from a white, Eurocentric, and non-Indian centre to an Anishinabe periphery. That the inside leads and the periphery follows. That the inside innovates, and the periphery imitates" (Fontaine & McCaskill, 2022, pp. 191-192).

1.5 Outline of the Chapters

This dissertation is manuscript-based, and comprised of introductory chapters, three manuscripts, and concluding synthesis chapters. It evolved in a non-linear manner and was in fact emergent as I developed the Indigenous standpoint theory of *relational systems thinking*. The first chapter, *Nitam igo* (Introduction) (Fontaine, 2020, p. 3), of this dissertation offers an introduction to me and my worldview. It explains the concept of transformations to sustainability and the positionality of me and my research in the discourse. The second chapter, *A-zhi-kay-ni-mo-nahd-a-di-sid bay-mah-di-sid* (How we use this way of thinking, knowing, and doing to find answers) (see Fontaine & McCaskill, 2022, p. 189) is the methodology chapter; it outlines the tenets of a research paradigm anchored in our *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (ways of knowing and doing), our *Anishinaabe* way of life. The third chapter *O-di-ni-gay-win zhigo Nay-nahn-do-jee-kayn-chi-gayd* (Digging around and doing research) (Fontaine & McCaskill, 2022, p. 190) is a literature review. It problematizes the traditional ecological

knowledge (TEK) construct within sustainability and resilience thinking discourse as not representative of *Anishinabe bish-kayn-di-ji-gay-win* (pedagogy). The fourth, fifth and sixth chapters are manuscripts. Chapter four is the manuscript of a paper titled, "Relational Systems Thinking: That's How Change is Going to Come, From Our Earth Mother" (Goodchild, 2021) published in the inaugural issue of the Journal of Awareness-Based Systems Change (JABSC). I am the lead author with contributions from Peter Senge, Otto Scharmer, Diane Longboat, Dan Longboat, Rick Hill, and Kevin Deer. It was an exciting moment when the editorial team sent me my first DOI[8]. Diane, Dan, and Kevin are Mohawks and Rick is Tuscarora, all are citizens of the Haudenosaunee. The editorial team of the JABSC informed me the paper has had over **34,000** views as of June 2023. Chapter Five is the second article published in the Journal of Awareness-Based Systems Change titled, "Relational Systems Thinking: The Dibaajimowin (story) of Re-Theorizing "Systems Thinking" and "Complexity Science" (Goodchild, 2022). I am the lead author. Both articles published in the JABSC are double-blind peer reviewed. Chapter Six is an essay I wrote as a Systems Changer in Residence with a global philanthropy and it represents a chapter in a possible forthcoming book. It is called "Duck Shit Tea, Yarning & the Magical Space in Between Things." It tells the story of my writing retreat with "Sand Talk" author Tyson Yunkaporta. Chapter seven, *Wayekwaase* (it is finished) (Fontaine, 2020, p. 203) is the discussion and analysis of *relational systems thinking* as a niche innovation. It is the end of the story up to this point in my life's journey, and it addresses major findings, limitations, and suggestions for future research.

The following are links to the three published papers:

Goodchild, M. (2021). Relational Systems Thinking: That's How Change is Going to Come, From Our Earth Mother. *Journal of Awareness-Based Systems Change*, *1*(1), 75–103. https://doi.org/10.47061/jabsc.v1i1.577

Goodchild, M. (2022). Relational Systems Thinking: The Dibaajimowin (Story) of Re-Theorizing "Systems Thinking" and "Complexity Science". *Journal of Awareness-Based Systems Change*, *2*(1), 53–76. https://doi.org/10.47061/jabsc.v2i1.2027

Duck Shit Tea, Yarning & the Magical Space in Between Things https://static1.squarespace.com/static/5edef2eb3032af28b09b8cc3/t/636c6d31450b0f0bc4b9aaeb/1668050232743/DuckShitTea_22-11-09_vf.pdf

This dissertation in its entirety is the *dibaajimowin* (story) of my personal exploration of *Ojibway-Anishinabe i-nayn-day-mo-win* (worldview and thinking) (see Fontaine & McCaskill, 2022, p. 171) within the context of doctoral studies at a Canadian university.

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[8] https://doi.org/10.47061/jabsc.v1i1.577

Chapter Two

A-zhi-kay-ni-mo-nahd-a-di-sid bay-mah-di-sid (How we use this way of thinking, knowing, and doing to find answers) (see Fontaine & McCaskill, 2022, p. 189)

2.0 Gaa-gway-de win-da-mah-gay-win (inquiry)

> Central to my research undertaking was the problem of methodology, which must not be confused with the question of methods. Although in research practice the two interweave, methods are research techniques and strategies deployed to generate data, whereas methodology deals with philosophical—epistemological and ontological— assumptions and questions (Matsinhe, 2007, p. 838).

This study is a qualitative *narrative* inquiry through which I am storytelling to engage in transformative pedagogical work and learning from my own story (Coulter, Michael & Poynor, 2007) as an Ojibwe-ikwe researcher. The methodology is indigenous autoethnography (Bishop, 2021; Whitinui, 2013) *by accident*. Indigenous autoethnography is a culturally distinctive way of coming to know who we are as indigenous peoples within the research agenda and "it asks researchers to consider their own level of connectedness to space, place, time, and culture as a way of (re)claiming, (re)storing, (re)writing, and (re)patriating our own lived realities as indigenous peoples (Whitinui, 2013, p. 467). Thus, indigenous autoethnography is a "resistance-discourse" (Whitinui, 2013, p. 481) intended to inspire people to act toward a legitimate way of self-determining one's collective and cultural potential. It also aims to 'construct' stories that "invoke a deep sense of appreciation for multiple realities and lives concerning indigenous peoples' ways of knowing" (Whitinui, 2013, p. 481). To anchor this dissertation, I privilege Indigenous interpretations of methodology. Methodology simply defined "is about how research does or should proceed" (Porsanger, 2004, p. 107) and it is a key pathway to decolonizing (Smith, 1999) scholarship because it "legitimates and delegitimates, validates and invalidates, approves and disapproves, passes and fails, claims to knowledge and knowledge production" (Matsinhe, 2007, p. 839).

This dissertation is the *dibaajimowin* (Genisuz, 2009, p. 10) story of my evolving identity as an Ojibwe-ikwe theorist, inspired by the notion of *research is my story* (Parter & Wilson, 2021). Within this paradigm I choose to cite Western methodologies that I find useful, and I choose to cite Indigenous methodologies that I find useful, thereby embodying the dynamic interface approach/theory/model/standpoint of *relational systems thinking* (Goodchild, 2021; Goodchild, 2022) in which I inhabit the third space, the space between epistemologies and in which I am in relationship with both (within the ethical space of peaceful co-existence). It is *Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) and the principle of *naa-wi aki* (middle ground) that guides me (Fontaine & McCaskill, 2022). Western methodologies are often oriented toward "science and secularism" (Deloria Jr., 2001, p. 57) and thus they do not easily accommodate a spiritual ontology and epistemology. However, I choose not to "justify" (Wilson, 2008, p. 42) my own paradigm in the face of *epistemic ignorance* (Kuokkanen, 2008, p. 61). Instead, I regard *miinigowiziiwin* (sacred knowledge bundle) as a living spirit with whom I converse. The late Standing Rock Sioux scholar Vine Deloria Jr. (2001) spoke of the "great gulf" that "exists between" (p. 64) our two ways of handling knowledge, science, and traditional tribal peoples.

To heal the harm inflicted by this gulf, exacerbated by *scientism* (Herman, 2016), I conceptualized *relational systems thinking* as an approach to bring back balance in my own work and to support other humans who seek to heal themselves and our Earth Mother.

For us to be whole, to be well and live *Anishinaabe Mino Bimaadiziiwin* (the good life), we must attend to the balance of our spiritual, mental, physical, and emotional selves at various scales of systems transformation, from the individual to the collective. This is true also for whole systems. I am a sociologist and qualitative researcher by training. Qualitative research has allowed me to adjust the design of my inquiry and dissertation as I go, so the design itself is an "emergent design" (van den Hoonard, 2019, p.21) that reports the path of my vertical development. This study could be characterized as an *ethnographic case study* (Creswell, 2014, p. 14) of my own learning journey as an Anishinaabeg systems and complexity scholar, that seeks to understand the sense-making and the meaning-making of me and those around me who contributed to my learning. The case study is not actually a data gathering technique, but a "methodological approach that incorporates a number of data-gathering measures (Hamel, Dufour & Fortin, 1993, quoted in Berg, 2001, p. 225). I am taking a *qualitative approach* (Creswell, 2014; Berg, 2001; Saldana & Omasta, 2018; Shank, 2006) to my research because the "analysis of human actions and their meanings" (Saldana & Omasta, 2018, p. 4) is the primary focus of my inquiry. Further it is based upon an ethnographic design (Creswell, 2014).

Qualitative research is the systematic empirical inquiry into meaning, thus *metaphors* says Shank (2006) are natural tools for "leading us to previously undiscovered modes of meaning" (Shank, 2006, p. 140). There are limitations to metaphor, but my stance is that this dissertation reflects a richer (but still incomplete) understanding of my core research questions about decolonizing systems thinking and social innovation. I am building a richer base of understanding, that is my goal. Thus, the metaphors I am using are *miinigowiziiwin* (sacred knowledge bundle) and the Two-Row Wampum Belt, the sacred space between the two vessels sharing the River of Life. These metaphors, which are also *sacred* teachings, represent an Indigenous research paradigm in which the focus is on relationships between things and people rather than on things, and "concepts such as reliability, validity and statistical significance lose their meaning" (Van de Sande & Schwartz, 2011, p. 82). Metaphors, as an analytic strategy, provide "an avenue to see important elements" of relationships (Berg, 2001, p. 171).

2.1 Indigenous Accidental Autoethnography

Karen Martin (cited in Wilson, 2008, pp. 45-52) described "Aboriginal research" chronologically as Terra Nullius Phase (1770-1900), Traditionalizing Phase (1900-1940), Assimilationist Phase (1940-1970), Early Aboriginal Research Phase (1970-1990s), and the Recent Aboriginal Research Phase (1990-2000) which saw Indigenous scholars begin to articulate their own Indigenist perspective. The development of an Indigenous paradigm, which happened during this recent phase, was described in four stages by Patsy Steinhauer (cited in Wilson, 2008, p. 52). Influenced by the *third stage* (p.53) in the development of an Indigenous paradigm, focused on *decolonization* (thus an awareness of colonization) and influenced by the seminal work of Linda Tuhiwai Smith (1999, 2012), my paradigm focuses partly on Indigenizing Western methodologies like case studies, ethnography and qualitative methods. I am also, however, influenced by the fourth stage (Wilson, 2008, pp. 53-54) in which I conduct my own research as

an Anishinaabe scholar—research that emanates from *Anishinabe i-zhi-chi-gay-win* (our way) (Fontaine & McCaskill, 2022, p. 254).

If one starts with an Indigenous paradigm, argues Wilson (2008), "then one can choose to use any tool from within that paradigm that may be effective" (Wilson, 2008, p. 39). You could say my work lives in the space between the third and fourth stage. My methodology combines *accidental ethnography* (Levitan, Carr-Chellman & Carr-Chellman, 2020) and *Indigenous autoethnography* (Bishop, 2021; Whitinui, 2014) which certainly metaphorically represents the two columns of the Wampum Belt, and I am strategically and purposely floating in the river life between them. One represents Western ontologies while the other represents Indigenous ontologies. I call this methodology *Indigenous Accidental Autoethnography*, representing a *novel contribution to scholarship*. Bishop, an Aboriginal scholar from Australia, describes Indigenous autoethnography as a process and a product that encourages and expects "critical reflection on and analysis of experiences during both the research and writing phases. It promotes a 'spiralling up' to the literature, to situate personal experiences in a broader framework (Bishop, 2021, p.369). Maori scholar Whitinui (2014) further outlines four key attributes that inform the framing of Indigenous autoethnography:

1. Ability to 'protect' one's one uniqueness, moving beyond 'validating' knowledge to one of 'celebrating' who we are as Mãori;
2. Ability to 'problem-solve' enables an indigenous person to consider making a number of 'adjustments' that help to craft a story that is well-reasoned, trustworthy and authentic;
3. Ability to 'provide' greater 'access' to a wide range of different methods, scenarios, experiences that not only support our social, cultural and spiritual well-being as Mãori, but also supports the wider indigenous collective;
4. Ability to 'heal' is achieved when 'learning' about 'self' is seen to be critical to one's existence and survival as a collective of cultural human beings (Whitinui, 2014, pp. 478-479).

Whitinui's (2014) framework, he says, is not prescriptive, rather it seeks to pursue an inner balance in the way we explore, describe, connect, interpret, and share our uniqueness as Indigenous peoples. It is a self-reflexive and wholistic process through which we always remember who we are. makwa ogimaa might say *Kay-go-wah-ni-kayn andi-wayn-ji-ahn* (Don't ever forget where you come from) (Fontaine & McCaskill, 2022, p. 174). I choose to use *an Indigenous research paradigm* as defined by Cree scholar Shawn Wilson (2003) as "the set of beliefs" (p. 161) that guide me in doing research, that "emanates from, honors, and illuminates" (p. 169) *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (ways of knowing and doing). There is an abundance of scholarship by Indigenous researchers on *decolonizing methodologies* including the seminal book of that title by Maori scholar Linda Tuhiwai Smith (1999). Saami scholar Porsanger (2004) describes Smith's book as a "must-read for researchers in any discipline dealing with Indigenous issues" (p. 106-7). Smith along with co-editors Norman K. Denzin and Yvonna S. Lincoln (2008) published a comprehensive volume on the topic of decolonizing research called the "Handbook of Critical and Indigenous Methodologies" arguing in the book's "manifesto" Preface that it was "time to dismantle, deconstruct and decolonize Western epistemologies from within" (Denzin, Lincoln & Smith, 2008, ix). Since the time of these landmark publications, Indigenous "re-searchers" (Absolon, 2011, p. 12) in the academy

have written insightful, progressive articles and books about research, empowering graduate students like me who seek to re-centre *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (ways of knowing and doing).

> In the academy, the research journey is burdened by the dominance of eurowestern ways of knowing. Identifying our supports is essential to remaining grounded to our values and beliefs as we search and gather. The academic and educational context plays a vigilant role in acculturating, assimilating and annihilating Indigenous culture, identity, traditions and wisdoms. Indigenous knowledge sets are perceived with antagonism (Absolon, 2011, p. 96).

I have adapted and selected my own criteria for quality research methodologies to build an original (Anishinaabe) *Indigenous research paradigm* (Wilson, 2008, pp. 52 – 61; Smith; 2012; Kovach, 2009; brown & strega, 2005; Bell, 2018; Denzin, Lincoln & Smith, 2008) including axiology, epistemology, methodology, and ontology. "Indigenous methodologies ground us in the ontological reality of our connectedness and belonging in the field, and our ethical obligations to every being within that system and the knowledge it holds" (Yunkaporta & Shillingsworth, 2020, p. 10). "The academy sees objectivity and the written word as sacred; the Anishinabe world, on the other hand, is unapologetically personal and subjective" (Fontaine & McCaskill, 2022, p. 190).

Self-in-relation is an important element of an Indigenous research approach (Absolon, 2011; Graveline, 2000; Kovach, 2009; McGregor, Restoule & Johnston, 2018). Within Indigenous research, "self-location means cultural identification" (Kovach, 2009, p.110) which is why I introduced myself as an Ojibwe-ikwe in the first chapter. Within Indigenous research paradigms it is appropriate to speak of your ancestry that positions you as an Indigenous person, to claim genealogy to locate yourself within your family, and situate yourself as a member of a colonized Nation (Parter & Wilson, 2021, p. 1085). These "obligatory accountabilities" begin to establish the elements of an Indigenist research paradigm (Wilson, 2008). I come from a colonized first world country (Canada) and "with that come many traumatic stories" (Parter & Wilson, 2021, p. 1085), including stories of Indian Residential Schools. My dad went to Spanish Indian Residential School, run by the Jesuits, and my mom went to Indian Day School in Garden River, run by the Roman Catholic Church. My positioning as an Ojibwe-ikwe is the foundation of my "relationally responsive standpoint" with ethical, relational, intellectual, and operational processes (Yunkaporta & Shillingsworth, 2020) drawing upon my "unique spiritual makeup" as Anishinaabe to fulfill my obligations and accountabilities as a researcher, knowing and respectfully reinforcing "that all things are related and connected" (Wilson, 2003, p. 175). *Gidinawendimin* (we are all related).

2.2 Accidental Ethnography (AccE)

Accidental ethnography, or AccE, expands on the terrain of Participatory Action Research (PAR) because the researcher is practitioner first, and then engages in research post hoc (Levitan, Carr-Chellman & Carr-Chellman, 2020). That describes my doctoral research experience accurately. I am accessing past data from my work as a practitioner, data not originally intended as research data, as a reflexive and praxical process (Levitan, Carr-Chellman & Carr-Chellman, 2020, p.

339). The focus of my indigenous accidental ethnography is on understanding the process of *empowerment* (Smith & Raven, 2012) facilitated by WISIR and whether the standpoint theory of *relational systems thinking* is an instance of an innovation that seeks to *fit-and-conform* or seeks to *stretch-and-transform*. Empowerment involves processes that make niche innovations competitive within unchanged selection environments (fit-and-conform) or processes that change mainstream selection environments favourable to the path-breaking innovation (stretch-and-transform). I kept detailed notes about my experiences as a graduate student and as a systems transformation practitioner with various organizations that eventually became *the shadow network* (Westley et al. 2011) for *relational systems thinking*.

As a practitioner scholar I am offering both ethnographic and autoethnographic data analysis, thus these findings are neither "anecdotal or journalistic" (Levitan, Carr-Chellman & Carr-Chellman, 2020, p. 340). To ensure rigour, and provide trustworthiness and quality, my research adheres to the six guidelines, or practices, outlined in the process of AccE, as follows:

(1) *Initiation*. AccE is typically initiated by a significant experience that sparks a connection between research learned by the practitioner and their experiences in the field. For me, my Deweyan 'unsettling moment' (Levitan, Carr-Chellman & Carr-Chellman, 2020, p. 341) was being offered financial support from WISIR to be a Research Fellow. A catalyst for this to occur was a decision by my professors at WISIR, Dr. Frances Westley and Dr. Daniel McCarthy, also my doctoral supervisors, both stepping back and offering me the protective space to conceptualize *relational systems thinking*. Rather than insisting that I continue their efforts to establish the Waterloo Institute for Indigenous Innovation (WIII) they let go and supported me to pursue *bish-kayn-di-ji-gay-win* (pedagogy) and *nah-nahn-dah-way ji-kayn-ji-gay-win* (Digging around) (Fontaine & McCaskill, 2022, p. 191). They recognized that I had "vision" and "a strong sense of calling" (Westley, Zimmerman & Quinn Patton, 2007, p. 47). I underwent an initial educational disturbance at that moment (Dewey, 1997, cited in Levitan, Carr-Chellman & Carr-Chellman, 2020, p. 342).

(2) *Reflection*. Next comes the deep reflection on my practitioner-research work experience. Through course work and meeting the requirements of my doctoral dissertation I read and wrote about my practice. I sat with knowledgeable systems thinkers from two intellectual traditions, Western academic and Indigenous, to explore the nature of systems thinking and awareness (see Goodchild, 2021) and published my first paper *on relational systems thinking.* The first paper offered a framework or model for how other practitioners, who are bridging Western and Indigenous epistemologies, can find a way for the third presence (Lushwala, 2017) to emerge.

(3) *Re-examination*. AccE work also "re-examines disciplinary literature to find a space for the experiences that could enhance theory and practice" (Levitan, Carr-Chellman & Carr-Chellman, 2020, p. 341). I have examined seminal systems theory and awareness literature along with Indigenous research methods to situate my work, in current transitions to sustainability discourse.

(4) *Collect data*. Upon finding a particular focus, the ongoing decolonizing praxis of *relational systems thinking* as a competitive niche innovation (Smith & Raven, 2012), the accidental ethnographer in me collected all possible extant data from my various presentations, webinars, workshops and podcasts, including personal journal entries for

deeper analysis. These various knowledge products offer empirical data, a hallmark of AccE, which makes this method different from a reflective essay or journalistic memoir.

(5) *Coding*. Once the data are collected, it must be coded. "AccE work is well suited to the use of emergent coding, relying on emic understandings of the culture and context of the practitioner-researcher" (Levitan, Carr-Chellman & Carr-Chellman, 2020, p. 341). The data can uncover new trends and themes to explore. Coding is the process of organizing data by bracketing chunks (or text or image segments) into categories and labeling those categories with a term (Creswell, 2014). My coding was restricted to autoethnography and what I choose to share in my storytelling. I did not 'code' the yarning I had with Elders/knowledge keepers/systems thinkers as this felt extractive; instead, I shared stories in a two-row visual code.

(6) *Recursive consultations.* I regularly loop the research and reflection back to practice, co-creating meaning with the practitioners on site so both the AccE researcher and practitioners can learn lessons from the AccE inquiry. This way my findings are brought directly into action. For instance, I showed drafts of the manuscripts to various parties in the field of systems change and presented *relational systems thinking* to global audiences via webinars and podcasts. Feedback from audiences of the first article directly influenced the nature of the second article (Goodchild, 2022) and the essay publication, the Duck Shit Tea story.

As an example of AccE my research data was not pre-planned, and thus I did not go through a "traditional rigorous process of proposing and clearly delineating all procedures for collecting and analyzing data prior" to my entry into the field (Levitan, Carr-Chellman & Carr-Chellman, 2020, p. 342). In addition to these AccE practices, my Indigenist practice includes "inward knowledges" which are recognized and flow "naturally if one is coming from a tribal epistemic positioning" (Kovach, 2009, p. 127). My inward knowledges emerged in the production of various knowledge products that featured me and my work. The accidental and happenstance findings of past researcher experiences (Levitan, Carr-Chellman & Carr-Chellman, 2020) as a graduate student and WISIR Fellow, shared here, are intended to contribute to theory and practice. My accidental data collection, that capitalizes on the unforeseen learning that occurred during my doctoral studies, is mainly limited to direct observation. My *living theory* (Meyer & Wood, 2020) is generated from critical reflection on several data sets, including my own reflective writing, workshops, and presentations I have designed and offered, conversations with systems thinkers (both Indigenous and Western), podcasts, projects, designing a brand-new course at the University of Vermont (UVM) on *relational systems thinking*, and ultimately my experiences as a Systems Changer in Residence with a global philanthropy.

This inquiry is a story about relationships. As my colleague Dr. Gregory Cajete (2015), Tewa from Santa Clara Pueblo, eloquently explains:

> Because Indigenous views of the nature of reality build on relationships—reality is wholly interrelated—knowledge emanating from an Indigenous worldview has to be understood relationally. Nothing exists in isolation or can be understood apart from all its relationships (p. 207).

"Indigenous knowledges are not a human construction, but, more importantly, a gift given to us, when we pay attention to the relatives who surround us" (Wildcat, 2009, p. 76). So, I am gathering materials for my *miinigowiziiwin*, that is my method, to pay attention to all my relations across the "complex web of life" (Wildcat, 2009, p. 76).

2.3 *nah-nahn-dah-way ji-kayn-ji-gay-win* (Digging around)

The method for my research, for digging around, is having tea and *yarning* (*see* Barlo, Pelizzon & Wilson, 2020; Barlo, Hughes, Wilson & Pelizzon, 2021; Hughes & Barlo, 2021 on yarning as relational methodology) with knowledge keepers and other Western systems thinkers. In so doing, I gather items for my *miinigowiziiwin* (sacred knowledge bundle). The 'participants' of the study were the contributors to the first published manuscript, Haudenosaunee Knowledge Keepers my Uncle Dr. Dan Longboat[9], his sister Diane Longboat, Rick Hill, Kevin Deer (the Haudenosaunee intelligentsia) and Peter Senge and Otto Scharmer at MIT. Other 'participants' were the contributors to the story Niigani Miinigowiziiwin, Anishinaabe Knowledge Holders Eleanor Skead, Bert Landon, and Keith Boissoneau.

> Indigenous thought has the potential to reframe and decentre, in intellectually productive and practical ways, conventional scholarship about most things (Haig-Brown, 2008, p. 13).

Snider (1996) in *Scholarship, Morality and Apologies for the Empire*, explained that those scholars within Native studies have a wonderful opportunity to include in their discussions not just scholars with PhD's who have published in scholarly journals, but tribal Elders, community leaders, informed citizens—indeed anyone who has something intelligent to say. I argued with the University of Waterloo ethics body that the Haudenosaunee intelligentsia were the same as tenured Professors at a University (aka experts in their field) and therefore the *asemaa* (tobacco) I offered them was my ethics clearance; they agreed. So, we gathered in Six Nations of the Grand and had a yarn. The result was the first published manuscript (see Goodchild, 2021).

"Is it possible to engage the grammar of empire without replicating its effects?" (Grande, 2008, p.234). Peter Cole (2002), a member of Douglas First Nation, addressed this tension in his dissertation and publications:

the idea of chapter is anathema to who I am as an indigenous person
it implies western order and format as "the" legitimate shapers of discourse (Cole, 2002, p. 448).

In my compliance I too am forced to "take up the tools of the settlers" (p. 448) because "the a priori presumption being that the written word is of paramount worth" (Cole, 2002, p. 449). And it's written in English because "this english language was forced onto my nation in residential

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[9] Dan Longboat, *Roronhiakewen* (He Clears the Sky) from Six Nations of the Grand River, is my spiritually adopted Rakenonhá:a (Uncle, my). In the Mohawk language Uncle means 'he cares for my mind.' He is an Associate Professor in the Chanie Wenjack School for Indigenous Studies, Founding Director of the Indigenous Environmental Studies and Sciences Program, and CoDirector for the Indigenous Environmental Institute.

school" (Cole, 2002, p. 449). I fear writing "to the neglect of orality, artistry, and other forms of expression" (Harris, 2002, p. 192). I wrote the first article in a two-row visual code (see Goodchild, 2021). During this research I was called upon by the Elders who guided me, the Ancestors, and the Spirits to gather helpers for my *Ojibway-Anishinabe o-dah-bah-ji-gahn* (medicine bundle), bringing to life in ceremony a *mikinaak zhiishiiigwan* (turtle rattle) and a *migizi miigwan* (eagle feather). The bundle *is Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) and it reminds me every day that I am in relationship with Creation. The medicine bundle guides me as I gather items for my *miinigowiziiwin* (sacred knowledge bundle). Like research by Nicole Bell (2013, 2018), an AnshinaabeKwe of the Bear Clan from Kitigan Zibi First Nation, at Trent University, the *medicine wheel* (Figure 2.1) best serves as a guiding framework ("conceptual framework" in conventional Western theory) for my Anishinaabe research method of *miinigowiziiwin*.

Anishinaabe knowledge keeper, my brother Keith Boissoneau from Ketegaunseebee First Nation, in 2017 gifted me a *migizi miigwaan* (bald eagle feather) to support me in doing my work, including exploring the possibilities for establishing WIII. The process of writing the comprehensive exam paper was a difficult journey of a continued attempted indoctrination of me into Western civilization's "metaphysical landscape" with its "moral compass" (Vine Deloria, Jr. & Wildcat, 2001, p. 9). Keith advised me to wash with cedar before and after I wrote. The *migizi miigwan* (feather) teaching and the turtle rattle teaching were offered to me by Anishinaabe knowledge keepers Sherry Copenace from Onigaming First Nation, Eleanor Skead from Wauzhushk Onigum First Nation, and Laura Horton from Rainy River First Nations (2019). I was in a sweatlodge ceremony and was gifted the teaching of the turtle *zhiishiiigwan* (rattle) from Elder Albert Hunter, of Rainy River First Nations (2019). The rattle was made by my partner Sly Archambault and later brought to life in a ceremony in 2019 at a very sacred place, the Manitou Mounds (Kay-Nah-Chi-Wah-Nung Historical Centre) in Treaty 3. I share the *Aadizookaan*—a story that is considered a cognizant being and that knows when it is being told (Geniusz, 2015, p.7) of these helpers, the feather and the shaker when I teach people about my work.

Figure 2.1 The Anishinaabeg medicine wheel

The symbol for balance in Anishinaabeg cosmology is the *medicine wheel* with the four sacred colours: white, yellow, red, and black. So how do we Anishinaabeg "come to know" (Cajete, 2000, p. 110) teachings from other knowledge bundles, from other epistemologies and ontologies, within our circular pattern of thought? The medicine wheel is a circle divided equally in four quadrants, symbolically identifying the power/medicine of the four directions using four different colours (yellow, red, black, and white). Within the medicine wheel there are many rings of teachings (Bell, 2013). Embodied within the medicine wheel are four basic teachings of the *four directions* encompassing the *sacred circle of life*. I often use the medicine wheel teachings shared by Elder Jim Dumont to frame curriculum to teach Anishinabe systems thinking and complexity science. The Eastern Door is "the seeing path", including cosmology, vision, beliefs, and values evolving from the spirit world. Next is the Southern Door, "ways of relating", that includes environment, interactions between Indigenous peoples and other beings, the cycles of life, time, mathematics and numbers. The third section of the wheel is the Western Door, "coming to knowing", which includes Elders, the learning path, and Indigenous knowledge. Finally, the fourth section is the Northern Door, "ways of doing", including ceremonies, healing, prayer, and life ways. Each relates to personal fulfillment when one integrates an Indigenous worldview into their lives, including the sharing of knowledge, dreams, and states of being (Anishinaabe Elder James Dumont, 1997, cited in Rice, 2005).

I introduced this symbol of balance during a webinar hosted by the Presencing Institute in October of 2019. Broadcast from the campus of MIT I joined Otto Scharmer, Peter Senge, and Kelvy Bird in conversation for our session Dialogues on Transforming Society and Self (DoTS), titled "Indigenous Wisdom and the Civilizational Shift from Ego to Eco." Kelvy captured the nature and spirit of our dialogue together through her generative scribing (Bird, 2018). In the top right-hand corner of the panel, you can see the medicine wheel (see Figure 2.2). I spoke about

balance of mind, body, spirit, and emotion in systems awareness. The DoTS webinar[10] filled up quickly; participation was capped at 500, and 500 people from 56 countries on seven continents tuned in to hear us talk together.
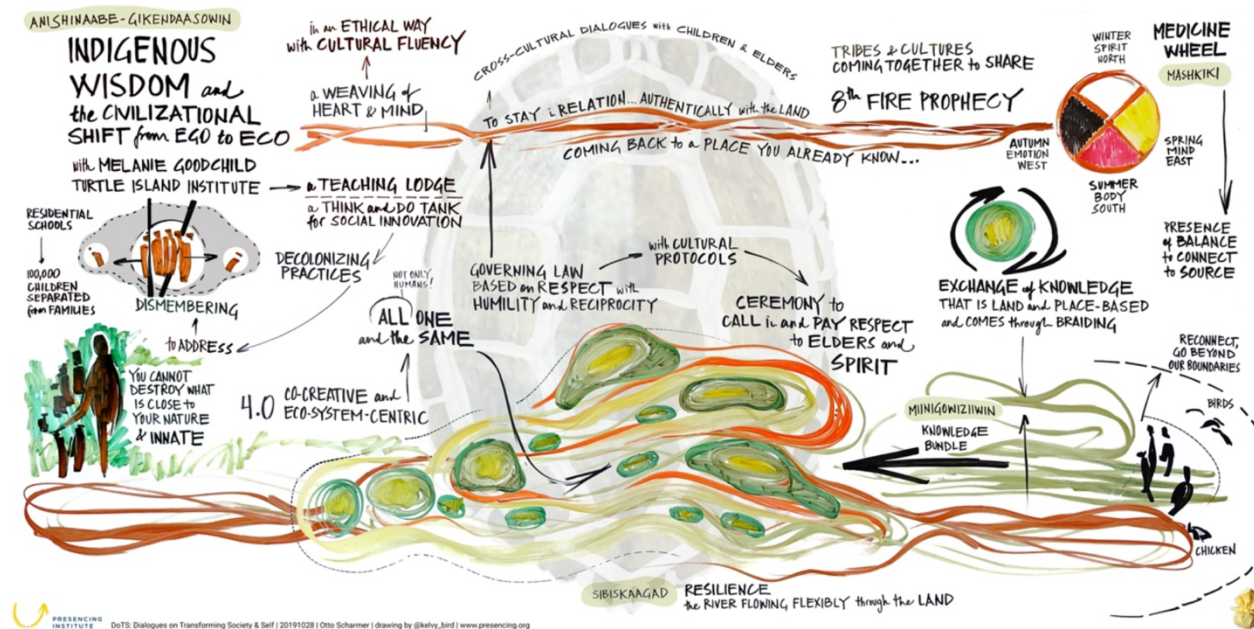
Figure 2.2 Generative Scribing of DoTS webinar by Kelvy Bird, October 2019

For Anishinaabe peoples, a circle represents the space in which we live, reflected in our songs, dances, ceremonies, and cosmologies. Western society, on the other hand, often represents their space with straight lines. Circular patterns established by Anishinaabeg and other Indigenous peoples "help define us just as linear structures in western societies define those peoples" (Rice, 2005, p. 4). The circle of life is also "a primary symbol of Plains culture," representing the relatedness, exchange of energy, and potential for harmonious relationships among all created beings (Stonechild, 2016, p. 89). The medicine wheel shares with us the gifts of the four directions, vision, time, reason, and movement. Actualizing the four gifts is to see it, relate to it, figure it out, and do it. Creating change is to identify, express, understand, and change (Bell, 2018, p. 181). Starting in *waabanong* (the East), the Anishinaabe researcher obtains *vision* with respect to the research journey by being able to see and identify the task at hand. Time in *zhaawanong* (the South) was then spent *relating* to the topic. Following this in *niingaabii'anong* (the West), *reason* begins to take form as the Anishinaabe researcher begins to *figure out* what has to be learned and reflects on his/her personal experiences and learning. It is at this point that the Anishinaabe researcher can say that he/she begins to *understand* the information about the topic being considered. In *giiwedinong* (the North) the Anishinaabe researcher is able to *move* with the information that has been gathered to be able to *do* something with it to create *change* (Bell, 2018).

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[10] See https://vimeo.com/370037911

The medicine wheel teachings I am most familiar with are those also shared by the Curve Lake First Nation Cultural Centre (see Figure 2.3).
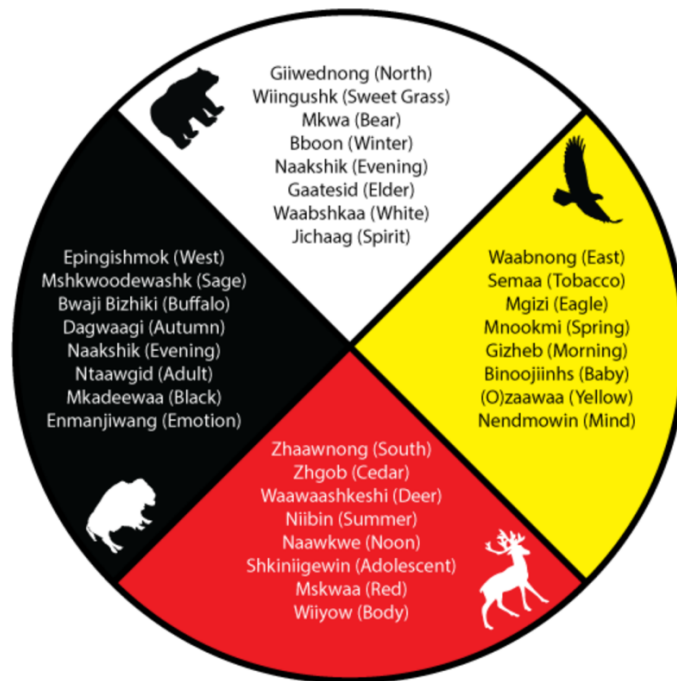
Figure 2.3 The Medicine Wheel (Curve Lake First Nation Cultural Centre, n.d.)

Thus, *miinigowiziiwin* is multi-dimensional, reflecting the teaching included in Figure 2.3, that human beings are composed of four interconnected aspects: mind, body, emotion, and spirit. I have also heard Elders I know speak of these as multiple intelligences and that our goal in learning is to tap into those four frequencies. We must stay in balance, not privileging one of those frequencies to the neglect of the other. This protects us against intellectualizing matters to the neglect of spirit and to embrace embodied practices for learning and teaching.

2.4 Traditional Ecological Knowledge (TEK)

In the following chapter, a literature review, I problematize the conceptualization and use of Traditional Ecological Knowledge (TEK) in transformations to sustainability discourse because TEK was the initial entry point to Indigenous wisdom articulated by WISIR in its creation of WIII, and it was the entry point to Indigenous wisdom within my doctoral program in social and ecological sustainability. It did not feature prominently (or at all) in my coursework, so I pursued it on my own via my comprehensive examination process. There is not a gap in the literature by Indigenous scholars that problematizes TEK, however there was a gap in my own exposure to that literature. My assigned coursework readings were decidedly Eurocentric. My critique of TEK is built on the problem of *containment* and *enclosure*—specific analysis by Richardson (2011) that inclusion of Indigenous knowledge in Native culture-based education, formulated through a *constructivist* theory, acts as a *container* for culture-based curriculum.

Anishinabe bish-kayn-di-ji-gay-win (pedagogy) that makwa ogimaa (Fontaine & McCaskill, 2022) speaks to is an example of what Richardson calls Indigenous modes of theorizing; a "culturally situated" mode of thinking (Richardson, 2011, p. 333). Constructivism is a Western concept and is not informed by or discussed through Indigenous metaphors. If TEK is a strategy to employ culturally situated modes of thinking in sustainability discourse, then in using constructivism to analyze it, Richardson says the theorizing employs terms like *activity*, *thinking* and *learning*, instead of Indigenous metaphors. As such, culture-based curricula (like TEK) "will more often continue to maintain, not counter, the privileged theories of constructivism and its embedded philosophical lineages" (Richardson, 2011, p. 333). This lineage is informed by a Hegelian and Marxist inspired scientific psychology which explains thinking and cognition in strict materialist terms. Science was understood by thinkers, as well as by educational theorist Dewey, says Richardson, "as a way to eliminate idealist notions of soul and spirit which still held sway in early 20th century philosophy and psychology" (Richardson, 2011, p. 338). This scientific psychology was a worldview that sought to analyze *cognition and thinking* via its reinterpretation as "'object-practical' activities oriented by and toward forms of production, labor and consumption" (Richardson, 2011, p. 338). Thus constructivism, says Richardson, is not only inconsistent with but works against Indigenous intellectual traditions which emphasize a "shadowy, visionary and totemic dimension of human cognition that is at odds with a dialectical materialist philosophy" (Richardson, 2011, p. 338). For more on the totemic or kinship dimension of human cognition I highly recommend reading *The Haudenosaunee Imagination and the Ecology of the Sacred* (2006) by Joe Sheridan and my Uncle Dan Longboat, wherein they explore the enduring spiritual and intellectual relationships between people, clans, and landscape and the validation of mind with ecological properties. They contrast this spiritual worldview with the "chronically overdeveloped reason" (Sheridan & Longboat, 2006, p. 373) of Western educated minds. Richardson (2011) argues that constructivism provides the structure for the opening to minoritized approaches to 'learning' and 'thinking' and yet encloses such thinking in the philosophy of dialectical materialism (Richardson, 2011, p. 339).

A brief note here about *social construction* and *constructivism*. The term social construction is widely used within the social sciences, however different researchers use different terms, social constructionism, social constructivism, or simply constructionism or constructivism. In a review of social constructionism, Sarbin and Kitsuse trace the approach's roots to the works of Schutz (1967) and Berger and Luckmann (1967) (Sarbin & Kitsuse, 1994, cited in Burningham, 1998). Richardson (2011) argues that pedagogy that may use cultural knowledge as a vehicle for mainstream concepts faces the problem of *inclusion* as *enclosure* in its various forms. In the next chapter I conclude that TEK is a "curricular containment of Native knowledges" (Richardson, 2011, p. 335). TEK in the literature reviewed is an example of the "misfit knowledges that can eventually be included/enclosed by traditional curricular forms and practices" (Richardson, 2011, p. 335). As such, Anishinabe *i-nah-di-zi-win* (ontology), *nah-nahn-gah-dah-wayn-ji-gay-win* (epistemology) and *bish-kayn-di-ji-gay-win* (pedagogy) are appropriated by TEK (within sustainability discourse) and neutralized. An interrogation of the academy and it's *structurality* (see Richardson, 2011, p. 337) is examined via my experience at UW as a graduate student, hence the *Indigenous accidental autoethnography*. The "risk of the domestication and enclosure of Native cultural knowledge" (Richardson, 2011, p. 337) in sustainability discourse is very high. Conceiving of Anishinabe *i-nah-di-zi-win* (ontology), *nah-nahn-gah-dah-wayn-ji-gay-win* (epistemology) and *bish-kayn-di-ji-gay-win* (pedagogy) without

sourcing their *ecological* (Sheridan & Longboat, 2006) and spiritual origins "contributes to and extends anthropocentrism consistent with minds unwilling to naturalize to their surroundings" (Sheridan & Longboat, 2006, p. 365). In constructivist theory, Anishinabe ontology, epistemology, and pedagogy are neutralized as *elements* of systems of production and exchange, via strict materialist terms. This is the antithesis of *miinigowiziiwin*, which acknowledges that the principles of our way of life "are *gaa-izhi-zhawendaagoziyang*—that which is given to us in loving way (by the spirits)" (Geniusz, 2009, p. 10, emphasis in original). Pour yourself a bowl of *minikwe niibish* (tea) as I continue to explore the *i-zhi-chi-gay-win* (methodology) of Ojibway-Anishinabe ways of knowing and doing.

2.5 Spring Tea Poem

> To you I would serve cedar tea
> mixed with a touch of April
> distilled from the shy green stems,
> the frosted perfume of spring
> rain along with a dollop
> of honey and ice
>   - Keewaydinoquay Peschel (cited in Geniusz, 2015, np).

Chapter Three

O-di-ni-gay-win zhigo Nay-nahn-do-jee-kayn-chi-gayd (Digging around and doing research)[11]

3.0 Indinawemaagnag (All of My Relations)

It is within the Anishinaabe principle of *gidinawendimin* (we are all related) that we see the ancestral brilliance of irreducible wholeness, a principle that is not only systemic but also based in *kinship*. Those "brilliant thought-paths" (Yunkaporta, 2020, p. 3) of the *gete-anishinaabe* (one of the old ones) is coded in this principle of *gidinawendimin* (we are all related) that is shared by so many Indigenous peoples around the world. The late Vine Deloria Jr, an author and activist from Standing Rock Sioux in South Dakota, noted back in 1970 (a year before I was born) that when human beings balance the Everglades against a jetport, the jetport wins. It wins because it has an immediate economic value that can be reduced to a figure in the gross national product. These trade-offs demonstrate how humanity has not understood that everything is interconnected:

> …that a change in one element of a situation invariably creates change in all others. Few have realized that we can no longer stand as impartial and rational observers of events, because in merely observing those events we become participants in them. More than that, we are intimate segments of the events themselves whether we choose to be or not. Nothing is really relative, everything is related. The spectacle of a dead Lake Erie, the other Great Lakes dying, flammable Cayuhoga River in Cleveland, the oil-drenched beaches of California, and the ultimate destruction of the oxygen in our atmosphere bear mute testimony that all things are related (Deloria Jr., 1970, p. 25).

For Anishinaabeg everything is related, *gidinawendimin* (we are all related). This is our systems thinking perspective. The story the West told itself for centuries was that nothing was related, a deeply ingrained assumption that dominated Eurocentric thinking, a core mental model. For over three hundred years in the West, specialization, 'divide and conquer' and 'objectivity and reductionism' were the dominant mental models. But now, says systems thinking scholar Anthony Hodgson, "it is time to revisit the neglected orientation to wholeness" (Hodgson, 2020, p. xiv Preface). Hodgson has a PhD in systems science from the University of Hull, Centre for Systems Studies. One of the central theses in his current work is that many shifts of *mentality* and *attitude* are needed to cope with and dampen down the 'turbulence' that we (humans), as a runaway species, have stirred up. It is worth quoting him at length here:

> Great Nature, the wizard of the evolution of the planet, the biosphere and us humans has worked her magic over billions of years. Only recently, have we humans begun to unlock those secrets, especially by the invention of science and its application through technology. Broad revolutions have occurred—agricultural, industrial, materials extraction, communications, artificial intelligence, the Internet of things—which have enabled the colonisation of the planet and the spread of convenience, for example in the form of energy slave equivalents.

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[11] See Fontaine & McCaskill (2022, p. 190)

But this is being achieved at an approaching catastrophic cost. The impact of humanity on the planet is now considered to be of geological proportions and labelled the 'Anthropocene.' And the more we try to fix it, the faster it grows. The more we learn what needs doing to fix it, the more there is to do and less time to do it in. Humanity is the hapless apprentice of Great Nature who has over-reached and is jeopardising the whole situation. Great Nature is not interested in the miniscule time-frames of human generations and human awareness. We are on our own. *There is no wizard to come to the rescue* in our own time-frame. (Hodgson, 2021, xiii Preface, emphasis in original)

Vine Deloria Jr. recognized the same need for "a rigorous shift in worldview" (Hodgson, 2021, xiv Preface). The principle of *gidinawendimin* (we are all related) speaks to an ethos of relationality, both in the sense that Deloria Jr. was referencing, consistent with systems thinking, that "when separate things are connected, they modify each other and change each other's significance" (Hodgson, 2021, p. 2). Further, Deloria Jr. was also expressing the principle of *gidinawendimin* (we are all related) when he spoke of *nibish* (waters) in Florida, the Great Lakes and California. He spoke about the air we breathe. All of these in Anishinabe *in i-nah-di-zi-win* (ontology) are sentient beings, our relations, our kin. This is where Deloria Jr. and Hodgson diverge: in *Ojibway-Anishinabe i-zhi-chi-gay-win zhigo kayn-da-so-win* (Ways of doing and knowing) (Fontaine & McCaskill, 2022) there is a wizard, and she is our Earth Mother (what Hodgson refers to in his story as Great Nature). My colleague and friend, Tiokasin Ghosthorse (Lakota) often says to me that we are not trying to save Mother Earth, rather "we need to get out of the way so she can save us" (2022). In spite of the heavy footprints humankind has left on our planet, says Daniel R. Wildcat, "it may be but another illustration of a modern-civilization-inspired arrogance to think that we have so disrupted life on Mother Earth that there is nothing left for nature to teach us" (Wildcat, 2009, p. 101).

Humankind is a *runaway species*, says Hodgson. No longer perhaps do we understand our role as the *custodial species* to *sustain creation*, a form of *complexity* and *connectedness* (Yunkaporta, 2020, p. 246, emphasis added). Where Deloria Jr. and Hodgson converge is a recognition that the *hyperturbulence* in the dynamic, self-organizing, living system of our world is essentially "moral and ethical in character" and fundamentally a central problem "with Western metaphysics: the failure to produce a coherent worldview encompassing the processes of the world and how we humans find meaning in those processes" (Deloria Jr. & Wildcat, 2001, p. 7). Systems thinking is by no means a complete contribution to resolving these problems says Hodgson, but I concur with his argument that it is a vital contribution (Hodgson, 2021, p. 3). "From the very beginning of the world, the other species were a lifeboat for the people. Now we must be theirs" (Kimmerer, 2013, p.8). *Gidinawendimin* (we are all related) is *Anishinaabe systems thinking* and in the words of Daniel R. Wildcat (Muscogee Nation of Oklahoma), it is *playing to our strengths* (Deloria Jr. & Wildcat, 2001, p. 7, emphasis added) as Anishinaabeg peoples. It is part of the foundation of "American Indian metaphysics that 'is a unified worldview acknowledging a complex totality in the world both physical and spiritual'" (Deloria Jr. & Wildcat, 2001, p. 9).

3.1 Second-order cybernetics

This literature review is me sharing *ni di-bah-ji-mo-win* (my personal story) of being in relationship with Traditional Ecological Knowledge (TEK) for the first time in my life during my PhD studies. Until I began studying social and ecological sustainability at a Western university, I had never heard *g'da-kii-mi-naan* (Experience of knowing and understanding our relationship with the land; our original relationship with the land) labelled as TEK. So, this literature review is perhaps atypical because it is self-reflective and autoethnographic. Sustainability discourse happens within the community of science and social science. TEK is most often invoked by scientists and ecologists or environmentalists. Systems thinking is distinct from linear thinking, especially says Hodgson (2021) in the way that effects can be causes and create dynamic loops which exhibit non-linear behaviour. This basic systems thinking can be applied to the role and power of worldviews and how such viewpoints tend to reinforce themselves in a closed loop. This is especially true in the community of science, "which, despite its protestations to be interested in new knowledge, ensures that it is kept within tightly prescribed limits" (Hodgson, 2021, p. 3). Objectivity he says, is held as a pillar of scientific wisdom, with the result that it is blind to the sentient nature of any observation. So, he argues for the *rehabilitation* of the observer as essential for a holistic worldview "that is able to encompass the fact that people are subjects who constrain what can be understood by their expulsion from the object of study" (Hodgson, 2021, p. 3). The way the researcher engages with research has profound implications for which modes of knowing are permitted "and whether certain aspects, such as ethics and systemic consequences, are taken into account" (Hodgson, 2021, p. 3). Put another way by the late Vine Deloria Jr., "Tribal society is of such a nature that one must experience it from the inside. It is holistic, and logical analysis will only return you to your starting premise none the wiser for the trip" (Deloria Jr., 1970, p.13). In the language of systems thinking, the acknowledgement of the observer "leads to second-order cybernetics, in which the subject is always *part of the system* under investigation" (Hodgson, 2021, p. 3, emphasis added).

> In contemporary science and research, investigators have to make claims to objectivity, an impossible and god-like (greater-than) position that floats in empty space and observes the field while not being part of it. It is an illusion of omniscience that has hit some barriers in quantum physics. No matter how hard you may try to separate yourself from reality, there are always observer effects as the reality shifts in relation to your viewpoint. Scientists call this the uncertainty principle…From an Aboriginal cosmological point of view, the uncertainty problem is resolved when you admit you are part of the field and accept your subjectivity… I begin to see the uncertainty principle not as a law but as an expression of frustration about the impossibility of achieving godlike scientific objectivity (Yunkaporta, 2020, pp. 41-42).

Keep in mind second-order cybernetics and the uncertainty principle as you read the rest of this dissertation. *Ni di-bah-jim* (I'll share my story) (Fontaine & McCaskill, 2022, p. 170).

3.2 The trouble with modernity

My literature review focuses on the conceptualization of traditional ecological knowledge (TEK) for two critical reasons, mentioned briefly in previous chapters. First, my program of study is

social and ecological sustainability and within the transitions to sustainability discourse TEK is most often the entry point to Indigenous Knowledge (IK). TEK was the focus of my comprehensive exam question. Second, the Waterloo Institute for Indigenous Innovation (WIII) at UW was initially conceptualized as a space to share intellectual space, within the University environment, to explore the apparent paradox, and potential innovation space of, an "Indigenous Modernity" (McCarthy & Westley, 2015). The wicked question that WIII was to address, written by hand in the margins of the original WIII concept paper[12] was; "how can Indigenous Knowledge/Practice promote *both* sustainability/resilience and cutting-edge modernity?" (McCarthy & Westley, 2015). A stated goal of promoting *modernity* is cringeworthy. Please see Vanessa Machado de Oliveira's (2021) book titled *Hospicing Modernity: Facing Humanity's Wrongs and the Implications for Social Activism* for a detailed critique of the notion of *modernity* in terms of what modernity has given us and "what is at stake when it dies" (Machado de Oliveira, 2021, p. 16). Modernity is a story, or a constellation of stories, a contested phenomenon with multiple definitions. For Machado de Oliveira it is a story that keeps us (humanity) in an *immature state*. The book offers what my dissertation supervisor, colleague and friend Dan McCarthy describes as a call for humanity to "get our proverbial shit together." WISIR's initial conceptualization of WIII was an experiment in how to integrate Indigenous wisdom "while maintaining the best aspects of modernity (cutting edge science, modern healthcare/medicine, global information connectivity etc.)" (McCarthy & Westley, 2015). Further WIII's faculty and graduate students would lead ground-breaking research on "Indigenous-led social innovations especially at the Indigenous-corporate interface, particularly focused on the resource extraction industry" (McCarthy & Westley, 2015). When I arrived as a graduate student at UW, after the Social Innovation Residency 'Getting to Maybe' WISIR was hoping to lead an initial SSHRC-funded research project to kick off WIII.

As I stated in the opening chapter of this dissertation, WIII did not launch due to the poor state of *readiness* at WISIR/UW in 2015 to accept the *gift* (Kuokkanen, 2008) of *Ojibway-Anishinabe i-zhi-chi-gay-win zhigo kayn-da-so-win* (Ways of doing and knowing) (Fontaine & McCaskill, 2022). This was apparent to me despite the stated desire for WIII to explore the *nexus* of "Indigenous Knowledge and Western science" (McCarthy & Westley, 2015). WISIR/WIII acknowledged that the corporate sector had begun to realize that consultation with Indigenous Peoples involved much more than one-time interactions and that instead "it's about validating Indigenous Knowledge and building long-term relationships" (McCarthy & Westley, 2015). Let me repeat that again for the cheap seats: *validating* IK! Such arrogance. Indigenous knowledge systems "need no validation from Eurocentric sciences (ES)" (Aikenhead & Michell, 2011, p. 99). Right from the outset I felt that the conceptualization of WIII by the team at WISIR was not particularly self-aware. It was further stated that, "interactions with Indigenous Peoples in the workplace" were becoming "increasingly common" and that in order to stay relevant, programming at WIII "must familiarize Indigenous and non-Indigenous students with Indigenous ways of knowing to create a *more informed and effective workforce*" (McCarthy & Westley, 2015, emphasis added). This perhaps is not a total surprise, the rationale of creating an effective workforce for the fields of resource extraction/environmental management and Indigenous

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[12] There is no electronic public record available of this document, so a scanned copy of it is available in Appendix section of this dissertation as Supplementary Material A: Waterloo Institute for Indigenous Innovation "draft" concept paper by WISIR

entrepreneurship, given that an existing collaboration undertaken by WISIR at the time was the AMAK initiative, born from a partnership between Goldcorp's Porcupine Gold Mines, UW, Queens University, Wilfred Laurier University, Social Innovation Generation (SIG), Golder Associates and Indigenous knowledge keepers from across Canada. The overall goal of AMAK was to improve the mine reclamation process by including both scientific data and "Indigenous Traditional Knowledge" in the design, planning, and monitoring stages of the mining and reclamation process. It was hoped that the involvement of the AMAK Elders would ensure that WIII was guided and informed from the beginning by Traditional Knowledge, and developed in a good way. Further, given the nature of the proposed institute said WISIR, "the obvious preference would be for WIII to be led by a Canadian Indigenous scholar however, the most qualified candidate would be chosen regardless of race" (McCarthy & Westley, 2015). There were so many red flags for me as an Indigenous scholar reading this initial briefing paper for WIII, as outlined above.

WIII would run a speaker series, conduct research projects, run training and knowledge mobilization initiatives, convene workshops with both practitioners and academics, and act as a hub for a network of practitioners across the country. There would also be two full-time equivalent, tenured/tenure-track faculty members hired, one Indigenous Innovation Chair and one regular, junior faculty member who would work with and support the chair on both related research and curriculum development. In theory it all sounded progressive. This of course was not the first time that "non-Indians began to discover Indians" (Deloria Jr., 1970, p. 14). In the US it happened in 1969 when "Everyone hailed us as their natural allies in the ancient struggle they were waging with the 'bad guys'" (Deloria Jr., 1970, p. 15). And more recently makwa ogimaa has mused after decades of "in your face" segregation and racism against Indigenous peoples that "ironically, there is some currency in being Indian" (Fontaine & McCaskill, 2022, p. 168). To shed light on how WISIR (and thus WIII) in my estimation in 2015 was not ready for Anishinabe consciousness based on *nah-nahn-gah-dah-wayn-ji-gay-win* (epistemology), *i-nah-di-zi-win* (ontology), and Anishinabe *i-zhi-chi-gay-win zhigo kayn-dah-so-win/a-zhi-kay-ni-mo-nahd-a-di-sid bay-mah-di-sid* (ways of doing and knowing, methodology) I turn to Adam Gaudry and Danielle Lorenze (cited in Fontaine & McCaskill, 2022, pp. 142-143) who have articulated three points on the spectrum of indigenization as practiced in Canadian universities. The first is *Indigenous inclusion* as a policy that aims to increase the number of Anishinabe students, faculty, and staff in the academy without any substantial changes to the structure and curriculum so, the existing environment does not change. The second is *reconciliation indigenization* that locates indigenization on common ground between Indigenous and Canadian ideals, creating a new consensus on how European-derived knowledges and Indigenous knowledges can be reconciled. This assumes that in the past universities have privileged Western knowledge systems and it attempts to alter the university's structure by asking students, staff, and faculty to change how they think about Indigenous peoples. The third is *decolonial indigenization*, which envisions a wholesale overhaul of the academy to "fundamentally reorient knowledge production based on balancing power relations between Indigenous people and Canadians, transforming the academy into something substantially different and dynamic." It felt to me in 2015, that WISIR/WIII was 'Indigenous inclusion' but I dreamt of 'decolonial indigenization'. I was hoping that WIII would seek to transcend the paradigm of modernity, not promote its cutting-edge features.

Meanwhile, American society could save itself by listening to tribal people. While this would take a radical reorientation of concepts and values, it would be well worth the effort. The land-use philosophy of Indians is so utterly simple that it seems stupid to repeat it: man must live with other forms of life on the land and not destroy it… the interest in the survival of humanity as a species, must take precedent over special economic interests (Deloria Jr., 1970, p. 189).

3.3 The trouble with *predominantly white institutions* (PWIs)

Meadows (2008) spoke to the limitations of systems thinking, that beliefs are important, and that it is in the space of "mastery over paradigms that people throw off addictions, live in constant joy, bring down empires, get locked up or burned at the stake or crucified or shot, and have impacts that last for millennia" (Meadows, 2008, p. 165). She argued that the shared idea in the minds of society, the great big unstated assumptions, constitute that society's paradigm or deepest set of beliefs about how the world works. These beliefs are unstated because it is unnecessary to state them—everyone already knows them, like *growth is good*. "Nature is a stock of resources to be converted to human purposes. Evolution stopped with the emergence of *Homo Sapiens*. One can 'own' the land" (Meadows, 2008, p. 163). These are just a few of the paradigmatic assumptions of our current culture, "all of which have utterly dumbfounded other cultures, who thought them not the least bit obvious" (Meadows, 2008, p. 163). Paradigms are the sources of systems and by finding the highest order *leverage points* in systems, we can transcend paradigms. To do so we must realize that *no* paradigm is "true" and that every one, "including the one that sweetly shapes your own worldview, is a tremendously limited understanding of an immense and amazing universe" (Meadows, 2008, p. 164). Those who leverage the highest points, what she calls magical points, are rare because these leverage points are not easily accessible. The higher the leverage point, the more the system resists changing it, "…that's why societies rub out truly enlightened beings" (Meadows, 2008, p. 165). Universities reflect these paradigms.

Sami scholar Rauna Kuokkanen (2008), uplifting the work of Gayatri Spivak (a post-colonial Asian/Indian intellectual working in the United States), refers to *the logic of the gift*, a consideration of Indigenous epistemes (Indigenous ontologies, philosophies, and presuppositions or conceptual frameworks) as a *gift* not to be taken for granted or misused within the academy (Kuokkanen, 2008). The *academy* herein refers to Western institutions of knowledge, colleges, and universities globally, a place where the development of academic disciplines, a way of organizing systems of knowledge, established the positional superiority of Western knowledge, reaffirming "the West's view of itself as the centre of legitimate knowledge, the arbiter of what counts as knowledge and the source of 'civilized' knowledge" (see Smith, 1999, pp. 59- 68). The University of Waterloo is what Sweeney Windchief (Assiniboine) and Darold H. Joseph (Hopi) would categorize as one of the many *predominantly white institutions* (PWIs) (Windchief & Joseph, 2015, p. 269) that seek to serve Indigenous populations. It is not an Indigenous or tribal post-secondary institution.

A college or University is an example of a dynamic, complex self-organizing living system. It can be characterized as a living system, a metaphor says Sweeney (2008) to represent an animate arrangement of parts and processes that continually affect one another over time (Sweeney,

2008, p. 3). This idea of living systems also has its roots in organismic biology—opposing Newtonian mechanism—a way of thinking in terms of connectedness, relationships, patterns and context. According to the systems view, the essential properties of an organism, or living system, are properties of the whole, which none of the parts have. They arise from the "interactions and relationships between the parts" (Capra & Luisi, 2014, p. 65). Indigenous cosmologies reflect this foundational understanding of the natural world as interconnected, however take it a step further in the guiding thought that everything is "alive" or animate and imbued with "spirit" or energy, and everything is related, connected in dynamic, interactive, and mutually reciprocal relationships (see Cajete, 2000, p.75). "The emergence of systems thinking was a profound revolution in the history of Western scientific thought" (Capra & Luisi, 2014, p. 65). A system had come to mean an integrated whole whose essential properties arise from the relationships between the parts, and 'systems thinking' the understanding of a phenomenon within the context of the larger whole. "This is in fact the root meaning of the word 'system,' which derives from the Greek *syn + histanai* ('to place together')" (Capra & Luisi, 2014, p. 64, original emphasis).   My own experience then of *epistemic ignorance* (Kuokkanen, 2008, p. 61) in the academy must be understood within the larger context of Western education.

Within every University community there might be dozens of different systems worthy of notice and every educational practice is a system. Donella Meadows (2008) defined a system as an interconnected set of elements that are "interconnected in such a way that they produce their own pattern of behaviour over time" (Meadows, 2008, p. 2). Stroh (2015) points out that systems achieve a purpose, which is why they are stable and so difficult to change. However, that purpose is not always the one we want the system to achieve (Stroh, 2015, p. 16). Building on Meadows' definition, Stroh defines systems thinking "as the ability to understand these interconnections in such a way as to achieve a *desired* purpose" (Stroh, 2015, p. 16, emphasis in original). The discipline of systems thinking is the study of system structure and behaviour and "it is enriched by a set of tools and techniques that have developed over the past fifty years" (Senge et al., 2012, p. 124). As you use these tools you learn to recognize and respond to the "non-linear" aspects of everyday life. I have found that systems thinking tools, like the iceberg model and feedback loops/system archetypes, are useful for helping us to decipher the Eurocentric education structures that fail to appreciate other knowledge systems like IK and help us to identify possible intervention points in the academy.

Wicked problems, intractable problems, or 'mega-messes' are systemic processes that need to be systemically understood. Epistemic ignorance in the academy is an intractable problem and it is cross-scaler because it reflects systemic racism in Canadian society.

> In order to realize the promise of social innovation, we need a particular multi-stakeholder process that takes the most effective elements from those that already exist, but then also integrates knowledge about complex systems, system transformation, agency, and the re-engagement of vulnerable populations (WISIR SI Lab Guide, 2007).

As referenced in Chapter One, during the 2015 Getting to Maybe: A Social Innovation Residency (GTM) program, at Lougheed Leadership/Banff Centre, I read *Getting to Maybe: How the World is Changed* (Westley, Zimmerman & Patton, 2006). It was the beginning of my learning journey into the world of social innovation, systems thinking, resilience thinking, and

complexity science. It was the beginning of a journey in which I made the task of *decolonizing* social innovation itself my research focus. The GTM program and the GTM book introduced me to key concepts within the discourse of innovation linked to a systems approach, such as complexity science and the idea that complex systems comprise relationships and systems change requires a mindset that *tolerates ambiguity*. I deepened my relationship with systems thinking and complexity when I accepted an invitation from Dr. Frances Westley and Dr. Daniel McCarthy to pursue a doctoral degree at UW in the fall of 2015.

The core coursework in the doctoral program introduced me to the canonical literature of social and ecological sustainability, and to subfields like ecological economics. In 2015 I entered knowingly into a system that may expect my "assimilation in return" (Bishop, 2021, p. 375). Universities are elite institutions which reproduce themselves "through various systems of privilege" (Smith, 2012, p. 132). I am the first in my family to pursue a doctoral degree, descendent of two residential school survivors, my datasets are not typical, twisting and contorting my mind into difficult positions, then twisting it back to 'think like an Indian' as my sister Eleanor Skead says (2017). I need to do things differently, like other Indigenous scholars, as an act of defiance and "to increase complexity" (Bishop, 2021, p. 368). So, while I wrote my comprehensive exam paper I smudged myself, my keyboard and my printer, took a cedar bath, washed away the impact of imperialistic *mental models* (Senge, 1990), the deluge of "corrupting influences" (James, 2004, p. 62) coming at me from all directions. Encountering the *disenchantment* (Herman, 2016; Matsinhe, 2007) of the academy, of the world, I *pushed back* (Bishop, 2021, p. 368) with the enchantment of *Ojibway-Anishinabe bish-kay-di-ji-gay-win* (pedagogy) (Fontaine & McCaskill, 2022), our "ontology, epistemology, methodology, axiology" an entire circle that is an Indigenous research paradigm (Wilson, 2008, p. 70).

The UW Faculty of Environment during my doctoral studies remained somewhat hostile towards the gift of Indigenous ways of knowing, clinging instead to *scientism* (Herman, 2016, p. 168) thus remaining an unchanged selection environment (Smith & Raven, 2012) for me and my work. While UW recently was in the process of its first 'cluster hire' of Indigenous and Black scholars, this does not guarantee that Indigenization will be more than a form of "image management" (Ahmed, 2012, p. 102). Just recently I received an email from the Manager of Marketing and Brand at UW to ask for my permission to use my image in a campaign for the cluster hire[13]. UW does have the Waterloo Indigenous Student Centre, a ceremonial fire ground and medicine garden, and established an Office of Indigenous Relations which is promising. Challenging the mental models of scientism however remains an ongoing battle. Socio-technical regime theory argues that "alignments and mutual interdependencies across multiple socio-technical dimensions also generate processes of lock-in and path-dependency," thus "path-breaking sustainable innovations are at a structural disadvantage" (Smith & Raven, 2012, p. 1026). *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) is at a structural disadvantage. Herman (2016) offers a compelling overview of these alignments, of *scientism* as an emergent worldview in the academy, across time and space: the roots of rational thinking, the

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[13] Other Canadian universities have also done 'cluster hires' in an effort to Indigenize and reshape student experience, see OCAD who recently completed a second round of cluster hiring https://www.newswire.ca/news-releases/ocad-university-hires-five-new-indigenous-faculty-members-897299471.html

disenchantment of the world, the apotheosis of reason, technological domination of nature, the puritan temper, colonialism, and the spread of Western culture (Herman, 2016, pp. 163-167) whereby the academy silently ingrains its "disenchanting/empiricist/historicist methodologies" into our social unconscious (Matsinhe, 2007, p. 849). It is important to note that not all scientists at UW and elsewhere are *scientistic*, however the scientistic attitude during my doctoral studies provided a "plethora of obstacles" (Herman, 2016, p. 168) for me and my ongoing action research.

"Universities," argue Battiste, Bell and Findlay (2002), "have largely held onto their Eurocentric canons of thought and culture" which has resulted in the sapping of the "creative potential of faculty, students, and communities in ways both wasteful and damaging" (Battiste, Bell & Findlay, 2022, p. 83). Unlike several other PWIs in Canada, the University of Waterloo currently does not have a Faculty of Indigenous Studies or a history of teaching Indigenous scholarship. Indigenous-led institutions and other PWIs with a history of teaching Indigenous scholarship have more practice in what Cottrell, Preston and Pearce might refer to as a *manifestation of hybridity*, an alternative to globalized modernity, in that these other institutions create more invitational, culturally relevant learning environments for Indigenous learners that *subvert dominant discourses* and re-appropriate them (Cottrell, Preston & Pearce, 2012, p. 245). At UW I faced what Matsinhe (2007) described as a *methodological dilemma* involving a repression of the Indigenous knowledge systems that I brought to academia to conform to *scientific methodological orthodoxy*. In fact, Matsinhe, who is African, in his doctoral exam faced an examining committee that was "white, heterosexual, middle-class, urban, Anglo-Saxon, and Canadian" (Matsinhe, 2007, p. 837). My professors and my internal dissertation committee at UW could also be described as such. My experience in the course work at UW reflected the familiar imposed "cognitive assimilation" described by respected Indigenous education scholars (Battiste, Bell & Findlay, 2002, p. 83).

3.4 The trouble with White intelligentsia

I started my required coursework at UW with an introductory course titled "Sustainability in Complex Socio-Ecological Systems" (ERS 701). The course was intended to "help establish a strong contextual foundation for the anticipated research and dissertation" in the doctoral program (SERS, 2015). The class was offered readings by the two professors co-teaching the course, by Aldo Leopold (Leopold, 1948), and by other canonical writers/theorists in the *sustainability* and *resilience thinking* discourse—none of whom according to my professors were in fact Indigenous scholars/peoples. Sustainability is the overarching paradigm defining the "desirable long-term properties of systems in economic, social, or biological spheres" (Throsby & Petetskaya, 2016, p. 120).

The problem with this line of inquiry for me is that the paradigm of sustainability, including resilience, continues to be "embedded in the hegemonic relations in society and is largely exploitive" (Battiste, 2008, p. 502). It does not embrace the principle of *gidinawendimin* (we are all related). Instead, the *dishonorable harvest* is maintained as a way of life and we are just seeking to sustain the dishonorable harvest. What is needed to address the "hyperturbulence" of the Anthropocene (Hodgson, 2020, p. 3) is to find the "Honorable Harvest" again, says Potawatomi scholar Robin Wall Kimmerer (Kimmerer, 2013, p. 185). *Resilience thinking*

(Walker & Salt, 2012) emerged directly out of the dissatisfaction with models of ecosystem dynamics in the 1970s. Resilience is defined as the capacity of systems to absorb disturbance while retaining the same populations or state variables (Holling, 1973, p. 14). The concept of resilience in ecological systems was introduced by Holling who published a classic paper in the *Annual Review of Ecology and Systematics* on the relationship between resilience and stability. His purpose, says Walker et al. (2006), was to describe models of change in the structure and function of ecological systems and his work continues to influence ideas about resilience in interlinked systems of people and ecosystems. Curtin and Parker (2014), describe the evolution of the resilience paradigm at length.

The canonical literatures we were offered in my doctoral classes (ERS 701 & 702) were largely driven by "White intelligentsia" (Settee, 2013, p.37) and I had to de-racialize it for myself to afford *nahn-gah-dah-wayn-ji-gay-win* (epistemology) and *i-nah-di-zi-win* (ontology) the same value as the dominant knowledge. The selected readings in my initial course addressed a wide range of topics: discourses; indicators; sustainability and roots of the ecological crisis; complex systems; history; progress and sustainability; ecological crisis narratives; systems and resilience; efficiency; equity; as well as sufficiency; integration and trade-offs; limits and planetary boundaries debate; governance; and global-local action. When I spoke up during the first month of class, I spoke about *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy). I held up a braid of sweetgrass in one hand and Robin Wall Kimmerer's (2013) book *Braiding Sweetgrass: Indigenous wisdom, scientific knowledge, and the teaching of plants* (Kimmerer, 2013) as an entry point to begin discussions on how Indigenous peoples have been contributing to notions of 'environmental sustainability' for generations. I wanted my classmates to hold and smell the *mashkiki* (medicine) of sweetgrass in one hand and the book in the other as I passed these around the room. I wanted them also to have a sensual relationship with the sweetgrass.

In sharing the braid of sweetgrass and the book reference, I hoped we could discuss the human/nature binary more fully as an anthropocentric bias, or mental model, framing sustainability discourse in the West. That conversation never happened in class or in the overall doctoral program. In fact, that day one of the professors asked me why I felt it necessary to use a book along with the sweetgrass, as if the book somehow betrayed the point I was making with the plant medicine as somehow non-Indigenous? Indigenous students are often subjected to "a variety of racist tactics to downgrade" (see Cote-Meek, 2014, p. 156) their original ways of knowing. In response to my offer in class with the sweetgrass, one of my professors sent the class a reference to a journal article that supports the 'noble savage' and 'ecological Indian' tropes. The whole of Indigenous intellectual traditions was narrowed down to the age-old typification of the noble savage "which has been resurrected and employed by certain factions of environmentalists, ecophilosophers, and ecofeminists alike" (see Grande, 1999, p. 312). Thus, my offer to introduce my classmates to Indigenous scholarship and IK was reduced to a reference to "… a supposed Indian conspiracy to claim ecological superiority" (Grande, 1999, p. 314). The other professor, who is on my committee now, asked me for a reading list—which felt like a more mature response. The UW/SERS reaction to the *gift* (Kuokkanen, 2008) of IK that I was offering in that moment was acknowledged and appreciated by the professor who asked me for a reading list. "The broad and entrenched assumption of most postsecondary curricula," says Battiste, Bell and Findlay "is that Eurocentric knowledge represents the neutral and necessary story for 'all of us'" (Battiste, Bell & Findlay, 2002, p. 83). And this discourse of 'neutrality'

combines with the universities' serial 'obstruction' or 'evasion' of IK systems and its producers to "shelter and sanitize a destructively colonial and Eurocentric legacy" (Battiste, Bell & Findlay, 2002, p. 83).

In my second required course I was presented definitions of *transdisciplinary* scholarship, which included many disciplines but not apparently Indigenous or Native studies. Yet today there are many Indigenous scholars, and I join an expanding circle of *Anishinaabeg* scholars: Sheila Cote-Meek, Leanne Betasamosake Simpson, John Borrows, Winona LaDuke, Jill Doerfler, Gerald Vizenor, Basil H. Johnson, Niigaanwewidam James Sinclair, Heidi Kiiwetinepinesiik Stark, Nicole Bell, Deborah McGregor, Nicholas Reo, Jean-Paul Restoule, and Darrel Manitowabi—to name a few.

During my second course, on the topic of the format for the final doctoral dissertation in the SERS PhD program, I challenged the notion that text and manuscript formats were the only acceptable presentation of data and findings. I expressed interest in exploring alternative dissertation formats like those in visual sociology and other *arts-based methodologies* (see Knowles & Cole, 2008). Specifically in a class discussion I referenced a doctoral dissertation by a scholar who represented her data in a quilt (see Plett, 2006), as she was a descendent of a long line of quilters in her culture. The professor responded, "there will be no quilts here." Indigenous scholars have often challenged this textual bias instead offering research findings presented via symbols, stories, poetics, pictures, songs, plays, circles, shakers, and medicine wheels (see Graveline, 2000; Lavallée, 2009; Silverstein & Cywink, 2000). These are still offered via text, in journal articles and in books however, because within Western knowledge systems this is how knowledge is shared and the "written word carries more authority than does the spoken word" (Silverstein & Cywink, 2000, p. 37). In the Indigenous Studies PhD program developed at Trent University dissertations are accepted and encouraged in alternative forms that "more accurately reflects Anishinabe ways of doing and knowing" (Fontaine & McCaskill, 2022, p. 124). For example, instead of a conventional written dissertation, students could undertake a practice-oriented project, supervised by an Elder, Spiritual Leader, or Medicine Person, which involves Anishinabe ways of doing and knowing and engagement with a community. It could take the form of a performance, the development of curriculum, or an apprenticeship with an Elder to learn stories, ceremonies, crafts, or land-based cultural activities. It is supplemented with a written exegesis and public presentation. Thus, the dissertation is embedded within the "epistemology of Anishinabe ways of doing and knowing" (Fontaine & McCaskill, 2022, p. 125).

I successfully completed my required course work in 2016, none of which took place on the land and none of which incorporated any Indigenous pedagogies. As is the tendency with most university instructors, says Louie et al. (2017), the instructors employed methods of instruction "firmly situated within the epistemological structure of the dominant culture" which exacerbated what has been for me, "a lifelong process of institutional marginalization by and alienation from mainstream Western schooling" (Louie et al., 2017, p. 18). During the 2015/2016 academic year I was completing the core courses on campus in Waterloo (a two-hour drive from my place of residence in Niagara Falls at the time), working full time at the national office of a Canadian NGO, and I was a Fellow in the International Women's Forum Leadership program sponsored

by Harvard Business School and INSEAD. During that year I traveled to Boston several times and to INSEAD campus in Fontainebleau, France.

I moved onto the next stage of the doctoral program, the Comprehensive Exam, referred to by graduate students simply as "comps". My doctoral committee asked me to address the following comps question in a 10,000-word paper that was due 21 days after receipt of the question:

> Given the nature of linked social-ecological systems and their inherent complexity, it is a poor match for conventional deductive, reductionist science argue Tsuji & Ho (2002). Therefore, it has been hypothesized that Indigenous Knowledges, including but not limited to Traditional Ecological Knowledge (TEK), and 'indigeneity' (which views education & inquiry as a contested site in the intersection of modernity, indigeneity, globalization, and postcolonialism (Cottrell, Preston & Pearce, 2012), with its holistic approach might be able to offer insights into complex, nonlinear systems. In your response, synthesize and critically analyze insights from the burgeoning literature on Indigenous Knowledges and TEK, 'indigeneity,' and Indigenous methodologies to improve understandings of sustainability, resilience and transformation in social-ecological systems (SES). In general, how can the apparent rift, or dichotomy between external 'experts' of western scientific ecological knowledge (WSEK), including normal and post-normal versions, and Indigenous Knowledges, including TEK, be re-characterized to avoid Indigenous Knowledges being regarded as WSEK's irrelevant opposite? More specifically, situate your discussion of TEK/WSEK and Indigenous methodologies within the fields of inquiry and literatures on social-ecological sustainability, resilience, and transformation, and systems thinking & social innovation, fields increasingly characterized by transdisciplinarity discourse and methodological experimentation. Should integration of Indigenous Knowledges, including TEK together with WSEK, be a regulative ideal in social-ecological sustainability, resilience and transformation discourse? What are methodologies and frameworks that enable researchers to simultaneously employ several types of knowledge? What lessons does the Indigenous Knowledges and TEK discourse provide for "integrating" the social sciences and natural sciences in studying the sustainability, resilience and transformation of social-ecological systems? Using this integration, how can Indigenous Knowledges and TEK introduce 'indigeneity' to sustainability-based, WSEK, predominantly white institutions (PWIs) (Windchief & Joseph, 2015)?

For the 21 days that I prepared my paper I accepted a generous and much appreciated invitation from Frances Westley, to stay in her guest house on her property near Waterloo. Her beautiful home is located on a hill overlooking the shores of the Nith River. It was spring of 2017 so the river was flowing fast with spring runoff.

First there was the omission of IK in my core coursework (and by extension the erasure of Indigenous peoples from intellectual matters) followed now, in my review of sustainability discourse, an emphasis on the ecological component of IK in TEK rather than its "spiritual foundations" (Simpson, 2011, p. 139). It was all quite unsettling for me, and I sought *healing* to cope.

In my view, the process of decolonizing is very much about healing. This means that it takes time to become decolonized, and we do not become decolonized without engaging in a lengthy process of freeing ourselves from colonial and imperial domination and control at multiple levels, including the mind, body and spirit, and within many contexts, such as family, community and larger society (Cote-Meek, 2014, p. 35).

What makes the pain and hurt of racist experiences in university worse is "that they [indigenous students] do not feel validated or understood" (Cote-Meek, 2014, p. 36). The epistemic ignorance I experienced in class and during my comps was a form of "subtle violence" (Kuokkanen, 2008, p. 63). In response, during my comps, I reached out to Anishinaabe Elders, Knowledge Keepers, and language speakers for support. My brother Keith Boissoneau from Ketegaunseebee (Garden River) First Nation told me to find some cedar and take a cedar bath for protection and cleansing. Reading academic papers about complex, adaptive social ecological systems lacked spirit and it was depressing that Mother Earth was designated an 'ecological resource' and little more. The definition of resilience studied in my doctoral program is "the capacity of a system to absorb disturbance and reorganize so as to retain essentially the same function, structure, and feedbacks—to have the same identity" (Walker & Salt, 2012, p. 3). Thus, many scholars spoke about *resilience thinking*, from a purely Western, Euro-scientific perspective. The narrow boundary of their thinking troubled me; a variety of theories and concepts completely lacked a spiritual or emotional lens, focusing instead on the purely physical and intellectual aspects of the matter. From within *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (ways of knowing and doing) how would *resilience* be defined or conceptualized? I was offered the following response, teachings by Knowledge Keepers, my father's cousin Rene Meshake, an Anishinaabe multidisciplinary artist and Elder, and my adopted sister Eleanor Skead, who each speak Ojibwaymowin. This is what they offered:

"Boozhoo cousin. Resilience. In the original language, it's *Sibiskaagad*. Sibi (river), biskaa (flexible), gad (it is). You might say that Resilience is described as a river flowing flexibly through the land. Anishinaabemowin is embedded in the land. Love you cousin!" (Rene Meshake, personal communication, May 4, 2017).

"*Mamasinijige* is the act of twists and turns…and moves. *Mamasinijiwan* is the water flow, in twisting and turning. There always has to be context with ojibwe words. Like you need to introduce how the word has been used" (personal communication, Eleanor Skead, May 4, 2017).

The emphasis in this teaching about resilience, from Rene and Eleanor, is on the "flexibility" and the "twisting and turning" of the water so that it flows through the landscape, flows around and over rocks for instance, that stand in its way. There is a common trend in sustainability and resilience education and discourse, in the concept of *hybridization*, where traditional knowledge, practices and beliefs are merged with novel forms of knowledge and technologies to create new knowledge systems (Gómez-Baggethun et al., 2013). The problem I had in completing my comprehensive exam was how scholars in peer-reviewed journals privileged one way of knowing that legitimates knowledge as only that held by dominant society. Graveline (2002) wrote to engage, clarify, and support teachers, healers, and scholars who struggle to make room for Indigenous realities in all contexts. She said:

Transforming educational contexts requires
  Daring thoughts
    Challenging what we know
      Thought we knew
        Need to know to face the dawning of a new day.
  If people can be acculturated to hold dominant views
      People can also be un-acculturated
        Reculturated to Traditional views (Graveline, 2002, p.13).

In the face of exceptional pressure to acknowledge and cite only Western sources of knowledge I privileged the teaching of the Elders and the river in my comps paper. The river in fact became a co-author and was acknowledged in my comps defence. It was a hybridization because a paper with no Western references would not have been accepted by SERS. And it went further. Eleanor asked me if I was near a river. Yes, I told her, I was writing at Frances' home which overlooks the Nith River. Eleanor told me, "She [the river] is teaching you". I made offerings to the river. Daily I would walk the few hundred metres to the riverbanks and offer *asemaa* (tobacco) and berries to honor her, the river, my teacher. I learned about resilience from that river.

Borrows (2018) speaks about 'earth bound' indigenous knowledges. Borrows, an Anishinaabe legal scholar, says that the word Elder Dr. Basil Johnston taught him to describe the process of understanding based on our language and drawing analogies from the earth is *akinoomaagewin*. This means how to live well by giving our attention to the earth and taking direction from her (Borrows, 2018, p. 51). Observing the winds, waters, rocks, plants, and animals trigger our authority, precedent, and rules. Anishinaabe speakers "inhabit a 'langscape,' a place where physical space interacts with human observation giving meaning to the natural and human worlds" (Borrows, 2018, p. 51). Further, when one speaks Anishinaabemowin the world is understood as being in constant motion. In fact, 70-80 per cent of the language is verb-based. Anishinaabe language then is "… oriented to conjoining and organizing stable yet dynamic states of being in their ever-shifting processes" and a language of animacy "builds on the insight that the world is alive and has an agency of its own" (Borrows, 2018, p. 52). Anishinaabemowin/Ojibwemowin is embedded on the land.

As I completed requirements towards my degree and fulfilled obligations as a Research Fellow at WISIR I was simultaneously working with Frances and Dan on the launch of WIII at UW. WIII was intended to represent a social innovation within a conventional academic environment. It was supposed to support Indigenous Innovation described as "a unique type of social innovation continually informed by the application of Indigenous Knowledge to promote the resurgence of Indigenous Knowledge and Practices" (Westley & McCarthy, 2015). TEK, though, is founded on the notion that what we experience as human beings in the natural world could be "explained within the metaphysics of Western science" whereas this meant "entire realms of human experience in the world is marginalized, declared unknowable, and, consequently, left out of serious consideration" (Deloria Jr. & Wildcat, 2001, p. 12). Compare this with Indigenous metaphysics, as demonstrated by both Rene and Eleanor who separately described resilience as a land-based, living, dynamic concept. Within Indigenous metaphysics humans understand

themselves to be "but one small part of an immense complex living system" (Deloria Jr. & Wildcat, 2001, p. 12).

During my time living in Niagara Falls and studying at UW I was only a *visitor* to the territory where UW is located, the Haldimand Tract, promised to the peoples of the Six Nations. So, in the Fall of 2017, after having successfully defended my comps I invited Frances, Dan, and others to come home with me to Ketegaunseebee (Garden River) First Nation for ceremony and they accepted my invitation. My brother Keith Boissoneau held a sweatlodge healing ceremony and the group visited a sacred site, Trap Rock, and made offerings to the spirits there. It was a profound experience for Frances and Dan, they told me, who had each had some interactions with Anishinaabe culture before but were being asked to understand the responsibilities that I have as an Ojibwe-ikwe.

Until that point the discussions around WIII focused on an academic institute within UW. We decided to pursue an independent entity that might have protected space outside of the academy, including dialogue with various partners in the Waterloo region who might incubate WIII. Those dialogues focused primarily on the administrative requirements for an Indigenous social innovation entity. However, a spiritual foundation was lacking, and I felt compelled to travel home with my colleagues to immerse them in important relational experiences with the land. Sustainability scholars and systems thinkers may in fact be "mystified" by the idea of "protocols" as a necessary dimension of scientific inquiry says Whyte, Brewer II and Johnson (2016), however, in bridging Indigenous and sustainability sciences the concept of Indigenous science includes protocols that often "represent humans as respectful partners or younger siblings in relationships of reciprocal responsibilities within interconnected communities of relatives" (Whyte, Brewer II & Johnson, 2016, p. 26). The relatives include "humans, non-human beings (i.e., plants, animals, etc.), entities (i.e., sacred and spiritual places, etc.) and collectives (i.e., prairies, watersheds, etc.)"—contrast this with a view of the natural world as "resources to be managed by humans" (Whyte, Brewer II & Johnson, 2016, p. 26). Indigenous scientists speak instead about ideas of caretaking, and caretaking "may perplex sustainability scientists who are unaccustomed to considering how these ideas would fit within their expectations about the nature of any rigorous scientific inquiry aimed at understanding important issues such as resource circulation and conservation" (Whyte, Brewer II & Johnson, 2016, p. 26).

It was important for me to help Frances and Dan realize that as an Ojibwe-ikwe I am an important participant in "persisting systems of responsibilities," which have existed since "time immemorial" (Whyte, 2014, p. 607) for Anishinabeg. There is a line of inquiry at SERS on water governance. The degradation of water for me however is deeper than governance, it means grappling with the degradation of a close relative and Ojibwe-ikwe have a special relationship with water (see McGregor, 2008a) who conduct the water ceremonies for the Anishinaabe people. I have a "responsibility" (Whyte, 2014, p. 603) then to the water and other spiritual relatives that contribute to "collective continuance as part of larger systems of interconnected responsibilities" (Whyte, 2014, p. 603). My scholarship then contributes to an entire system of responsibility.

When Frances, Dan and others climbed Trap Rock and offered gifts to the beings, the Little People, who reside there and we lifted the pipe, they too could gain an appreciation for these

systems of responsibility. For *Anishinabekwe* that responsibility includes *nibi* (water). McGregor's water scholarship points out Whyte (2014) recognizes that Indigenous women's knowledge is more than "a body of insights about the environment; rather, knowledge involves being more embedded within systems of responsibilities that one actively *performs*" (Whyte, 2014, p. 611, emphasis in original). This knowledge is "far from being passive or serving as epistemic sources only" (Whyte, 2014, p. 611). In the Waterloo region, I felt completely decoupled from the land, disconnected from my ancestors except for the teacher of the Nith River. The return to Garden River, to the area of Bawating (place of rapids) where I now reside, was necessary to connect myself and my professors to a *phenomenological experience of relationality*, grounded in and through place (Larsen & Johnson, 2012, p. 10). Place is a philosophical concept that offers methodological ground. It is land as pedagogy.

> On this ground, researchers are increasingly finding themselves able to move beyond a unilateral deconstruction of Western intellectual praxis, which characterized early efforts in this area, and toward research hybrids that prioritize connectedness over alienation while simultaneously allowing for, and indeed celebrating, diversity and difference (Larsen & Johnson, 2012, p. 11).

> The gift is impossible when it is located within the exchange economy informed by colonialism, capitalism and patriarchy—all of which have made sure that in many cases only traces are left of indigenous relation-oriented epistemes and social and cultural orders (Kuokkanen, 2008, p. 70).

After my coursework and comps experience at UW and after traveling to Bawating together, it became clear that WIII as it was originally conceptualized would suffer from the effects of the *epistemic ignorance* of IK if it remained as an entity at UW. How could WIII possibly function from within a place of *epistemological marginalization*? It would not honour *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy). My educational experience is sadly not uncommon for Indigenous scholars:

> In a setting relatively ignorant of and indifferent to indigenous worldviews, a person positioned within a framework of a different episteme is forced to negotiate with the structures of colonialism and also with oneself: do I conform and check my 'cultural baggage' at the gates of the university or do I take the baggage with me and therefore, risk the chances of being understood? (Kuokkanen, 2008, p. 64).

My various attempts to bring the *gift* of Indigenous epistemes to the academy failed because "the conditions of intellectual representation" remained unchanged and to counter epistemic ignorance, Indigenous epistemes have to be recognized as a gift to the academy:

> Unlike the binary give-and-take of the exchange paradigm, in the gift logic of Indigenous thought, gifts are not given first and foremost to ensure a countergift later on, but to actively acknowledge the relationships and coexistence with the world without which survival would not be possible. In this logic, the gifts of the land are not taken for granted but recognized by giving back or other expressions of gratitude. This logic does

not separate the self from the world to an extent that it would be possible to view human beings as independent from the rest of the socio-cosmic order (Kuokkanen, 2008, p. 66).

This gift may present a threat to the academy "which does not necessarily welcome such ambiguity and unpredictability" within its dualistic assumptions of reason and the Cartesian view of the world characterized by hyper-separation and "the fantasy of mastery" (Kuokkanen, 2008, p. 67). In supporting the establishment of WIII as originally conceptualized I would have been little more than a *native informant* (Kuokkanen, 2008, p. 70).

> The exploitive, hegemonic and asymmetrical exchange that commonly takes place in academic discourse is a reflection of a broader, dominant neocolonial and also often neoliberal paradigm that continues to foreclose Indigenous epistemes (Kuokkanen, 2008, p. 69)

The Eurocentric assumptions and definitions related to Indigenous peoples were front and centre within the original conceptualization of WIII. What were the *responsibilities* (Whyte, 2014, p. 603) of WIII? Where was the humility on the academy's part? Humility certainly was reflected when Frances and Dan joined me in ceremony at Ketegaunseebee and when one of the professors in my first course asked me for a reading list. It was indicative of an understanding that "the normative starting point of academic inquiry could no longer be solely based on the modern episteme and its assumptions" (Kuokkanen, 2008, p. 77). The gift is *performative*. Being together in ceremony offered all of us the opportunity to evoke spiritual responsibility for whatever the WIII was to become. The spirit of WIII lives on in the *shadow network* (Westley et al. 2011) that currently incubates *relational systems thinking* (see Goodchild, 2021; Goodchild, 2022) approach to systems transformation work. The Faculty of Environment at UW remains a stronghold of Eurocentric science which de facto omits *Indigenous Ways of Living in Nature* (IWLN) (Aikenhead & Michell, 2011, p. 73) that are place-based, monist, holistic, relational, mysterious, dynamic, systematically empirical, based on cyclical time, valid, rational, and spiritual (Aikenhead & Michell, 2011, see pp. 73-94). Contrast this with the "fundamental presuppositions" of Eurocentric sciences (ES), such as: in ES nature is knowable; ES are embedded in social contexts; ES have predictive validity; scientific knowledge is dynamic; scientific knowledge is generalizable; ES operate on rectilinear time; ES subscribe to Cartesian dualism; ES are reductionist; ES are anthropocentric; the material world is governed by quantification; reality is reproduced or represented by scientific knowledge; and empirical data speak for themselves: positivism (Aikenhead & Michell, 2011, see pp. 43-58).

In response to this positivism, when I invited my doctoral supervisors to join me in Bawating to witness me reclaim Anishinabe methods of searching for knowledge, it embodied my own "learning and healing" (Absolon, 2011, p. 105) as an Ojibwe-ikwe. And "resisting academic acculturation is an inherent role in a conscious scholar's mind" (Absolon, 2011, p. 106). Traveling to Bawating and reframing my relationship to the Nith River as first teacher was a process of transforming 'systems of knowledge production' (Absolon, 2011, p. 106) and revitalizing *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy).

Indigenous scholar Grande (2008) argued that Western theory, even *critical theory* informed by Marxist thought for instance, still retains "a measure of anthropocentrism that belies Indigenous views of land and nature" (Grande, 2008, p. 235). She pointed out:

> To be clear Indigenous and critical scholars share some common ground. Namely, they envision an anti-capitalist theory of subjectivity, one free of the compulsions of global capitalism and racism, classism, sexism and xenophobia it engenders. But where revolutionary scholars ground their vision in Western conceptions of democracy and justice that presume a 'liberated' self, Indigenous scholars ground their vision in conceptions of sovereignty that presume a profound connection to place and land (Grande, 2008, p. 240).

3.5 TEK, Concepts of Knowledge, and Epistemological Sovereignty

The United Nations Development Program (UNDP, 2020) is now calling for wisdom—what it terms "instilling a sense of stewardship of nature" (UNDP, 2020, p. 88)—which is foundational to the philosophical perspectives of many Indigenous peoples and other ancient knowledges. In the face of alarming planetary change and a worldwide pandemic called COVID-19, the United Nations Development Program released its Human Development Report 2020: *The Next Frontier: Human Development and the Anthropocene* (UNDP, 2020) noting that the "ground beneath us is shifting as we confront the unprecedented challenges of the apparent Anthropocene" (UNDP, 2020, p. 6). And what is most concerning and relevant to the focus of this dissertation is that today almost 80 percent of the world's people believe that it is important to protect the planet, but only about half say they are likely to take concrete action to save it. There is a gap, says the report authors, between people's values and their behaviour (UNDP, 2020, p. 10). The UNDP report recognizes that a key *leverage point* (Meadows, 2008) for intervening in the system is a recognition that both forms of knowledge (science and Indigenous philosophies) can "promote rich interactions and give rise to relationships of trust able to navigate the shared opportunities and challenges that arise" (UNDP, 2020, p. 93). It is a *convergence* of ways of knowing, put more succinctly it is actively facilitating knowledge systems interaction.

What is needed is a different way of "being in the world" (Herman, 2016, p. 170). *Indigeneity* is embracing the holistic knowledge and wisdom found in traditional cultures while also utilizing the advances in science (Herman, 2016, p. 163). The original conceptualization of WIII sought to surface a different way of being in the world, described differently by various scholars, such as *indigeneity* as the application of Indigenous knowledge and culture applied to modern times in parallel with other knowledge systems (Durie, 2005, p. 304). Also as *re-indigenizing* humanity (Lushwala, 2017, p. xvii), or *indigenuity*, the proposal to critically examine the knowledge and wisdom of indigenous peoples for insights on how humans might live well and enhance life on the planet (Wildcat, 2009, p. 79), or recognizing that the *metaphoric mind* is the elder brother and the rational mind is the younger brother of human thinking (Cajete, 2000, pp. 28-45). Also, *collaboration* with Indigenous knowledges and a recognition of the possibilities of radically different epistemologies (Somerville, 2014, p.410), and ultimately a shift in human collective consciousness and behaviour from *ego-system awareness to eco-system awareness* (Scharmer,

2018, p. xiii). It is important to note that the UNDP has a blind spot, its anthropocentric *mental models* (Senge, 1990).

The main issue I had with TEK as I read the materials for my comps exam and in my research for this dissertation is how it conceptualizes knowledge. Within Ojibway-Anishinabe *nah-nahn-gah-dah-wayn-ji-gay-win* (epistemology) and *i-nah-di-zi-win* (ontology) knowledge is holistic, relational, and place-based while Eurocentric sciences (ES) are reductionist, anthropocentric, and generalizable (see Aikenhead & Michell, 2011, p. 111). TEK in sustainability discourse is too often presented however as reductionist, anthropocentric, and generalizable because it is defined and understood as such by ecologists, environmentalists, and scientists. In the original draft conception of WIII, TEK was highlighted within the nexus of environmental assessment, resource extraction, and Indigenous rights (McCarthy & Westley, 2015, np.). Assessments of the *usefulness* or utility of Indigenous wisdom abound.

TEK has been defined by non-Indigenous scholars Berkes, Colding and Folke (2000) as follows:

> … a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment (Berkes, Colding & Folke, 2000, p. 1252).

Further, the authors characterize TEK as a system, a knowledge-practice-belief complex, described in a diagram:

FIG. 1. Levels of analysis in traditional knowledge and management systems (adapted from Berkes 1999).
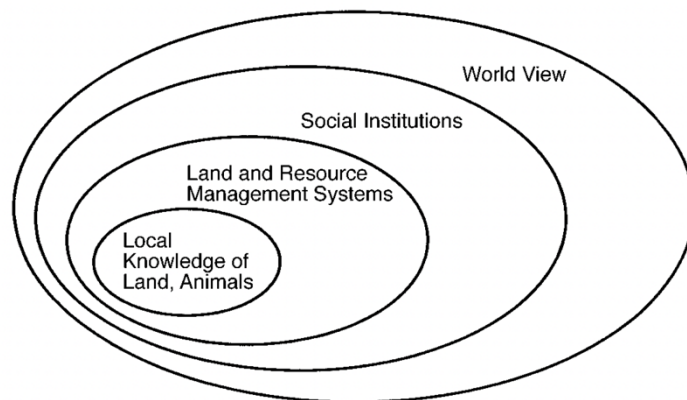
Figure 3.1 The knowledge-practice-belief complex (Berkes, Colding & Folke, 2000, p. 1257)

The authors argue that TEK is a complex system that can be represented as hierarchical, which they admit falls short of showing the feedbacks among the ellipses and the close coupling of some parts of the systems, especially management systems and social institutions. While they offer reflections on culture transmission as social mechanisms, they conclude that the underlying worldview and values of the culture in which the knowledge is embedded has a "spiritual component" and they argue that this spiritual component is "largely outside the realm of ecology" (Berkes, Colding & Folke, 2000, p. 1252) except for their brief discussion of 'taboos' and other regulations. They also reference rituals, ceremonies, and other traditions, as a category

of social mechanisms for cultural internalization, as helping people "remember the rules and appropriately interpret signals from ecosystem change" (Berkes, Colding & Folke, 2000, p. 1258). Finally, they argue that traditional worldviews often have a spiritual component, "which may be interpreted as a way to deal with uncertainty" (Berkes, Colding & Folke, 2000, p. 1259) and that "cultural values" such as respect, sharing, reciprocity, and humility" that characterize a diversity of traditional knowledge and practice are "outside the sphere of ecology" (Berkes, Colding & Folke, 2000, p. 1259). The hierarchical nature of this model and the characterization of spirituality as *outside of ecology* is problematic and illustrates the reductionist, narrow conceptualization of our *Anishinaabe* way of life through the lens of one discipline— ecology.

There exists a wide body of Indigenous scholarship that problematizes TEK, such as from fellow Anishinaabe researcher Deborah McGregor who argued that traditional knowledge is an entire world view that cannot be compartmentalized to contribute to the larger Western science-based framework (McGregor, 2009). Much resilience literature is *normative*, considering TEK to be both universal and a good thing, and something to be appropriately integrated into *resilience thinking*. I discovered that TEK (Alexander et al. 2011; Bates, 2007; McGregor, 2011; Jackson et al. 2015; Gomez-Baggethun, Corbera and Reyes-Garcia, 2013; Stevenson, 1996; Beckford et al. 2010; Lertzman and Vredenburg, 2005; Witt and Hookimaw-Witt, 2003; Harmsworth, Awatere and Robb, 2016; Kendrick, 2003; Jackson et al. 2015; Turner and Spalding, 2013; Speranza et al. 2010; Nkomwa et al. 2014; Leclerc et al. 2013) has become an entity unto itself and the direct subject of its own field of inquiry (Nelson, 2005). As I unpacked TEK, with its preference for modernist, anthropocentric paradigms, the discourse it seemed contributed to further *intellectual colonization*. The foremost cited scholar of TEK is Fikret Berkes (Berkes et al. 1998; Gadgil, Berkes and Folke, 1993; Berkes, Colding and Folke, 2000; Boillat and Berkes, 1993), a marine ecologist at the University of Manitoba who wrote *Sacred Ecology* (Berkes, 2012). That the foremost scholar of TEK is not in fact Indigenous is not surprising given that Indigenous TEK scholars (McGregor, Kimmerer, TallBear, Simpson, Lickers) are outsiders while those established in the academy have for so long invariably tended to be white men, "demanding from them recognition of their knowledge systems and ways of constructing and organizing the social world" (Matsinhe, 2007, p. 850). Berkes nonetheless has made a significant contribution to the field, arguing that researchers have wasted too much time debating science versus TEK, which should instead be a dialogue and partnership. He argued for the hybridity of philosophies and knowledge systems, not that they should be "synthesized" but instead generate "new knowledge" (Berkes, 2012, p.40). My Uncle Dan Longboat says it's not really "new" knowledge but rather traditional Indigenous knowledge in new contexts, so it's "knew" knowledge because we already knew it.

TEK's conceptualization and operationalization in the literature speaks to a zone of convergence (Hill et al., 2012) between TEK and Western science (Berkes, 2012), which does provide a greater understanding of the importance and role of IK and TEK in environmental management for sustainability and *resilience*, however their approach is built on the assumption that *integration* and *collaboration* requires compartmentalization of Indigenous knowledge systems into the narrow construct of *traditional ecological knowledge*. Hence the debate about the title of TEK, which is conceptualized differently by Western and Indigenous knowledge systems (McGregor, 2008b). Conventional academic approaches to TEK then continue to devalue and marginalize holistic Indigenous knowledge systems. While there may be clear points for

integration, a colonial attitude can be detected in the orthodox resilience thinking approaches to *aki* (land) as natural capital, deeply rooted in a particular Eurocentric mindset, with values and beliefs oriented toward the normalization of continued environmental degradation, in support of *neoliberalism* (Woodhouse, 2002; Giroux, 2014). TEK, integrated into resilience thinking and sustainability discourse, is in service of the foundational epistemological theories of Eurocentric systems (science, ecology, and economics) so there exists a troubling issue of *epistemological sovereignty* (Healy, 2003; as cited in Miller et al, 2008) and unification via "scientific imperialism" (Olsonn et al. 2015, p. 7).

I found that much of the TEK literature provided little insight into *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy); instead, it represented the "imposition of the settler's gaze" (Coulthard, 2007, p. 444) via the Eurocentric "western universalizing attitude" (Matsinhe, 2007, p. 839). Anishinaabe scholar Leanne Simpson analyzed TEK years before me as a PhD student at the University of Manitoba in the 1990s (Simpson, 2017, p. 170). TEK is understood as a *process* by Anishinaabeg, not *knowledge* or *content* (Nelson, 2005, Simpson, 2001). The objectification of TEK as content, a database of knowledge that one can study, reduced to a catalogue of information, or *ex situ preservation* as Agrawal (1995) referred to it, is the result of unification of TEK by scientific imperialism. Resilience thinking does not challenge the positional superiority of Western knowledge, instead seeing TEK as a rich body of knowledge that can *inform* science (Alexander et al., 2011), treating it as a universal perspective, thus colonizing Indigenous knowledge systems (Smith, 2012). IK systems are not compartmentalized into branches such as *ecological knowledge*—viewed by Euroscience as a body of knowledge, as a noun—but is instead holistic in nature, a process, with a focus on *relationships*. Anishinaabe ways of knowing are about our relationship with Creation, it is something that one *does* (McGregor, 2009, p. 75, emphasis in original). So, after years of "appropriating, assimilating, ignoring, undermining, and degrading our knowledge, it was finally acknowledged by members of the dominant society" says Simpson (Simpson, 2011, p. 138) on the emergence of TEK literature over the past several decades, yet TEK still remains specifically interested in knowledge that parallels "the western scientific discipline of ecology" (Simpson, 2011, p. 138).

I part ways with Bala and Gheverghese Joseph (2007) who argue that a goal of the dialogue between science and Indigenous knowledge systems is to find strategies to legitimise, where possible, Indigenous theoretical and methodological discoveries" (Bala & Gheverghese Joseph, 2007, p. 58). Recall my alarm in reading the draft concept note for WIII in which consultation with Indigenous Peoples included "validating Indigenous Knowledge" (McCarthy & Westley, 2015, np.). This emphasis on legitimizing *nah-nahn-gah-dah-wayn-ji-gay-win* (epistemology), *i-nah-di-zi-win* (ontology) and Anishinabe *i-zhi-chi-gay-win zhigo kayn-dah-so-win* (ways of doing and knowing) is not useful as it "invariably leads to attempts to validate and critique TEK vis a vis scientific knowledge" and "amounts to a showdown of worldviews, in which the one deemed most correct is declared the winner and earns the right to govern" (Nelson, 2005, p. 305).

Part of a new wave of young Maori researchers in New Zealand, Rotarangi and Russell (2009), argue that there are two fundamental challenges to both resiliency theory and related approaches to environmental research and management: (a) the ability of resilience theory to incorporate and

legitimate cultural knowledge, and (b) issues of power and management arising from the implementation of resilience theory (Rotarangi & Russell, 2009). They further conclude:

> Firstly, if resilience theory is to be expanded as a stepping stone between Western science paradigms and the recognition of the legitimacy of Indigenous theory, then the cultural component of social-ecological resilience needs to be further investigated for compatibility and expanded on in resilience analysis (Rotarangi & Russell, 2009, p. 211).

3.6 TEK's Contributions to socio-ecological systems thinking

> What will be gained by placing TEK-based worldviews into a broad-based system of knowledge is the ability to access a large amount of information and experience that has been previously ignored, or treated as mysticism. This additional knowledge, with its empirically derived emphasis on the natural world, can provide us with scientifically testable insights into some of the most pressing problems facing humankind today (Pierotti & Wildcat, 2000, p. 1339).

While TEK has been problematized as a construct within Eurocentric ecological scholarship, from *within* Indigenous research paradigms, TEK is insightful. Pierotti and Wildcat (2000) explain that TEK thinking includes, 1) respect for nonhuman entities as individuals, 2) the existence of bonds between humans and nonhumans, including incorporation of nonhumans into ethical codes of behaviour, 3) the importance of local places, and 4) the recognition of humans as part of the ecological system, "rather than as separate from and defining the existence of that system" (Pierotti & Wildcat, 2000, p. 1335). Within a TEK-based ethical system, says Pierotti and Wildcat, nature exists on its own terms and individual nonhumans have their own reasons for existence, independent of human interpretations. During my doctoral studies at UW, reading academic papers about complex, adaptive social ecological systems from a Eurocentric perspective lacked spirit and it was depressing to me that Mother Earth was designated an 'ecological resource' and little more. As I reviewed and analyzed the scholarship on social and ecological sustainability for my comps, specifically TEK, I was struck by the visceral, emotional reaction I had to spending day after day ingesting scholarship that reduces "reality to a *physical world*" (Deloria Jr., & Wildcat, 2001, p. 11, emphasis added) and an approach to *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) as extractive, representing a colonization of IK (McGregor, 2008b).

In the literature, there were a couple of insightful TEK offerings by non-Indigenous scholars who approached the topic more holistically, namely Davidson-Hunt and Berkes' (2003) study on adaptive learning and research by Lertzman and Vredenburg (2005). *Anishinaabemowin* is embedded in and on the land, as discussed in Davidson-Hunt and Berkes' study on adaptive learning and *social memory* with Anishinaabe Elders in Treaty 3 who wrote their histories upon the land. Adaptive learning for social ecological systems (SES) resilience requires maintaining a web of relationships of people and places. This study explores the links between learning processes and ecosystem dynamics thus situating learning with SES and considering it a system issue. Adaptive learning is treated as a way to build knowledge, including TEK. The authors outline a version of an adaptive learning model based upon Anishinaabe philosophy, outlining

twelve *institutions of knowledge:* revelation, place-based, holistic, embedded subjects, direct coupling, empirical observation, personal and collective ceremonies, social gatherings, self-awareness, mentoring, language, and narrative. In so doing they explore the Anishinaabe perception of social-ecological environments. Perceptions of the biophysical landscape, both spatial and temporal perceptions, are based on two core Anishinaabe philosophical principles: that knowledge *resides in the land,* and knowledge is *progressively revealed* through experience on the land. Perception is linked with how people "remember from places and journeys" (Davidson-Hunt and Berkes, 2003, p. 2).

Davidson-Hunt and Berkes' study includes several maps, or idealized schematics of Anishinaabe biogeophysical knowledge, in *Anishinaabemowin.* They include a landscape vocabulary that shows evidence of relationship concepts as perceptions of landscape patterns. When the authors presented initial findings to the Elders, trying to match *Anishinaabemowin* with terms for ecological units, Elder Jimmy Redsky suggested that their findings were incomplete, that they "had not paid enough attention to the history of the land" (Davidson-Hunt and Berkes, 2003, p. 8). Anishinaabe people draw upon their history to begin to understand how they perceive spatial patterns of the land, such as place names. Basso (1996) in writing about place names for the Western-Apache, recounts the following interaction. Nick (an accomplished singer and a medicine man of substantial reputation) asks to see the maps the author has created. He is not impressed. He says, "White men need paper maps…We have maps in our minds" (Basso, 1996, p. 43). Place names are based on how the landscape looks, how it is related to other places, what occurred at that place and/or what might be found at the place, says Davidson-Hunt and Berkes (2003). For instance, "*Gitchinayaashing* describes a big point, *Aagimakobawatig* a place where black ash grows beside a rapid, *Gaanikooshkooshkaag Zaagaiwan* a lake where a specific type of plant grows, *Ogishkibwaakaaning* where wild potatoes grew, *Gitigaani Minis* an island where gardening occurred, and *Animoshi Minis* where the howling of dogs was said to have been heard in the past" (p. 9). In essence the philosophy and language of the Anishinaabe Elders "brought together the biological, social, and cultural aspects into a dynamic cultural landscape" (Davidson-Hunt and Berkes, 2003, p. 10). This study privileged *Anishinaabemowin* and the teachings of Elders together to understand resilience and adaptive learning and best illustrates how *Gikendaasowin* (ways of knowing) is not science or pseudo-science, rather it is a *process* embedded in multiple systems of practice, beliefs, values, and power across multiple scales (Carothers, Moritz and Zarger, 2014). Furthermore, it is itself *holistic* because knowledge in itself is not the goal, it is a process in which researchers are only the interpreters of knowledge, which belongs to the cosmos (Wilson, 2008; Bates, 2007). Contrast this with the latent Eurocentrism in much of the TEK literature that avoids a direct engagement with *Gikendaasowin*, learning on the land.

Late sustainability scholar Dr. David Lertzman introduced his MBA students at the Haskayne Business School, University of Calgary, to experiential learning in the wilderness and with Indigenous Elders. He recognized that substantive cross-cultural dialogue was key to ethical sustainable development and his critique of TEK also recognized that the knowledge is "the whole way of life that generates it and the people who live it" (Lertzman & Vredenburg, 2005, p. 245). As outlined earlier in this chapter, attempts to define TEK are inherently colonial, so he and his colleague proposed the idea of Traditional Ecological Knowledge Systems (TEKS) with spatial, historical/temporal, socially mediated, culturally located, and methodological elements.

TEKS is a knowledge-producing system and some of its methods can be passed on interculturally, forming the basis for a body of skills referred to as *cultural literacy* (Lertzman, 2002, 2003). The standpoint theory of *relational systems thinking* (Goodchild, 2021) incorporates this idea of cultural literacy, which is not dissimilar to *cultural fluency*, as introduced by my Uncle Dr. Dan Longboat (see Goodchild, 2021). What is most significant in David Lertzman's work is the understanding that TEKS is generated and then shared via a range of intuitive, somatic, and other spiritual modalities, including:

> singing, dancing, drumming, dreaming, fasting, praying, purifying, periods of isolation outside of the community and other ceremony (Lertzman, 2003, cited in Lertzman & Vredenburg, 2005, p. 246).

Thus, important aspects of TEKS are outside the realm of what Lertzman and Vredenburg (2005) call traditional Western science (TWS) that addresses phenomena that can be measured in time and space. Recall my earlier analysis of the definition of TEK by Berkes, Colding and Folke (2000) that identified the spiritual components of traditional knowledge systems as outside of 'ecology'. Tragically, many sustainability scholars continue to approach the world as "so many resources to be managed by humans" (Whyte, Brewer II, & Johnson, 2016, p. 26).

> The old people, surveying a landscape, had such familiarity with the world that they could immediately see what was not in its place. If they discerned anything that seemed to be out of its natural order—a nocturnal animal in the daytime, unusual clouds or weather conditions, or a change of the plants—they went to work immediately to discover what this change meant. Many observers have said that this ability to perceive anomalies meant that the people could see when nature was out of balance, and I certainly would not quarrel with this characterization. When the people saw an imbalance, their understanding of the natural ordering of the cosmic energies informed them that their responsibility was to initiate ceremonies that would help bring about balance once again (Deloria, Jr., 2001, p. 63).

Western scholars may recognize the spiritual foundation of TEKS, referring to it as "holistic" in nature, yet such descriptions "tend to the shallow and vague" (Lertzman & Vredenburg, 2005, p. 246). TEKS and TWS represent "parallel, potentially complementary knowledge systems with their own methods, philosophies and experts" (Lertzman & Vredenburg, 2005, p. 247). Lertzman & Vredenburg offer a case study of the Clayoquot Scientific Panel for Sustainable Practices in Clayoquot Sound (the Panel), launched by the government of British Columbia, Canada in 1993, as a precedent setting example of functional dialogue between Indigenous people and Western science-based culture. The following features of this panel are noteworthy in terms of respecting a TEKS lens:

- The Panel had a mandate to draw equally on traditional ecological knowledge of local First Nations as well as Western science;
- The 19-member panel was comprised of fifteen internationally recognized scientists from a variety of fields;
- The Nuu-Chah-Nulth Tribal Council designated four other experts including three Elders and a hereditary chief as Co-chair;

- The Panel was charged with developing 'world-class standards for sustainable forest management by combining traditional and scientific knowledge' (p. 249);
- The Panel adopted traditional Nuu-Chah-Nulth protocols as the basis of their internal working protocol, adopting the *Nuu-Chah-Nulth inclusive process for discussion and sharing to reach agreement* [emphasis in original] for bridging TEK and Western science;
- The Panel gave respect to Nuu-Chah-Nulth cultural and spiritual teachings including *the sacredness and respect for All Things* [emphasis in original] embodied in the traditional principle of *hishuk ish ts'awalk* (everything is one);
- The Panel recognized Nuu-Chah-Nulth social institutions and drew upon them in framing their recommendations, including the traditional land management system of *hahuulhi*;
- The Panel also came to the 'profound epistemological conclusion that TEK provides for Western science an 'external, independently derived reference standard';
- Ecosystems occupied a shared conceptual space as the field of inquiry and applications for both the scientific and traditional knowledge experts on the panel.

Lertzman and Vredenburg (2005) conclude that "*bi-cultural* professionals are necessary elements of successful exercises in cross-cultural bridging" (Lertzman & Vredenburg, 2005, p. 250, emphasis in original). A TEKS lens, and a *relational systems thinking* stance, recognize that Indigenous Knowledge is not merely content (Yunkaporta & McGinty, 2009), not about the *what*, but the *how*. What Lertzman & Vredenburg (2005) describe as 'effective bi-cultural interaction' (Lertzman & Vredenburg, 2005, p. 250) I would describe as *generative social fields* (Scharmer, 2018). In a generative eco-system, actors let go of old identities (i.e., the Panel) and a new space of co-creative awareness opens up. Actions from this type of space have been described as *flow* by high-performing dance and music ensembles and by sports teams. "They co-create from a future potential that wants to emerge" (Scharmer, 2018, p. 36, emphasis in original).

Relational systems thinking (Goodchild, 2021; Goodchild, 2022) is a third space methodology that can cultivate cultural literacy, "two-way learning and adaptation" (Lertzman & Vredenburg, 2005, p. 251) and what Dr. Dan Longboat called *cultural fluency*, shifting old identities, and allowing *flow*. Simply put it is a state of open-mindedness that makes space for managing our mental models, which are deeply held internal images of how the world works (often associated with our identities). They are the images, assumptions, and stories which we carry in our minds of ourselves, other people, institutions, and every aspect of the world. Exploring mental models is one of the five disciplines of building learning organizations (Senge, 1990). Some researchers in Australia also refer to TEKS as Indigenous biocultural knowledge (IBK) and have assessed its main contributions to ecosystem science and management. Ens et al. (2015) argue that the potential contribution of Indigenous knowledge to contemporary ecosystem science is "irrefutable" (Ens et al. 2015, p. 134) and that there needs to be "greater recognition by non-Indigenous people of the value and diversity of knowledge systems other than Western science that operate within society" (Ens et al. 2015, p. 135). IBK stresses the importance of cultural connections between humans and what Western science identifies as the bio-physical world, and points out that Western ecological knowledge is restricted to bio-physical entities. IBK tends to

be held in widely dispersed records such as artworks, private journals, linguistic dictionaries, unpublished reports, community publications, academic journal articles, books, photos and videos. IBK is a living knowledge that is still being used and documented. In a desktop literature search the authors found 1325 items that contained information on Australian IBK; 586 were 'place-based', 245 contained methodological or instructional content, 255 were review materials and 267 were related resources. Millenia of accumulated knowledge is embedded in Indigenous languages and involving a linguist to ensure that the nuances of local Indigenous knowledge are correctly documented is crucial (Ens et al. 2015, p. 142).

An example of this includes Davidson-Hunt and Berkes' (2003) study on adaptive learning and *social memory* with Anishinaabe Elders in Treaty 3 (described earlier) where *Anishinaabemowin* was featured prominently. Ens et al., caution that IBK not become a "detached commodity" for general use by the public (Ens et al., 2015, p. 144). They characterize the incorporation of IBK into wider discourses of environmental conservation as "socio-ecological systems thinking" (Sachs et al., 2009, cited in Ens et al., 2015, p.144) that includes more philosophical engagement of Indigenous knowledge. Nakata (2006) similarly warns that "all knowledge that is produced about us and all knowledge that we produce ourselves is added to the Western corpus," within the academy and "thereby gets reorganized and studied via the disciplines of Western knowledge" (Nakata, 2006, p. 271). While it is important to recognize this reality, it is also important to recognize the space the academy provides for bringing in Indigenous knowledges, says Nakata. What if courses, departments, faculties, and disciplines took a *relational systems thinking* stance, enabling more holistic socio-ecological systems thinking?

What is lacking in much of the TEK and sustainability literature is a critical assessment of the conceptualizations of social-ecological systems (SES), sustainability, and resilience thinking, *from an indigenous perspective*. Greater attention must be paid to the theoretical assumptions underlying environmental studies and sciences (ESS). This is a necessary step to its continued intellectual and pedagogical development (Proctor, Clark, Smith, & Wallace, 2013). ESS broadly, and sustainability education research specifically, can and should create the conditions for cultural critique and change:

> Sustainability education is often considered as decoupled from cultural patterns and processes easily recognized as contributing to the need for sustainability education in the first place (Anderson, Datta, Dyck, Kayira, & McVittie, 2015, p. 3).

The foundational mental model of transitions to sustainability is anthropocentrism, not surprising since as Indigenous science scholars Aikenhead and Michell (2011, p. 52), Cajete (2000, pp. 29-30), and Kimmerer (2013) observe, Eurocentric sciences are anthropocentric, with a hierarchy of beings in which humans are the "pinnacle of evolution" (Kimmerer, 2013, p. 9) and people are given a special status within nature—above that of animals, plants, and non-living things in nature (Aikenhead & Michell, 2011, p. 52). Contrast this with Indigenous philosophies in which we are the youngest siblings of Creation (Kimmerer, 2013), a principle encoded in our ceremonial life. "As science progresses, so do the ceremonies, and as we look ahead there is considerably more to be gained by combining insights than by ignoring them" (Deloria Jr., 2001, p. 65). This was my message when I addressed scientists and social scientists at Resilience 2017 conference in Stockholm, Sweden. During my keynote address I said, what's needed to address

climate change is a shift in mental models from anthropocentrism to wisdom and humility, or as Otto Scharmer would say, from Ego to Eco.

> The Native American paradigm is comprised of and includes ideas of constant motion, and flux, existence consisting of energy waves, interrelationships, all things being animate, space/place, renewal, and all things being imbued with spirit… The constant flux notion results in a 'spider web' network of relationships. In other words, everything is interrelated. If everything is interrelated, then all of creation is related (Leroy Little Bear, in Cajete, 2000, p. x)

There are remarkable parallels between modern physics and the views of Eastern spiritual and philosophical traditions, seen in the writings of Oppenheimer, Bohr and Heisenberg (see Capra & Luisi, 2014) and between modern physics and Indigenous spiritual and philosophical traditions (see Peat, 2005; Cajete, 2000; Stonechild, 2016). For the physicist and the mystic, "their observations of the universe take place in realms that are inaccessible to the ordinary senses. In modern physics, these are the realms of the atomic and subatomic world; in mysticism, they are nonordinary states of consciousness in which the everyday sensory world is transcended" (Capra & Luisi, 2014, p. 286). "Complexity science embraces life as it is: unpredictable, emergent, evolving and adaptable—not the least bit machine-like" (Westley, Zimmerman & Patton, 2007, p. 7). *Quantum social theory* considers how concepts, methods, and understandings from quantum physics relate to social issues. It is distinct from other social theories in that it raises "deep metaphysical and ontological questions about what is *really* real" (O'Brien, 2016, p. 618, original emphasis). If we do not question the underpinnings of social science, "we are likely to continue along rational, deterministic trajectories that prioritize technical responses over adaptive changes" (O'Brien, 2016, p. 619).

Western sustainability discourse, even with the incorporation of TEK, seems unable to effectively accommodate the *gift* (Kuokkanen, 2008) of *Anishinaabeg ways of knowing*. Instead, the mental model (Senge, 1990) of a hierarchical binary persists, in which Indigenous knowledge systems remain outside the borders of legitimised ways of knowing (hegemonic science) which is *scientism* (Herman, 2016, p. 168). Western epistemologies and Indigenous epistemologies often converge as a clash, which is not generative. As I shared earlier, I encountered what Kuokkanen (2008) aptly described as "epistemic ignorance" (Kuokkanen, 2008, pp. 60-65) at UW during my studies. For example, there was not one Indigenous scholar (or Black scholar or eco-feminist scholars either) included in the reading lists for any of my courses, yet Indigenous scholarship has much to contribute to environmental education and to sustainability discourse especially from the frame of caretaking/stewardship and a sacredness ethic (see Whyte, Brewer & Johnson, 2016; Kialiikanakaoleohaililani & Giardina, 2016). This line of inquiry in my studies could have highlighted some of the weaknesses in the application of Western sustainability science.

Prior to colonization, indigenous peoples had existing traditional territories, cultures, languages, governing structures, epistemologies, and religions. In many cases, colonizers brought their own world views and rules, and judged indigenous systems as 'wrong' (Braun et al., 2014, p.118). And then they took our land. Richmond and Ross (2009) argue that Indigenous peoples are physically displaced peoples who at the time of colonization were denied access to their

traditional territories and in many cases were forced to move to new locations selected for them by colonial authorities. The reserve system disconnected Anishinaabeg from vast traditional territories and compromised our semi-nomadic and nomadic lifestyles on the land. Yet to this day, Elders and other Anishinaabe practice resiliency through their ties to the land (Tobias & Richmond, 2014). *Aki* (land) provides the social, cultural, and spiritual resources to "contest the threats presented by dispossession" (Walters et al, 2011; as quoted in Richmond & Ross, 2009, p. 28). TEK literature that directly address power, dispossession, and colonial relations is found in human geography, which recognizes that "difference and subjectivity on/in the body politic" is "always embedded in power differentials at multiple scales" (Radcliffe, 2017, p. 221). "Regimes of managing identity become inexorably bound up with the tools at hand" and geography highlights how new "technologies are enmeshed in settler-Indigenous dynamics of spatialization and territorialisation" (Radcliffe, 2017, p. 222). Economic and nationalist expansion results in forced "mobility" of Indigenous peoples, and while Indigenous peoples are not on the verge of extinction they are "coming to a city near you" (Radcliffe, 2017, p. 223).

Next, I will take a brief look at one thread of sustainability discourse, ecological economics, that has virtually ignored Indigenous culture and knowledge systems (Hardy & Patterson, 2012) yet was an anthropocentric line of inquiry that featured prominently in my doctoral studies at UW.

3. 7 The anthropocentric bias of Ecological Economics

We suffer from "an irresponsible search for short-term benefits without regard for the long-term consequences" (Laszlo, 2009, p. 17). Giroux and Giroux (2008) argue that we must ponder the "social costs of breakneck corporatization" because neoliberalism "reproduces the conditions for unleashing the most brutalizing forces of capitalism" (Giroux & Giroux, 2008, p. 183). "Disposability has become the new measure of a neoliberal society in which the only value that matters is exchange value" (Giroux, 2014, p.10). Modernization theory, based on liberal values, "argues that developing countries should emulate the Western model of development by modernizing their societies to take on the features of the economically advanced countries" (Du Pisani, 2006, p. 88). Modernization is a metatheory of development. The "mainstream, dominant and powerful development ideology remains within the framework of neoclassical economics" and neoliberalism is simply a "reformulation of modernization theory" (Kothari & Minogue, 2002, p. 7). Neoliberalism seeks to rationalize the use and management of the environment by converting it into commodities. Is it really possible to 'green' capitalism? (Bakker, 2010).

The theoretical foundations of sustainability and sustainable development challenging the "social logic that locks people into materialistic consumerism" (Jackson, 2009, p. 180) that leads to crises like climate change, can be found in *ecological economics*, a bridge between economics and ecology. In this view, the economy is a subsystem of the biosphere that supports it, which is "finite, nongrowing, closed (except for the input of solar energy) and constrained by the laws of thermodynamics" (Daly, 2005, p. 102). Within ecological economics the concept of value is central, that of natural capital and ecosystem services, along with limiting material throughput and consumption (Jackson, 2009; Daly, 2005; Guha, 2003; Sneddon, Howarth and Norgaard, 2006; Klimas, 2014; Daly, 2002). Eco-system services are the myriad social and environmental benefits that nature contributes to human well-being (Klimas, 2014). Sustainability requires the

reconciliation of three imperatives: the ecological imperative to stay within the biophysical carrying capacity of the planet; the economic imperative to provide an adequate material standard of living of all, and; the social imperative to provide systems of governance that propagate the values that people want to live by (Robinson & Tinker, 1997, as cited in Robinson, 2004).

Hammond and Winnett (2009) provide an excellent interdisciplinary critique of the influence of thermodynamics on ecological economics and Daly (2005), an American ecological economist, argues that the biosphere is finite, nongrowing, closed and constrained by the law of thermodynamics (Daly, 2005, p. 102). As the world becomes full of us and our stuff, it becomes empty of what was here before, "emptier of fish, fossil fuels and other natural resources" (Daly, 2005, p. 107). During my studies at UW I was presented with various readings by Aldo Leopold and the other canonical writers/theorists in the *sustainability* and *resilience thinking* discourse, none of whom according to my professors were in fact, Indigenous scholars/peoples. Sustainability is the overarching paradigm defining the "desirable long-term properties of systems in economic, social, or biological spheres" (Throsby & Petetskaya, 2016, p. 120). The theoretical foundations of sustainability and sustainable development challenging the "social logic that locks people into materialistic consumerism" (Jackson, 2009, p. 180) that leads to crises like climate change, can be found in *ecological economics*, a bridge between economics and ecology. In this view, the economy is a subsystem of the biosphere that supports it, which is "finite, nongrowing, closed (except for the input of solar energy) and constrained by the laws of thermodynamics" (Daly, 2005, p. 102).

Enzenberger (1996) calls the wealth of the overdeveloped consumer societies of the West a result of a "wave of plunder and pillage unparalleled in history (Enzenberger, 1996, p. 39). Libby Robin (1997) says the engine of the *Great Acceleration* is an interlinked system, consisting of population increase, rising consumption, abundant cheap energy and liberalizing political economies. We live in a consumer society, but some argue we can still save the planet. "Consumer society seems hell-bent on disaster" (Jackson, 2009, p. 171). Jackson, a British ecological economist, in his book *Prosperity Without Growth* (2009) argues that humanity can manage risk and avoid that disaster if we engage in structural transition towards low-carbon, labour-intensive activities and sectors (Jackson, 2009, p. 176) and through the dismantling of the complex incentive structures via systematic attention given to the myriad ways in which the culture of consumerism is constructed (Jackson, 2009, p. 183). It is concerning that in sustainability literature, ecological thinking has been "watered down to once again make the material demands of the human species the primary test of what should be done with the Earth" (Du Pisani, 2006, p. 93). There is an anthropocentric bias, observes Du Pisani, that pervades conceptual discussions of sustainability. "Anthropocentrism" is the belief in the primacy of the human enterprise and hence the inherent superiority of humans over all other species and thereby the right to dominance (Bell & Russell, 1999).

Johan Rockstrom et al (2009) claim that the biosphere is facing imminent collapse and that the authors were for the first time "…trying to quantify the safe limits outside of which the Earth system cannot continue to function in a stable, Holocene-like state" (Rockstrom et al., 2009, p. 474). Nordhaus, Shellenberger and Blomqvist (2012) presented a forty-three-page counter claim to the planetary boundary paper by Rockstrom et al. asking why the Holocene baseline is

superior? The theorizing around thermodynamics in ecological economics is problematic for sustainable development because it puts "a great deal of faith in quantitative representations of complex human-environment relations" (Sneddon, Howarth & Norgaard, 2006, p. 260). Degrowth is understood most simply as "material downscaling," yet degrowth argues Akbulut (2021) "denotes a far more encompassing transformation" (Akbulut, 2021, p. 98). Significantly, "degrowth is not only a quantitative issue of doing less of the same but is also a qualitative issue of doing *differently"* (Akbulut, 2021, p.99, emphasis in original). So, how do we do differently? Is starts with a paradigm shift that enables a complexity mindset so that we can address *anthropocentrism* and its role in anthropogenic climate change.

The overall impression of the treatment of Indigenous knowledge in ecological economics, says Hardy and Patterson (2012), "is that it is seen as an externality that needs to be internalized into a 'Western science style' analytical framework" (Hardy & Patterson, 2012, p. 76) which is evidence they say of academic imperialism, a noted pattern in the sustainability discourse I have analyzed thus far. Hardy and Patterson examine the contributions that distinct Mãori knowledge systems make to environmental restoration research programmes in New Zealand, and they suggest that "ecological economics is well placed to embrace the perspectives and frameworks of both indigenous knowledge systems and the multi-faceted knowledge that is derived from 'western sciences,' to address the problems of 'sustainable development' facing the world" (Hardy & Patterson, 2012, p. 83). It should be noted that in their research in ecological economics "much attention was devoted to developing a set of 'kau-papa' (guiding principle, value or philosophy)" (Hardy & Patterson, 2012, p. 82). The authors argue that indigenous and complex systems science have similarities in their holistic approaches and that "holistic understanding that underpins complex science is by no means new, with indigenous peoples having practiced this approach to ecological knowledge for very many generations, with their social customs, inter-relationships and belief systems being intrinsically holistic and adaptive (Panikkar, 1989, cited in Hardy & Patterson, 2012, p. 78). This is the same argument I made in my previous discussion of the Anishinabe principle of *gidinawendimin* (we are all related) which I argued manifests the systems thinking and complexity mindset of our Ancestors.

3.8 The systemic view of life

Interconnectedness is a feature of the Western scientific discipline of ecology, which "is defined as the study of the interactions within the environment and includes sub-disciplines including human and fire ecology" (Ens et al., 2015, p. 136). Within sustainability discourse Indigenous wisdom tends to be viewed as useful for its *ecological* value, as evidenced in the draft WIII concept paper, and not as "sophisticated Indigenous ways of knowing" (Yunkaporta & McGinty, 2009, p. 55). When I arrived on the scene as a doctoral student in 2015, TEK is how WISIR and the Faculty of Environment at UW primarily interacted with Indigenous epistemologies and that was too narrow and neo-colonial an approach to support the decolonizing research I had in mind.

> So I want to propose that I can see that we are headed into a new space that puts the natural-world people and the Indigenous People, who still maintain their mind about nature, with very vast allies in the industrialized world. I never thought I would have thought that. We can look at this as a global consciousness that is rising; it is coming from people to whom nature is like religion. The culture that I come from sees the

universe as the fountain of everything, including consciousness. In our culture we're scolded for being so arrogant to think that we're smart. An individual is not smart, according to our culture. An individual is merely lucky to be a part of a system that has intelligence that happens to reside in them. In other words, be humble about this always. The real intelligence isn't the property of an individual corporation—the real intelligence is the property of the universe itself (Mohawk, cited in Nelson, 2008, p. 52).

The late Seneca scholar John Mohawk, Turtle Clan with a PhD from the University of Buffalo, delivered these words at the Bioneers Conference in 1999. When I participated in the Getting to Maybe social innovation residency at the Banff Centre in 2015 with Dr. Frances Westley and Dr. Dan McCarthy, I recall the day when I texted a language speaker, my friend Albert Hunter, back home in Treaty 3 with a profound question. As I sat in session learning about social innovation and particularly about resilience thinking and the adaptive cycle (see Westley, 2017, pp. 30-31, in McConnell SIG), I continuously heard things like 'ecosystem', 'ecology' and 'environment 'and 'nature' and 'biosphere.' Yet, I could not recall any of our Anishinaabe Elders speaking about these concepts in the same way. They rarely spoke about nature or environment. They spoke about the land. So, I texted Albert and asked him, how do we say 'environment' in Anishinaabemowin? He replied, we say *G'da-kii-mi-naan*. It means everything in Creation, the sun, moon, stars, the trees, plants, water, rocks, and you, your sacred place within that Creation (Albert Hunter, personal communication, July 6, 2015). In our cosmology, encoded in our ancestral languages, there is no separation of humans from nature.

In Western thinking the shift from the organic to the mechanistic worldview was initiated by René Descartes (1596-1650). "Descartes based his view of nature on the fundamental division between two independent and separate realms—that of mind and that of matter" (Capra & Luisi, 2014, p. 8). Thus, that material universe, including the living organism of nature, was a machine for him, "which could in principle be understood completely by analyzing it in terms of its smallest parts" (Capra & Luisi, 2014, p. 8) and the essence of the mechanistic Cartesian paradigm survives today. Cartesian mechanism "was expressed in the dogma that the laws of biology can ultimately be reduced to those of physics and chemistry" (Capra & Luisi, 2014, p. 8). In the West the first challenges to the mechanistic Cartesian paradigm came from the Romantic movement in art, literature, and philosophy; in Germany by the Romantic poets and philosophers who concentrated on the nature of organic form; the Romantic view of nature as 'one great harmonious whole' as Goethe put it; and more recently the idea of a living planet was formulated in modern scientific language as the so-called Gaia theory (Capra & Luisi, 2014, pp. 8-9). Were those really the "first" challenges though? I suppose they were such in the West, if one dismisses altogether Indigenous cosmologies the world over. These then were the first *internal* challenges to the foundations of Western scientific epistemology and ontology.

Organismic biologists took up this critique in the early twentieth century, elaborating and refining the key insights of Goethe and others. These reflections "helped to give birth to *a new way of thinking*—'systems thinking'—in terms of connectedness, relationships, and context (Capra & Luisi, 2014, p. 10, emphasis added). "According to the systems view, an organism cannot be reduced to those of its parts. They arise from the interactions and relationships between the parts" (Capra & Luisi, 2014, p. 10). And while organismic biologists in Germany "encountered *irreducible wholeness* in organisms, and Gestalt psychologists in perception,

ecologists encountered it in their studies of animal and plant communities" (Capra & Luisi, 2014, p. 10, emphasis added). In the 1920s, ecologists introduced the concepts of food chains and food cycles which were expanded to the contemporary concept of food webs. In addition, "they developed the notion of the eco-system, which, by its very name, fostered a systems approach to ecology" (Capra & Luisi, 2014, p.10). What fascinates and irritates me in the preceding history of 'systems thinking' in the West by Capra & Luisi, who later in their book, *The Systems View of Life: a Unifying Vision* (2014) go on to explore science and spirituality (in chapter 13), never once invoke Indigenous Knowledges from anywhere around the world. Their discussion in chapter 13, on the *sense of oneness* with the natural world, describes the parallels between science and mysticism focused mainly on Eastern spiritual and philosophical traditions. This is not unusual however, Anthony Hodgson in his book *Systems Thinking for a Turbulent World: A Search for New Perspectives* (2020) draws upon Zen traditions to argue that our fragmented world needs "healing" not "fixing" (Hodgson, 2020, p. 135) and Donella Meadows (2008) in her discussion of the history of 'the system lens' shares an ancient Sufi story, the blind men and the matter of the elephant to explain how the "behaviour of a system cannot be know just by knowing the elements of which the system is made" (Meadows, 2008, p. 7). I love the following quote by Meadows:

> You think that because you understand 'one' that you must therefore understand 'two' because one and one make two. But you forget that you must also understand 'and.' (Meadows, 2008, p. 12).

As my friend and colleague Peter Senge explains about the systemic orientation, "Systems thinking is a discipline for seeing wholes" (Senge, 1990, 2006, p. 68). And yet while Indigenous ontologies, epistemologies, cosmologies and axiologies are holistic in their outlook, in which the "scientific picture of the world" is not "taken for the whole of reality" (Peat, 2005, p. 240) these knowledge systems are rarely invoked in the narrative of the 'systemic view of life.' To see what these authors and others have missed in terms of Indigenous spiritual and philosophical philosophies as a holistic and systemic orientation please read my colleague Dr. Gregory Cajete's (2000) seminal work *Native Science: Natural Laws of Interdependence*.

The legacy of Descartes, of a real distinction between mind and body, led to the *apotheosis of reason*, with an emphasis on rationality and on humans as rational beings. This led to a new version of Humanist philosophy in the Enlightenment. The initial focus was on "eschewing the dogmatism of the Church and the need to rely on a supernatural being, but in promoting the uniqueness of humans among all beings" (Herman, 2016, p. 165). Thus, we see a firm divide between humanity and the rest of nature in which Nature "is not only sharply divided off from the authentic human self, but is alien and oppositional to it, and usually hostile, and inferior" (Herman, 2016, p. 165). The conceptualization of 'systems thinking' as a "new way of thinking" (Capra & Luisi, 2014, p. 10) is paralleled in the in the sustainability discourse as a *new way of thinking* about social-ecological systems, as taught at UW during my course work. I remedied the exclusion of IK to focus on TEK in my comps exam as I reasoned it was an *acceptable* entry point to *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy).

> For those of us who have been educated in colonial, Eurocentric environments and had our Aboriginal identities revised or our white armor polished, we have needed to

unpack Eurocentric processes to reveal the cognitive assimilative regime that has done such damage and what can be done to effectively change it (Battiste, Bell & Findlay, 2002, p. 90).

Universities are an important leverage point for systems transformation because they are partner organizations for capacity building of IK/TEKS/IBK, knowledge development and knowledge exchange for Indigenous communities seeking social transformation (Hemming et al., 2007, cited in Ens et al., 2015, p. 145). Kimmerer (2002) makes the argument that TEK has a "legitimate role in the education of the next generation of biologists, environmental scientists, and natural resource managers" (Kimmerer, 2002, p. 432). *Relational systems thinking* in this analysis would be an example of a more holistic socio-ecological systems approach that can be taught in colleges and universities. A major contribution of the research presented in this dissertation is the efficacy of *relational systems thinking* as a niche innovation and an entry point for decolonizing sustainability discourse and curriculum/pedagogy in colleges and universities because they are living systems and learning organizations.

A discipline of a learning organization (Senge, 1990) is *systems thinking*. The goal of decolonizing the academy has often been characterized as an *Indigenization* process (see LaFever, 2016). Indigenization is an approach taken to find new ways to welcome Indigenous students, recruit Indigenous faculty members, and imbed Indigenous content in the curriculum. While there is an abundance of material critiquing education systems in terms of their disconnection to Indigenous peoples and their culture and view of the world, that concentrates on the K-12 system in Canada and the United States, says LaFever (2016) there is a "scant but growing body of literature that focuses on the post-secondary environment" (LaFever, 2016, p. 413). LaFever reviews materials written by Indigenous scholars about spiritual development and spiritual learning outcomes for a post-secondary learning context and outlines five outcomes repeated in the body of literature, which "are not typically included in curricular design or course outlines" (LaFever, 2016, p. 413). These are:

1) Honouring
2) Attention to relationships
3) Sense of belonging
4) Feeling empowered
5) Self-knowledge of purpose (LaFever, 2016, pp. 413 – 416).

This occurs as a progression of learning from one to five, moving from honouring to ultimately a transcendence of narrow self-interest (honouring, value/d, connect/ed, empower/ed, self-actualize/d). This model says LaFever can assist curriculum designers in creating outcome statements that will help in realizing success in "including spiritual outcomes in lesson plans" (LaFever, 2016, p. 417). This notion of creating outcome statements is a useful way to conceptualize *relational systems thinking in* post-secondary education settings as *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy).

Sustainability discourse and its use of TEK parallels other disciplines in the academy, like social work for instance. They "act as an agent of colonization" (Coates, Grey & Hetherington, 2006, p. 381). To counter this, like LaFever's (2016) focus on spirituality in education (proposing a

four-domain framework of the Medicine Wheel), Coates, Grey and Hetherington (2006) critique social work as a discipline, and conceptualize an 'ecospiritual' perspective, distinguished from the more narrowly conceptualized, anthropocentric ecological perspective. Within social work there were three waves of systems theory according to Healy (2000, cited in Coates, Grey & Hetherington, 2006, p. 388) namely general systems theory, the ecosystems perspective, and complex systems theory. Key here is the argument that the eco-social and 'ecospiritual' move us beyond the individualistic focus to a much broader holistic understanding of our world and "one more akin to that of traditional and indigenous societies and cultures" thus demonstrating how systems thinking, a relational view, is part of "an intuitive understanding on the part of these cultures as the way the world works and our part in it" (Coates, Grey & Hetherington, 2006, p. 388). This is a view in which everything is interdependent and connected, with many interlocking subsystems, and while all living beings may be conceived as independent in particular contexts, they are also tied into many systems. "The principles of indigenous cultures" argue Coates, Grey & Hetherington are "consistent with the foundational beliefs of interdependence and emergence" (Coates, Grey & Hetherington, 2006, p. 391). *Relational systems thinking* in this analysis can help us develop a "whole system consciousness" and a "compassionate awareness that our individual and collective actions are intimately linked and can be constructively linked to the wellbeing of others" (Coates, Grey & Hetherington, 2006, p. 392).

The scientism at UW, even though I was forewarned, made it a rather hostile and alienating space for me as an Ojibwe-ikwe. So, I began to focus my research on what I later heard makwa ogimaa call *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy).

3.9 Biskaabiiyang

Leanne Simpson (2011) wrote about *Biskaabiiyang*, which is a verb that means to look back. The Seven Generations Education Institute, located in my grandmother's traditional territory in Treaty 3 and for whom I've taught a couple of undergraduate classes, worked with several Elders to develop an Anishinabek process for their MA program in Indigenous Thought. They call the first part of their process *Biskaabiiyang*. In this context it means "returning to ourselves" a process by which Anishinabek researchers and scholars can evaluate how they have been impacted by colonialism in all realms of being. Since 2015, when I began my doctoral studies at UW, I have been actively engaged in a process called *Biskaabiiyang* (Geniusz, 2009, p. 9), attempting to re-centre myself and *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy). *Biskaabiiyang* is the process of returning to ourselves, a reengagement with the things we have left behind—a process of decolonization (Simpson, 2017, p. 17). Simpson (2011) says that "…Biskaabiiyang does not literally mean returning to the past, but rather re-creating the cultural and political flourishment of the past to support the well-being of our contemporary citizens. It means retaining the fluidity around our traditions, not the rigidity of colonialism" (Simpson, 2011, p. 51).

When WISIR made the decision in 2018, to shield me and my ideas from certain selection pressures of the mainstream, unchanged selection environment of UW, it created for me an active niche space. An *active protective space* is defined by Smith and Raven (2012) as "those spaces that are the result of *deliberate and strategic creation* by advocates of *specific* path-

breaking innovations to shield regime selection pressures" (Smith & Raven, 2012, p. 1027). The focus of this dissertation is on *empowerment*, wherein WISIR's decision to fund my studies and to incubate WIII allowed for the emergence of *relational systems thinking*. While this Indigenous standpoint theory strives to be a *stretch and transform empowerment* (niche is empowered by enabling it to change its selection environment) it may instead be a *fit and conform empowerment* in a relatively unchanged selection environment (the academy). Thus, this perspective, this social technology, as a niche innovation is competitive with mainstream socio-technical practices but instead of being path-breaking is likely *incremental*. There is hope however as some actors within the eco-system of the academy are seeking to re-structure their mainstream selection environments in ways favourable to the niche (Smith & Raven, 2012, p. 1030), via the *shadow network* (Westley et al. 2011) referenced earlier, that includes some universities alongside other types of organizations and philanthropists.

Power sharing is as important in the intellectual as the political domain (Henry & Pene, 2001). Opaskwayak Cree scholar Shawn Wilson (2008) says inserting an Indigenous perspective into one of the major paradigms is not sufficient, instead Indigenous research "must leave behind dominant paradigms" and follow Indigenous research paradigms (Wilson, 2008, p. 38). When resilience scholars insert TEK in its dominant paradigm of ecology for instance, it constitutes a "recognition of their jurisdiction over Indigenous research (Wilson, 2008, p. 42) which means that Indigenous scholars especially give away their power, if it must be justified by a dominant paradigm. So, I am cautious not to simply insert Ojibway-Anishinabe *bish-kayn-di-ji-gay-win* (pedagogy) into systems thinking and complexity science. What then does an approach to irreducible wholeness look like using an Indigenous methodology?

The next three chapters present two double-blind peer reviewed manuscripts (Goodchild, 2021; Goodchild, 2022) published in the Journal of Awareness-Based Systems Change and one published essay, a possible forthcoming book chapter called "Duck Shit Tea, Yarning & the Magical Space in Between Things," each focused on the development of the *relational systems thinking* Indigenous standpoint theory. Because Eurocentric sciences are generalizable, subscribe to Cartesian dualism, are reductionist, are anthropocentric, with a presupposition that the material world is governed by quantification and reproduced or represented by scientific knowledge (Aikenhead & Michell, 2011, pp. 48-55) they are often analyzed as a binary dualism with Indigenous wisdoms. While they are two different culture-based ways of knowing (hence the Two-Row Wampum Belt metaphor) they are not a "simplistic dichotomy" (Aikenhead & Michell, 2011, p. 110). It is more complex than that, hence the proposal I put forward of reasoning synergistically in the space in between worldviews, called *relational systems thinking*.

Chapter Four

Relational Systems Thinking: That's how change is going to come, from our Earth Mother.

Melanie Goodchild with Peter Senge, C. Otto Scharmer, *Roronhiakewen* (He Clears the Sky) Dan Longboat, *Kahontakwas* Diane Longboat, Rick Hill and *Ka'nahsohon* (A Feather Dipped in Paint) Kevin Deer.

Kevin Deer: I was at a conference in Montreal because it was dealing with soils, which is an extension of Mother Earth. I talked to them about my experiences of fasts and vision quests, and about the personal healing that I had to do. Before that, I believed that babies cry, weaklings cry, but real, as a real man, I don't cry. Anyway, through the *Midewiwin* Lodge teachings when they put you out, it's usually before the sun sets. So, in that lodge, I'm asking myself, if this lodge represents my life, so I have to go back to my earliest recollection, where there was pain and hurt. If there's hurt and pain then I have to go back and give this pain back to my first mother, which is Mother Earth. In the construction of my lodge, there is one sapling in the ribs of my lodge that represents my life's journey. I ask in Onkwehonwehneha "Mother how can you heal me?" Because my biological mother is still alive and she can hug and console me but how do I strengthen my mind about these teachings because I was doubting it. So, I put my tobacco down and waited for some kind of answer or sign that would strengthen my mind that this is a powerful healing ceremony. Eventually, a strong woman's voice spoke in my mind and said, "You see this soil, it's an extension of my body, so lay down and cover yourself with it." I laid down on my back almost naked and covered my body with handfuls of this rich black soil. As I covered my body with this soil, in my mindset it was like these hands and arms came out from earth and began to hug me, from my first mother. 'Wow!!! Imagine that my mom is hugging me, healing me, and helping me to love and forgive all who have hurt me and for me to come to terms with all who I have hurt and all of that.' I was feeling such elation that I said to myself, if I could choose the moment of my death, I would want it to happen right now at this particular time. This was a pretty profound experience. I imagined that if I had not done this ceremony, I would have died one day and lowered back

Peter Senge: We once had a meeting in South Central Colorado, 200 miles north of Taos, New Mexico. There's beautiful land there, used for thousands of years for spiritual retreat, anyhow we had a small group there. And there was one woman from China, 35years old or so, a skillful facilitator, I've worked with her in China but she grew up as a modern young Chinese person, which means she had like zero contact with the natural world. So, there was the opportunity for people to sleep on the land, they didn't' have to, but there was that opportunity. We had organized it so they could get sleeping bags and tents. It was a pretty chilly time of year, early October, so it was cold enough that it was a little daunting. And this young Chinese woman had never slept outside in her life. But two people who had spent a lot time camping outside said they we're going to put their tents on both sides of her and she could sleep in the middle and said they would be right there if she needed anything. I can recount a few times where people were so disconnected from nature that they were literally terrified of being alone on the land. So anyhow I'll make a long story short, it was quite an adventure. They made sure she had a really warm sleeping bag. I saw her about three days later, and she had spent three nights with the two guys close by, sleeping on the land. I've known her for about 10 years and when I saw her at the end of this time, I'll never forget her comment, she said 'It was the first time in my life I've been happy, really happy.' She said, 'I've been happy when I did good on a test and I've got all these things I want in my life, but I realized that that happiness isn't real happiness.' And as we continued our meeting, she kept going back to sleep on the land each night. So, the rest of us were sleeping inside meanwhile she slept on the land every night for seven nights. And I will never forget the other thing she said, 'I've never felt held by the earth, I lay there in my bag at night and I know the earth was holding

into the womb of my mother the earth, dead, but here I am going into her womb alive, experiencing it and being able to talk about it. But then all of a sudden self-doubt enters my mind, and asks "did I just make it up?" I was immediately feeling disappointed and let down. So I put my tobacco out again, I said *'Ista* [my mother] you gotta give me something more stronger than this [laughter], that is going to clarify and strengthen my mind without a doubt.' I put tobacco down and within a short period of time she spoke again now saying in my mind, "Ok get up walk around this circle and count your footsteps." I get up, brush off myself, try to think what could that mean. I begin to walk heel to toe and count my footsteps as I follow the cedar circle ring that encompasses my lodge. Where I get to the spot from where I started out from there is a number. The cedar circle, from the teachings I know represents everything in my life past, present and future [inside the cedar circle]. The magical number is 36. When I verbalize it as I'm counting, I immediately got down on all fours and I kissed my mom, because from that moment onward I said to myself, "I don't care what other people may conclude about this personal intimate experience that just happened when I tell this story, because they can't experience it, they're only hearing a story. But we established this connection, Mother Earth and one of her beloved sons of the Earth Mother. So why was that number so significant? 36 footprints and I was 36 years old. I was also opened up and began to finally allow myself to cry and feel the feeling that I had suppressed for so many years. I forgave myself, I forgave others, and let all the baggage and negativity in my life go. I was renewed from head to toe [transformed] I tell this story now, at this conference on soils, after I did the opening. This was my experience… Change is going to happen from people going inward within themselves and along with going back to having communion

me.' It was just such a beautiful reminder of how many people, really more than ever before, are growing up with this complete separation. So, Mother Earth, if you don't know your mother, you are kind of lost. So, it's not a small thing.

with their first mother, Mother Earth. That's
how change is going to come, from our Earth
Mother. Because if this could happen to me
it's going to happen en masse … and many
people who are spiritually grounded are going
to know what's happening but the ones who
never connected to the earth will not know
what's going on.

4.0 Introduction

Boozhoo nindinawemaaganidok (greetings my relatives). *Anishinaabekwe indaaw* (I am an Anishinaabe woman). She/Her. *Mooz indoodem* (I am moose clan). Biigtigong Nishnaabeg *izhinikaade ishkonigan wenjiiyaan* (is the name of the First Nation that I come from). Waabishki Ogichidaakwenz-anang and Waaba-anang Ikwe *Anishinaabemong idash* (is what I am known by the spirits in Ojibwe). Melanie Goodchild *indizhinikaaz zhaaganaashiiong* (what I am called in English). The seven of us, Melanie (Anishinaabe), Peter (American), Otto (German-American), Dan (Mohawk), Diane (Mohawk), Rick (Tuscarora), and Kevin (Mohawk) have recently joined together in what might loosely be called a Circle of Presence (Scharmer, 2009, 2016, p. 374) around the notion of the need to *decolonize* (Smith, 1999) systems thinking and systems awareness theory and practice. For stylistic purposes, I (Melanie) will serve as the narrator.

Recently I had the honour of being in conversation with the Haudenosaunee Elders and Knowledge Keepers and also with Peter and Otto to talk about 'awareness-based systems change.' I spent time with Peter and Otto at the Executive Champions Workshop (ECW) in Stowe, Vermont in 2019 as well we collaborated on a Dialogues on Transforming Society and Self (DoTS) webinar (episode 6)[14] and the Global Activation of Intention and Action[15] (GAIA) series of webinars by the Presencing Institute. I am also a Faculty member with Peter at the Academy for Systems Change[16]. In writing this article together we are attempting to reflect, and perhaps model, a more relational disposition to collaborative knowledge creation and sharing. It is ultimately a quest, an ongoing journey as Aikenhead & Michell (2011) describe a quest for us to become *wiser*. Conventional systems-based approaches to tackling wicked problems have epistemological foundations in the Western scientific method that pursues 'knowledge' in an analytical way, whereas Indigenous ways of coming to know, as practiced by Elders, is the pursuit of 'wisdom-in-action' (Aikenhead & Michell, 2011, p. 69). 'Fragmentation and isolation' is a belief that understanding lay in studying isolated things. And this mindset still dominates everyday affairs (Senge, Scharmer, Jaworski, & Flowers, 2004, pp. 190-191).

Peter told me during one of our conversations in Cambridge, "I came to MIT originally as a graduate student studying something called here at MIT system dynamics." He explained, "There are lots of different western-based types of tools for how to do systems thinking. System dynamics is especially good at helping yourself and others think more deeply about 'underlying

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[14] See https://www.presencing.org/news/news/detail/b2c6a7b3-4d97-4534-83f3-4914818c84d5
[15] See https://www.youtube.com/watch?v=dpucs12iAZw
[16] See https://www.academyforchange.org

system structures.' It's really this *epistemology*, this way of making sense of the world that underlies a systems perspective in my mind." Peter suggested, "You don't even have to use the word 'system' … so people don't get hung up on what do you mean by 'system'. There are a lot of different tools that you might say are diagnostic for moving from what's on the surface, what's visible, to what's not visible, to the deeper sources of the forces that shape social realities." Perhaps, too, the word 'system' in English conveys it as a noun, whereas in *Anishinaabemowin* (Ojibwe) a system would be a verb, dynamic and imbued with Spirit. And that Spirit is in relationship with other Spirits.

This article is a process of co-inquiry in a *sacred space* between Indigenous (the Elders and I) and non-Indigenous (Peter and Otto) systems thinkers. We consider cultural and spiritual perspectives about the role of consciousness in awareness-based systems change. Our intended audience includes both Indigenous and non-Indigenous scholars and practitioners who seek a mature, balanced, and peaceful co-existence of distinct knowledge systems in their own scholarship and practice. Europeans and Native peoples historically held different worldviews and we found it difficult to relate to each other in understanding and compassionate ways. It is a schism that still exists in understanding between Indigenous peoples and Western society, says Cree scholar Willie Ermine (2007). The primary goal of this paper is to attend to a deeper level of consciousness that exists in a particular teaching place, a place *between epistemologies*. This space in-between has been referred to as the *ethical space* (Ermine, 2007). It is a place that affirms human diversity, where we "detach from the cages of our mental worlds and we assume a position where human-to-human dialogue can occur" (p. 202). It is a space/place that is respectful and generous of spirit, so that we can begin to release "that kind of energy" as Peter once said (C. Otto Scharmer, 2009, 2016, p. 51). The idea of ethical space is a useful construct because it is "predicated upon the creation of new relationships between Indigenous and non-Indigenous peoples" (Kapyrka & Dockstator, 2012, p. 109). This sacred space enables a mindset of *connection* rather than *separation*, that allows us to access our deepest capacities for unconditional love (Scharmer, 2020).

In December of 2019, I had tea with *Rotinonshon:ni* (Haudenosaunee – People of the Longhouse) Elders and Knowledge Keepers at the Gathering Place by The Grand, at Six Nations Grand River Territory. The Six Nations of the Haudenosaunee Confederacy consist of the Mohawk, Oneida, Cayuga, Seneca, Onondaga and Tuscarora, unified by the Great Laws of Peace under the Tree of Peace. I was there to be *in conversation* (see Kovach, 2010) with the Elders and Knowledge Keepers through *asemaa* (tobacco), a tobacco tie offering (see Wilson & Restoule, 2010). Tobacco offerings to the Elders recognizes that their knowledge is often revealed to them from the *Spirit World* (Johnston, McGregor, & Restoule, 2018). As an Anishinaabekwe (Ojibway woman) living and working in traditional Haudenosaunee Confederacy territory, it is important that I am guided by their philosophies as much as my own. I invite you to also hear the Teachings of the Haudenosaunee 'intelligentsia' (so-called in laughter) that day. Each respected Knowledge Keeper, my Auntie *Kahontakwas* Diane Longboat, Turtle Clan of Six Nations; her brother, my Uncle *Roronhiakewen* (He Clears the Sky), Dr. Dan Longboat, Turtle Clan of Six Nations; *Ka'nahsohon* (A Feather Dipped in Paint) Kevin Deer, Faithkeeper at the Mohawk Trail Longhouse, from Kahnawake Mohawk Territory; and Rick Hill, Beaver Clan of the Tuscarora Nation of the Haudenosaunee at Grand River, accepted the invitation from me to gather and talk about awareness-based systems change. On

that mild day in December, beside the Grand River, I respectfully asked Kevin Deer to help begin the discussions in a good way, with the Words That Come Before All Else, the *Ohén:ton Karihwatéhkwen* (the Thanksgiving Address). And then the magic happened, the Intelligentsia started sharing stories.

4.1 Indigenous-Settler/Colonizer Relationships: Independent and Interdependent

How do you incorporate multiple ways of knowing, in a respectful way, into the practice of awareness-based systems change? This is not an easy task. Indigenous scholars have explored the nexus of Indigenous place-based wisdom and Western science and have called for an approach that privileges and honours Indigenous intellectual traditions emanating from spiritual wisdom. They have described this in a variety of ways, as *braiding* (Kimmerer, 2013), as *bridging* (Aikenhead & Michell, 2011), as a *circle of relationship* (Cajete, 2000), as *encompassing holism* (Kovach, 2009), as *grounded normativity* (Coulthard, 2014), as *resurgence* (Asch, Borrows, and Tully,2018), as *regeneration* (Simpson, 2011), as *insurgent* (Gaudry, 2011), as *regenerative* (Tuck & Yang, 2019), and ultimately as an exercise in *humility* (Wildcat, 2009). Indigenous scholars have critiqued research more broadly, cautioning us against embedding Euro-centric values, the objective-versus-subjective and nature-versus-human dichotomies of Western thought (Deloria Jr., & Wildcat, 2001, p. 15) into our research praxis (Smith, 1999; Kovach, 2009; Wilson, 2008; Brown & Strega, 2005; McGregor, Restoule, & Johnston, 2018). Western scholarship for the most part, offers us preconceived theoretical perspectives representing "a Western understanding of how the world works" (Browner, 2004, p. 9). A journey to the nexus of Indigenous wisdom and Western thought begins with an important realization, that both are *equal but differentiated*. In this article we would like to explore a further conceptualization of the nexus, inspired by the Spirit and Teachings of the Haudenosaunee *Two-Row Wampum Belt*.

Kaswenta is a word that applies to all wampum belts not just the Two-Row, says Rick Hill. Wampum belts are a part of the Haudenosaunee culture as well as other Nations, including the Anishinaabeg. One of the most famous uses of Haudenosaunee two-column thinking is the Two-Row Wampum belt, properly called the *Tekani teyothata'tye kaswenta* (Two Row Wampum Belt). Rick published, along with Daniel Coleman, the most complete oral history that exists today of the ancient treaty known as the Two Row Wampum and also the *Tehontatententsoterotahkhwa* "the thing by which they link arms" Covenant Chain wampum belt (Hill & Coleman, 2019). The Covenant Chain embodies these wampum belts, it is the complex system of alliances between the Haudenosaunee and the Anglo-American colonies originating in the early 17th century. Following the chain metaphor, the more formal agreements required a change from an iron chain, which tended to rust, to a silver one. The silver chain will not rust, but it will tarnish, and we need to polish it from time to time[17]. Repolishing is a process, says my Uncle Dan Longboat, it *brightens our minds* and it renews our mutual understanding of peace, friendship and respect. This article explicitly privileges Indigenous ways of knowing through telling stories in a two-row visual code. It is intended to brighten our minds.

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[17] See https://youtu.be/G7aZZrgRnQo
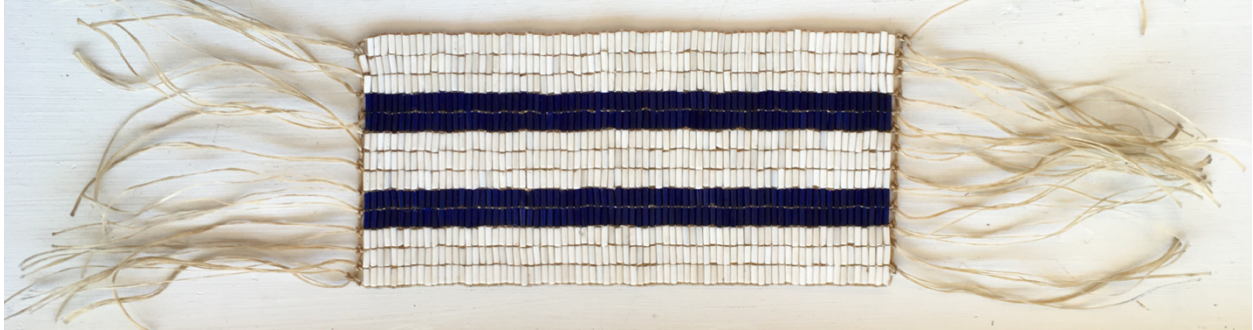
Figure 4.1. Two-Row Wampum Belt
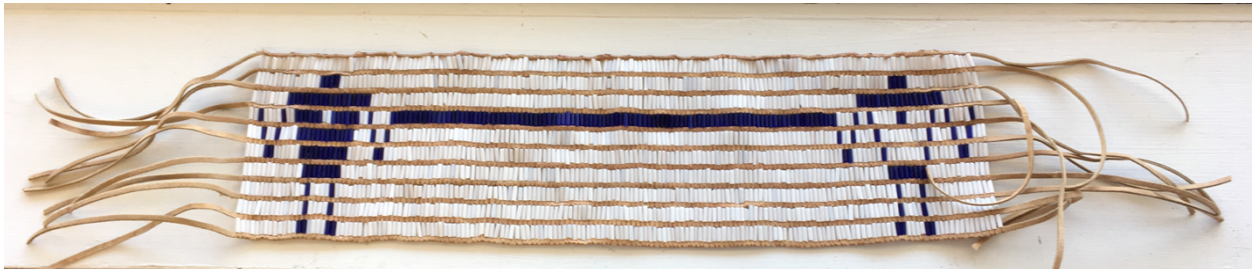
Figure 4.2. Silver Chain Covenant Wampum Belt

Source: https://trentmagazine.ca/services-view/law-land-teyotsihstokwathe-dakota-brant-06-examines-canada-150-plus-video-walrus-talk/

The 1613 Two-Row Wampum treaty was formed between the Haudenosaunee Confederacy and the Dutch merchants arriving near Albany, NY. The Treaty belt is made of two rows of purple wampum beads, symbolizing the Mohawk canoe and the Dutch sailing ship, "and these two rows have the spirit of the Haudenosaunee and the Dutch" (Ransom, 1999, p. 27). The oral history of the Two Row agreement was recited in public multiple times by Grand River Cayuga Chief and Faithkeeper Jacob E. Thomas before his death in 1998. The two purple rows, which themselves are made of two columns of beads, signal internal pluralism even as they remain parallel and never intersect. The three white rows, which are each three beads wide, symbolize the ne'skennen (peace), kanikonhrí:iyo (good mind or mindfulness), and ka'satsténshsera (unified, empowered minds) – Chief Thomas translated these as "peace, respect and friendship – that will allow the two vessels to share the ever-flowing River of Life" (Coleman, 2019, p. 65). So, today we are all traveling down the river of life together, but with each people in their own vessel with their own beliefs, languages, customs and governments. "Native and non-Native peoples are to help each other from time to time, as people are meant to do, and their respective knowledge systems, or sciences, are tools to be used in this partnership (Ransom & Ettenger, 2001, p. 222).

We are to take care of this river as all of our survival depends on a healthy river (Ransom, 1999, p. 28).

The Two-Row Wampum Belt is a Treaty explicitly outlined a *dialogical* Indigenous-European framework for how healthy relationships between peoples from different 'laws and beliefs' can be established. Dialogue, says Otto, is not about two parties talking to each other. Dialog literally means 'meaning flowing through.' The Treaty conveyed, argue Hill and Coleman (2019), the concept of reciprocity between autonomous powers and serves as a guide for cross-cultural, cross-epistemological research (p. 340). "The purpose of the Treaty is to recognize that each People is to travel down this river, together, side-by-side, but each in their own vessel. Neither is to try to steer the other's vessel" (Ransom, 1999, p. 27). Conscious of these differences in their ways of knowing and living, "the two parties could better understand how to share the river of life in equality and friendship" (Coleman, 2019, p. 65). The Dutch transcription of this Treaty was on parchment paper while the Haudenosaunee leaders chose to record the Treaty with a Two-Row Wampum belt, made from small tubular shell beads woven into symbolic designs. The different recordings of the agreement demonstrate the 'two paths' of their different knowledge systems (Hill & Coleman, 2019, p. 347). The Mohawks and Dutch were "very aware of translating between cultural codes and knowledge systems, a process that requires both differentiation and equivalence" and that "healthy relationships recognize rather than suppress differences and that the impulse to overwhelm and absorb the other into a hierarchical relationship can chafe and destroy peaceful relations" (Coleman, 2019, p. 67). Rick told me that the safe space between the two peoples is created when both parties commit to truth and respect, which then grows into trust (personal communication, 2020).

4.2 Dialogical Framework: Two-Row Methodology

Written texts add "additional complexity" in transmitting Indigenous ways of knowing, "given that most Indigenous cultures are oral" thus we submit to you dear reader that some of the teachings offered herein may lose "a level of meaning in the translation into written script" (Kovach in Brown & Strega, 2005, p. 27). Indeed, it is difficult to translate "spiritual languages, and the broad concepts they represent, from one language to another" (St. Pierre & Long Soldier, 1995) but the times we find ourselves in call for us to try. We are willing to attempt the "troublesome task of criss-crossing cultural epistemologies" that occurs when we share Indigenous knowledge and wisdom in a non-Indigenous language (Kovach in Brown & Strega, 2005, p. 27). The history of 'epistemic violence' and 'epistemic ignorance' (Kuokkanen, 2008) within the Academy has meant often that "Western knowledge and worldviews retain a highly disproportionate amount of influence such that any effort to put them into conversation with Indigenous knowledge must be acutely aware of this historical and ongoing imbalance" (Ahenakew, 2017, p. 86). There is also our reliance in our collective modern culture to 'transmit' understanding, says Peter, as opposed to, for example, contemplation and listening to nature. To guard against this imbalance, we are anchoring our discussion firmly within the two-row teachings of the Haudenosaunee peoples, as Uncle Dan shared with me:

> One of the things that's really central I think in engaging with different perspectives and different knowledge systems, in how they interact, is this idea of *sacred space*, it is really about ethical space. Within our context of it as Haudenosaunee, whenever individuals or

two things come together to make an agreement, whenever they collaborate, whenever they do that it is two individuals coming together, then the space in between them is the sacred space; you can kind of think about it in terms of how they are respectful towards one another, how they are caring and compassionate towards each other, how they are empathetic with one another. Now looking at prophecy, we talk about this idea of the Two-Row Wampum Belt, the Europeans and Indigenous peoples, or now any people that come to North America, and our relationship together exists in the space in between, it is the sacred space, those principles of peace, friendship, and respect, that becomes the sacred way that we work towards one another, but the idea behind it is that we are both sailing down the River of Life together. And our responsibility is to help one another but more specifically, the River of Life is in danger right now and there will be no more river of all life. So, it behooves us now to utilize our knowledge together to work to sustain, to perpetuate, to strengthen this River for all Life. Why? So that All Life will continue. And at the end of the day any social innovation or systems approaches should be all about the continuation of life and however we understand it to be – not just human life but all of it, for this generation right to the end of time.

Illustration 4.1 Photo of *Roronhiakewen* (He Clears the Sky) Dr. Dan Longboat

The concept and spirit of the two-row wampum has been suggested as a framework or model for simultaneous intellectual *co-existence* by Anishinaabe environmental scholar Deborah McGregor (see McGregor, 2011; McGregor, 2009; McGregor, 2008), as the fundamental form of *reconciliation* between Indigenous peoples and settler peoples, that recognizes independence and interdependence, in Indigenous-settler relationships (see Asch, Borrows, & Tully, 2018), and as a model or conceptual framework for *non-interference* in cross-cultural research by non-Native

scholars (see Evering, 2016; Sweeny, 2014; Latulippe, 2015). In our presentation of these stories and teachings we take inspiration from Mohawk poet Peter Blue Cloud's two-column poems, and Daniel Coleman's (2019) analysis of his work.

Excerpt from Peter Blue Cloud's (1933-2011) poem First Light (cited in Coleman, 2019, p. 54):

First light, a dark outline	evening
Of a mountain peak and	too
Pines their morning scent	will
Carried on first breezes,	call,
stars naked brilliance	to
pulsing to coyote cries	sleep
And keening chorus,	again,
a cricket's tentative chirping,	the
long pauses,	mind
the fall of an oak leaf	is
a bird's sudden question,	dreaming,

Peter Blue Cloud's poetry is a collection of two-column poems. The left-hand column presents Creation as alive. By contrast the right-hand columns descend in one-word lines that trace, in very spare language, an essential thought or growing realization that runs like a thread beside the lush imagery of the left-hand column (p. 56). How are we supposed to read poems laid out like this? One column at a time? Should we read across from left column to right, asks Coleman. The point is that you cannot read Peter Blue Cloud's two-column poems without being confronted with your own habits of thought, your own assumptions about how to make meaning. These habits are "challenged and made conscious by your simultaneous encounter with more than one way of doing things" (p. 56). And that is our point of departure.

4.3 Equal But Differentiated

Following the dialogical model laid out in the Two-Row Wampum-Covenant Chain agreement and taking inspiration from Blue Cloud's two-column poems, this article is written, with a presentation of two-column stories. Blue Cloud's poems "remind us that contemporary engagements with Two Row tradition operate, as did the original agreement, within a dialogic domain, not some realm of singular cultural purity" (p. 69). That said, argued Coleman, there is value in keeping one's inheritances distinct. We do not intend here to divide Western and Indigenous worldviews neatly between the two columns, even if we appear to do so. Instead, the two ways of seeing and sensing systems are presented in both the left and the right columns and in the space in between. While most of us trained in the Western traditions of the Academy have been taught to rely on our "chronically overdeveloped reason" (Sheridan & Longboat, 2006, p. 373) we instead invite you to sit in circle with us, to practice *generative listening* (see Scharmer, 2009, 2016, p. 12). Our intention is that you are no longer the same person you were before you heard these voices. The topic of discussion was simple yet profound: How do we sense and then shift systems? As you continue reading, here are some practice guidelines for reading two-

column thinking. You may find yourself reading one column at a time, perhaps that is how we are conditioned to read it. Instead, you are invited to read the text initially in whatever is your most natural way, suggests Peter. Then, go back and read by going back and forth between the columns every few lines. Try to hear each person's voice as you do this; and then imagine they are talking with one another. See what emotions and feelings are stirred in you as you do this.

We began this article and now continue in the two-row visual code:

Dan Longboat: Systems change for me really is about opening those pieces up, those things are all there, and connecting to that knowledge because that's knowledge that has carried our ancestors. Again, the origin of that knowledge as we come to understand it is, unlike the West, none of the knowledge has come out of the minds of men or women. Particularly in the West too it's come out of the minds of men, what about women's minds? If that's how you want to live ok sure. But what about women's concepts within Western knowledge, it was totally ignored. So, because of that it's built on a form of paternalism, paternalistic ideas and at the same time it's based on ideas of power and control. Things have now gotten out of control. We are now going to see fundamental change in the world and we're going to regress ourselves and to pull ourselves back in to restore that sacred feminine, predicated on kindness and compassion, caring, love, that's the real impetus of change. If systems theory and practice can conscience us to that way of understanding the world then we'll see some really fundamental change but unless it does that, it will be same old same old. Because the authority for our knowledge as Indigenous peoples has come from a place of Spirit not out of the minds of men and women. Because it has come out of a place of Spirit it is perfect, perfect, and it served our Ancestors well for thousands of generations. And it will continue to serve us and we have a choice of whether we want to recognize that, authenticate that, activate that and put that process back into place, to help us see the

Peter Senge: We're not going to change the world, I hate language like that, or teach people to be systems thinkers but we might find some ways for people to rediscover their innate capacities and love; it's not an intellectual capacity only, it's deeply rooted in an emotional experience. Interconnectedness is a big clunky word, but we also call it beauty. In that moment when you experience something beautiful what happened to the 'you?' You are not even around anymore. Whatever you see is still there, but something happens to transcend that object or phenomenon and you, and beauty just exists. So that's the interconnectedness, that's when that sense of us as separate, our embodiment which is how we navigate the world, somehow is held in abeyance. And something else emerges. So that's not something that has to be taught, but there's a lot of shit that needs to be unlearned. And I do think, this is obviously where the cross-cultural dialogues are so important. Maybe some of the cultures that are around today are a little more wise on this, and maybe one of our problems with the dominant Euro-centric Western culture, modern global culture, is we've lost a lot of this wisdom.

Otto Scharmer: How do we sense systems? With our senses. With all our senses. Sensing is a funny process. Most people think they know how to do it. But I claim they don't. People, particularly people who have gone through traditional Western training and education, tend to miss any real education of the senses: how to deeply listen, how to really pay attention, how to actually

entire system and what's our place in that. It's all about peace, it's about love, it's about compassion, it's about all of those things that come out of the *Kanikonhri:yo* (the Good Mind or Mindfulness), that's what the Good Mind is. So, it's bringing back the Good Mind.

Rick Hill: Knowledge is innately tied to the land, it's right there, it's waiting for us to pay attention to it, to guide us, through dreams, through visions, through practice, and maybe that's our greatest strength is getting people reconnected to the source of knowledge. Removing their blinders, unclouding their ears, giving themselves to it so there will no longer be an impediment to our viability as a Nation. What does it take to empower the next generation of thinkers? The last seven years we've been doing a recitation of the Great Law in all of our communities and we're getting better on that, but what we haven't done is a regular recitation of our

sense the *resonance* of a social field. The late cognitive scientist Francisco Varela once suggested that 'we need to become blackbelts of observation,' i.e., we need to upgrade our skills to sense and to see. That idea is so much needed today.

What happens when we sense a social system? We sense its interiority. That's what I call a *social field*. A social field is a social system seen not only from outside (3rd person view), but also from within (adding the 1st and 2nd person views to scientific activity).

Sensing a social field means to sense social resonance. Resonance is an interesting term. Resonance is neither entirely subjective, nor is it entirely objective. It lives in the space between. Like the sacred space that you Melanie talked about earlier, the sacred space between epistemologies. Moving into this deep sensing is very much an aesthetic phenomenon, as Peter suggested. The word aesthetic was coined in 18th century Germany and comes from the Greek word 'aisthētikos' literally meaning the perception by the senses. Decolonizing systems thinking starts with decolonizing and rehabilitating our senses. Because there is a knowing in our senses that we need to uncover and cultivate.

Peter Senge: So, this kind of awareness, now illustrating in the social domain of interconnectedness and interdependedness, is innate. This is who we are. I really believe that deeply, the problem is like anything, if it's not cultivated it will atrophy; particularly in contemporary cultures it's not being cultivated because, as we found ourselves moving from hunters and gatherers, our oldest organized forms, to agriculture or to urban life, basically we stepped further and further away from the natural world and in doing so we stepped further and further away from the natural teacher of an interconnected, dynamic, systems perspective.

Creation story. That is the roadmap to this interconnected web, this is the ultimate system that we exist by, and I think in the end if you compare Nishnaabek creation and Haudenosaunee creation in this region there is a commonality about why the world was created and why humans were created to inhabit the land. That's the knowledge we need to uncover. When you can re-visualize creation as a whole entity, a functioning entity beyond the sky world to below the turtle, when you revision it in three dimensions and Dolby stereo you will then innately understand your relationship and your place in that universe. And you won't need a textbook or somebody to explain to you what you need to be doing, you will embrace it. That's what I meant by having faith in the unseen. It's worked for 10, 000 years. It's begging us now to re-engage with it.

Dan Longboat: What you are doing Melanie, is that you are bringing us a new language [systems thinking] to explain everything we already do. And helping us to visualize a process and helping to remind us the practice, structure, and let's call it the process of how our Ancestors thought and practiced.

Dan Longboat: When we talk about systems, solving problems, the realization that many of the problems that we've heard about today and are examining, you know the larger context of modern society at large, that whole process around the West's disconnect from the environment, has resulted in so many of the problems that we see today, everything from extinctions, loss of biodiversity, global contaminants and toxins, etc., etc., all under the umbrella global climate change. So, the systems piece needs to engage with, and work towards, and recognize, and work to resolve or reconnect to the environment somehow. It is a reiteration of and this reconnection with the environment. In terms of systems, instead

Peter Senge: If we don't believe this [systems awareness] is innate, forget about it. You're not going to teach people to be somebody other than who they are. But that said, who we are is complicated. It's sort of like an archeological dig, we have to go through a lot of crap, to get to something that is closer to a real essence of your nature as a human.

Peter Senge: What we tend to do in Western cultures is abstract. This cultural habit of abstracting as opposed to, if this was a word, "concreting," getting your feet on the ground, feeling it and smelling it. At Executive Champions Workshop the thing that most bemuses me about it after all these years, people ask me how it works, and I can honestly say I have no clue really. I just say, well we hang out in the field. And we let the field go to work on us. Because that's my experience, of course there's teachings and that's good, and they need to be to the best of your ability harmonious, with a deeper process. And it is that deeper process that somehow goes to work on people. I've

of looking at one-off pieces it's looking at the whole thing, look at the whole system the way our Ancestors did, the seen and the unseen, the past, present and future, the spirit, the earth and all of a sudden, that's a whole system, that's what we need to bring back.

Diane Longboat: We also had a message in our lodge about that, that by proxy, because these people [Westerners] were not created to be here. By proxy we are the ones with our fires, and they need to come to us with that honour and respect and humility, to be able to heal and to connect to their Ancestors. And they always need to be told that you come from a place that is your homeland. To tell them consistently, the white people that come to our ceremonies, we are happy to share our sacred fire with you because at this fire is the essence of life, of who the Creator is. If you make your offerings, you make your prayers, have your fast, your vision quest, or whatever, we'll help you with that but you've gotta do your work to find out who is the Creator and what does the Creator want you to do in your life, how do you activate that spiritual mandate that is in your life. We'll help you with it but in that journey of your healing, you need to go back to your homelands, walk in the places of your Ancestors, and that will change you forever. Because that is where you belong and we are sharing this land with you, and we also have a duty to share with you how to respect and honour these homelands, and you need to live with those natural laws and those spiritual laws that govern Turtle Island [North America]. You come here and we're not interested in your passport, we're interested in if you will

watched it so many times and it's like watching a beautiful flower unfold. People by the third day are just starting to relax and they are really noticing what it feels like. I've watched some people, a good friend who is a senior person with the Nature Conservancy, his whole life is about this, it's not like this was a new discovery to him, but by the end of the three days, he was in like a transcendent state, he was so clear, so quiet, so thoughtful. It was clear he was reconnecting with what he knew was his purpose in this lifetime and it was beautiful.

Peter Senge: One of the fundamental issues you will wrestle with Melanie, are those paradigmatic distinctions between Native cultures and let's call it modern or Western cultures is that you're understanding lives in stories, at least your expression of your understanding, lives in stories. These stories are of course archetypal, they are dynamic, there is always an unfolding going on, whereas Western culture which has largely displaced other cultures over the past several hundred years, particularly the last 75, privileges abstractions; succinct, clear, de-contextualized characterizations. 'Tell me what you know; don't tell me a story." We go from lived experience, something you can touch and feel and tell stories about, to an abstracted description and we consider that a higher form of knowledge. We consider that more refined, which is kind of bizarre in a way. They both have function, and my bet is if we really explored this abstracting phenomenon, we would find similar phenomena in the ways of understanding of Native peoples, but it would be different because it would be so grounded in the lived experience.

I think the danger of the Western approach is that all you get is abstraction, you end up with almost no lived experience. Somebody is considered an expert because they can talk a

adhere to these natural laws and spiritual laws.

lot about something, or they've written books about it. In the social science or the domain of human living, the consequence of this disconnected abstracting is that we struggle and struggle, with how to 'implement' ideas, how to do it, because we start off thinking that's a lesser kind of knowledge. This creates a false dichotomy between knowledge of the head and knowledge of the hand. You didn't learn how to 'implement walking' when you were two years old. You learned to walk through an ongoing process of doing and discovering.

This dichotomy between knowledge of the head and knowledge of the hand has deep cultural roots in the West. Michaelangelo could not have a meal with his patrons because he worked with his hands. Because his knowledge was of his hands, it was a lesser sort of knowledge and that defined his class status. So, these are deep issues in Western culture.

Otto Scharmer: I like Peter's distinction between abstracting and concreting. The problem with traditional approaches to Western science is the misconception that only the former is considered scientific. But that is actually not true. The distinction also reminds me of the work of the British philosopher of science Henri Bortoft, who in his book the *Wholeness of Nature* differentiates between two types of wholeness: the *authentic whole* and the *counterfeit whole*. The counterfeit whole is based on abstraction and more traditional rationalistic approaches to science. The authentic whole is the living whole. To encounter the authentic whole, we need a new methodology that he traces back to the phenomenological work of the German poet Goethe. To apprehend the counterfeit whole, we need to *step back* and abstract from the individual parts. But to apprehend the authentic whole we have to *step in* to sense

the particulars, because the authentic whole is not separate from the parts, it is, as Bortoft puts it, *presencing itself through the parts*.

What results from this second methodology is a view in which humans consciously participate in nature by presencing the authentic whole moment to moment. That might be an agenda for 21st century science: to decolonize the knowing of the senses, and to develop and cultivate a scientific methodology that allows us to sense and presence what Bortoft calls the living authentic whole. Such a method needed to blend systems thinking with systems sensing and advanced phenomenological practices that integrate 1st, 2nd, and 3rd person knowledge. Maybe our conversation here is part of such a path.

4.4 Discussion: Bringing the Soul to Systems Work

A few years ago, Senge, Scharmer, Jaworski and Flowers (2004) said the time for this type of cross-epistemic dialogue is now because "We may not have the luxury of waiting two or three centuries for a science of connectedness to create a wiser society" (p. 189) and, further, as complexity increases "the need for wisdom grows, even as that wisdom atrophies" (p. 209). Each of us has access to distinct *gakiikwe'inana* ('teachings' in Ojibway language) and in the Haudenosaunee two-row thinking we value these teachings as different yet equal. So how do we bring these teachings together in a good way? Mi'kmaq Elders, Albert and his late wife Murdena Marshall, offered us all a way to make sense of this cross-epistemic dialogue. *Etuaptmumk* is the Mi'kmaq word for *two-eyed seeing* (Bartlett, Marhsall, & Marshall, 2012; Hatcher, Bartlett, Marshall, & Marshall, 2009; Sasakamoose, Bellegarde, Sutherland, Pete, & McKay-McNabb, 2017). The two-eyed seeing approach brings together Indigenous knowledge systems and mainstream knowledge systems "side-by-side" as in *Toqwa'tu'kl Kjijitaqnn,* meaning "bringing our knowledges together" (Bartlett, Marshall, & Marshall, 2012, p. 333). Two-eyed seeing seeks to avoid knowledge domination and assimilation by recognizing the best from both worlds (Hatcher, Bartlett, Marshall, & Marshall, 2009). Two-eyed seeing allows one to make conscious decisions "to activate whichever lens is more appropriate to use or a harmonization of both" (Sasakamoose, Bellegarde, Sutherland, Pete, & McKay-McNabb, 2017, p. 9).

This journey into ethical space begins with us collectively recognizing that "spirit" actually exists (Stonechild, 2016, p. 51). Capra (2007, cited in Capra & Luisi, 2014) argued that modern scientific thought did not emerge with Galileo, but rather with Leonardo da Vincie a hundred years before Galileo, when he single-handedly developed a new empirical approach, by

involving the systematic observation of nature, reasoning, and mathematics, the main characteristics of the "scientific method" (p. 7). His approach to scientific knowledge however was visual, the approach of a painter. And Capra argued, Leonardo "did not pursue science and engineering to dominate nature," but rather he pursued it to try to "learn from her as much as possible" (p. 7). Centuries later humanity in the West is discovering once again how much she has to teach. "The separation of knowing and doing," that Peter spoke of, and the separation of knowing and sensing that Otto spoke of, that is "so widely accepted today can be addressed if we recognize that knowledge resides in our living in this world, not in controlling it" (Wildcat, 2009, p. 16). Indigenous peoples worldwide have science - they have Native Science (see Cajete, 2000, pp. 273-276) which is a process of thinking and relating that refuses to "decontextualize" (p. 307). This approach to sensing and shifting systems can help "form the basis for evolving the kind of cosmological reorientation that is so desperately needed" (p. 303). A fundamental difference between Native and Western science, says Peter, is that Western science prides itself in the 'scientist discovering' how reality is working versus deeper listening. Yet the nature of scientific discovery, as opposed to theory testing, has always been something of a mystery in the philosophy of science. As Otto says, Goethe was one Westerner who developed a whole way of deep observations and unpacking how scientific discovery could unfold – which has been a strong influence on our current emphasis on deeper listening. So, what Rick says and what Otto says connect directly.

 "Listening to you this morning, Melanie, I've been Sundancing for 20 years, and have been to many Anishinaabe ceremonies, warrior dances and Ancestor dances. What you represent here to me is the soul, bringing the soul to systems work," said Auntie Diane. She continued, "What do the unborn generations need to be able to carry on? I think the first and foremost piece of systems thinking is how to create a collective mind again, to develop consciousness. That to me is the key piece." She concluded, "You can build whatever you want to build, you can build a new economy, you can build a new education system, we all have that capacity, I'm not worried about that, I'm worried about the minds of people to be able to do that." A holistic and ecological view of life has been called "the systems view of life" (Capra & Luisi, 2014, p. 70). What is significant in this definition is a recognition that the systems view of life is an ecological view "that is grounded, ultimately, in spiritual awareness" (p. 70). "That's how change is going to come, from our Earth Mother," said Kevin Deer in the opening story. And he said, "many people who are spiritually grounded are going to know what's happening but the ones who never connected to the earth will not know what's going on."

Awareness-based systems change is a process of co-inquiry into the deeper structures of the social systems in order to see, sense, presence and shift them. Bringing back *Kanikonhri:yo* (the Good Mind) is a core concept of that co-inquiry, the Elders told me. The Elders and Peter each spoke about our collective disconnection from Mother Earth and how we must reconnect to her to truly understand the 'systemic nature' (Capra & Luisi, 2014) of life on this planet. Kevin said, "…when people are here on Turtle Island, suffice it to say they must acknowledge the ancestors, you are on this land, understand that you are guests, that we are the hosts, come from a place of humility and with the utmost respect." He added, "from you acknowledging those ancestors and all of that spirit, to guide your thought processes, you try to come to understand everything is about healing." "Spirit is the life force of this work," explained Auntie Diane. She continued, "bringing back the Good Mind again. The Good Mind cannot be without the spirit being

activated, that is the first piece of the healing that they [Westerners] are seeking, it's activating spiritual remembrance in their bones and DNA."

Melanie, Peter and Otto first explored spiritual awareness and healing together in October of 2019 during the recording of the DoTS webinar, episode 6 (see Figure 4). The topic was *Indigenous Wisdom and the Civilizational Shift from Ego to Eco*. Kelvy Bird was scribing. The webinar began with an exchange of gifts. I offered Otto *asemma* (tobacco) and Otto gifted me with a precious amethyst. Peter joined halfway through for the discussion and reflections. It is significant to note that the live webinar sold out immediately at full capacity, with 500 people joining from 56 countries on seven continents. What was the appeal of this topic to a global audience? Perhaps it had something to do with what Peter shared when he walked into the meeting room at MIT, where the webinar was being broadcast from. During the webinar, I placed sacred items from a medicine *bundle* (see Bell, 2018, in McGregor, Restoule, & Johnston) on the table. Sacred bundles include items "that the spirits have given to a person to carry for the people" (Marsh et al., 2015, p. 7). These were spiritual helpers gifted to me to support my systems change work, a *mikinaak* zhiishiigwan (turtle rattle) and a *migizi miigwan* (eagle feather). These were placed on top of a *waabooyaan* (blanket) that featured the four sacred colours (Yellow, Red, Black, and White) of the four cardinal directions, East, South, West and North. When Peter entered the room, he experienced a visceral response to seeing the medicine bundle on the blanket, the hustle and bustle of MIT campus life faded away, and he said he felt like he "entered into a sacred lodge."

Illustration 4.2 DoTS webinar, episode 6, with Otto, Melanie, Peter and Kelvy (screenshot by the Presencing Institute)

The generative scribing by Kelvy was captured in real time on a whiteboard (see Figure 5). During the webinar I told a story about how I came to understand the Anishinaabe concept of *resilience* during my doctoral studies in Social and Ecological Sustainability. I was writing my comprehensive exam paper and reading about the Western concept of ecological resilience first articulated by C.S. (Buzz) Holling (1973), who published a classic paper in the *Annual Review of Ecology and Systematics* on the relationship between resilience and stability. He said resilience is "a measure of the persistence of systems and of their ability to absorb change and disturbance

and still maintain the same relationships between populations or state variables" (p. 14). I reached out to two Anishinaabe language speakers and knowledge keepers and asked them, how would we define resilience in our worldview? My cousin Rene Meshake said, "It is *sibiksaagad*, sibi (river), biskaa (flexible), gad (it is). You might say that resilience is described as a river flowing flexibly through the land. *Anishinaabemowin* [our original language] is embedded in the land" (personal communication, 2018). My sister Eleanor Skead said, "*Mamasinijige* is the act of twists and turns and moves. *Mamasinijiwan* is the water flow, in twisting and turning. There always has to be context with Ojibwe words, "You need to introduce how the word is being used" (personal communication, 2018). Then Eleanor asked me if I was near a river. I was in fact writing my paper while staying outside of Waterloo, along the shores of the Nith River. Eleanor said, "she [the river] is teaching you." So, I made offerings to her, the Nith River, for teaching me about resilience. Kelvy captured this story in the DoTS scribing.
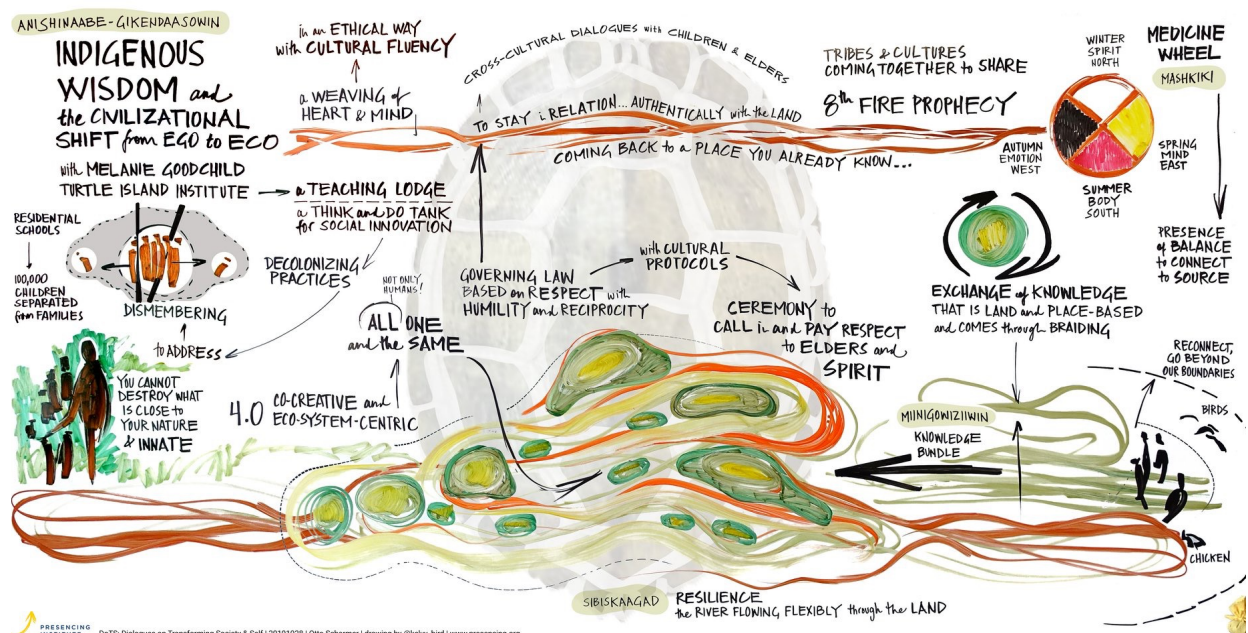
Figure 4.3 Generative Scribing by Kelvy Bird, of DoTS webinar, episode 6

Participants watching the live broadcast felt something similar to Peter, a presencing to the universe, across their computer screens. This was just before the global COVID-19 pandemic introduced us all to the regular use of webinars as convening. The session evoked a lively chat in the Chat Box, that included some of the following shares:
- "Being taught by a river, moves me to tears."
- "How important is it for westerners to acknowledge the genocide to be able to bridge or unify these consciousnesses? It seems that we are asking the very people who we killed to save us from ourselves."
- "This is such an important dialogue and is itself enacting the vital and necessary healing and transformations. Melanie and Otto, I am grateful for this enactment and creation."
- "Is there a danger of coopting these concepts without full context?"
- "One of the important things I learned this year (actually from an indigenous Elder in Nova Scotia) is that in the West we had a rich indigenous land-based tradition and we faced the

first round of genocide coming from the church – this is what the witch burnings were – it was erasing our land-based intuitive, matriarchal culture and systems of power."

- "It is a privilege having an opportunity to see the world from a perspective inaccessible to me so far."
- "My principle for this is 'change moves at the speed of relationship'. In my Ontario community I have been part of an indigenous allies working group process that spent several years building relationships and then invited Elders to give community talks. In the first talk, the Elder Doug Williams [from Curve Lake First Nation], offered a beautiful and simple way to start. 'We need to begin by listening to each other's stories'."
- "The chat is as rich as the discussion, love this sharing."
- "I am so grateful to be part of this discussion today."
- "Wonderful to talk about 'healing' in a grounded, and practical way."

During the DoTS resonance exercise, where the participants were invited to allow themselves to truly *see* Kelvy's drawing, viewers shared *feelings* such as I feel connected to the land, I feel warm in my heart, I feel a great need to change how I live, and I feel the entanglement. They shared *sensing* such as I sense it is about deep remembering, I sense familiarity/resonance, I sense a possibility that was always there, that we are finally ready to access, and I sense braiding of cultures, traditions, wisdom and story. And they shared *seeing* such as I see hope for our future, I see the river, I see confluence, and I see how much I still have to learn. One viewer shared, "The most important take away for me is the knowledge and the insight to change priorities in terms of which laws should govern our lives. I personally resonated strongly with the concept of prioritizing nature's laws on top of human laws. Maybe to find some humbleness here too." Peter shared something during the DoTS webinar that resonated with many viewers - that no matter how far we have been carried away from our connection to Mother Earth, something that is so innate, so true to our nature, cannot fully be destroyed. So, it is 'instinctual' to human beings - connecting to the land. "It's coming back to a place you know." Viewers also shared profound emotions such as I feel the vastness of what needs to change, I feel stressed by looking at the way we treat our planet earth and the path we still have to go to reach the wisdom of Melanie, I feel the longing for connection, and I sense grief and shame. Awareness-based systems change evokes feelings and emotions and it is to that topic we now turn - healing.

4.5 Conclusion: Coming to Know

Late Anishinaabe author Richard Wagamese said if we leave our strong or painful feelings unattended, then "…those feelings can corrode your spirit" (2011, p. 186). Recall what Kevin shared, "Change is going to happen from people going inward within themselves and along with going back to having communion with their first mother, Mother Earth." Uncle Dan told me, "So what we've been talking about today in its essence is the *revitalization of human spiritual integrity*. This revitalization is really about rebuilding human beings from the inside out." He continued, "It's connecting that human being to themselves, to each other, to a sense of place, to a physical and spiritual world, and there's a system that is involved, a process, to be able to build that." Earlier he also said that we must "restore that sacred feminine, predicated on kindness and compassion, caring, love - that's the real impetus of change. If systems theory and practice can conscience us to that way of understanding the world then we'll see some really fundamental change but unless it does that, it will be the same old same old."

Deep healing, says Tewa scholar Gregory Cajete (2010), from the Santa Clara Pueblo, occurs when the self "mutualizes" with body, mind and spirit (p. 1130). In healing we attain deep understanding, enlightenment and wisdom, a high level of spiritual understanding. This is what he calls the seventh life stage of Indigenous education. There is a knowing "Center" in all human beings that reflects the knowing Center of the Earth and other living things. And Elders have always known that "coming into contact with one's inner Center is not always a pleasant or easily attainable experience" (Cajete, p. 1130). This led Indigenous peoples to develop "a variety of ceremonies, rituals, songs, dances, works of art, stories and traditions to assist individual access and utilize the potential healing and whole-making power in each person" (p. 1130). A transformational element of *coming to know* is "learning through self-reflection and sharing of experience in community" (p. 1131). This allows us, concludes Cajete, to understand our learning in the context of the great whole. Cross-culture dialogues help us to see that there are as many ways of seeing, hearing, feeling and understanding as there are members in a group. We come to understand that "we can learn from another's perspective and experience," and we also "become aware of our own and other's bias and lack of understanding through the process of the group" (p. 1131). We become aware of our mental models as Peter has described it and of our blind spots as Otto has described it.

In writing about prevailing mental models, Peter once said the more profound the change in strategy, the deeper must be the change in thinking (Senge and Sterman, 1992, p. 137). This article is an invitation to sit in circle with us, in the sacred space of non-interference *in between epistemologies*. It requires a change in thinking and knowing. That is what the two-row visual code invited us to do, and it is what the DoTS webinar invited Melanie, Otto, Peter, Kelvy and the viewers to do. The space in between is a healing space and a space of peace, respect and friendship, inspired by the spirit of the two-row wampum belt. One of the DoTS viewers shared, "I feel at home here in this space. To meet other people who seek this beautiful space to find connection as individuals and community."

Healing self and systems is ultimately at the heart of the work of Turtle Island Institute (TII), the Presencing Institute and this new journal. I founded TII and our new virtual teaching lodge called *Mikinaak Wigyaam* (Turtle Lodge) as a safe place for innovators and changemakers to sit with Elders and each other, to engage in deep inner work, in order to lead/support our outer work. As Auntie Diane said earlier, "You've gotta do your work." Inside the teaching lodge everyone is a student, and everyone is a teacher. We practice *gichi gakinoo'imaatiwin* (the act of great or deep teaching) (Eleanor Skead, personal communication, 2020). As Opaskwayak Cree scholar Shawn Wilson (2008) points out, for Indigenous peoples everything begins with *relationships*. And Indigenous *community* is based on relational thinking (Cajete, 2015). Inside the teaching lodge we engage in a process I've termed *relational systems thinking* where awareness-based systems change centers *mutual benefit*, a foundational principle that Uncle Dan shared with me, between all the humans, the non-humans, the unborn generations and our Earth Mother. Kevin offered the following words at the conclusion of our tea together in Six Nations: "We ask all of the powers of the earth, the upper world, lower world, the Ancestors, the Great Spirit, with all of their power, strength and wisdom to help us." On behalf of all of us, I say *Miigwetch* (thank you in Ojibway) and *Nya:wen* (thank you in Mohawk) for listening.

Chapter Five:

Relational Systems Thinking: the dibaajimowin (story) of re-theorizing "systems thinking" and "complexity science"

5.0 Introduction *Gidinawendimin*

Anishinaabekwe indaaw (I am an Anishinaabe/Ojibway woman). ***Waabishki Ogichidaakwenz-anang*** and ***Waaba-anang Ikwe indigoo Anishinabemong idash*** (is what am I am known by the spirits in Ojibway). Melanie Goodchild ***indizhinikaaz zhaaganaashiiong/ingikeniogoo gaye*** (is what I am called in English/is what I am also known by). ***Mooz indoodem*** (I am moose clan). I am the daughter of the late Delaney Goodchild from Biigtigong Nishnaabeg First Nation (Anishinaabe) on the shores of Lake Superior and Melinda Jones from Ketegaunseebee/Garden River First Nation (Anishinaabe) on the shores of the St. Mary's River.

I honour the lands where I am currently writing, my mother's traditional territory at Ketegaunseebee (Garden River) First Nation. It is in accordance with Anishinaabe protocol that I introduce myself this way, so you know "who I am, to whom I am connected, and where I come from so that those listening to me will know the origin of my teachings (Geniusz, 2009, p. xv). I am descended from peoples and lands that were colonized by the French and British empires to build the imperial Nation now called Canada. The relationship between Indigenous peoples and the state has "remained *colonial* to its foundation" [emphasis in original] (Coulthard, 2014, p.6) and so I have been engaged in a process of *decolonization* (see Smith, 1999, 2012) since I was 13 years old to pursue *Anishinaabe Mino-Bimaadiziwin* (the good life), "a unifying and transcendent concept that, when activated, contains the past, present and future of Good and respectful approaches to life" (see Debassige, 2010, p. 16). Settler-colonialism fractured "the bonds" that tied me and other Anishinaabeg "to tradition and culture and language and spirituality" (Wagamese, 2008, p. 18). This was accomplished through dispossession of our homelands and justified by the Doctrine of Discovery[18] and Terra Nullius and subsequent assimilationist policies, such as Indian Residential Schooling. My father attended residential school in Spanish and my mother attended Roman Catholic Indian day school in Garden River. Decolonization for me then is an ongoing process of *healing the fracture*.

In this introduction I have respectfully acknowledged the land where I live and work, told you of my ancestry that positions me as an Anishinaabe person, Indigenous to Turtle Island (North America), claimed my genealogy to locate me within my family, and situated myself as a member of a colonized Nation (Parter & Wilson, 2021, p. 1085). I also have privilege and wealth as a member of a first world country. These "obligatory accountabilities" begin to establish the elements of an Indigenous research paradigm and 'relationality' requires that you know about me before you can begin to understand my work (Wilson, 2008). My positioning as an AnishinaabeKwe (Ojibway woman) as shared above is the foundation of my "relationally responsive standpoint" with *ethical*, *relational*, *intellectual*, and *operational processes* (Yunkaporta & Shillingsworth, 2020) drawing upon my "unique spiritual makeup" as an

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[18] See more about the Doctrine at https://www.afn.ca/wp-content/uploads/2018/02/18-01-22-Dismantling-the-Doctrine-of-Discovery-EN.pdf

Ojibway woman to fulfill my obligations and accountabilities as a researcher, knowing and respectfully reinforcing "that all things are related and connected" (Wilson, 2003, p. 175). In *Anishinaabemowin* (our original way of speaking) we say *Gidinawendimin* (we are all related to each other). While I introduce myself as an individual, my individuation is relational, the story of my journey as a scholar arises from how I explore "what it means to be in relation with others. Knowing how to be in good relations – to be a good relative to all that is" (Cajete, 2015, p. 151.). In this essay I am in relationship with the spirit of an evolving Indigenous standpoint theoretical framework called *relational systems thinking*, and my methodology is the *dibaajimowin* (story) of my current understanding. It is a perspective to help systems change practitioners and scholars transcend binary and hierarchical thinking, to embrace a complexity mindset, informed by Indigenous wisdom traditions.

5.1 Relationality

As Dr. Gregory Cajete (2015), a Tewa Indian from Santa Clara Pueblo, eloquently explains:

> Because Indigenous views of the nature of reality build on relationships – reality is wholly interrelated – knowledge emanating from an Indigenous worldview has to be understood relationally. Nothing exists in isolation or can be understood apart from all its relationships. Here is where the metaphors come in: they help us talk about intricate and complex relationships – things we simply cannot convey through linear, verbal expressions. Organizing and using Indigenous knowledge requires that we understand the metaphorical world and how is shows up or manifests in many settings (p. 207).

And Opaskwayak Cree scholar Shawn Wilson writes extensively about *relationality* and *relational accountability* in his seminal work, "Research is Ceremony: Indigenous Research Methods" (2008). There is a common thread linking Western research paradigms he says, and that is that knowledge is "seen as being *individual* [emphasis in original] in nature," which is vastly different from the view within Indigenous paradigms where knowledge is seen as "belonging to the cosmos" and we humans are only the "interpreters" of that knowledge (p. 38). We individual humans then do not own or possess knowledge. Instead, in the Anishinaabe philosophy of coming to know, knowledge resides in the land and knowledge is progressively revealed through experience on the land (Davidson-Hunt and Berkes, 2003). "An Indigenous paradigm comes from the foundational belief that knowledge is relational. Knowledge is shared with all creation" (Evelyn Steinhauer, 2002, quoted in Wilson, 2008, p. 56). It is not just a relationship between humans, which is anthropocentric, but a relationship with all of creation, "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 the concept of relational knowledge …you are answerable to all your relations when you are doing research (p. 57). Indigenous research paradigms are then "clearly a more-than-human practice" (Bawaka Country et al., 2015, p. 274) and "we relate to animals, plants, weather, geology, songs, dances as kin. They make us who we are, just as we make them who they are" (p. 275).

So, ultimately relationality is also about our relationship to the land and all our kin, a spiritual connection. To hear the messages of Country, of *Shkaakaamikwe* (our Earth Mother), we "need to attend with great care to the world" for "to hear these messages, you have to be attentive and

open. You need to be alert to the world in all its complexity. The messages that animals, plants, winds send may be heard by humans or they may not" (Bawaka Country, et al., 2015, p. 275). Wilson's (2008) friend Peter talks about taking people out onto the land so they can experience this connection themselves, to tap into the frequencies of the land as some Elders I know describe it. Speaking about the idea of 'space', Peter says, space is a distance or relationship between people. So, his friend who is Tongan and grew up in New Zealand says the Maori, "when they do ceremonies, it's to eliminate the space between people." And the space between people "is Kapu, is sacred, and you go through a ceremony and respect each other's space." Peter goes on to say that he thinks the Indigenous concept of place is that there is that same kind of relation between humans and our environment. "So the distance or relationship between ourselves and the environment is sacred, and so you do ceremonies to bridge that space or distance" (p. 87). And that is how *relational systems thinking*, the focus of this essay, is explored, as a model for *bridging the distance* in the sacred space between worldviews. It is also builds upon the notion of *ethical space* (see Ermine, 2007). In my doctoral dissertation (forthcoming), I explore more in-depth Nakata's (2010) *cultural interface* and *research at the interface* (Durie, 2005, p. 306) to harness the energy from two systems of understanding to create new knowledge that can then be used to advance understanding in two worlds.

> By reducing the space between things, we are strengthening the relationship that they share. And this bringing things together so that they share the same space is what ceremony is all about. This is why research itself is a sacred ceremony within an Indigenous research paradigm, as it is all about building relationships and bridging this sacred space… there is no distinction made between relationships that are made with other people and those that are made with our environment. Both are equally sacred (Wilson, 2008, p. 87).

Wilson (2008) draws attention to the work of Ray Barnhart and Oscar Kawagley who talk about 'complexity theory.' It is what most Indigenous scholars go through all the time notes Wilson. Complexity theory "provides an emergent system that melds the 'formal' and Indigenous knowledge systems" (p. 44). One of the great strengths that Indigenous scholars bring with them is "the ability to see and work within both the Indigenous and dominant worldviews" (p. 44). This complexity mindset is what *relational systems thinking* (see Goodchild, 2021) taps into. My *Indigenist research* (see Wilson and Hughes, 2019, p. 7) on decolonizing systems and complexity science led to a unique Indigenous "complexity pattern of thinking" (see Wulun, 2007, p. 395), an innovative pathway to challenge and perhaps change the narrow paradigmatic assumptions of the conventional, or Western, approach to systems thinking and complexity.

As part of their white privilege says Wilson (2008), dominant system academics are usually not bicultural. There is "no requirement for them to be able to see other ways of being and doing, or even to recognize that they exist. Oftentimes then, ideas coming from a different worldview are outside of their entire mindset and way of thinking" (p. 44). Wilson concludes, "the ability to bridge this gap becomes important in order to ease the tension that it creates" (p. 44). Bridging the gap in a good way, in the sacred space between worldviews, and the sacred space between human beings and the land, is the purpose of *relational systems thinking* as an Indigenous standpoint theory.

… I can say that the wisdom of the Elders and our natural surroundings is looked upon as a living teacher and life itself… Our people have used these since time immemorial which is why it is understood as a living culture. In our modern times the people must learn how to apply and use these teachings, how to live them in the midst of all the distractions of the modern culture (Nabigon, 2014, p. 34).

5.2 What is "systems thinking"?

Any discussion of Indigenous Knowledge systems is always a polite acknowledgement of connection to the land rather than true engagement. It is always about the *what*, and never about the *how* [original emphasis] (Yunkaporta, 2020, p. 17)

While many studies and papers explore or critique the how and why of engaging with multiple ways of knowing, this paper presents *relational systems thinking* as a theoretical model to address the *how*, as lamented by Tyson Yunkaporta (2020). *Relational systems thinking* (see Goodchild, 2021) is a stance, a complexity-relationality mindset or complexity pattern of thinking, anchored in Indigenous worldviews, that can aid scholars and practitioners in generating the conditions for innovation and systems transformation. My dear friend and colleague Peter Senge often says to me, we should be able to explain 'systems thinking' without using the word 'systems'. Systems thinking is a lens on the world that understands natural and human endeavours are bound together "by invisible fabrics of interrelated actions" (Senge, 1990, 2006, p. 7). The Elders might say those invisible fabrics and interrelated actions are spiritual energies. Is there a song instead, a poem, a piece of art, a landscape perhaps I wonder, that teaches us the principles of complexity and systems thinking? This has been the focus of my scholarship in studying *complex adaptive systems* (see Zimmerman, Lindberg & Plsek, 1998) from an Indigenous perspective.

The term 'systems' was initially associated with operations research and optimisation techniques, says Dias (2008). These techniques embodied the ideas of interconnected entities and their interactions, and the notion of system boundary, which provides limits and constraints. These approaches were "strongly computational in nature and hence highly reductionist" (p. 202). Systems thinking evolved, broadened, to include areas not covered by reductionist approaches, which are now called 'hard' systems methods. New systems approaches have been called 'soft' and are not intellectually easier than those of the 'hard' variety, says Dias. On the contrary, "they are seen as tackling important problems that defy facile quantification rather than using well defined methods to solve relatively trivial problems" and further they recognize "the *socio-technical* [emphasis in original] nature of systems, with human involvement being taken into account of, not only within the problem being studied, but also in the qualities of the problem solver and his or her interaction with the problem" (p. 202). Thus, "everything needs to be seen as a *process* [emphasis in original] involving its environment rather than as merely an isolated product" and "closely associated is the phenomenon of temporality, because all processes take place in time and involve *feedback* [emphasis in original]" (pps. 202-203). Dias argues soft systems are important to engineering because while engineering is based on science, "it is practiced in society, with sociological considerations crucial for design and decision-making" (p. 203). When I first encountered both hard and soft systems thinking, the underlying holistic principle resonated with me, it was familiar.

The biochemist Lawrence Henderson (1878 – 1942) was influential through his early use, says Capra & Luisi (2014), of the term 'system' to denote both living organisms and social systems. From that time on, "a system came to mean an integrated whole whose essential properties arise from the relationships between its parts, and 'systems thinking' the understanding of phenomenon within the context of the larger whole" (p. 64). The root meaning of the word 'system' derives from the Greek *syn + histanai* ('to place together'). So, to understand things systemically "means literally to put them into context, to establish the nature of their relationships" (p. 64). Hence the notion of *relational systems thinking* is re-prioritizing the relational aspects of doing systems awareness work. "The emergence of systems thinking was a profound revolution in the history of Western scientific thought" says Capra & Luisi (2014, p. 65) however the principle of *irreducible wholeness* (p. 10) has for generations been reflected in the ceremonies, languages, customs, cultures, stories, and teachings of Indigenous peoples across Turtle Island (North America) and around the world. This "new way of thinking" (p. 65) in the West is in fact a very old, ancient, and wise way of thinking that has been protected and nurtured by Indigenous peoples despite cultural genocide and assimilationist policies that forbade speaking the very languages that encode our complexity pattern of thinking and systems awareness.

Quantum theory was formulated during the first three decades of the twentieth century by an international group of physicists who realized that their basic concepts, their language, and their whole way of thinking were inadequate to describe atomic phenomena. The paradoxes these scientists encountered "are an essential aspect of atomic physics" and they had to realize that "they arise whenever one tries to describe atomic phenomena in terms of classical concepts" (p. 69). Once this was perceived, "the physicists began to learn to ask the right questions and to avoid contradictions, and finally they found the precise and consistent mathematical formulation known as quantum theory, or quantum mechanics" (p. 70). The coherent worldview that emerged from this revolutionary change in Western concepts of reality is called "the systemic view of life" by Capra & Luisi, who also conclude that this "ecological view" is grounded in spiritual awareness – connectedness, relationship, community, and belonging as the essence of spiritual experience. "Thus it is not surprising that the emerging systemic and ecological paradigm is in harmony with many ideas in spiritual traditions." In chapter 13 of their book the authors discuss the parallels between the basic concepts and ideas of physicists and Eastern mystics arguing that various spiritual traditions provide "a consistent philosophical background to our contemporary scientific theories" (p. 70). Is it any wonder then that Western physicists F. David Peat and David Bohm became friends with Indigenous thinkers Leroy Little Bear and Sa'ke'j Henderson or that I, a systems geek, have become friends with Peter Senge and Otto Scharmer? David Bohm began to develop what he called the implicate (or unfolded order). Bohm argued that while the classical physics of Newton described what could be called the surface of reality, by contrast, quantum mechanics "has forced us to move to deeper levels of perception of the world" (Peat, 2002/2005, p. 140). Reality said Bohm, in its deepest essence, is not a collection of material objects in interaction but a process or a movement, which he called "the *holomovement* [emphasis in original] – the movement of the whole" (p. 140).

So, the stable forms we see around us are not primary in themselves but only the temporary unfolding of the underlying implicate order. "To take rocks, trees, planets, or stars as the

primary reality would be like assuming that the vortices in a river exist in their own right and are totally independent of the flowing river itself" (p. 140). My colleague Blackfoot scholar Leroy Little Bear often says to me the only permanence is change, or constant flux (2018). Energy waves are spirit. Nothing is inanimate so we say, all my relations. In this worldview everything is related, kin, holistic, not reductionist. The problem I have found with conventional Western-based hard and soft systems thinking is that systemic processes are often seen/sensed and then described in English, the language of the colonizer. English is noun-based and therefore has an anthropocentric bias, a tree is a thing, not a relation. My friend and colleague Tiokasin Ghosthorse (Lakota) and I have recorded radio shows and webinars speaking of this 'nounification' of our thinking by English. Indigenous languages are process, context, land, and verb based. As Leroy has often said, in English it's like one picture frame of 35mm film, while in his language Blackfoot, the show goes on (Arizona State University, 2011). With its heavy emphasis on nouns English creates dichotomous thinking, and that has led to hierarchical thinking that historically positioned science as good/superior and Indigenous wisdom traditions as bad/inferior. In fact, mainstream science throughout its modern history, since its formation in the 16th century, marginalized different ways of knowing, labeled various types of knowledge systems as folk wisdom – becoming a "sworn enemy" of all superstition, including shamanism, holism, sacral phenomena, spirituality, occultism, etc. says Wräkberg & Granqvist (2014, p. 91). They conclude that many surely find "reflection on the incongruity of holism and reductionism a waste of time" instead preferring to spend their time conducting "normal science" (p. 92). This compartmentalization of knowledge and disciplines still goes on in universities like mine so I must navigate that terrain. Like generations of Indigenous scholars before me my work has been an effort to revitalize *Anishinaabe gikendaasowin* (our original ways of knowing) and *Anishinaabemowin* (our original ways of speaking) so that I can progress Indigenous holistic ways of seeking wisdom.

5.3 Relational Systems Thinking

A central insight of systems theory says Meadows (2008) is that once we see the relationship between structure and behaviour, we can begin to understand how systems work. A 'system' she says, is a set of things – people, cells, molecules, or whatever – interconnected in such a way that they produce their own pattern of behaviour over time. We human beings are complex systems – our own bodies "are magnificent examples of integrated, interconnected, self-maintaining complexity (p. 3). She concluded that modern systems theory, bound up with computers and equations, hides the fact that "it traffics in truths known at some level by everyone. It is often possible, therefore, to make a direct translation from systems jargon to traditional wisdom" (p. 3). With a systems perspective "one enjoys the multi-dimensional dynamic flow of circumstances and comes to accept, if not enjoy, paradox" (Anderen & Björkman, 2017, p. 51).

> We have people now who are very clearly among the best scientists who are willing to agree that there are limits to the knowledge that science can have about nature. We're reaching a place in which there's ever wider agreement that poetry gives us as much information about our relationship with the universe as telescopes do, and that those two strains can live together and complement one another harmoniously. Those two things can happen, and that's actually not dissimilar to my culture, which asserts that on the one hand there are dreams and visions and on the other hand there's a responsibility to

maintain a clear vision of reality. Those two streams of thoughts and reactions have to live cooperatively together (Mohawk, 2008, p. 49)

Indigenous community is a 'complex adaptive system' that has 'emergent properties' that form an Indigenous community's social, cultural, and ecological expressions in unique ways. And Indigenous communities are 'human living systems' (Cajete, 2015). In 2021 we (me along with Diane Longboat, Dan Longboat, Kevin Deer, Rick Hill, Peter Senge and Otto Scharmer) co-wrote and published "Relational Systems Thinking: That's How Change is Going to Come, from Our Earth Mother" (Goodchild, 2021) in the inaugural issue of the Journal of Awareness-Based Systems Change. The article was an attempt by me as an Anishinaabe doctoral candidate in Social & Ecological Sustainability at the University of Waterloo to "negotiate the politics of knowledge construction" (Bishop, Vass & Thompson, 2021, p. 197) and walk my talk. Writing the article was a project of "discovering the beauty of our knowledge" (Smith, 2012, p. 161) undertaken to decolonize systems thinking and awareness-based systems change. In 'delinking' from a typical trajectory for writing an academic paper, using a Haudenosaunee two-row visual code (see Figure 1), I took up a 'decolonial path' (Mignolo, 2011, cited in Bishop, Vass & Thompson, 2021, p. 195). The two-row visual code demonstrates how "Indigenous epistemology is all about ideas developing through the formation of relationships" (Wilson, 2008, p. 8). It was a rhetorical device for me to invite readers into a space and place where two streams of thought live cooperatively together, as the late John Mohawk, Turtle Clan of the Seneca Nation, described.

Indigenous Knowledges, decolonizing, mother earth, healing

Kevin Deer: I was at a conference in Montreal because it was dealing with soils, which is an extension of Mother Earth. I talked to them about my experiences of fasts and vision quests, and about the personal healing that I had to do. Before that, I believed that babies cry, weaklings cry, but real, as a real man, I don't cry. Anyway, through the *Midewiwin* Lodge teachings when they put you out, it's usually before the sun sets. So, in that lodge, I'm asking myself, if this lodge represents my life, so I have to go back to my earliest recollection, where there was pain and hurt. If there's hurt and pain then I have to go back and give this pain back to my first mother, which is Mother Earth. In the construction of my lodge, there is one sapling in the ribs of my lodge that represents my life's journey. I ask in Onkwehonwehneha "Mother how can you heal me?" Because my biological

Peter Senge: We once had a meeting in South Central Colorado, 200 miles north of Taos, New Mexico. There's beautiful land there, used for thousands of years for spiritual retreat, anyhow we had a small group there. And there was one woman from China, 35 years old or so, a skillful facilitator, I've worked with her in China, but she grew up as a modern young Chinese person, which means she had like zero contact with the natural world. So, there was the opportunity for people to sleep on the land, they didn't have to, but there was that opportunity. We had organized it so they could get sleeping bags and tents. It was a pretty chilly time of year, early October, so it was cold enough that it was a little daunting. And this young Chinese woman had never slept outside in her life. But two people who had spent a lot time camping outside said they

Figure 5.1 Two-row visual code, featured in Goodchild (2021)

This paper extends the analysis begun in Goodchild (2021), with suggestions for engaging with the spirit of *relational systems thinking* as a *dynamic interface theoretical model* (Yunkaporta & McGinty, 2009). Universities are elite institutions which reproduce themselves "through various systems of privilege (Smith, 2012, p. 132) and many Indigenous scholars feel the pressure to "comply or leave" (Bishop, 2021, p. 370) rather than doing battle with the "repressive character of methodologies" in the "western scientific establishment" (Matsinhe, 2007, p. 840). In Goodchild (2021) I did the hard work of finding and then sharing the Haudenosaunee two-row visual code "as an act of defiance" and "to increase complexity" (see Bishop, 2021, p. 368). Encountering the disenchantment of the world in the academy, I was "pushing back" with the enchantment of Indigenous ways of knowing (Herman, 2016; Matsinhe, 2007). Rather than exploring a Western notion of systems awareness and complexity, the rationale for *relational systems thinking* as a model comes from Indigenous knowledges, Haudenosaunee and Anishinaabe, a process of decolonial knowledge-making (Nakata et al., 2012, p. 124). I am honouring diversity by practicing respectful cultural fluency as Dr. Dan Longboat calls it, as I am not Haudenosaunee.

To embrace "sophisticated Indigenous ways of knowing" (Yunkaporta & McGinty, 2009, p.55) scholars and practitioners need a complexity mindset and *relational systems thinking*, as a dynamic interface theoretical model for reasoning in the *sacred space* between ways of knowing is not the *what* of deep systems awareness, but the *how*. The interface is dynamic because it situates "the lifeworlds of contemporary Indigenous people in the dynamic space between ancestral and western realities" (p. 58).

> We, as Indigenous academics, need to have a long think about our position at the intersection between Indigenous and Western systems of knowledge, and about the intersection itself as it is constituted in the academy, and as it emerges in conditions on the ground in communities. There is much work ahead to conceptualize the intersections differently, to re-theorise them in all their complexity, and to find better methodological approaches for negotiating them (Nakata, 2006, p. 274).

Is it possible that *relational systems thinking* offers a relational methodological approach for negotiating these intersections? Based upon various talks and presentations inspired by the initial article I began to develop a theoretical model and visualization of the *relational systems thinking* standpoint for deep systems awareness (see figure 2).

Figure 5.2 Relational Systems Thinking Theoretical Model

This visual representation of *relational systems thinking* as a dynamic interface living model, represents the most current version which will continue to evolve as a living model that comes from living cultures. This model privileges Indigenous and local place-based knowledge (Yunkaporta & McGinty, 2009). I offered this diagram in various presentations to introduce *relational systems thinking* as a model for systems awareness in the third space. The two-row wampum is a living treaty, a way for distinct peoples to live together in peace, that each nation will respect the ways of the other. The central metaphor of *relational systems thinking* is the two-row wampum belt. It is a Haudenosaunee teaching and metaphor of "relatedness" (Yunkaporta & Shillingsworth, 2020, p. 8). The third space is the sacred space between the two vessels of the wampum belt. "Your intellectual process in relationally responsive standpoints" says Yunkaporta & Shillingsworth (2020) involves "engaging with and negotiating cultural metaphors that can express, structure and inspire thinking and learning processes" (p. 7). The river of life nourishes all life, and the two strains of thought that Mohawk (2008) spoke of earlier, is represented here in the two-row wampum belt. This model invites scholars and practitioners to inhabit the space between, to take *relational systems thinking* beyond an intellectual exercise, to inform practice and "open up and celebrate third spaces in our everyday lives" (Dudgeon & Fielder, 2006, p. 405). This model was developed through collective wisdom as I shared versions with many different audiences throughout 2021 and often in response to clarifying questions, I edited elements.

Since the publication of the paper there has been significant uptake of the idea of *relational systems thinking* and I have been immersed in an embodied experience of 'sensing from the field' (Scharmer, 2016). In fact, I can identify the first moment in which I sensed that the spirit

of *relational systems thinking* was about accessing optimal flow states for reasoning with a *relationally responsive standpoint* (Yunkaporta & Shillingsworth, 2020) in the space between worldviews. A colleague gifted me a copy of a beautiful book called Deer & Thunder: Indigenous Ways of Restoring the World" by Andean Elder Arkan Lushwala (2017). In it he explains how ancient peoples understood the importance of having an inclusive mind and how they trained themselves to combine feminine and masculine ways of interpreting reality:

> … which allowed them to follow their heads and their hearts simultaneously. Like any other common man, for many years I used reason to eliminate contradictions, to protect others and myself from the unpredictable wildness of our world, from how dangerous it felt that much of reality seemed different from how I was or how I believed the world should be. But through a life of ceremony my eyes have been washed into a deeper vision, and I can now practice a way of reasoning that does not take sides but instead allows two opposites to dance together until the face of a third presence starts showing up. Today I engage my heart to feel into what wants to be born from the union of the opposites and stand at its service, like a midwife, ready to catch and hold the future with respect (p. 104)

A "relationally responsive approach seeks dialogue, synergy and innovation in the respectful interaction of diverse systems" (Yunkaporta & Shillingsworth, 2020, p. 10). I was invited to be the keynote speaker at a 50/150 Legacy Event for the federal department of Environment and Climate Change Canada. I offered a talk on *relational systems thinking* as a theoretical model to help bridge the gap between Western science and 'Native Science' (see Cajete, 2000). The event was very well attended and well received. The analytic reports of the webinar showed that there were 1,026 unique page views of the live event, from three countries in 72 cities. Afterwards, in a debrief with core Indigenous staff who initially invited me to speak, they thanked me for offering them and their colleagues a way to *ethically navigate* the intersection of different worldviews. This they said, would help them to do their jobs, of addressing environmental issues such as climate change within a system that may contain elements of cross-cultural misunderstanding. In that moment, I sensed a shift in my relationship to the spirit of *relational systems thinking*; it offers a way of reasoning that taps into, rather than denies, the "tension and creative synergy" (Coates, Gray & Hetherington, 2006, p. 395) at the intersection of foundational beliefs.

For the past year and half, I have been in deep relationship with the teachings offered by my co-authors, human and non-human, including the idea of sacred space, that our relationship together, between Indigenous peoples and others, exists in the *space in between*, talked about by my Uncle Dan Longboat[19]. This current essay, a *bagijigan* (offering) (Doerfler, Sinclair & Stark,

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[19] Dan Longboat from Six Nations of the Grand River, is my spiritually adopted Rakenonhá:a (Uncle, my). He is a dear friend and brother of my Uncle Blaine Loft of Tyendinaga Mohawk Territory. Blaine was a dear friend and brother of my late father Delaney Goodchild, and after my father passed to the spirit world, many years later Blaine and I connected through Dan. As a brother to my dad, Blaine became my Uncle, and as a brother to Blaine, Dan became my Uncle. In the Mohawk language Uncle means 'he cares for my mind.' That is the brief dibaajimowin of

2013, p. xv) is my *dibaajimowin*, my story of being in relationship with the spirit of *relational systems thinking* and exploring the patterns of its teachings. This story is my birthright so no-one has authority over how I work with stories. This is an important teaching taught to Leanne Betasamosake Simpson by Stó:lō author and poet, the late Lee Maracle (Simpson, 2017). "Words carry the power of creation – we create ourselves with stories" says Anishinaabe scholar Jill Doerfler (Doerfler, Sinclair & Stark, 2013, p. xx). *Dibaajimowin* is my methodology for searching for knowledge, and it embodies my own "learning and healing," and this knowledge is "transferable" (Absolon, 2011, p. 105) as my writing aims to "transform systems of knowledge production" (p. 106). This is a significant departure from conventional scholarship in that *dibaajimowin* represents *Anishinaabe gikendaasowin* (our original ways of knowing) thus "does not need to be defended – it just *is*" [original emphasis] as Herb Nabigon, brother of my late Uncle Lambert Nabigon, asserts (Nabigon, 2014, p. 33). It is through living our teachings that we become who we are, and each person's path will be different says Herb, and "it is not our job to judge another person on their path, but to try to be helpful and loving to them in all ways. Even if that means there are times of confusion. We learn from those teachers also" (p. 34).

5.4 Dibaajimowin: Decolonial Knowledge-Making

Let me tell you a story. *Aadizookaan* are traditional legends, ceremonies, sacred stories. *Dibaajimowin* are ordinary stories, personal stories, and histories. Each type of story is grounded in *Anishinaaba-izhitwaawin*, our Anishinaabe (Ojibway) culture, teachings, customs, and history (Geniusz, 2009, p. 10). Within these stories are *gakiikwe'inan* (teachings) (Eleanor Skead, personal communication, January 2020) that come from a place of spirt, offered to us from the land, the sentient landscape where we live. This entire essay is the *dibaajimowin* of my evolving relationship with the spirit of the teachings offered in "Relational Systems Thinking" (Goodchild, 2021). I extend my gratitude to you if you entered a relationship with that paper already. The stories shared about Indigenous Knowledge in settings like conferences or in journal articles says my dear friend and colleague Tyson Yunkaporta, who belongs to the Apalech clan in far north Queensland, Australia, in his brilliant book "Sand Talk: How Indigenous Thinking Can Save the World" (2020) must offer insights into the problems we are experiencing in the world today, not merely "formulaic self-narratives and cultural artifacts as a window for outsiders to see into a carefully narrated version of their past, and the view is one-way" (p. 16). Tyson and I have recorded several podcasts and webinars of our *yarns* (see *Barlo, Pelizzon & Wilson, 2020; Barlo, Hughes, Wilson & Pelizzon, 2021;* Hughes & Barlo, 2021 on yarning as relational methodology*)* together. When the Haudenosaunee knowledge keepers, Diane Longboat, Dan Longboat, Kevin Deer and Rick Hill, and Western systems thinkers Peter Senge and Otto Scharmer shared their teachings with me to write an article, it was a process of *bagijige* (making an offering) (Doerfler, Sinclair & Stark, 2013, p. xv) to contribute to the field of systems awareness and transformation. The transformation needed is nothing less than saving Mother Earth from anthropogenic destruction. As Uncle Dan stated:

> Now looking at prophecy, we talk about this idea of the Two-Row Wampum Belt, the Europeans and Indigenous peoples, or now any people that come to North

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how this AnishinaabeKwe (Ojibway woman) has the honour of kinship with two Mohawk Uncles. In Anishinaabemowin they are Nimishoomeyag (my father's brothers).

America, and our relationship together exists in the space in between. It is the sacred space, those principles of peace, friendship, and respect, that becomes the sacred way that we work towards one another, but the idea behind it is that we are both sailing down the river of life together. And our responsibility it to help one another, but more specifically, the river of life is in danger right now and there will be no more river of life. So, it behooves us now to utilize our knowledge together to work to sustain, to perpetuate, to strengthen the river of life. Why? So that All Life will continue. And at the end of the day any social innovation or systems thinking should be all about the continuation of life and however we understand it to be – not just human life but All of Life, for this generation right to the end of time (Goodchild, 2021, p. 84).

I first met Peter Senge during a convening of the Academy for Systems Change in Whistler, BC in April of 2019. I first met Otto Scharmer during the Executive Champions Workshop (ECW) in Stowe, VT in August of 2019. During that workshop Otto presented a model he created about the civilizational shift from ego to eco, on upgrading society's operating systems (see Scharmer & Käufer, 2013; Scharmer, 2018, pp. 144-145). The model analyzes evolutionary societal change from operating systems (OS) 1.0 to 4.0. At that time, I was not familiar with Theory U or that model however something struck me as he presented it, on a few flip charts under the meeting tent in the field in Vermont. Operating systems are reflected across several systems, health, learning, farm/food, finance, and governance. OS 1.0 is characterized as input and authority-centric, 2.0 is output and efficiency-centric, 3.0 is stakeholder and customer centric, and 4.0 is generative eco-system centric. To illustrate from the model for instance, the health system under OS 1.0 is traditional doctor/centric medicine while under OS 4.0 is salutogenesis: strengthening sources of wellbeing. As I listened to Otto explain the model it occurred to me that the descriptors of the various systems described as OS 4.0 accurately described our ancient Anishinaabeg systems. I worked up the courage to raise my hand and offer this observation, "Otto, it seems to me that what you describe in this model, for OS 4.0, that's what we Indigenous peoples had here on Turtle Island (North America) before contact. We already had those until they were disrupted at contact [by settler colonialism]". At the break after that session Otto approached me and asked if we could connect and have a cup of tea/coffee later to chat about this reflection. And then Peter approached me and suggested that we three might wish to "write a paper together." As a junior scholar in Western systems theory, I was honoured. I found my mob, kindred spirits who were as interested in 'decolonizing' systems thinking as I was. Immediately, both Peter and Otto accepted the *gift* (Kuokkanen, 2008) of Indigenous wisdom that I offered.

The relational process provides built-in mechanisms for increasing connectedness and responding to authentic relationships (Yunkaporta & Shillingsworth, 2020, p. 3). As I wrote the first article (Goodchild, 2021) I was in relationship with the sentient landscape of the thundering waters, now called Niagara Falls. As a visitor to that territory, I asked my Uncle Dan for assistance, to join my doctoral committee as an external advisor. When he heard I was writing a paper with two systems thinkers, Peter and Otto, he said "well you better talk to our systems thinkers too" (personal communication, October 2019). "Wisdom awaits those who walk with their Elders. Our Teachings, our Ceremonies, and our Elders are the repositories of this knowledge, which has been with us since the First Sunrise" (Anderson, 2002, p. 304). And so,

we had tea together, the Haundenosaunee Intelligentsia and me, at the Gathering Place in Six Nations on December 23, 2019. Peter and Otto had never met Diane, Dan, Kevin, or Rick when the article was published. I sat in dialogue with Peter and Otto on various occasions at MIT in October of 2019 and then with the Haudenosaunee Knowledge Holders in Six Nations. As I read my notes from these series of conversations, I began to sense something special, that they were all talking about the river of life and that the river is now in jeopardy, only they were using different ontologies and epistemologies, different worldviews to tell their stories. I was positioned, to listen to their stories, stemming from their respective sophisticated systems of knowledge (Yunkaporta & McGinty, 2009, p. 58), at the cultural interface, a "complex knowledge interface" (Nakata et al., 2012, p. 124) and share those stories via the two-row visual code, a form of praxis for inhabiting the space between.

Battiste & Youngblood Henderson (2009) describe the relationship between Eurocentric knowledge systems (EK) and Indigenous knowledge systems (IK) arguing that IK is "more than the binary opposite of EK" (p.7).   I concur, that is why *relational systems thinking* builds upon the notion of the space between epistemologies, or the *cultural interface* (Nakata, 2010), the *dynamic interface* (which builds on Nakata's notion of the cultural interface) between Western curriculum knowledge and Indigenous knowledge (Yunkaporta & McGinty, 2009), or the third way, to focus on the *interface* between indigenous knowledge and other knowledge systems to generate new insights, built from two systems (Durie, 2005). It is a matter of 'space' rather than 'place'. Building on cultural theorist de Certeau, the third space that *relational systems thinking* opens up, may be described in the colonial context - "where the dispossessed have no choice other than making some 'space' in a 'place' now owned and controlled by colonizers (Dudgeon & Fielder, 2006, p. 399), in this case Universities. Building further on Bhabha's 'third space,' it is in essence, "the fissure between ostensibly seamless and stable places" (p. 400). What is key here is that "Everything happens in between" (p. 400) and the third space is "a radically hybrid space" (p.401). Bhabha "shifts away from conceptualizing cultures as binary or dualistic and he is interested in what is created in between the coloniser and the colonized… hybridity is the third space that enables a new position or expression to emerge" (p. 404). The third space unsettles, to use Bhabha's terms (1993, cited in Dudgeon & Fielder, 2006, p. 407) is "neither one nor the other."

Australian Aboriginal scholar Martin Nakata (2006), who writes about the discipline of Indigenous Studies, approaches the concept of intersections between different knowledge systems as an opportunity to "pursue inter-subjective mapping of our many relationships" (p. 267) as opposed to interrogating sites of apparent intersection. Nakata[20] is Pro Vice-Chancellor Indigenous Education and Strategy at James Cook University. He is a Torres Strait Islander, holds a PhD in Education, and is recognized internationally as one of the leading Indigenous academics in Australia. He points out the limitations of "Indigenisation" in the academy, "which has concentrated on carving out a separate domain" which in some ways is "antithetical" to our

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[20] The asteroid 7547 Martinnakata is named for Professor Martin Nakata in recognition of his role promoting and sharing knowledge of Indigenous astronomy. He was the first Torres Strait Islander to complete a PhD in Australia. Learn more here https://www.abc.net.au/radionational/programs/sundayextra/the-year-that-made-me:-martin-nakata,-1980/12599062

own traditions which are holistic. Our traditions he observes, "have not been closed systems" (p. 269). "Indigenisation" as a strategy is "flawed thinking" (p. 270):

> What is needed is consideration of a different conceptualization of the cross-cultural space, not as a clash of opposites and differences but as a layered and very complex entanglement of concepts, theories and sets of meanings of a knowledge system (Nakata, 2006, p. 272).

Too often Nakata (2010) says, the interface between Indigenous knowledge systems and Western scientific knowledge systems (Islander and scientific in his case) is a "contested space where the difficult dialogue between us and them is often reduced to a position of taking sides" (p. 53).

> Let me be clear about this. In universities, the great mediator between Indigenous and non-Indigenous understanding is not us, is not Indigenous people or academics, but the ontology of Western knowledge systems. It is the established disciplines, their knowledges and practices that mediate meaning, which interpret the Indigenous world to both Indigenous and non-Indigenous students… All knowledge that is produced about us and all knowledge that we produce ourselves is added to the Western corpus, and thereby gets reorganized and studied via the disciplines of Western knowledge (Nakata, 2006, p. 271).

Like Arkan Lushwala (2017) Nakata (2006) does not advocate choosing sides, instead he says that explorations at the interface of different knowledge systems is much more representative, "a tangled web of where we are caught up" than the constant reduction of complexity to simple oppositions that posit us in ways that confine us to either/or options" (p. 272). His thinking is like *relational systems thinking*. And the goal of Indigenous Studies, he concludes, is "one that generates knowledge for us" (p. 273). And that is a key difference between 'indigenizing' scholarship for Westerners and generating knowledge for us, we have deep intellectual traditions but given the current state of the planet, "We do not presume that our knowledge practices can deal with the complex effects of inter-related practices occurring at a global scale" (Nakata, 2010, p. 55). We also need to jump into the river, the space between the ship and the canoe, to address the unsustainable practices of our time at a global scale. It is worth quoting Nakata at length here as the content is crucial to my story:

> Like me two generations ago, Islander children growing up in the Strait today are the inheritors of tradition and inheritors of a world greatly changed over the last few generations. As I was, so they are witnesses to ongoing change. Their identification as Torres Strait Islanders is multiple, often tied to more than one place, group, time and to nation. Historical accounts tell them of disruption and change; academic analysis tells them of boundaries, dissonance, and loss. Island stories and the way they deploy traditional knowledge concepts and language, tell them of continuity with old knowledge and practice in changing times and tell them something of their history that may not appear in others' accounts of us.

> For children to confidently know their marine environment and take charge of their futures requires knowing and working with two knowledge systems. These knowledge

systems can be viewed as *irreconcilable* on cosmological, epistemological or ontological grounds as they are most often described through the international discourse on Indigenous knowledge. *Or* they can be viewed in terms of their entanglements, synergies, and the shared conversations that can occur around the common interests explored through them" [emphasis in original] (p. 55).

Science says Nakata, "can be used as another weapon for Islanders to wield in our own interests" (Nakata, 2020, p. 56). And that is precisely how I view conventional systems thinking re-theorized through this and other Indigenous standpoints, as tools that we can use to uplift our communities. It is up to us Indigenous scholars he says, to "develop a wider discourse that relates these two knowledge traditions for our own purposes" because as he points outs so clearly, we live "at the interface of different knowledge systems" (p. 56). Whenever we fall back into an us/them logic, argue Carey & Prince (2015), we risk an "unwitting reinscription of the binary logic that the cultural interface should help us overcome" (p. 274) which they argue McGloin (2009) sometimes does in her analysis of the cultural interface. The labeling of 'whiteness' for instance actually teaches "what amounts to a rejection of self – a self that only exists in its imperialist inflection" which is "irresponsible" (p. 275). I concur, the end point of decolonizing work is not to make white people aware of their 'whiteness' and its privileged social location, that is not an end-point in itself. It's about their healing too.

5.5 Conclusion: complexity

What's needed are
eyes that focus with the soul.
What's needed are spirits open
to everything. What's needed
are the belief that wonder is
the glue of the universe and
the desire to seek more of it.
Be filled with wonder (the late Anishinaabe writer Richard Wagamese, 2016, p. 105).

Soon after the first article was published, I was invited to share it with a Systems, Sustainability and Social Justice class at Presidio Graduate School in California. The class was assigned the article to read, and students prepared a haiku based on its content. Here are a few of those poems:

Two boats, one river
Teachings on the way forward
Lie within, the past
    -    Corinne
	Decolonizing
	These systems, maps, and language
	To see we are one
	    - Will

So much to unlearn
What a brutal path we took
Thanks for publishing
    -    Jacqueline
	Wisdom in action
	Mother Earth healing spirit
	Help us change the world
	    - Justine

Interconnected, Indigenous practices,	Two-column approach Confronting my habit of thought

Unite all beings	in the concrete
- Haley H	- Spencer M

Presencing, the state we experience when we operate from our minds, our hearts, and our will fully opened, may result in us connecting to reality from a much deeper place, from the source of emergence says my dear friend Otto Scharmer (2009, 2016). *Relational systems thinking* Indigenous standpoint theory proposes that that emergence is *mashkiki* (medicine) and that inviting the medicine to flow in the space between worldviews is healing. It is letting the medicine flow at the interface where two bodies of water come together. It's the interaction of opposite systems such as fresh and salt water, seen as "a magical source of creation" (Yunupingu et al., 1993, cited in Yunkaporta & McGinty, 2009, p. 58). Thus, I would characterize presencing and emergence as a magical source of creation, a space and place where poetry and telescopes (Mohawk, 2008) nourish our sense of wonder.

Complexity science challenged the Newtonian perspective in the West that all can be explained by the careful examination of the parts. Complexity science is not a single theory – it is the study of complex adaptive systems, the patterns within them, how they are sustained, how they self-organize and how outcomes emerge (Zimmerman, Lindberg & Plsek, 1998). *Relational systems thinking* is an Indigenous standpoint theoretical framework that may enhance the many other theories and concepts within the highly interdisciplinary field of complexity science. Complexity science resonates deeply with many of the Elders, knowledge keepers and language speakers I work with because it seems to resonate with our holistic ontologies, epistemologies, and cosmologies. Within systems thinking and complexity science the West revitalized for itself what we have practiced intuitively for generations, relationality. We have a kinship system that is not human-centric. As Potawatami scholar Robin Wall Kimmerer wrote, "we don't have to figure out everything by ourselves: there are intelligences other than our own, teachers all around us" (Kimmerer, 2013, p. 58).

To practice *relational systems thinking* and tap into our sense of wonder and our complexity mindset, to transcend narrow self-interest, involves a tremendous amount of "inner work" (LaFever, 2016, p. 418) to release mental models (Senge, 1990) that no longer serve us.

> The one overall phenomenon that leads to an increase in mental complexity is when our existing assumptions about the world turn out to be insufficient or wrong. As long as our assumptions, our mental models of the world, our world view or epistemology is confirmed, there is no need to change it or make it larger and we do not grow much. But when we have to reconfigure our model, our world view to match reality, we grow. Especially, if we have to revise several assumptions at once and the pain causes us to thoroughly deal with ourselves and why we held a wrong to too simplistic assumption (Andersen & Björkman, 2017, pp. 53-54).

My recommendation to you as you do this inner work is to ask your "invisible helpers" (Nabigon, 2014, p. 29) to interpret your dreams and your visions, to help you understand whatever emerges on this inner journey. "The inner environment is sacred because it owes its existence to an environment that is not physical in nature" (Stonechild, 2016, p. 73). Ask the *manidoog* (spirits) to guide you. Go out onto the land. "Ceremony is not just a ritual: it is a

living encounter with Creator and the Spirit. All the rituals in the world will not take a person to ceremony because we need to go to ceremony through the heart" (p. 33).

> Even if at times one might be tempted to side with the more pessimistic view of the incommensurability of modern, Western, and Indigenous epistemes, I am convinced that the first step in encountering this complex question must consist of a willingness for transformation… this would inevitably bring with it the need for critically examining our current assumptions and presuppositions (Kuokkanen, 2003, p. 270).

In common with the 'soft systems' described earlier by Dias (2008), *relational systems thinking*, helps us "*reflect on* [emphasis in original] the world in an integrated, systemic way" (p. 212). Be filled with wonder, make room for telescopes and poetry to dance together as you sense into the emerging future. Returning to relational accountability (Wilson, 2008) as a researcher, the importance of relationship must take precedence. In this essay I am in relationship with the spirit of an evolving Indigenous standpoint theoretical framework, and my methodology is the *dibaajimowin* of my current understanding. From a Western perspective my analysis would have broken everything down into its smallest pieces, a linear logic, but in that you are "destroying all of the relationships around it" (p. 119). In contrast, I presented here an analysis of the whole, an intuitive logic, my journey of coming to know. It is a *harmonizing* account of the relational lessons I have learned (Bishop, Vass & Thompson, 2021). Within Indigenous ways of knowing, we do not differentiate among the sciences, to separate history or mathematics or complexity science, "nor to take the physical away from the mental. The Anishinabe world is a unity of all things. We acquire knowledge from many sources: dreams, visions, the natural world, listening, observing and feeling the world around us" (Anderson, 2002, p. 304). I would like to acknowledge *Shkaakaamikwe*, all my relations, the human and the non-human, and the four cardinal directions. Miigwech.

Chapter Six:

Duck Shit Tea, Yarning & the Magical Space in Between Things

I'm riding up the Skylon Tower elevator to the observation deck, at the place of the thundering waters (Niagara Falls, Ontario as it's currently known). The elevator man looks at my brother-in-law Tyson and exclaims, "nice jacket bro, you look like a rock star!" to which me and my man Sly respond in unison, "he is a rock star!" This reply probably sent shivers up and down the back of Tyson who is not too impressed by all the guru fuckery going on in our world right now. But in my world of systems thinking and complexity science he is a rock star, because he wrote a phenomenal book called *Sand Talk: How Indigenous Thinking Can Save the World*, wherein he shares with us the brilliant thought-paths of his Aboriginal ancestors, examining global systems from an Indigenous Knowledge perspective. The elevator man, however, may still be perplexed, trying to figure out what Band he's with. If he was a rock star, I'd like to think he was with Mongolian folk metal band The Hu. Except it would be an Apelech clan metal band from the far north Queensland, Australia and he would have carved his own instrument. Back at the base of the tower, we purchase the overpriced souvenir photo taken of our family, arms flailing in the air, looking like we are going over the Falls in a barrel.

It's late September 2022 and we have all just experienced the COVID worldwide pandemic which seems to be shifting into a new phase, but it's not over.

AnishinaabeKwe inda (I am an Ojibwe woman) and I am on a writing retreat in Niagara Falls. The place of the thundering waters is part of the songline (narrative on the land) of the Great Migration of the Ojibwe peoples and of my own life's journey. My family and I lived in this area for the past ten years until we moved back home recently to Baawaating (the place of the rapids) in what is currently known as Sault Ste Marie, Ontario. My mom is from Ketegaunseebee First Nation (Garden River) and she wanted to enjoy her elderhood at home, in the land of our ancestors. Garden River reserve is near Sault Ste Marie. I am currently a Systems Changer in Residence with a global philanthropy and my residency includes two writing retreats. Although I'm quite grateful, a retreat to write something, anything, is the antithesis of a good time for me. I still have a doctoral dissertation to finish on top of it all.

When Tyson wrote to say that he and his family were coming to Manitou Aki – the lands of the Anishinaabe, currently known as North America – the timing coincided with my writing retreat. The only way I could swing it was to rent Airbnb, go site-seeing by day and write by night. So, this first retreat is an experiment. What happens when we drink bowls of tea, yarn, and spend a week with my weapon-wielding rock star brother-in-law and his family in a shared Airbnb in the Falls? To make the experiment even more interesting Tyson's woman Megan very recently busted up her leg at an indoor trampoline park when her body went east and her leg went west, so Megs and Ty are traveling from the southern hemisphere to the northern hemisphere with two special needs children, a teenager, and Megs hobbling about with crutches. Sly and I – us-two-arrive at the Airbnb and I am greeted with a stunning bouquet of flowers sent by the global philanthropy wishing me well on my first writing retreat. It's thoughtful and much appreciated.

Illustration 6.1 Us-two selfie Melanie & Tyson (photo by author)

Tyson's woman Megs and my man Sly (aka my cabana boy, aka my life partner) are siblings, they are sister and brother through totemic kinship. They are both eagle clan. Megs is of Barada and Gabalbara heritage of Northeast Queensland, Australia and Sly is of Algonquin and French heritage from the Mattawa area of Ontario, Canada. Sly also has a Chinese name and is a certified tea specialist along with being a second level Qigong instructor. If not for Meg's busted leg, we might be doing Qigong daily this week. In the not-too-distant past we would have carved an eagle clan stick and put it outside the front door of our Airbnb to welcome our relatives to Turtle Island (North America). Around 20 years ago or so I had tea with a 92-year-old Nokomis in Roseau River First Nation in Manitoba and she told me that's what she missed the most in modern times, that nobody visited anymore. She said she used to put her clan symbol outside her place and that way every one of her clan relations would know they had a place to sleep and a bowl of soup to eat. But in that soup economy there was no charge for her Airbnb. Tyson could carve us all our clan sticks because he is an artist and carves tools and

weapons. *Mooz indodem*, I am moose clan. That's why I wear moccasins with beaded moose on them in ceremony. So, let's add a moose stick to that eagle stick. The totem sticks would have been a cordial sight to see outside our ancestors' *wiigiwaaman* (lodges).

Pot of soup on the stove, tea in the traditional Chinese side handle teapot, Eagle/Moose clan sticks on the front porch and the Yunkaporta mob arrives at our front door. Tyson has wrapped up a visit to Cornell University, a visit prompted by an invitation from Professor Jolene Rickard to speak as part of the American Indian and Indigenous Studies Program speaker series. Several days later Tyson and Megs would accidentally leave a mug from Cornell at our rental place and I'm not entirely sure I will mail it back to them in Australia. In planning this visit Tyson asked via email, will the rental place to a problem for our special needs babies who are grabby/climby/shouty, or do you think we'll manage ok together? We will manage just fine, I reply, us-two found the perfect rental with bunk beds, family friendly furniture and comfy kitchen area for eating and drinking together. Tyson adds that Megsy wants to meet her eagle bro Sly. We stay on the lower level while Tyson, Megs and kiddies are upstairs.

This is the first time we've met in person. We met in spirit many times, yarning with bowls of tea on zoom. Interesting thing about kinship through clan, dreams and visions is that you often end up being quite similar, so much so that people notice how you are alike, even though you are not related by 'blood.' You are related by spirit. During our first dinner together, Megs is talking about Willie Nelson to which Sly replies, "hey did you hear Willie Nelson is in the hospital. He was hit by a car." "Oh no!" says Megs. "Yeah, he was playing on the road again," to which Megs and Sly laugh out loud. Bad dad joke and they both loved it. Sly heard that one from our *Niigii* (brother) Keith Boissoneau who is a lodge keeper back home in Garden River. Tyson and I – us-two- remark at how they are so alike while us-two each sip our PC Blue Menu Lime Sparking Water. He and I finished a 12 pack together this week. We also both detest complicated food and drink orders, just order what's on the menu and don't rhyme off your list of alternates, and we both leave cupboard doors open. So, brother-in-law and sister-in-law resemble each other too. My brother Julian Norris and I are in essence cosmological twins, he's a rather brilliant British complexity nerd mountain man, who I dreamt into my family as my big brother in 2015. I don't do well in the mountains, I enjoy glamping more than roughing it in grizzly bear country, but we think alike. He sent me a text a couple of years ago and asked if I had ever read a book called *Sand Talk* by Tyson Yunkaporta. If you-all haven't read it yet I advise you to listen to the audiobook for the full Tyson effect as he is the narrator. After I read it cover to cover, at times chuckling out loud in a 'I can't believe he said that' way, I invited Tyson to have a yarn about the book over seven bowls of tea. We got tea drunk together and thus began our long-distance yarning. Yarns are like conversations but take a traditional form Aboriginal people in Australia have always used to create and transmit knowledge.

Tyson and I - us-two - have recorded podcast yarns together and during this writing retreat I am reading the manuscript of his next book. I was quite honoured when he included me in the mob to whom he sent the draft a few weeks ago. In the wee morning hours of this retreat, while Ty snores on the sofa upstairs, I am downstairs reading his book. Kind of meta. I'm not entirely sure how/why Tyson brought me into his mob, maybe he sees me as someone who has my shit together?

On our first evening together Sly prepared dinner, even our wee nephew who eats only four things, devoured it and then we had our first bowls of tea together. The choice for tonight is a tea called The Qi of Tea, Ancient Rattan Tea Tree Raw Puer, 2021 Limited Edition. The leaves are from trees over 150-200 years old. This puer is packaged in a compressed cake or puck of tea, wrapped in paper with an elegant Chinese illustration of a tea house on a mountain. Nothing but the best for our relations! We are beginning our week together in right relations. The autistic toddler in nappies is taught our names, Uncle Sly and Aunty Melanie. He says "nana" to me which we determine is either him calling me his nana or that he wants a banana. Qi in the tea context is not the flavour you can taste, but the feeling you get from the tea. This tea has got big time qi because of the way Sly prepared it and because of the yarning we do together as a family. In *Anishinaabemowin* (Oijbwe language, the original way we speak) tea is *Minikwe Niibish*, the leaf we drink. The word for tea in Ojibwe is niibish, which also means leaf. Traditionally, explains Linda LeGarde Grover in her lovely book *Onigamiising: Seasons of an Ojibwe Year*, the Ojibwe made tea from the leaves, berries, barks and roots of the plants, grasses, and trees that the Creator provided for our use during the time we spend on Earth. Some teas are medicinal and only those who brew it know the contents. Our brother Keith shares tea with us from a woman from Sagamok First Nation, who brings him medicine, to help people sleep or detoxify. Other Ojibwemowin dialects say *Aniibiish*, a leaf or tea. *Aniibiishike* – he/she makes tea and *Aniibiishkaa* – there are many leaves. Anishinaabeg did not have what is usually referred to as tea today, from the camelia sinensis plant, that tea arrived on ships along with the baby turtle islanders (as my Lakota friend Tiokasin Ghosthorse refers to non-Indigenous people now residing on Turtle Island). But once tea arrived, we quickly appropriated it to have pots of tea by the campfire. We Anishinaabeg are ardent tea drinkers. Yarning is often done over cups of tea says my brother-in-law.

Illustration 6.2 Puer Tea Puck (photo by author)

As we sip our puer tea and yarn, Tyson asks about making appropriate introductions of he and his family to the sentient landscape here. We suggest they make tobacco ties and offer them to the thundering waters. We will do that tomorrow. Tonight, as we yarn there is an exchange of gifts. Sly gifts Megs a wooden box with beading on top that he made for her. The beading is colourful and beautiful. Megs offers Sly and me something incredible she is making for us; she has all the materials and will finish it before they leave for the next part of their trip. Tyson offers me gifts he made. The first is a woman's fighting stick (a miniature one). It is a multi-tool, a spear, a club, to throw, dig, fight, dream. It is made of Gidgirr wood (very hard acacia) from copper-rich ground in West New South Whales. Engraved on it is a turtle symbol from Oldman Juma Fejo from the Larrakia People (which is seen in the Sand Talk book). The second gift is whalebone (blue whale) burnishing tool, that was used to polish all the carvings made for the *Sand Talk* book. So, all that story and lore is in there. It is roughly carved in eel-shape, a migratory animal that moves between fresh and salt, land, and water. Transformations. There is white owl story in that bone he says, brought up from drowned lands by a beaching whale. For each chapter in *Sand Talk* Tyson carved the logic sequences and ideas arising from his yarns into traditional objects before he translated them to into print and his table of contents was visual, on the back of a turtle. This is his method called *umpan*, his people's word for cutting, carving, and

making. I am so deeply honoured by these gifts from my brother-in-law. Tyson gave Sly a gift too, a bullroarer, but that is men's business and not my place to speak about. Sly gifted Tyson a flute made by Dave Maracle (Mohawk) and I gifted Tyson one of my favorite items, a red willow circle with four tobacco ties in red, yellow, black and white. Too many layers of teachings in that one item to share here but it hurt my heart a little to gift it away because it has been with me for a long time, and that's how I knew it was a part of me and time to give away. Red willow is a translator between our world and the spirit world, it is how we make our ancestor plates of birchbark for funeral ceremonies. The four colours represent the four directions of our medicine circle teachings.

So, there are more than the humans gathered here in Niagara Falls at this comfy Airbnb. There are also our non-human helpers and the thundering waters herself, joining us for bowls of tea. There is whale medicine, turtle medicine, eagle medicine, eel medicine, and wolf medicine. The toddler in nappies is carrying a toy killer whale that he picked up when his mom and dad stopped at Michaels, a craft store, for some supplies. Sly notices right away and asks if that is the whale from my *o-dah-bah-ji-gahn* (sacred bundle). I tell him nope that's not it, that my whale is at home in a different bag, but it's the same miniature toy Orca. I have two spirit names given to me and witnessed by the killer whales. A female Orca from the north and a male Orca from the West who each witnessed my star names. To Anishinaabeg stars are sacred and personify the spirits of ancient ancestors. Megs and Tyson say their little boy insisted on bringing two killer whales with him, picked up at the store. I show them the ink on my right forearm, two orcas with planets and stars put there by a biker tattooist. My sister Eleanor Skead, like me, once dreamt of killer whales. She consulted an Elder who told her the water spirits travel through all the waterways, so the spirits of whales and dolphins are in our fresh waters and that we must feast them. So, we do, we feed their spirits. That is how I am connected to the killer whales, so familiar to the ocean Peoples. The toddler points to my tattoo and exclaims, "koo-whale, koo-whale."

On our first full day together, we take our visitors south of the Falls to Dufferin Islands, ten acres of secluded green space, so they can walk on country. Winding paths and wooden foot bridges connect small, tranquil islands. Shortly after we arrived my nephew walked across a bridge, stopped, and tossed his killer whale into the waters below. Free Willy. If you-all ever visits Dufferin Islands in Niagara Falls, don't be surprised if you see a tiny killer whale in the pond. And for gawdsakes don't go to a certain marine park nearby that captured and tortured a killer whale called Kiska, separated her from her pod, and has kept her there in horrible conditions for decades. Put some *asemaa* (tobacco) down for her instead. In an email from Tyson after they returned home to Australia, he told me my nephew threw his other 'koo-whale' into the river in Chicago. Free Willy part two. We then visit Clifton Hill, with its tourist attractions, theme restaurants and hotels, and the kiddies delight in seeing the big dinosaurs at the miniature golf attraction and riding the Niagara SkyWheel. Us-two wave back at our nieces and nephew as they go round and round. It's been a fantastic day; we head back to basecamp and drink some tea, Gu Shu Single Tree Sheng Pu'er from Nannuo Mountain in Yunnan Province in China.

Illustration 6.3 Tyson and kids walking at Dufferin Islands (photo by author)

On our second full day together we visit the Skylon Tower, ride the Whirlpool Aero Car, and visit the Butterfly Conservatory. I point out to Sly, who regularly asks me to put his keys/wallet/sunglasses in my purse during family outings, that Tyson has a murse (man purse) and Sly says, "ya but he's on another level of cool than me, he's a rock star." He also points out that Tyson still manages to lose track of the car keys. Tyson and I have a yarn about writing. I tell him I find it an excruciating process. I cannot seem to get the thoughts in my head and heart to translate to written text. He offers me a life-changing piece of advice. Keep in mind Tyson is a freak of nature who can both read and write like Mr. Data on *Star Trek the Next Generation*, very, very quickly. He says, when he sits in a cabin in the bush and hammers away on a keyboard the secret is, "I just don't give a shit about the process, no respect for it, for writing, it's not our way. Our cultures are oral cultures." He makes weapons and tools and that's his communication. Writing in English will always be foreign so just write whatever comes to mind

he says. This helps me tremendously because I tend to write for the worst critic in the room and ignore everyone else (like those who might enjoy the *dibaajimowin*, story).

The next day is a big day, we prepare for our *dagwaagin* (the fall season) feast together. Our relations are visiting from the southern hemisphere, so they are heading into spring but here we are getting ready for fall and winter. They accept our invitation to have our fall feast together. Sly is the chef in our mob and he makes steak that Tyson picked up at a local grocery store, *manoomin* (wild rice) we brought from Treaty 3 territory, *mandamin* (corn), and berries (strawberries and blueberries). Manoomin is the good seed, a gift of sustenance from the Creator, it is spiritual in origin, and it is precious, says Linda LeGarde Grover. I offer a pumpkin pie with whipped cream. We include candies too for the *manidoog* (spirits) with a sweet tooth. Sly and Tyson eat some of the steak raw, to feast the wolf, because the wolf eats raw meat. That's men's business and they might tell you more if you ask them. The ceremonies, like our seasonal feasts in spring, summer, fall and winter, retain our connection to our earth mother, to our ancestors, and to our spiritual way of life. In this ceremony we nourish our helpers, the spirit items in our sacred bundles, and the non-human kin that travel with us, the turtles, whales, eels, wolves and eagles. They need to be fed just like us humans, to be nourished. I tell my family that the berries can be added to the wild rice and tossed together with a little bit of the maple syrup. Our teenage niece has a a taste for sweets and loves this alchemy. These foods are our traditional foods, gifted to the Anishinaabeg by the Creator. The sugar maple tree gave us, its little brothers, and sisters, the Anishinaabeg, this food gift. In the early spring when the days are warm and the nights are still cold, a brilliant, sweet syrup flows from its bark. We drink maple water in our lodges in the spring, it's good medicine. And many Anishinaabeg families today have sugar camps. I ask our niece to help me prepare the spirit plate that will be put out on the land with *asemaa*, our offering to the spirits. I invite our kin to put any of their sacred items on a blanket and we smudge ourselves and the items. Smudging with our medicines helps to purify us and our helpers. Sly offers a song with his humdrum, the ancestor song. There is really no part of the Anishinaabeg way of life that does not involve song, food, and our sacred medicines. It is such a profound honour to have our family from so far away join us for our feast. I introduce the family to a *mikinaak zhiishiigwan* (turtle shaker) telling them the story of its activation and use. The rattle is red on the left for the heart and white on the right for the mind. In a *madoodiswan* (sweatlodge) ceremony I was told this rattle would be my helper, it's a healing rattle said the *manidoog* (spirits). It's a rattle that reminds me and others of the connection between heart and mind.

After we finish eating all the yummy food, my man Sly and I and Tyson head outside to the backyard of the Airbnb for our *opwaagan* (Sacred Pipe) ceremony. For the purposes of this story, I will share that both Sly and I are pipe carriers. This is not something, out of humility and deep respect, that we share outside of our family rituals but it's important to include here for you-all to understand the context of what happens next. These spiritual processes and protocols enable the Anishinaabeg to live in harmony with all our relations and to communicate with the ancestors and share spiritual knowledge. We prepare for ceremonies by cleansing, fasting, and praying. I was given my pipe from a medicine man after I fasted. The pipe is a turtle pipe, a woman's healing pipe, and it has helped me since I was 19 years old, so over 30 years. During that time, I have been learning about what it means to be a pipe carrier. Us-two lift our pipes, and we invite Tyson to smoke with us-two. As we offer gentle instructions on how to handle the

sacred items Tyson takes to it right away, understanding both the physics and power of lighting *asemaa*. The smoke carries our prayers to the Creator, the great spirit. I am not a *mashkikiiwikwe* (medicine woman) and I never will be, that's not my gift or role. I am not an Elder either, I am simply an Ojibwe-kwe with a sacred bundle that helps me navigate through life's journey. That bundle now includes a woman's fighting stick with turtle story in it and a whale bone with eel story. Us-two enjoy the cool autumn nighttime air, tell stories that spread over a breadth of topics, and head back inside to put the kiddies to bed.

The next day is the last full day that our family will be together in the land of the thundering waters. We decide to enjoy lunch together at the Table Rock House Restaurant, that is perched on the brink of the Canadian Horseshoe Falls. The hostess seats us at a table with an astonishing view, the thundering waters rushing right below us. It's spectacular and I'm so happy we were gifted a fabulous table as close as it gets to the waters. Our server is a very patient and understanding woman, a grandmother, not phased at all by our non-verbal, autistic toddler prone to screeching at a moment's notice and a little diva five-year old who insists on making lemonade for everyone with our glasses of water and the sliced lemons. At one point she is elbow deep creating a tsunami in a glass, squeezing a piece of lemon, making a significant puddle on the table while my nephew shrieks in his highchair. We peruse the menu with its local food procurement, a certified 'taste of Ontario.' It always mystifies me that establishment like this, with tens of thousands of visitors yearly, doesn't also educate people about the traditional foods of the First Peoples. It shouldn't be too hard, partner with Indigenous chefs and create an educational menu that honours a history tens of thousands of years old. Missed opportunities abound, to be honest, or calculated omissions in the ongoing erasure of the First Peoples from the sentient landscape at tourist destinations like the Falls. I noticed the same phenomenon when I first met my brother Otto Scharmer of the Presencing Institute when he and I and Kelvy Bird walked together at Walden Pond near Boston, MA. There was a plaque commemorating the life and home of the area's most famous resident, Henry David Thoreau, but no mention of the Massachusett people who lived there for generations and generations before.

Our last evening together Sly and Tyson debate whether they will go to BATL Axe Throwing, "not your typical tourist attraction" to throw some axes. They end up discussing martial arts and how once you are on the ground the fight is over. My brother Julian perhaps would have enjoyed this bromance convo as he is a black belt in Taijutsu, a martial art emerging from the Japanese ninja tradition. I had the honour of visiting with his teacher Kan'nushi Jay at Usagi Jinja (Shinto temple) in Calgary one year when I was visiting my brother in Banff, AB. Julian has written about integrating Taijutsu into leadership and complexity education. While axe throwing is appealing, we decide to have tea instead. Tonight's selection is Snow Duck Shit Oolong tea from the Phoenix Mountains in Guangdong Province of China[21]. Our tea sessions together honour sourcing teas that help us connect with qi. These are loose leaf teas that Sly serves out of the side handle clay teapot we brought with us to the Falls. Megs admits she felt a bit embarrassed to bring teabags of Earl Grey and Lady Grey tea to drink. I tell her no worries; I too enjoy bags of Earl Grey de la Crème tea even though Sly teases that I am drinking swill.

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[21] See more about this category of tea, which doesn't really smell or taste like duck waste, at https://www.forbes.com/sites/megykarydes/2015/09/30/duck-shit-tea-haute-tea/?sh=6a344bf461b1

Tyson admits he too was a bit embarrassed to take us to Starbucks at the Skylon Tower. I say, no worries, I regularly enjoy a Venti Matcha Tea Latté, made with almond milk and no sweetener please. So, my Starbucks order is the complicated order that drives both me and Tyson a bit nutty. Tyson looks through the vast selection of teas that Sly has brought with him and says, "I would have liked to try the Ma Tou Yan Rou Gui (Horse Meat) oolong tea, just for that name." Sly brought a special tea for the delightful teenager that has been spending her time with us old folks and her young siblings. It's a tea he thought she might enjoy, a blooming tea, otherwise known as flowering tea. It is a bundle of dried tea leaves wrapped around one or more dried flowers. Sly prepares it in a glass Gaiwan so we can all watch its beautiful floral petals unfurl in the hot water. While not a true tea, because it's made from herbs or dehydrated flowers, it is still magical.

Sly retells us a story about a tea farmer. His house burned down in his village, all his personal belongings and tea farm equipment were lost, his pots, his special reserve tea, grand crus teas (exquisite teas) were lost. According to the legend of the village, when your house burns down, you are deemed to be bad luck so you can't live in that village any longer. So, the farmer had to move to another village. An American Chinese tea specialist created a GoFundMe page and raised $25,000 USD for the farmer to buy himself a house, replace his belongings and purchase new tea farming equipment. His old farm is 8 kms away which he now travels on foot or by mule each day. He just started producing his first harvest again in the spring of 2022. He's a multi generation tea master and farmer. Sly says the tea we get to experience is enhanced by the stories of the farmers and tea masters who prepare it.

Illustration 6.4 Miniature Chinese Tea Shop (photo by author)

Megs is almost finished the gift she is making for us. It is a miniature Chinese tea shop. I love miniatures! It is a crafting kit and Megs has been meticulously building the tea shop each evening after the kids are asleep. It should be finished by the time they leave for the airport at 4am the next morning. We get up early to see them off. Megs presents us with the stunning

model tea shop, it's fantastic, it has an LED light kit and shelves featuring tiny packages of Chinese tea and tea ware. Before entering the store there is a table with a tea set waiting for guests. Such a special gift. Megs, like me, is on the arduous journey of trying to finish her PhD. The Yunkaporta gang load up their rental van and head to the Buffalo Niagara International Airport. Tyson will be spending a few days at the University of Notre Dame in South Bend, Indiana meeting with scholars at the Ansari Institute. The Institute has awarded the Nasr Book Prize to Tyson, an author who "explores global problems using Indigenous perspectives." Yunkaport's book says the press release, "has earned widespread acclaim, raises important questions and brings Indigenous ways of knowing to the critical examination of global systems. In so doing, it enriches the public conversation." In our language there is no word for goodbye.

I have one day left in my sponsored writing retreat and so I must begin writing.

In the early morning Sly and I move upstairs at the Airbnb. We do a sweep of the place for things accidentally left behind, we find our nephew's sippy cup and a coffee mug from Cornell. I adore the mug and the sippy cup just makes us miss that sweet little nephew of ours even more. The house is so quiet now. I set up my laptop, Sly brews some tea, and I start to process my first writing retreat experiment. I can't imagine the pressure on authors like Tyson to follow up a successful first book with another one. I've read that Pulitzer Prize winners are advised not to write sequels, but many do anyway. Tyson emails me the concluding chapter to his latest book and the only constructive feedback I offer so far is that I'm pretty sure lightsaber is one word, not two. I am on a sponsored writing retreat and feel some pressure of my own to produce an essay or article worth reading, never mind a book. My first published writing is quite recent, in 2021 I wrote an academic paper called "Relational Systems Thinking: That's How Change is Going to Come from Our Earth Mother" (Goodchild, 2021). The paper was double-blind peer reviewed and published in the inaugural issue of the Journal of Awareness-Based Systems Change (JASC) from the Presencing Institute at MIT. To date it has had almost 23,000 downloads.   I published a sequel, follow-up article earlier this year (Goodchild, 2022). Not sure if that one has had any downloads at all. The topic of those papers in a nutshell is that systems thinking is most useful when it is performed as an experience of relationality, irreducible wholeness as kinship and community.

Using a central metaphor of the Mohawk two-row wampum belt, my Uncle, Dr Dan Longboat, Roronhiakewen (He Clears the Sky), a Turtle Clan member of the Mohawk Nation and citizen of the Rotinonshón:ni (Haudenosaunee – People of the Longhouse), talks about the space in between the Mohawk birch bark canoe and the Dutch merchant sailing ship sharing the river of life together, the sacred space in between. The wampum belt treaty was about separation of different Peoples and their cultures, equal and differentiated. This sacred space in between is what Makwa Ogimaa (Jerry Fontaine) might call *naa-wi aki* (middle ground)[22]. There are two boats sharing the river of life, two lodges on Manitou Aki (North America) and we meet in a third space, a scared space, the middle ground. Relational systems thinking is an invitation to be in that middle space/place, to be open minded and accepting of emergence, of what emerges

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[22] See DI-BAYN-DI-ZI-WIN To Own Ourselves book by Jerry Fontaine & Don McCaskill: https://www.dundurn.com/books_/t22117/a9781459748996-di-bayn-di-zi-win--to-own-ourselves-

when we transcend binary thinking. Middle ground, says Makwa Ogimaa, is both a physical and spiritual place; it represents a separation between cultures and nations. How do we access this middle ground and why do we even want to? We access this middle ground so that we can practice an ethic of right relations when our cultures and worldviews come into contact with each other, which is to engage in the practice of *biin-di-go-daa-di-win* (to enter one another's lodge), says Makwa Ogimaa.

For me, being a pitiful human who often forgets about the spiritual origins of my humanity, I need reminders, tangible helpers that assist me, that help me to cross a threshold into *naa-wi aki*. During this writing retreat Tyson gifted me two powerful helpers for my *o-dah-bah-ji-gahn* (Sacred/Medicine Bundle). The woman's fighting stick has turtle story and medicine in it and the burnishing tool, the whale bone carved into the shape of an eel, carries the story and the medicine of the in between space. Remember the eel is a migratory animal that moves between fresh and salt water, land, and water. Tyson says Brother Deen speaks from his understanding of freshwater-saltwater Dreaming and that *liminal space in between things* is where all the *magic happens*. In my second paper (Goodchild, 2022) I reference this also, from one of Tyson's earlier academic papers, the interface where two bodies of water come together, the interaction of opposite systems such as fresh and salt water, as a "magical source of creation" (Yunupingu et al., 1993 p. 71[23]). The fighting stick is appropriate. One of my spirit names is *Waabishki Ogichidaakwenz-anang* which translates closely to white (from the north) warrior-woman-young-star (because that is the name that I am known by in the spirit world, this is how a killer whale from the north knows me). *Ogichidaa* or *o-gi-chi-dah* is often translated as warrior, but it means a "strong heart protector," says Makwa Ogimaa. We protect our *i-nah-di-zi-win* (Our way of being and way of life). So, maybe that's what I needed, a woman's fighting stick to fulfill the obligations of that name, to protect our way of life.

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[23] In Yunkaporta, T., McGinty, S. Reclaiming aboriginal knowledge at the cultural interface. Aust. Educ. Res. 36, 55–72 (2009). https://doi.org/10.1007/BF03216899

Illustration 6.5 View of the thundering waters from the Skylon Tower (photo by author)

If you are going to practice *biin-di-go-win* (to enter one another's lodge) here are some takeaways from this *di-bah-ji-mo-win* (story) of my writing retreat. Put your clan stick at the front door of your lodge so your visitors (often weary travelers) know who you are and that you have a warm pot of soup on to nourish them; prepare an offering, a thoughtful and heartfelt gift for the weary travelers who visit your lodge (something that hurts your heart just a little when you part with it); yarn while you drink seven bowls of *minikwe niibish* (tea) together; stay on the middle ground, don't retreat back into the suffocating realms of binary and hierarchical thinking; be mindful of the current season (spring, summer, fall, winter) in the hemisphere of the lodge you are visiting; and, don't forget to feed the whales, wolves, turtles, eels, and eagles who are providing the stories and medicines for your *o-dah-bah-ji-gahn*. In writing this piece I am trying to be a good ancestor, offering future generations a snapshot into this moment in time in my life's journey as an Ojibwe-kwe. It is part of a larger project that Cherokee writer Daniel Heath Justice describes as articulating Indigenous *presence* in the world.

Chapter Seven

Wayekwaase **(it is finished)**

7.0 Contribution to theory and practice: expanding what constitutes valid knowledge

Expanding what constitutes valid knowledge within the academy and more broadly across the field of systems thinking, complexity science, and social innovation is the context for my doctoral scholarship, specifically from a decolonizing lens. This need for expansion is recognized in Graham Leicester's (2016) work on transformative innovation. Leicester is the founder and director of the International Futures Forum. He says:

> We tend to honour and privilege a small subset of human knowledge based on abstract rationalism. In a complex world we need to expand our worldview to include 'non-rational' knowledge as found in the arts, music, intuition, acts of the imagination, embodied knowledge, the science of qualities as much as in the science of quantities. We also need to value collective knowledge that emerges in groups, knowledge that arises out of being in relationship (no one is as intelligent as everyone). Likewise, knowledge that rests in communities, indigenous knowledge. All knowledge is local, contextual, the product of culture. In the West we have elevated some forms of knowing over others – see the syllabus at our elite universities. A more equal politics of knowing will admit the broader range of knowledge we will need to make effective decisions. Max Boisot suggests that a decision is only as wise as the breadth of context we have taken into account in reaching it" (Leicester, 2016, p. 34).

"Expand what constitutes valid knowledge" is one of the five principles offered by Leicester to embrace complexity. The other four are from subject-object to subject-subject; from organisation to integrity; shift in our relationship with time; and from fragmentation to wholeness. This last one is worth noting as the shift to wholeness rejects the rationalist, Enlightenment perspective that breaks complex systems down into discrete parts in order to understand them. Leicester reminds us that these five principles were present in the 18th century also but they were drowned out by more powerful voices. He recognizes that the worldview that underpins the thinking of the contemporary world is Enlightenment rationalism and that it must be "extended" or "reimagined" (Leicester, 2016, p. 31). In his work with the International Futures Forum he saw that the growing number of challenges, local and global, were seemingly insoluble with the kind of thinking that created them. I dedicated the first three chapters of my dissertation and also my three published works in this manuscript, to this very idea, following in the footsteps of innumerable Indigenous, Black, queer and other scholars and activists who have led the way towards toppling the triumph of reason and of modern science which Leicester says "was leaving us alienated from the life of spirit, searching for meaning" (Leicester, 2016, p. 31). The "us" to whom he refers is not really me or the Anishinaabeg peoples because our worldview is holistic. It sounds like he's talking to other white people (he is of European lineage). Or does he mean me too? As an *Anishinnaabekwe* living in the contemporary world I am also swept up in modernity. And the particularly insidious North American brand of modernity that I experience includes settler-colonialism (fueled by capitalism and neoliberalism). Therefore, as a teenager I became an activist tackling racism in the city where I lived and attended high school,

Thunder Bay, Ontario (still making headlines to this day for its enduring struggle with this wicked problem). So, in my undergraduate studies at Carleton University then later Lakehead University I studied Sociology, the study of society and its social relations. I earned my MA in Sociology from Lakehead in 2004. In 2015 when I participated in the Getting to Maybe program at the Banff Centre, I felt a strong sense of relief when I was introduced to systems thinking and complexity science because it mobilized for me a deeper reflective practice on the structural nature of the issues that continue to cause deep harm to Anishinaabeg and other oppressed peoples. This structural nature is *systemic*. What my doctoral program aims to do, bridging a gap in disciplines like sociology, is to link the social and the natural through transdisciplinary inquiry. Within the Social-Ecological Systems (SES) discourse there are different approaches to inquiry, disciplinary (D), multidisciplinary (MD), interdisciplinary (ID) and transdisciplinary (TD). See Table 7.1 for a summary. Each discipline provides a different perspective given its respective ideological underpinning[24]. And each research approach offers different insights.

Disciplinary (D)	Shared, and to a certain extent, bounded way of seeing the world. Tends to share epistemological commitments.
Multidisciplinary (MD)	Multiple researchers consider a common set of issues but maintain disciplinary boundaries.
Interdisciplinary (ID)	Incorporates a greater degree of integration however often ends up entitling a single discipline or epistemology.
Transdisciplinary (TD)	Transcends entrenched categories to formulate new problems in new ways. Often characterized by an explicit engagement with society.

Table 7.1 Approaches to Inquiry. Source: (Miller et al., 2008)

The usefulness of the concept of Social-Ecological Systems in transdisciplinary discourse is that of *coupling*. SESs are linked human and environmental systems. This is what sociologist James Rice (2013) might call going beyond the *Durkheimian problematic* of explaining social facts through the invocation of other social facts. As Rice remarks, "the biophysical environment is not tangential to the social; it is only tangential to conventional sociological thought" (Rice, 2013, p. 236). For me, a sociologist by training, his analysis of environmental sociology and the co-construction of the social and natural fascinates me. The realization in the academy that social organization cannot transcend or evade ecological dynamics is relatively new and congruent with "a realist ontological stance in late modernity" (Rice, 2013, p. 237). The overarching challenge of nearly four decades of scholarship says Rice, remains the need to

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[24] Uncle Dan Longboat asked me about these terms as they seem to all be predicated on one way of seeing the world but Indigenous ways of knowing, Indigegogy, and *Anishinaabe gikendaasowin* are not academic 'disciplines' rather they are a whole new realm of cross-cultural fluency, that is the intersecting of distinct knowledge systems. The D, MD, ID and TD do not recognize the opportunity to engage with Indigenous ways of knowing, knowledge that comes from a place of spirit, which is our contribution to the academic world.

bridge the nature/culture divide or what Yuchi, Muscogee scholar Daniel R. Wildcat (Director of the American Indian studies program and the Haskell Environmental Research Studies Center at Haskell Indian Nations University in Lawrence, Kansas) calls realizing our human selves in the "Nature-Culture nexus," the "unique interaction between a people and place, that embodies the existential feature of our oldest tribal traditions and identities as peoples" (Wildcat, 2009, p. 99). The nature/culture divide says Rice is the ontological and epistemological dualism that pervades Western thought in general and environmental sociology in particular. "A co-constructionist ontological position, in turn, seeks to integrate social constructionism and natural realism, to establish an ontological and epistemological posture sensitive to the temporal emergence of hybridity between the social and the natural" (Rice, 2013, p. 238). Within Indigenous traditions, "even our most sacred ceremonies, many still ongoing, speak to the importance of recognizing the nature-culture nexus" (Wildcat, 2009, p. 100). Wildcat suggests the adoption of *Indigenous realism*, which "encourages humankind to re-examine ancient knowledges that were emergent from our ancestors' interaction with place" (Wildcat, 2009, p. 101).

7.1 Every bark-built village is a temple

Buried deep within Rice's analysis and argument that co-constructionism is "a more nuanced, circumspect posture cognizant of the interplay of human agency and the autonomous dynamics of nature" (Rice, 2013, p. 239), I might find rationale for Wildcat's Indigenous realism. And therein lies the problem for Indigenous scholars like me in graduate programs at mainstream/Western/predominantly white institutions—I have to do the digging and, in the process, sanctify Euro-centric knowledge systems as the gold standard for what constitutes valid knowledge. Daniel Wildcat's arguments stand strong on the shoulders of giants, our ancestors. However, there is a requirement in my doctoral program and the knowledge products I produce that I learn well the Eurocentric ways of knowing (theories and methodologies), master them, then try to decolonize them (if I have time and energy to do so). If I choose to do so via a *social constructionist* perspective for instance, as a trained sociologist, am I not adding more energy to the fuel of colonial imperialism? A social constructionist stance would argue that humans imbue the environment with meaning in a process of ongoing social negotiation embedded within a broader cultural context. A 'strong' constructionist stance argues that all knowledge of the environment is an interpretation with no reality external to discourse embedded within a sociocultural context (Rice, 2013, pps. 239-240). A 'mild' social constructionist perspective in contrast, recognizes biophysical-material reality that exists "independent of situated discourse and can be approximated through rigorous empirical observation" (Rice, 2013, p. 240). This mild position says Rice is invaluable, yet it remains too timid to move beyond the Durkheimian problematic to a co-constructionist posture.

To further his analysis Rice chooses an example from an Indigenous context, as interpreted by a non-Indigenous author, which vexes me but let's carry on. At the Wisconsin-Michigan border exists a mountain called Iron Mountain. In 1995 Freudenburg et al. (cited in Rice, 2013) asked environmental sociologists to think about this mountain. As a physiographic, geological entity unto itself the mountain has changed little over the centuries, but anthropogenic interaction with Iron Mountain has exhibited considerable variability. The Indigenous Menominee peoples viewed Iron Mountain as a spiritual place as well as a hunting grounds that provided sustenance. Why is this shared with readers in the past tense, "viewed"? Do the Menominee people no

longer view the mountain as sacred I wonder? Their worldview shaped [past tense in the original] the manner in which they became intertwined with the physical resources of Iron Mountain even as these same resources gave form to Menominee culture and social organization. The European immigration [or as we all know it settler-colonialism, imperialism, and empire building] heralded a more economic worldview, expressed through fur trapping, mining of iron ore, the extraction of timber, and most recently, tourism.

From this case study says Rice, Freudenburg et al. (1995, cited in Rice, 2013) illustrated what is construed as a natural resource is dependent upon historically situated processes of social definition and negotiation, prevailing cultural beliefs and values, and prevailing technology. They refer to the "conjoint constitution" of the social and natural such that "neither is reducible to the other nor are they ontologically separate" (Rice, 2013, p. 241). Here's where his analysis gets interesting. Rice argues that this case study illustrates how it is a mistake to assume there are essentialist, objective characteristics in nature that simply "present themselves for anthropogenic recognition and utilization, and yet environmental sociologists are remiss to overlook the variable characteristics of the biophysical-material" and one could write a "social history" of Iron Mountain along with an account focusing exclusively on its physical attributes, a socio-natural history (Rice, 2013, p. 241). Freudenberg et al. established, says Rice, a salient point of departure in terms of envisioning not simply the social or the natural but the *reciprocal constitution* and reconstitution of both and oriented to bridging the nature/culture divide. That sounds an awful lot like *natural law* (harmonious relationships with the land and the natural environment) in Indigenous worldviews across Turtle Island such as the teaching of *gidinawendimin* (we are all related). In Indigenous worldviews "all Creation is sacred and spiritually alive… land is a living entity and must be treated with respect" (Stonechild, 2016, p, 75). Different Indigenous nations say a version of "all my relations" reflecting "spiritual ties to all that exists" (Stonechild, 2016, p. 71). The bridge offered by Indigenous realism says Wildcat, is an attentiveness to what he once heard an Elder describe as the natural LAW—respect for the land, air, water—on which humankind and the biology of this planet depend. This is an "Indigenous formulation" of the natural law for life on the planet (Wildcat, 2009, p. 101). Humans are "co-constitutive" with nature says Rice (Rice, 2013, p. 243).

> The post humanist displacement of the social from the center of analysis is eminently instructive but can go too far. A viable, empirically grounded co-constructionist environmental sociology should be decentered in that the human subject and broader social relations are not the exclusive focus of attention but seek to avoid the radical ontological leveling wherein everything potentially has agency, and nothing is granted an *a priori* [emphasis in original] theoretical focus. In this regard, there are arguably three interrelated postulates that form the foundation of a co-constructionist environmental sociology: conjoint constitutionality, biophysical-material performativity, and decentered asymmetry (Rice, 2013, p. 246).

The following is a summary of these three postulates:

Postulate	Description
Conjoint Constitutionality	The idea that the biophysical-material and the social are intertwined such that the social constructs what is

	construed as the natural even as biophysical-material properties, processes, and reactions are deeply implicated in what is normally construed as the purely social—it is a dance that pushed the predominant dialogue and debate beyond dualist ontological assumptions
Biophysical-Material Performativity	Admitting the 'performativity' of the biophysical-material, also a semantic choice over 'material agency'—nonhumans do not have social agency in the same way humans do—performativity refers to the properties, processes, and reactions of the biophysical-material quite irrespective of social representation and definition but also as enhanced through anthropogenic engagement
Decentered Asymmetry	Establishing an ontological posture that is asymmetrical but not dualist, a posture that recognizes the intentionality and reflexivity of human agency but eschews assumptions of anthropogenic dominion in favor of the dialectic of resistance and accommodation inherent to human-nonhuman temporal evolution and retrogression—not animism or the attribution of human qualities to nonhuman entities and things—but rather the variable objective characteristics of the biophysical-material, which may or may not find expression through human representation, as well as the anthropogenic manipulation of such qualities that then become instantiated within the social

Table 7.2 Rice's (2013) Three Postulates of Co-Constructionist Environmental Sociology

I wonder what Rice would say about Indigenous natural law and *gidinawendimin* (we are all related). He might describe it as *animism* rather than performativity because nature has the power to "enchant" (Rice, 2013, p. 250) humans in Anishinaabe ontology, epistemology, and cosmology irrespective of the physical properties or objective characteristics of the thing itself, such as the forest, mountain, lake, or the animals. And that is where environmental sociology and Indigenous natural law veer off in different directions—*spirituality*. Historian Henry Schoolcraft recognized the central importance of spirituality and the pursuit of medicine power in American Indian life (William S. Lyon, 1996, cited in Stonechild, 2016), "The Indian religion is a peculiar compound of rites and doctrines and observations, which are early taught the children by precept and example." And as such, "every bark-built village is a temple, and every forest a school" (Stonechild, 2016, p. 93).

A co-constructionist ontological posture is a dance between human agency and biophysical-material performativity, and it is not a substitute for theory says Rice, "but the conscious effort to re-examine the largely taken-for-granted postulates that frame the way the world is envisioned" (Rice, 2013, p. 350). Further, a co-constructionist posture should "avoid both the hubris of a centered modernist mindset or a postmodern retreat from theory but embrace a more decentered, critical modernist approach that fundamentally reenvisions the human interconnection to the natural" (Rice, 2013, p. 250). Adaptive management and transformations to sustainability are

overtly proactive and focused on engagement "in lieu of brute exploitation" (Rice, 2013, p. 253) of natural resources. Adaptive management and transitions to sustainability as conceptualized in my doctoral program do not seek to bridge the nature/culture divide at a spiritual level, while *Indigenous realism* does. With regards to Iron Mountain and other anthropogenic tensions driven by human-natural coupling, says Rice, the present and future challenge is to "sustain the metabolic processes set in motion and to do so in a manner that engages with rather seeks do dominate nature" (Rice, 2013, p. 255) especially because mountains and rivers have themselves become socio-cultural hybrids due to things like climate change and natural resource extractions. The goal of sustainability then is to forge a more *decentered balance* between human agency and biophysical-material performativity, says Rice. Environmental sociology arose in the wake of the first Earth Day and amidst the limits-to-growth debates and it has recently carved out space for consideration of the impact of the biophysical-material upon the social (Rice, 2013, p. 255), rejecting the Durkheimian emphasis upon social facts as the legitimate focus of inquiry, and embracing a cultural, social constructionist approach.

Human exemptionalism is the belief that the relationship between humans and the natural environment is unimportant because humans are exempt from environmental forces and capable of adapting via cultural change. This human exemptionalism is pervasive and entrenched in environmental sociology says Rice, and scholars must therefore "traverse even further beyond the Durkheimian problematic" (Rice, 2013, p. 256). A de-centered, co-constructionist ontology represents a more nuanced "awareness of the interplay of human agency and the autonomous dynamics of nature" (Rice, 2013, p. 257). The autonomous dynamics of nature for Rice however are purely physical and scientific, not spiritual. This is the polar opposite to natural law and Indigenous spirituality. Natural law has its roots in the principle that we are spirit beings on a physical journey and that "having assumed physical being and the separateness that implies, there is an imperative to restore unity among all created things" (Stonechild, 2016, p. 69). Our Anishinaabeg laws, rituals, and ceremonies make it possible to establish a "meaningful relationship with spirit while we are in flesh" (Stonechild, 2016, p. 69). Cree-Salteaux, professor of Indigenous Studies at First Nations University of Canada, tells us about his Elder's teachings on the matter:

> Mosôm went to great lengths to describe how and why spirits come into the physical world. The desire to experience the physical aspect of the Creator involves sacrifice as we enter a world dominated by time and space. We must abide by limitations imposed by earthly existence. Taking on the trappings of physical consciousness means we become physically disconnected, thinking of ourselves as individuals. All earthly beings interact with one another through exchanges of energy, and part of the challenge of learning through life is to discover the appropriate and positive relationships necessary for spiritual harmony. After achieving what we came to learn, it is incumbent on us to find the way back to the spirit world. We learn relationships at four levels: beginning with the Creator; then with the spiritual universe through ceremonies; then relationships with the natural universe, including land and animals; and finally, in the human world, including marriage and community relationships (Stonechild, 2016, p. 69).

I jumped down the rabbit hole with Rice because his sociological analysis is one entry point to summarize the previous chapters of my dissertation, my search to bridge divides. Instead, with

humility and guided by spirit I found through the wisdom shared with me by Knowledge Keepers and Elders, a way to dance with opposing ideas until the presence of a third shows up (Lushwala, 2017).

> But through a life of ceremony my eyes have been washed into a deeper vision, and I can now practice a way of reasoning that does not take sides but instead allows two opposites to dance together until the face of a third presence starts showing up (Lushwala, 2017, p. 104).

The introduction to this dissertation, the methodology section introducing Indigenous Accidental Autoethnography, the literature review featuring a critique of TEK in the SERS doctoral program, followed by the published papers all explored ways to transcend dualisms (in my mind that was often the familiar dualism of science and *Anishinaabe gikendaasowin*). Again, in previous chapters I explored more in-depth Nakata's (2010) *cultural interface* and *research at the interface* (Durie, 2005, p. 306) to harness the energy from two systems of understanding to create new knowledge that can then be used to advance understanding in two worlds. One way to describe that journey, anchored in the discipline of sociology and analysis by Rice (2013), is pushing the transitions to sustainability discourse beyond *dualist ontological assumptions*. Another way to describe that journey rooted in *Anishinaabe gikendaasowin* (our original ways of knowing) is what Wildcat described *as Indigenous realism*, "a living system of knowledge, one that is capable of change and innovation, the ability to figure out what works in a particular place for the people of that place" (Wildcat, 2009, p. 70). The Anishinaabeg live in the nature-culture nexus, still deeply connected to place, possessing "practical, life-enhancing knowledges desperately needed today" (Wildcat, 2009, p. 71). Sharing that knowledge outside of our families and communities, *connecting* us to other human beings, is part of the twenty-five decolonizing *projects* first wrote about by Maori scholar Linda Tuhiwai Smith (1999, pps.142-162).

The importance of making connections and affirming connectedness is noted because connectedness positions individuals in sets of relationships with other people and with the environment. It also includes connecting people to their traditional lands through the restoration of specific rituals and practices, and it's about connecting in humanizing ways with the local Indigenous communities. During most of my doctoral studies, I lived outside of my traditional territory in the Niagara region, part of the Haudenosaunee Confederacy. And so, I sat in circle with Haudenosaunee knowledge keepers and Elders leading to the first published article (see Goodchild, 2021). It is their two-row thinking and double-stream consciousness that led to *relational systems thinking* as a concept. Using a *relational systems thinking* lens now, on one side of the river of life is Rice's (2013) co-constructionist ontology (the Dutch merchant sailing ship) and on the other is Wildcat's (2009) nature-culture nexus (the Iroquois birchbark canoe) and as my Uncle Dan Longboat shared the river herself is now in jeopardy. It is worth quoting Uncle Dan once more:

> So, it behooves us now to utilize our knowledge together to work to sustain, to perpetuate, to strengthen the river of life. Why? So that all life will continue. And at the end of the day any social innovation or systems stuff should be all about the continuation of life and however we understand it to be—not just

human life but all of it, for this generation right to the end of time (Goodchild, 2021, p. 84).

7.2 The decolonizing project of *reframing*

The remainder of this concluding chapter continues with my Accidental Indigenous Autoethnography methodology. It is a story, my story. The twenty-five projects described by Smith (1999) were part of an ambitious decolonizing research programme by Indigenous scholars and communities, she said. Another of Smith's decolonizing projects is "reframing" (Smith, 1999, p. 153). Reframing is about taking much greater control over the ways in which indigenous issues and social problems are discussed and handled, which are often framed in cynical and paternalistic manners. How else could I describe being offered the noble savage trope in my first course at UW as anything but cynical and paternalistic? Our whole being and our way of life and intellectual traditions being narrowly characterized as a racist trope. To soothe the wounds of this type of fuckery happening during my doctoral studies I read and re-read work by the late Yankton Dakota thinker Vine Deloria Jr. who responded to that cynicism with his own brand of sarcasm, and it helped me tremendously. So, I needed to reframe my scholarship. While it still might reflect various decolonizing projects as so brilliantly articulated by Smith (1999), it has also evolved beyond that into a deeper connection with my relatives, knowledge keepers Eleanor Skead and her husband Bert Landdon, and *Niigii* (brother) Keith Boissoneau along with a deeper connection to the land of my ancestors when my family and I moved home in the spring of 2021. Although I maintained strong connections with knowledge keepers throughout my studies, visiting or texting them frequently (including Eleanor Skead, Bert Landon, Albert Hunter, Keith Boissoneau, and Dan Longboat) it wasn't until I moved home that my spirit found peace and I found my voice. Reframing started to occur during the program when I resisted TEK as a process in which our knowledge systems are "boxed and labelled according to categories which do not fit" (Smith, 1999, p. 153). However, the deeper reframing happened in the *biboon* (it is winter) of 2022/2023, after I yarned with Eleanor Skead and Bert Landon multiple times on zoom as part of my recent residency with a global philanthropy.

For the past couple of years, since the publication of both journal articles, I thought my novel contribution to scholarship was to develop a new theory or framework to transcend binary thinking, like the dualism Rice speaks of—nature/culture. I wrote about this theorizing in the second published article (see Goodchild, 2022). This is what I reasoned based on the idea that *relational systems thinking* as a new theory/framework was possibly a *niche innovation* influencing its selection environments (Smith & Raven, 2012), which I witnessed in educational institutions, and the broader field of awareness-based systems change. *Fit and conform empowerment* makes the niche innovation competitive with mainstream socio-technical practices in otherwise unchanged selection environments. Is the concept of *relational systems thinking,* originally perceived by me and the *shadow network* (Westley et al. 2011) that currently incubates the idea of *relational systems thinking* as path-breaking (various organizations, educational institutions and philanthropies), now becoming incremental in terms of its broader socio-technical implications? I think it is. This is actually not empowering, it is *disempowering* because ironically the process in protective spaces that empower innovations to become more competitive in conventional regime terms, such as improved alignment with existing norms or

structures (ie. Decolonization at universities) are always under pressure to become competitive in the narrower criteria of existing structures, compared to the deeper values that might have originally motivated the innovative effort. I saw this happen. As I began to work on decolonizing social innovation and systems thinking I was drawn into two key disempowering pressures, which were to:

1) set up a non-profit organization to do my work
2) be pan-Indigenous.

Both pressures undermined my efforts to decolonize systems and complexity in a way that embraced emergence. It was the antithesis of emergence. I kept being drawn into the need to create something that could be funded, measured, and scaled. I consider this to be an *aggregate rebound effect* (Smith & Raven, 2012, p. 1030) of the field of awareness-based systems change. Practitioners and scholars are seeking simple equations for decolonization and indigenization, equations that can be applied immediately and are easy to measure. What is the model, framework, or theory that I can apply here to decolonize my classroom or workplace (without perhaps doing the work of going on the land and being in relationship to that place and its people)? This "add and stir" reconciliation/decolonization/indigenization as my Uncle Dan Longboat often says, is an aggregate rebound effect that can counteract the relative performance improvements in the long run. As such, the sustainability of the innovation itself is reduced through this pressure to fit and conform.

While *relational systems thinking* has had a significant uptake in universities around the world (evidenced by my guest lecture invitations, I recently spoke in the Faculty of Environment at both Yale University and the University of Toronto, and also by additions of the article to course syllabus readings) the provider of my protective shield, WISIR, could not in fact protect me from society, from becoming captured by sectional interests (Smith & Raven, 2012, p. 1030). This was primarily because research and experimentation require resources and the system for that is governed by Canada Revenue Act (CRA) guidelines about who can fund what, how and why. It was not until a global philanthropy however came into the picture, part of the *shadow network* for *relational systems thinking*, that I was offered deep protective space to continue my work shielded from any external pressures. They simply asked me, what do you want/need to do to move your work further along? Thus, *relational systems thinking* is a niche innovation I would ultimately characterize as "fit and conform." This does not detract at all from the wisdom and insights provided through the two published journal articles, but it does begin to reframe the idea of *relational systems thinking* as a model or framework. I went so far as to offer a model of *relational systems thinking* based on the teachings in Goodchild (2021) and presented as an Indigenous standpoint theory in Goodchild (2022). Recall Figure 5.2 Relational Systems Thinking Theoretical Model (reprinted below).

RELATIONAL SYSTEMS THINKING

A dynamic interface **theoretical living** model **for reasoning** in the **sacred space between ways of knowing**

Systems Thinking

From Aristotle, Goethe & Bertalanffy to Senge, Meadows, Scharmer, Stroh, & Westley, **irreducible wholeness** arises from the interaction and relationship between the parts of a whole; awareness-based systems change; complexity, resilience, non-linearity, living systems; symptomatic/fundamental solutions to wicked problems; mental models; technologies of systems modeling; deep ecology; holistic thinking; vicious/virtual cycles

Relational Systems Thinking

The sacred space between ways of knowing, two vessels sharing the river of life together; **Tekani teyothata'tye kaswenta** Haudenosaunee Two-row Wampum Belt is the central metaphor for *reasoning synergistically* between multiple ways of knowing; equal but differentiated; 3rd space; spiritual, mental, physical & *emotional frequencies*; cultural fluency; relational methodology; *healing self & systems*; tea & yarn *mashkiki* (medicine)

Anishinaabe Mino-bimaadiziwin (Good Life)

Anishinaabe **Gikendaasowin** & **Inendaamowin** (original ways of knowing & wisdom); relational & spiritual way of life; **Miinigowiziiwin** (sacred knowledge bundle); **gakiikwe'inan** (teachings); **Gichi gakinoo'imatawin** (the act of great or deep teaching); **Anishnaabemowin**; traditional technologies; Native Science; ancestor mind; prophecy; all my relations; four directions

I continued to view my research as a journey to produce a model or framework and I carried that mental model with me into the next phase of inquiry, my residency with a global philanthropy.

7.3 The *dibaajimowin* (story) of being a Systems Changer in Residence

I was in a very privileged position in the fall of 2022, as I began a four-month residency with a global philanthropy as a Systems Changer in Residence. As part of my residency, I was offered a substantial pay, two writing retreats, and resources to further my work on decolonizing systems thinking and complexity. This residency empowered me to produce an original piece of writing called "Duck Shit Tea, Yarning & the Magical Space in Between Things", published on the Wolf Willow Institute for Systems Learning website, building on the academic journal articles. This third publication represents my most authentic voice. The global philanthropy offered me a protective space, a second form of *empowering* to "stretch and transform" (Smith & Raven, 2012, p. 1030). "In this case, empowering innovations aims to undermine incumbent regimes and transmit niche-derived institutional reforms into re-structured regimes" (Smith & Raven, 2012, p. 1030). The process of stretching and transforming will not be entirely internal to the niche but will rely upon other processes of change within the regime and in the broader society. *Relational systems thinking* for many in the shadow network perhaps, became an emblem for a decolonized approach to systems thinking and complexity. But is the presentation of a new "theory" (even an Indigenous standpoint theory) or "conceptual model" or "theoretical framework" itself a colonization of our knowledge? Is my own work being boxed and labelled according to categories which do not fit (Smith, 1999)? I received an emailed newsletter recently from colleagues of mine in the field of systems change and, on their website, they share the "systems change frameworks" they use in their practice, such as the iceberg, the actor map, the power shift framework and the panarchy cycle to name a few. When I saw their materials, I felt a profound uneasiness that someday perhaps, "relational systems thinking" would be one of their systems change frameworks. They are a non-Indigenous organization and the thought of a

simple diagram or model to represent all the wisdom and knowledge shared in Goodchild (2021) and Goodchild (2022), as an option on a menu of systems frameworks seemed out of balance, even though my first attempt to share wisdom was to indeed create a model (see Figure 5.2).

The timing of receiving this newsletter was crucial. One of the offerings to me from the global philanthropy was to fund 'anything' I was seeking to further my work in the field of systems and complexity, with no strings attached. They asked me what I wanted to offer into the world and how their substantial financial and human resources might be able to help. The writing retreats alone were a kind gift but the further offering to support a project was invaluable. As I discussed my needs with them, I realized that the model I created in Figure 6.1 was somehow incomplete. It came about when I needed a slide deck for guest speaking. Rather than tell people about the space in between the two columns of the wampum belt, I would show them. That prompted me to create a model with my basic desktop design skills. And Figure 6.1 was born and revised in 2021. I took a screen shot of the model and dropped it into various slide deck presentations I offered at universities, conferences, and for communities of practice in 2021 and throughout 2022.

I was sitting in my living room one afternoon in the Fall of 2022 and noticed a coffee table book in my personal library, called "The Little Book of Hygge: The Danish Way to Live Well" (2016) by Meik Wiking. It is a very pretty, little, hard cover book from Penguin Books published by The Happiness Research Institute, Copenhagen. I adore its contents including rich colours and attractive photographs and illustrations. Denmark is positioned as one of the happiest countries in the world due in large part to the hygge-factor. "You know hygge when you feel it, it's cocoa by candlelight," reads the book's back cover. And on pages 46-47 is The Hygge Manifesto, which presents ten *principles* of hygge by way of ten adorable illustrations. Eureka! That's what I want/need, I told the global philanthropy team on our next zoom call. I need to identify the principles of *relational systems thinking* in a fun and accessible way. I enthusiastically held up the book pages and showed them the hygge principles illustrations of atmosphere, presence, pleasure, equality, gratitude, harmony, comfort, truce, togetherness, and shelter (Wiking, 2016, pps. 46-47).

The same day I saw the manifesto I took a piece of notepaper and scribbled the "principles" of *relational systems thinking*. There were fourteen of them that I could place. I didn't know where they came from until I had tea with my friend and colleague Peter Senge a few weeks later in Burlington, Vermont and I showed him the scribbled notepaper. I told him these were the things I noticed helped people I worked with to create a generative social field. He said, that's called "lived experience." Yes, that's where those come from, I reasoned, my lived experience of creating generative social fields to share my work across many cultures and institutions throughout 2021 and 2022. I presented the fourteen principles to the global philanthropy team on the zoom call. They responded that perhaps what I was seeking was an *infographic* of some sort. And for that type of project, it might be best to work with a human centred design firm. The team got busy researching design firms and we ended up interviewing and hiring Greater Good Studio (GGS) in Chicago (the global philanthropy is US based). While GGS, a design firm dedicated to the social sector, is not Indigenous, we planned to hire an Indigenous artist to work on the project with us. On September 15, 2022, GGS submitted a proposal to the global philanthropy called "Designing a Visual Communication Tool for Indigenous Systems Change"

(Greater Good Studio, 2022). The budget for the project was $78,000 USD for GGS and an additional $15,000 USD, including professional fees of $63,855 for GGS, $14,145 for travel, participant incentives, and compensation for illustrator, plus an additional $15,000 USD for me to yarn with knowledge keepers and Elders as the project progressed. I was humbled and overwhelmed by the sudden influx of resources, time, and collective energy to support my ongoing work of decolonizing systems thinking and complexity.

The visual communication tool would emerge through a scope of work in two phases. Phase 1 (5 weeks, October 10 – November 11/22) would be *Learning and Reflection* and Phase 2 (9 weeks, November 14/22 – January 27/23) would be *Prototyping and Visual Design*. See Figure 7.1 for project timeline. Deliverables would include an illustrator contract for an Indigenous artist. The purpose of the first phase was to converge on a set of interconnected principles that were reflective of the space between Indigenous wisdom and Western systems thinking. The purpose of the second phase was to produce a refined visual communication tool through deep listening and iteration between myself, the GGS team and potential end users. The GGS design team would work closely with me and the artist to visualize the principles. GGS would synthesize learnings from me and from my yarning with Anishinaabe knowledge keepers.

	November 2022	December 2022		January 2023	
Research		Initial Yarn w/ Elders	Round 1 w/ Elders	Round 2 w/ Community Groups	
Visuals & Design	Onboard Ocean + generate 3 draft illustrations		Select 1 draft illustration + refine	Gather feedback on refined version	Synthesis workshop + deliver final version

Figure 7.1 Table of Phase 2 timelines from Greater Good Studio project plan (Greater Good Studio, 2022)

Simultaneously I was fulfilling the commitments of my Systems Changer in Residence role including two writing retreats and an in-person Community of Practice (CoP) gathering in California in November 2022. The writing retreats had a total budget of $6000 USD, so $3000 USD each retreat to go anywhere I wished to spend a week writing. This was a gift but also some pressure on me to produce something original. I couldn't just write my doctoral dissertation, I felt the need to write something with no strings attached, an original piece in my authentic voice. But life continues moving forward and I had other outstanding commitments in the Fall of 2022. I promised Peter Senge that I would visit with him in Vermont at the University of Vermont after I had to cancel my participation in the Executive Champions Workshop (ECW) with him, Otto Scharmer, and Arawana Hayashi in August of 2022 after my mom's brother passed away from cancer. I was invited to be the fourth faculty member along with Peter, Otto, and Arawana in 2021 but COVID restrictions cancelled that plan. Then I was to join them in person in Stowe, Vermont for the ECW in 2022 but my beloved Uncle Ernie

Jones passed to the spirit world. So, I told Peter I would visit Vermont in the Fall. At the same time my dear friend and colleague Tyson Yunkaporta and his family were planning to visit Manitou Aki, North America, and the writing retreat resources would support us renting an AirBnb together in Niagara Falls. For a moment I dreamt of renting a cabin in the mountains or a seaside shack somewhere but ultimately the most important consideration for my writing retreats was *connection* and *relationships*.

From September 24/22 to September 29/22 my partner Sly and I spent a week at an AirBnb in Niagara Falls, Ontario with Tyson Yunkaporta (author of Sand Talk) and his wife Megan Kelleher and their three children, and from October 17/22 to October 21/22 my mother Melinda and I spent a week at an AirBnb in Burlington, Vermont where I visited with Peter Senge (author of the Fifth Discipline) and with faculty members at the University of Vermont. The *dibaajimowin* (story) of the first writing retreat is shared in "Duck Shit Tea, Yarning & the Magical Space in Between Things." It's a story about connection, hospitality, kinship, and relationships, and coming in at around 6000 words it represents a potential chapter of a book. It was assigned as pre-reading for two programs I contributed to in the fall, the CoP gathering in California in November 2022 with the global philanthropy and the Café at the Edge of the World convening with Wolf Willow in December 2022.

What is interesting to note about the publication of the story is that the global philanthropy hired a copy editor, my colleague Eva Pomeroy from the Presencing Institute (PI), and Wolf Willow offered graphic design for the piece, supporting my initial intention to publish it on an American online publishing platform called "Medium," where PI co-founder and my friend Otto Scharmer and PI publish their Blog. However, after reading the contents of the story there was concern that "Duck Shit Tea" might not be appropriate for every member of their global audience, specifically the word "shit" in the title. And in that moment, I started to feel constrained and censured even though I appreciated and understood that sensitivity. I was offered the chance to write and publish something without strings and I *needed* that after academic publishing and working on this dissertation for the past few years. So, I accepted Wolf Willow's offer to do the graphic design but also asked them to publish it on the resource tab on their website, with little to no fanfare. Not only did I seek to avoid the limiting parameters of publishing on the PI Medium blog, I also did not want to share that story with such a large audience without context. Otto has a large readership and I wanted to hold off on sharing something with such a wide audience without deeper context. Here again, I felt uneasy about sharing my work and ideas—in progress —with an international audience with whom I may not have a relationship. That already happened with the Journal publications. The decontextualization of Indigenous knowledges is a pattern in academic inquiry. The Duck Shit Tea story now lives on the Wolf Willow website, under creative common license, and is read and shared by folks who know it is there (most often by those in relationship with me, Tyson, Megan or the Wolf Willow team). During my second writing retreat I visited with Peter and his insights helped me shape this final chapter.

7.4 Niigani Miinigowiziiwin (we give these gifts to the future)

We hired Greater Good Studio and scheduled a visit together in Chicago. A crucial element in the design strategy was for me to work with Anishinaabe knowledge keepers and with an

Anishinaabe artist if possible. The first thing I did was brief the GGS team on the history of my research and then I shared with them my initial fourteen principles for relational systems thinking, inspired by the Hygge manifesto. What was appealing about that sort of presentation of findings was that it was accessible to people outside of an academic setting. And I was seeking a professional presentation of the principles as part of my curriculum for teaching global, cross-cultural audiences about 'systems thinking' and 'complexity'. At this point I still had in mind the presentation of a *framework* for relational systems thinking via the infographic. I also had in mind utilizing the medicine wheel teaching (featured in the far-right column of the model in Figure 6.1). The medicine wheel is a familiar Anishinaabeg teaching, and I had used the four sacred colours, representing the four directions, to build curriculum before. It is an appropriate heuristic for Anishinaabe pedagogy. I shared this image in this dissertation earlier (see Figure 2.1). In fact, I often created workshops with the architecture of 'a journey around the medicine wheel.' So, I shared medicine wheel images with the designers at GGS.

We began the process of selecting, confirming, and onboarding the illustrator. While I was in California in November the GGS designers and I met with several illustrators and we chose a young *Anishinaabkwe* (Ojibway woman) who is from my dad's community but whom I had never met, Ocean Kiana. Ocean is a woodlands style artist, and her spirit name is *Waabshki Memegwans* (White Butterfly). Ocean is also a fashion designer, and she has a beautiful portfolio that captured what I was seeking for the visual communication tool. The GGS design team created an initial composition for the communications tool (see Figure 7.2) and we shared this, as a visual aid, with Anishinaabe knowledge keepers and Elders Eleanor Skead, Bert Landon and Keith Boissoneau during a yarn together on zoom on October 28th, 2022.

During the yarn they each offered guidance on the principles and direction of the design. It was during this yarn that we sorted out a name for the framework. I explained to the Elders that it was a framework to teach people how to practice relational systems thinking, or to practice transformative innovation. Eleanor and Bert understood that systems change work is about the future and that is what they focused on. Bert said that our dreams and teachings "offer us a way of looking at things in the contemporary world." Eleanor suggested that a possible appropriate title for the composition could be *Niigani Miinigowiziiwin* (we give these gifts to the future). What a beautiful description of doing systems change work, like social innovation labs and collective wisdom journeys. It is so humble and kind, to me it evokes compassion. Eleanor said it is about the "love you have for the people in the future." And the work of doing 'systems change' is about "clearing the path for those to come." That is where the title or description for the process came from—the Elders and the *manidoog* (spirits). It also became the title of this dissertation. Note how in *Anishinaabemowin* it is a verb, not a noun. The GGS team added this descriptor to the documentation for the design elements. Eleanor also spoke about the turtle shaker or rattle that I was gifted. She said, "the spirits wake up when they hear it, when they hear us pray, because they hear our distress." Shaking the rattle and our other ceremonies and prayers are a "call for help" by us to the spirit world, explained Eleanor.

Based on initial conversations between me and the design team at GGS, their reading of Goodchild (2021) and Goodchild (2022), along with a first yarn with knowledge keepers Eleanor Skead, Bert Landon, and Keith Boissoneau on Friday, October 28, 2022, they produced the initial iteration of a possible design direction (see Figure 7.2).
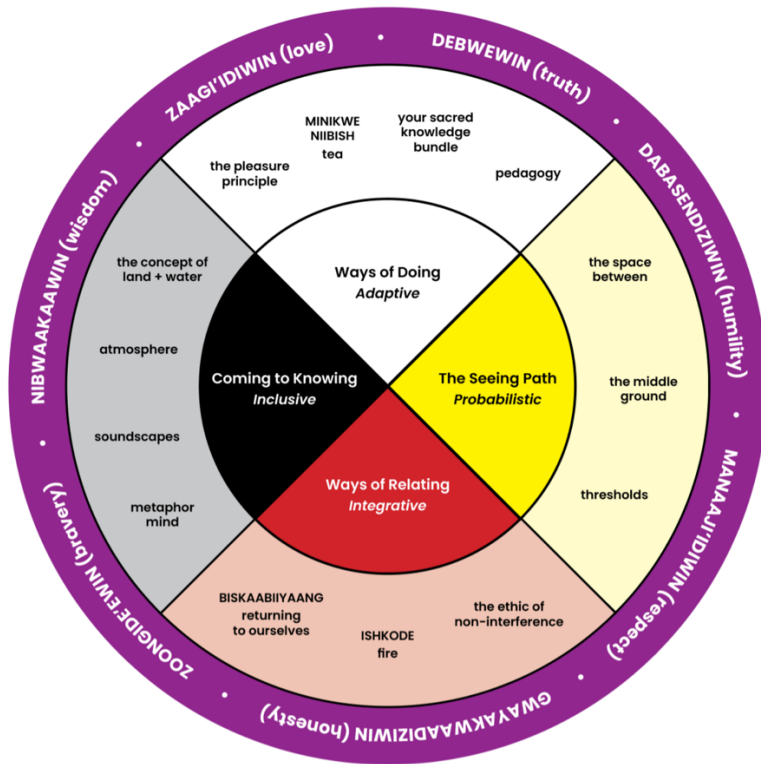
Figure 7.2 Relational Systems Thinking model initial design by GGS

7.5 Chicago

After the first yarn with the Elders, on November 9th, 2022, I met with the GGS design team in person in Chicago, IL for a debrief and synthesizing working session. During this workshop the design team shared various samples of compositions for the infographic, and I reacted to each of them, indicating elements that resonated with me. All notes and illustrations were tracked by GGS in a shared google doc. A key goal of the session was to narrow down the principles to a more manageable number for practical and design reasons. I felt comfortable going through each principle with the team to distill its essence. I reasoned that seven principles would be congruent with Anishinaabe teachings of the seven generations and *n'zhwa-sho-gi-ki-nah-mah-gay-wi-nan*—the seven teachings (Fontaine, 2020, p. 5), often referred to as the seven grandfather teachings. The end-user of the infographic would be me, utilizing it to teach various audiences about Anishinaabe systems thinking and complexity. The design team and I had a good yarn in Chicago. I explained what each of the fourteen principles meant to me and how they overlapped. We moved post-it notes around a large colour print out of the medicine wheel and I started to feel good about seven key principles and what quadrant or direction of the medicine wheel they could be positioned. The seven principles of *relational systems thinking* practice that emerged were:

- *Biskaabiiyaang*/returning to ourselves – releasing settler-colonial harms we carry
- Thresholds – a shift in consciousness
- *Naa-wi aki*/middle ground – the middle ground between lodges, the space between
- *Ishkode*/fire – creating conditions for transformational change, sitting around the fire together
- Hospitality – accessible not only to humans but to non-humans too
- Dreams, visions and soundscapes – our traditional technologies
- *Minikwe niibish*/tea – the leaf we drink, coming together in relationship and connecting

The contextual elements that were also identified as important were land and water, connecting to place-based knowledge and relationships, and our sacred knowledge bundle, rooted in humility and honouring collective wisdom. At the end of our working session, we had a rough idea of the composition of the principles around the medicine wheel and documented it via photograph (see Illustration 1).
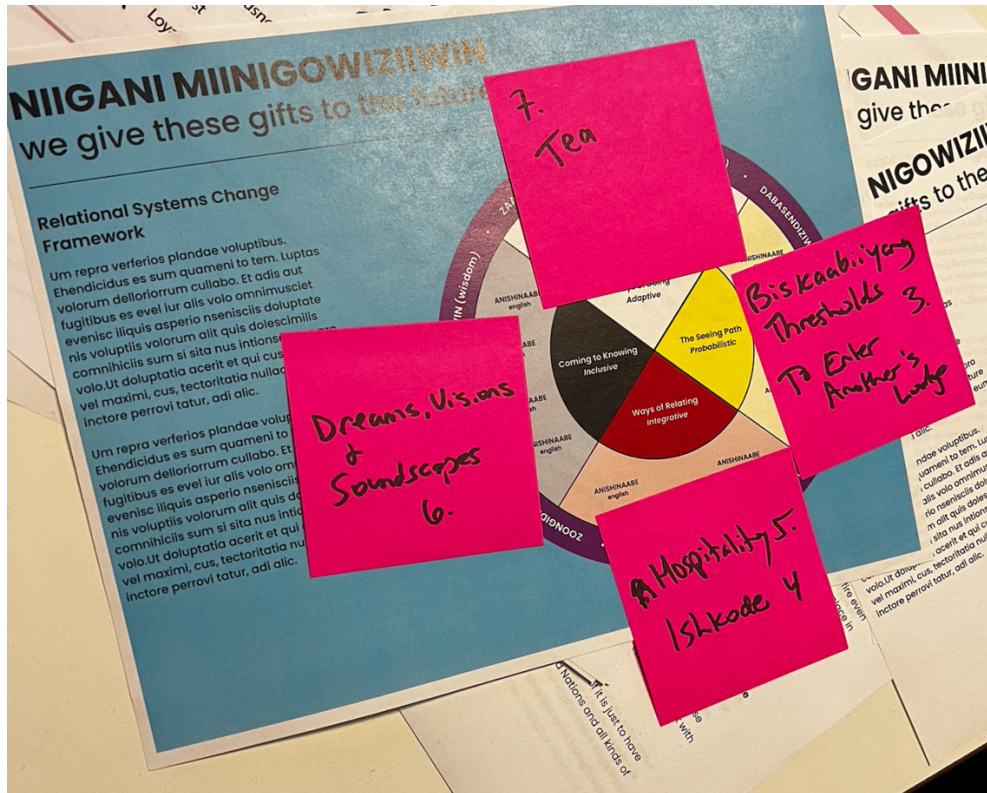
Illustration 7.1 The positioning of the seven principles of relational systems thinking on the medicine wheel at our synthesis workshop, November 9, 2022 in Chicago (photo by Greater Good Studio)

Based on this working session and the first yarn with the Elders the design team at the GGS drafted a revised composition of the model (see Figure 7.3).
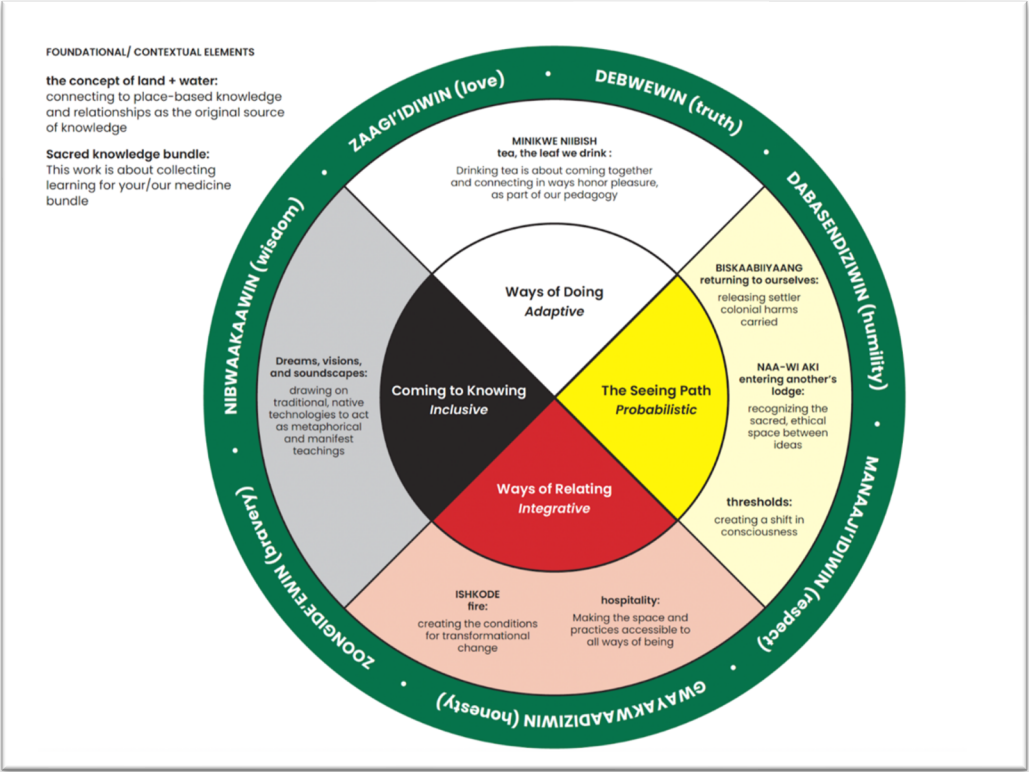
Figure 7.3 Revised Relational Systems Thinking model design by GGS

On November 16th, 2022, we had an initial onboarding zoom call with Ocean to describe the project, share the design compositions, and the outcomes of our November 9th in person working session in Chicago. At that time GGS showed Ocean examples of illustrations that resonated with me during our yarn in Chicago (see Figure 7.4, 7.5 and 7.6).

Figure 7.4 First possible composition for the infographic by GGS

Figure 7.5 A second possible composition for infographic by GGS
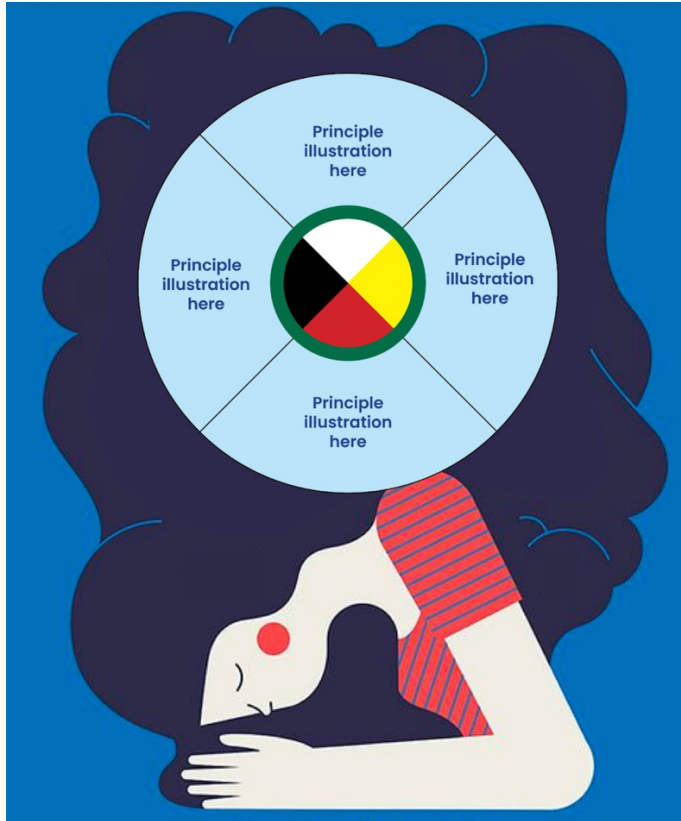
Figure 7.6 A third possible composition for infographic by GGS

These three possible compositions were shared with Ocean Kiana as a starting point for what resonated with me in sample drawings compiled by GGS. She would now utilize her gifts as an artist to create three initial illustrations for the infographic.

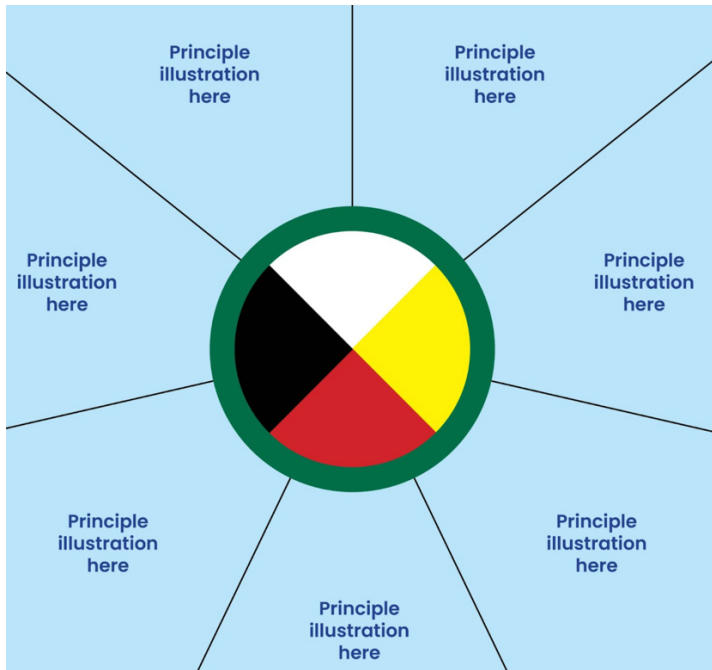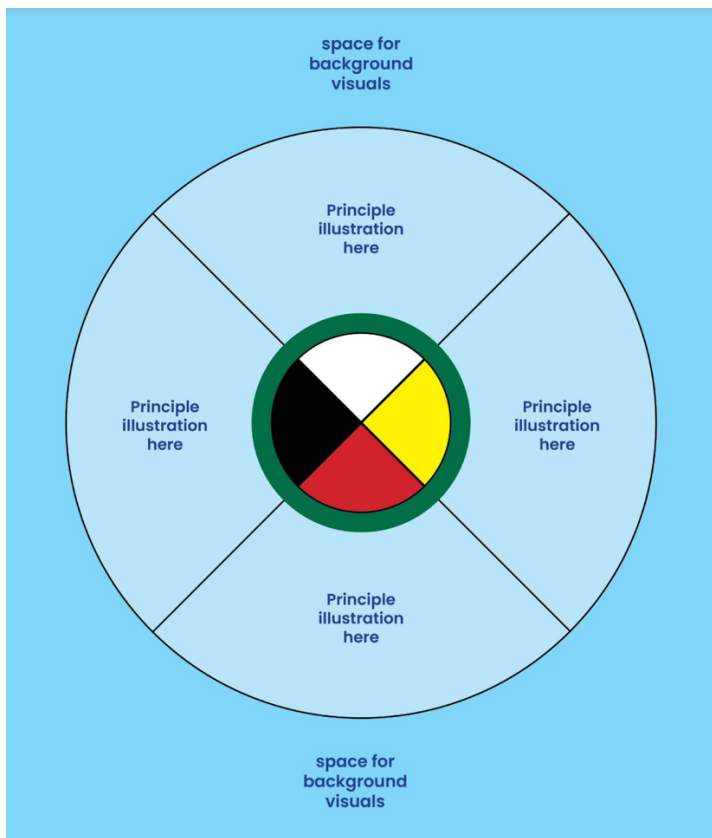Ocean shared her three draft illustrations with GGS and I on November 30th, 2022, and we provided some initial feedback. She shared her revised compositions (see Figure 7.7, 7.8 and 7.9) with us. They were stunning even though at this point of the design they were not complete with colour; they were outlines of possible compositions for the infographic. One of my immediate reactions based on the first illustrations by Ocean was that the medicine wheel was missing and how could it be a framework if it was missing the medicine wheel? I had an affinity for the medicine wheel as a uniquely Indigenous pedagogical tool. But did I have a personal relationship with the medicine wheel I wondered after our yarn with Eleanor and Bert, or the seven grandfather teachings? I have a personal relationship with the seven 'principles' of the revised model (see Figure 7.3) because those principles come from my lived experience.
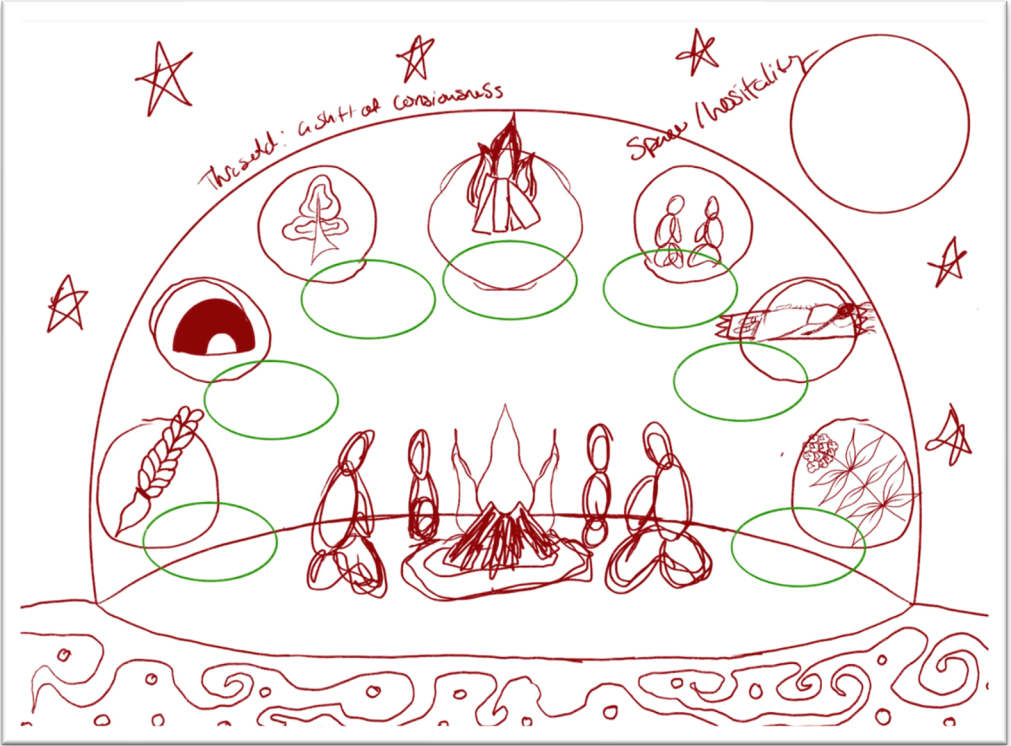
Figure 7.7 Draft composition number one by Ocean Kiana.

Figure 7.8 Draft composition number two by Ocean Kiana.
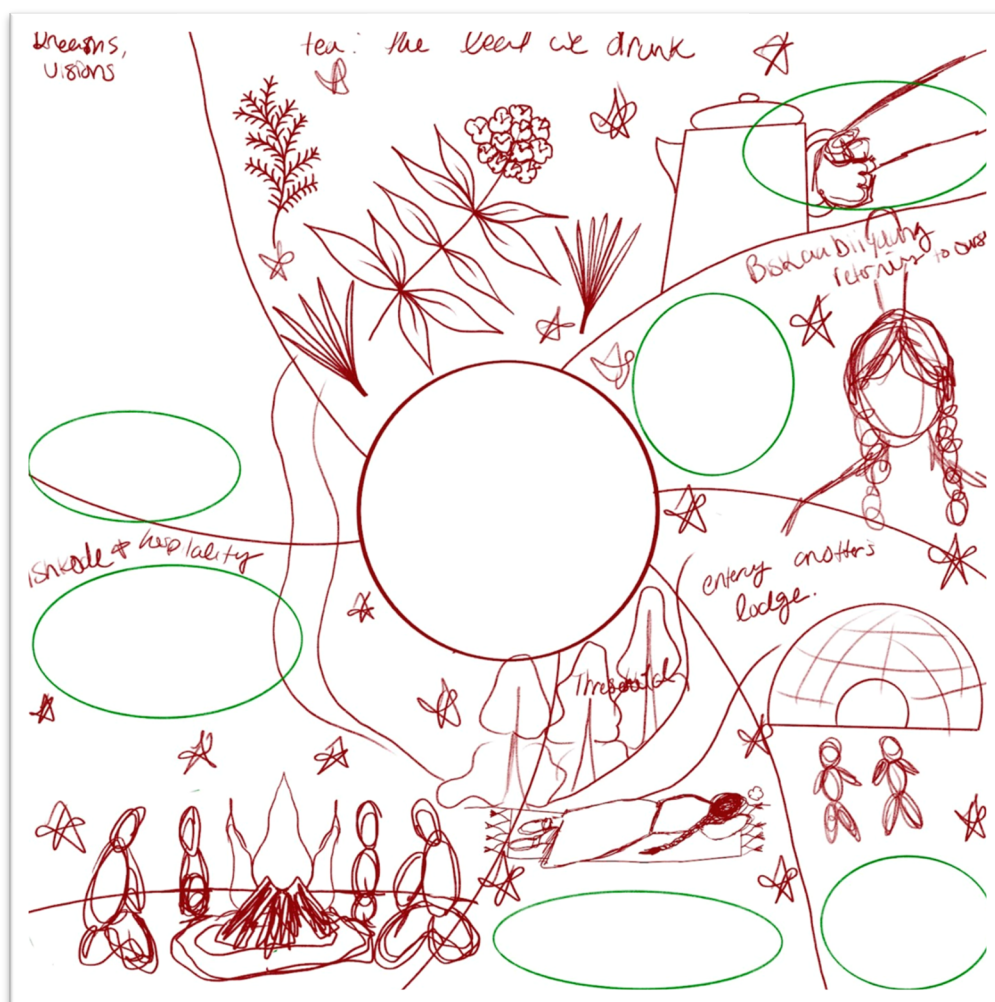
Figure 7.9 Draft composition number three by Ocean Kiana.

7.6 The "Melanie" model

The GGS design team and I had another yarn with Eleanor Skead and Bert Landon on December 2nd, 2022. I shared with them the latest iteration of the model (see Figure 7.3) in which I asked GGS to change the outer purple circle to green, to represent Mother Earth and to add the foundational/contextual elements of the concepts of water and land and the sacred knowledge bundle to the text.

Upon seeing the minor edits to model Eleanor said, "our models are the result of experiences we have." So, they are personal (not abstract, or conceptual). And certainly not pan-Indigenous, I concluded. This is "*your* model" she said to me. Here is a quote of Eleanor Skead from the transcript of this yarn on Zoom:

> So, Melanie, have you experienced the love you have for the people in the future? What's that imagery? I don't know if it would be appropriate—although our culture does have written in the pictographs, we used to communicate with birch bark scrolls. Not sure if

humans wrote those. That's what we need to start getting at, the real bottom, bottom, bottom part of what's your vision? How are you going to clear that path for those yet to come? And what does that look like, what was it that you had seen way back, probably when you were just a little girl, that's probably when you were gifted. You gotta go all the way back, you gotta go visit that and what is it? That's when you can have "the Melanie model," one of these days it'll be there.

Eleanor, in our first yarn on October 28th, had suggested the seven grandfather teachings as a possible foundation for the composition (see outer circle, Figure 7.2 and Figure 7.3). The seven grandfather teachings are respect, honesty, bravery, wisdom, love, truth, and humility. They are some of the most shared Indigenous teachings in all North America and they are ancient wisdom. These seven guiding principles have been adopted to be used as a cultural foundation and moral steppingstone across many fields including design, where they are being adapted to be used as a methodology towards moral and ethical design practices (Munroe & Hernandez Ibinarriaga, 2022). I also included in the draft model (Figure 7.2 and Figure 7.3) the complexity postulates of *probabilistic*, *integrative*, *inclusive,* and *adaptive* from Peter and Swilling's (2014) work on transitions to sustainability and their proposed modeling framework. They propose a modelling framework for complexity that does not prescribe modeling techniques (such as scenario-making, soft systems analysis, agent-based systems models) but rather provides a framework in which these techniques can be complementarily deployed. I reasoned that was an excellent way to think about my proposed/draft model too… a *complexity modeling framework*.

With regards to a proposed modeling framework Peter and Swilling (2014) argue that *probability* theory-based analytical frameworks are necessary, i.e. which accommodate whole probability distributions, so that non-linearity is preserved in analyses, as opposed to deploying analytical techniques that linearize out non-linear interdependencies from analyses and lose complexity. Next, they argue that a modeling framework must integrate between different systems, agents, scales, levels of description and decision-making options/variables and it must be heterarchical so that it can *integrate* across scales and levels of description and allow for the emergence of different configurations of controls, structures, and processes as dominant drivers of whole system behaviour. Next, they argue that a modeling framework must be inclusive, it must accommodate multi-participant modeling processes which in turn requires that visualization of models is required that can help build a shared understanding, particularly between 'stakeholders' and 'decision-makers.' Finally, they argue that a modeling framework must be adaptive, so modular, evolutionary, and heterarchical modeling frameworks are required, so that it accommodates emergence (Peter & Swilling, 2014, pp. 1611 - 1612). I thought it rather important that my model also accommodate emergence so must be probabilistic, integrative, inclusive, and adaptive.

My initial fourteen principles of *relational systems thinking* practice are included in the draft model (Figure 7.2 and Figure 7.3), positioned along the four directions: the space between, the middle ground, thresholds, the ethic of non-interference, *ishkode* (fire), *biskaabiiyaang* (returning to ourselves), metaphor mind, soundscapes, atmosphere, land and water, the pleasure principle, *minikwe niibish* (tea), your sacred knowledge bundle, and pedagogy. These were the initial fourteen principles I scribbled in a notebook, inspired by the Hygge manifesto (Wiking, 2016). The medicine wheel in the centre represents the four directions, the Anishinaabeg four

sacred colours and a teaching of balance. The seeing path, ways of relating, coming to knowing, and ways of doing are a teaching of the medicine circle offered by Anishinaabe Elder Jim Dumont (James Dumont, 1997, cited in Rice, 2005). The colour purple was chosen by me for the outer circle in the draft model because that is the colour around the drum at a ceremonial lodge I visit, and it represents all nations on the drum. It was fulfilling and exciting to engage with this early iteration of a *relational systems thinking* framework. Forthcoming illustrations and design by Ocean Kiana would only enhance it. We were off to a great start. I shared with the Elders my concern about having a *relational systems thinking* framework that is decontextualized and shared on somebody else's website someday. Eleanor stressed that for me to create a model, Melanie's model, then I needed to have a personal relationship with each element of that model, including its colours. During the yarn she said:

> …and you're right, when someone else takes a model and doesn't have the background experiences like that we would have for Anishinaabe people, they can really …really butcher the message, basically. That's what happens. But when you have a relationship with every item on any model that you want to make, that guides your thinking—then you're able to speak to everything on there. Even when you look at a drum, you're supposed to be able to capture the base, on my mom's drum it's yellow and blue, half yellow half blue. That line in the middle of the drum that separates the colours, that itself is a road. And yet we only look, we don't think that there is a road. That's how complex the drums are. Wil [Eleanor and Bert's son] wears a simple black ribbon on his chest sometimes, and that signifies a black wolf. But we don't know that. Some people think he's in mourning because that's what our minds think. He doesn't bother explaining, sometimes he thinks to himself. There is no standardization to Anishinaabe, our models individually are the result of the experiences we've had.

The above guidance is likely one of the deepest, profound, spiritual, and most Anishinaabe insights I've received thus far in my inquiry into decolonizing systems thinking and complexity: that I must have a personal relationship, meaning *experience*, with *every element* of the 'model' I was creating and that the colours are not selected randomly or even because they are the four sacred colours of the Anishinaabeg (red, yellow, black and white) but because the colours are beings, they are spirits, they are helpers, and who are they? Who is helping me? Eleanor said colours are not colours for Anishinaabeg, they are beings, spirits. The spirits that came to me in a dream when I was around 19 years old are seven ribbons, I dreamt of seven ribbons flowing in the wind. My family and I were at a powwow in Onigaming First Nation in Treaty 3, where my Aunty Denise and Uncle Norman Copenace live. We were staying with relatives one night and I dreamt of these ribbons. The next morning, I told my stepfather Alvin Copenace, a *Mashkikiiwinini* (medicine man), about my dream. He said those are your colours, and he added those coloured ribbons to my eagle plume for my powwow regalia. I was a young woman's fancy shawl dancer. So those are my helpers, represented by the colours of orange, yellow, red, black, white, light blue and dark blue. The ribbons on my eagle plume are almost as tall as me (see Illustration 2**).** "Those are the colours I would stick to if I were you," said Eleanor. "When we are trying to decolonize, it's reclaiming. We are now reclaiming the way we do things, the way we see things" she continued. "So soon, you begin to know who is that white, who sits there on the white? Or who sits on the orange, on the red? Who is the blue? You'll get to see all of that," she told me during the yarn. I originally chose the four sacred colours of red, white, red

and black because they were familiar to me and to many other people. But when I look at my regalia, my ribbons, the colours are the helpers who came to me in my dream when I was a teenager. Eleanor remarked on this, "yes everything had meaning there."
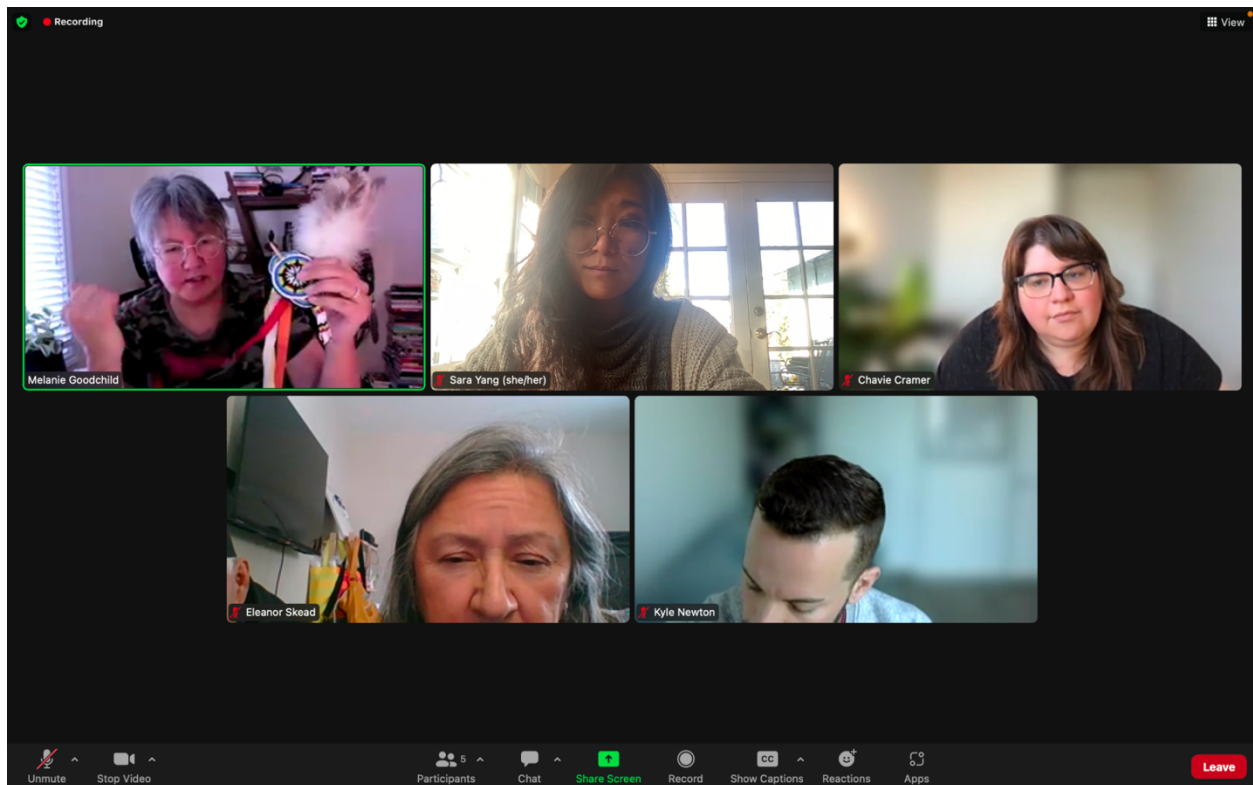
Illustration 7.2 Screenshot of zoom yarn where I shared the coloured ribbons from my powwow regalia eagle plume, some of my seven colours (photo by GGS).

Eleanor continued offering more teachings:

> I've had that lodge now probably—my dad passed away in '89, the fall of '89 we put up that lodge. It must be 33 years ago. I know everything in there now because I have a relationship, even the smudge I know the reason for the smudge. I know the reason to use the shell but if you ask many people what is that shell? I never even smudged until 10 years ago. I finally dreamt. I didn't dare to bring a smudge in to not overstep, to copy. Everything in that lodge came to me in a vision, I've never said oh I know what goes in here because—I work for the lodge, I don't own the lodge.

I replied, then "I don't own this framework, I work for it. It's the same relationship?" Eleanor replied:

> Yeah it is. What you're doing, you're making a pathway for whose to come. And as Anishinaabe people those gifts are all about healing, somewhere along the line that systems change thinking that you promote, it's going to be healing for somebody. It could be healing for 500 people or for 2 people. When our work on Earth is done, you what I mean? We don't know. My mother, when I got some of my medicine stuff, I

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earned that stuff from being sick. You get sick, a spirit comes and helps you and they give you stuff but in turn you gain work from that. You gain work, knowledge, experience from being through that. You're working through that, what you're building. You don't own it… That lodge, I'll never know everything that's supposed to be in there. And sometimes when it does come in there, I won't know everything. Things have come in there on their own, I don't know how they got there. I still don't invite people in because I haven't been told to invite people. It's just Bert, myself, and my sister Gail that go in there. We do our feasting, four times a year. Spring, midsummer, midwinter, and fall.

The deep wisdom and insights offered in just the above paragraph are astounding. But I will distill here one significant teaching for my inquiry—*the spirits guide us.* Eleanor noted that I always come back to the circle in my work, but it doesn't have to be a medicine wheel she said.

Eleanor continued to offer guidance in our yarn on December 2nd:

Any model you make for Anishinaabe, it's got to be your relationship with it. Because then you find out what all those colours will mean one of these days. Maybe not all of them, but even the lodge we have outside—we couldn't standardize it, how many poles it's supposed to be. The guy down the road has this many poles, but we can't do it that way. How tall, how long it's supposed to be. Those kinds of things, there's a purpose behind them.

To this I replied that maybe that's why the 'ceremony police' annoy me so much, pointing out how things are "supposed to be" or "not supposed to be" when they have no idea how the knowledge came to you or that what you are doing is guided by spirits, not a recipe or from a book. Eleanor replied:

The lodge I have, some say it's a teaching lodge, open on both ends. No, it's a Midé lodge others say, not this lodge. But when I dreamt of it, the spirit that talked to me called it a wiigiwaam so I called it a wiigiwaam. And when I call it that, someone will say 'no isn't it a ____?' That's what I call it but maybe if someone has a similar type looking lodge maybe they'll call it something else. That's the hard part about our culture, there is nothing standardized and there is something already associated, you know the history down to the colour. When you tie ribbons around anything, it's got to be around the tip of your middle finger to your elbow. So when you ask how long the ribbon is supposed to be [gestures to middle finger and her elbow] you know the tip of your middle finger to your elbow, and all of us are not the same. So, everything is individualized, everything is … we have this relationship with everything that we have.

And in that moment and as I meditated on these teachings for days after our yarn, I realized that maybe what I was creating in my inquiry into decolonizing systems thinking and complexity was not a framework or a model, because that's what others might call it, but for me the idea of a theory, a framework or a model makes me uneasy, because it is the standardization of our ways of knowing. My sister Eleanor helped me realize this. In that moment I shifted my thinking around what I was doing, I released my colonized mental model that sharing *Anishishinaabe*

gikendaasowin (ways of knowing) must be codified, standardized, cited, and scalable. So, "if it's not a framework" I shared during the yarn, then maybe it's the story of how I've been able to make sense of doing systems change work, my lived experience as Peter Senge said, and others can learn from my story. They take what they need and leave what they don't. In the yarn, looking back at the transcript, I said, "when you enter another's lodge, it's not standardized at all, they are not Anishinaabe and they're not me, they're not you. So, what are they learning from the story? I think that's what Ocean will capture. So, when I looked at those systems frameworks [mentioned earlier, on a website] I kind of freaked out and I was like no! I don't want anyone ever to say, 'this is Melanie's framework and this is what we do' and I don't want anyone to say 'oh you've done that the wrong way' like the ceremony police do, they've been to one ceremony and then start telling everyone how to do it. That's the opposite of humility."

7.7 Major finding: Wake up the Spirits

During this yarn I shared with Eleanor and Bert the three illustrations (see Figure 7.7., 7.8, and 7.9) that Ocean created for their reflections. These compositions were already significantly different than the draft illustrations of a model in Figure 7.2 and Figure 7.3. For Figure 7.7 Ocean had shared with us that she conceived of the principles as seven beings in the lodge with us. For her as an artist she always has the stars and moon. The fire is relational, so the people are sitting around the *ishkode* (fire). I shared with the design team at GGS that I liked an image they showed me of someone dreaming about something (see Figure 7.6 and 7.8). The third image was also based on an example the GGS team showed me and featured a circle in the middle with the principles around it (see Figure 7.6 and 7.9). These were Ocean's rough sketches and at first, I hesitated to show Eleanor and Bert such early versions, but I wanted them to see how significantly the compositions already shifted once we added Ocean's talents to the story.

Eleanor's first reaction was, "you have to make sure she uses your seven colours somehow." I said which drawing jumped at you. Eleanor replied, "I like all of them." That was the same thing that happened to me, I loved all the images at first. It was so exciting to see everything come to life in Ocean's drawings. And when I say everything, I mean seven going on eight years of doctoral study and many ceremonies and yarns with knowledge keepers. Ocean Kiana's drawings represented the *dibaajimowin* (story) of how I do systems change work. Eleanor said, "I like that, the story." She continued, "When you use your own colours, your own teachings, your own life force come to the forefront." She said, "it's like *ga-gii-kwe-win-an*, stories with life lessons in them …it's more like a moral-of-the-story type of story because it's about systems change, you're …the work you are doing is about systems change." My inquiry shifted trajectory from building a complexity framework or model to sharing what Eleanor called *Ga-gii-kwe-win* (teaching or high level teaching) with the world. *Dibaajimowin* is a personal story, while *gaa-gii-kwe-win* is a teaching. *Aadizookaanan* are spiritual beings or spiritual stories she said. They are alive, and they know when they are being told. So instead of seven principles we would say, *ga-gii-kwe-win-nan* – the act of giving out the teachings.   So, in Ocean's description of the beings in the lodge (Figure 7.7) and in Eleanor's description of the teachings I reasoned that my inquiry is a *story of the beings I have met along my journey*.

Eleanor continued with her guidance:

In our Anishinaabe way, what I've noticed is … it's those life experiences, those hardships that you're given, that turn your … it turns your life in that direction, of what was the healing? … So every person with every model that was there, it came from some kind of life experience. They may have an insight into some way of doing things, but they personalized that and it came from their own experience and I bet you too a lot of that is therapeutic for them. That's my theory, no evidence to base it on. I have to sit back as much as it hurts me to sit still, because of the lodge and no one is here to help me with it, I have to sit back and reflect on the things I've seen. I've attended so many ceremonies in my life, even as a little girl I'd be forced to sit there and fall asleep in there. It comes back every now and then.

It was interesting that Eleanor introduced the phrase *therapeutic* which also signifies healing. Were my doctoral studies on decolonizing, which she said is about reclaiming, systems thinking and complexity somehow therapeutic for me? Was it good medicine for me to spend the last few years of my life reading and writing, yarning with Elders and asking the spirits for help in ceremony? The answer is a resounding yes. While I simultaneously experienced distress during my studies, I also deepened my own relationship with my Anishinaabe culture. That is very therapeutic. Eleanor shed light on this too:

> *Mashkiki* [medicine] I've always looked at it in a broader way. It wasn't only a physical, it was also the teachings themselves because once they came to life, even in our knowledge is *mashkiki*. That's how I've always looked at it. Sometimes I'll say *mashkiki-abo*, the medicines you drink, the herb. *Mashkiki-ayo*, even the food they give you that's medicine. Even our language, Anishaaabe, that's a form of *mashkiki*, it's mental health medicine. We have a real different concept, maybe mine is different from yours and even Bert.

Bert offered his reflections:

> It's all about teaching. Even a gift is given through dreams, or through ceremony. It's a teaching for the next generation and the next generation. It's like a canoe journey, you go all the way around on how much you've learned. It'll take you a week, maybe two weeks to go around the lake and come back here. You have learned so much for yourself. But at the same time—you have all these, whatever you learned, you pass it on forever. It'll be there forever. So, I guess what I'm trying to say is—medicine. Teachings. Lodges. They're all teachings. *Ga-gii-kwe-win*. I like when someone goes into that, *ga-gii-kwe-win*. Even doctors are being taught. You go see your uncle and cousins. It doesn't matter who it is, you'll get a teaching out of it. And it'll always be there, whatever they say, for generations to come. It's very important, I guess. I guess that's what I can say, all *Anishinaabe miinigowiziiwin*, by teaching songs, *ga-gii-kwe-win*, they're all—part of the future. Very important part. And no matter what you're supposed to learn, will always come to you. It doesn't matter how long it takes. Simple things like everybody talks about residential school, there's dungeons there where they throw kids. Where I went to residential school, I didn't see anything like that. But there must've been one. So in back of my mind, I always thought how are these places look like, where was the

one where I went to for years and years and years? Finally, I dreamt of one recently. It wasn't—they showed it to me. And there's one. I went downstairs somewhere. And they just showed me a little place where the dungeon was where they kept kids. So, when I say that I guess yeah no matter what you want to know or what you're supposed to know, supposed to learn, to teach the next generations to come—it'll come to you, whatever it is.

But why should I teach anyone anything? Why not just leave future generations to figure it out for themselves, I teased Bert. Eleanor's retort was, "that's what I say, I'm with ya there!"

Bert thought about it and replied:

Why is it important to teach them? I guess uh, I know we're always being told by Elders and other people, Anishinaabe, that nothing will—ever be lost. Language, I don't think it'll ever be lost. Like, an example where we don't really talk to our kids, but I was surprised by my oldest son using language. So, I guess—the teachings, the way we live will always be there. But we gotta—for me it's reassurance. I'm reassured those teachings, that we teach, will always be there. By teaching them.

Eleanor adds, "the spirits will be alive."

And in Bert's story I heard my "major finding" and "contributions to theory and practice" for this final dissertation chapter. What I am sharing in this dissertation and the story that will be shared via the final infographic with the GGS, is *ga-gii-kwe-win-nan*—the act of giving out the teachings for the next generation and the next generation. It's a reassurance that the spirits will be alive. And during my doctoral studies what I was supposed to know came to me and after I graduate whatever more I am supposed to know will come to me too. It doesn't matter how long it takes. Whatever I have learned I will pass it on forever.

Finally, in this yarn with Eleanor and Bert, I ask them for any guidance I can offer to the end user, to the audiences who will see my story in the infographic. Eleanor says:

… one of the words I try to use is the open-mindedness, listen with your heart. Anishinaabe, I don't mean the romantic heart because our spirit beings, we connect through our hearts. Our hearts are the brain in the spirit world, it's the equivalent. You need to feel the relationship or connection with that concept. We have to respect the way a person interprets it. Even when I'm facilitating, I still use my table with a bunch of items on it, and especially with the lower grades, grade 10, 7, 8 of Canadian history, some I hide behind a book. I have weird items on the table and ask the group to name something, and a couple of items there that are not named. So, when we're trying to learn history, we have to hear all the stories and hear it from the perspective of the person. One of the things I use is a small whiskey bottle, a little Crown Royal bottle. Of course, it's empty but kids that age try to touch it. What does it mean to you? Oh, it means party or that kind of thing. And I say for me it's spiritual for our people, not to be abused. Because it hits back at you when you abuse stuff. So, I kind of turn it into a discussion about the way I see it, the way you see it. You have to learn how to hear others. That's

how I start any new concept. Sometimes it takes a lengthy discussion, half an hour. 5-10 minutes. Grade 7 and 8, 10, they get it. We're doing history from a lot of perspectives. But you need to let them feel they need to be open minded, something new is coming. That's what I try to do anyway, it's been fairly effective. I've done a lot of facilitation and workshops and that has been an effective exercise.

And that concluded our second yarn. So much to digest and process. One more brilliant and profound teaching that Eleanor shared early in the yarn was that a lot of our teachings are about healing. She said, "when we do this work, wake up the spirits, we talk about systems change when the spirits are awake and that's when they do their work; where the change starts happening."

7.8 Walking in the woods with complexity

The week after our yarn with Eleanor and Bert was the week of December 5th, 2022, and it was quite significant for the evolution of my inquiry into decolonizing systems thinking and complexity and for the infographic project. That was the week that my colleagues and I at the Wolf Willow Institute for Systems Learning offered our third 'Café at the Edge of the World' online program. This one-week program is a direct descendent of the Getting to Maybe program, created by Dr. Frances Westley of WISIR, that started my journey into social innovation and systems thinking back in 2015. I became an alumni mentor of that program while it was still offered at the Banff Centre and when the COVID-19 pandemic arrived the Banff Centre shifted trajectory to focus again on its core interest, the arts, leaving this leadership program outside of its offerings. So, Dr. Julian Norris, Dr. Laura Blakeman, Cheryl Rose, Dr. Syrus Marcus Ware and I and others met throughout the pandemic lockdown in 2020 and early 2021 to plan a new iteration of the GTM program. Vanessa Reid, who wasn't involved in the original GTM programming, also joined us. Due to the pandemic everything was virtual, so we were learning together about designing online programs. We offered the first café in the fall of 2021, the second café in the spring of 2022 and the third café in the winter of 2022. During each café I yarned with Elders and shared elements of *relational systems thinking* with participants. A few days before the café began on December 5th, I read the emailed newsletter I spoke of earlier, and I visited the website of the organization that shared its various 'systems frameworks.' That uneasiness at the thought of *relational systems thinking* becoming a decontextualized model was compounded by Eleanor and Bert's teachings about the personalization of my 'model' and heavily influenced my approach to co-designing the café with my Wolf Willow colleagues.

Anishinaabe wisdom is not standardized. I kept hearing that in my mind as I designed my offerings at the café. My family and I were now living at home in Baawaating (place of the rapids) in Sault Ste. Marie, Ontario and we were going to ceremonies regularly at my Niigi (brother) Keith Boissoneau's lodge in Ketegaunseebee (Garden River) First Nation, a reserve near Sault Ste. Mary along the St. Mary's River. It is where my mom grew up. Thus, I offered to host my portions of the virtual café on the land. On Monday, December 5th I showed participants my colours, long pieces of cloth in my seven colours and said this is how I introduce myself to the land and the spirits here. I was standing by the fasting lodges near the lake and my partner Sly, a firekeeper, had lit the *ishkode* (fire) earlier that morning. I offered *asemaa* (tobacco) to the fire to share the *aadizookaanan* (spiritual stories) I was about to share to show

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them respect. Then I led the Zoom participants through a walk on the land, through tall pine and birch trees, to the tipi village of our friends, and then to the *ishkode* (fire) at the sweatlodge. I shared with them the *aadizookaanan* of *Nimishoomis wiigwaas* (grandfather birch) on day one and *Nookomis giizhik* (grandmother cedar) on day two. The second day we made cedar *niibiishaabo* (tea) by the fire and taught people about our letting go ceremonies. The focus of the café was the 'sorrow' of the back loop of the adaptive cycle and panarchy theory, exploring the pain and grief that may come along with creative destruction. So, we introduced people not only to the grief of that letting go but also a way to help them heal. Participants were asked to pre-read the Duck Shit Tea story and on the third day we hosted a tea and yarn with Tyson Yunkaporta, his wife Megan, my brother Julian Norris, and my partner Sly. It was during the latter part of the café when my Wolf Willow colleague Vanessa Reid offered participants a way to reflect on their journey. In a visioning/journaling exercise she asked them: who were the creatures they met along the way when they walked with complexity? What a beautiful prompt. Vanessa's prompt was another eureka moment for me. The idea of meeting creatures on a journey resonated with me, I immediately thought of creatures like a dragon and sabe (big foot) and a unicorn. Those are all spirit beings and helpers in our Anishinaabe culture, along with the thunderbirds. I also thought of the seven ribbons of my colours, those helpers. Then I reflected on the walk a few days earlier when I led people through the trees in our territory and introduced them to grandfather birch and grandmother cedar. I also taught them about ceremony. That's when I reframed my inquiry yet again, building on what Eleanor and Bert shared during our yarns—the model was now a story, and the principles of *relational systems thinking* extended way beyond that current work, it was my life's journey of healing and the principles were the beings, the helpers, I met along the way. So *Niigani Miinigowiziiwin* (we give these gifts to the future) is the story, the teachings I am sharing for future generations, of the helpers I met on my journey, during my walk in the woods with complexity.

7.9 When you name something it slips away

We continued to yarn on Friday, December 12th, 2022. The GGS design team and I had a yarn with Anishinaabe knowledge keepers Eleanor Skead and Bert Landon once more. This time artist Ocean Kiana joined us as well. She shared the updated illustrations and spoke to each of them (see Figure 7.7, 7.8 and 7.9). During this zoom call we dove deeper into the design elements of the draft framework. She shared that for Figure 7.7 when she was learning about the principles the "image of a lodge instantly came" into her head and it was the first thing she put into that piece. She thought of the people around the fire as non-Indigenous people stepping into our lodge, a literal meaning. She would use 1-2 symbols to represent the seven principles, what they may mean. The green circles would feature text. The moon is on the right, to represent teachings from east to west in a circle, the way that we share and the way we walk as Anishinaabe. The braid represents *biskaabiiyaang* (returning to ourselves) because she always pictured her hair braided as "coming back to myself." She reflected on the principles in her own life, on her healing journey. The people are sitting in our lodge which symbolizes us "sharing our teachings, ways of knowing as Anishinaabe". The thresholds, shift in consciousness, are the trees, representing "entering a threshold, our relationship with the land and spirit beings on the bush and on the land." It's about taking people out of their comfort zones and she thought of her recent fast. The fire is part of how we do things as Anishinaabe—sitting around the fire, so it's represented in multiple ways in the piece. Hospitality is about making space and she had a hard

time coming up with a symbol (along with the one for the thresholds). She said it's two people sitting together in a mirror form "to represent visiting and showing each other what it means to share a space and share knowledge in a symbolic way." There's "not too much detail with their bodies, staying with more a figuristic form" said Ocean, "a step away from realism." For dreams, visions, and soundscapes it's the woman sleeping. For tea it's Labrador tea because "where Melanie and I are from, you'll see it everywhere you go in the bush, everywhere you walk, everywhere you go, especially near the rez," Ocean shared. About the stars and moon in the sky, she said, "I always include the moon in pieces I do, especially pieces like this—the moon has been there for me in the times I needed most and wanted to include that."

Ocean shared about the Labrador tea back home and it's such a sweet memory, walking with my Aunty Esther showing me the tea growing and my Uncle Tony sending me Labrador tea when I was living in southern Ontario. After Ocean walked us through the compositions, I told everyone about my experience at the Café at the Edge of the World, walking in the bush. That's when I understood that the seven beings are not principles, they are helpers. And I wrote a story about them. I told them that in seeing Ocean's illustrations I initially reacted to the lack of colour and the medicine wheel not be clearly present. I was pretty attached to the idea of a complexity modelling framework as shared by the GGS in Figure 7.2 and 7.3. I had to let go of the idea that I was showing people what to do and how to do it. Instead, I was sharing a story about my apprenticeship with complexity.

I shared the story I wrote:

> This is a story about **niigani miinigowiziiwin** (we give these gifts to the future). It is the story of how our ancestors walk with us during our apprenticeship with complexity. On a collective wisdom journey under the canopy of tall birch and cedar trees, alongside a winding river, you will meet many beings, they are our helpers. They will support you during your apprenticeship with complexity; they know about the love you have for the beings in the future. We must orient ourselves to the adaptive cycle of change, to the energy and agency that resides in each phase. The beings that you meet as you walk through the woods, the helpers, will remind you *gidenawendimin* (we are all related). These beings are *oshkaabewisag* (helpers), ceremonial attendants who can guide you, help you make sense of things, if you listen for their frequencies. They will send you messages and teachings. They will tell you stories. All stories are living beings so we are related to them and we must show them respect. They offer us a way of looking at things in the contemporary world. The spirits are awake because they hear our distress. Begin your journey in the woods, amongst the stick nation, and look for grandmother cedar and grandfather birch, they will offer you everything you need to survive, food, shelter, water, medicines. Yes, they will! During my apprenticeship with complexity I met the **mashkikiwan** (medicines) of grandmother cedar and grandfather birch, I spent time at **naa-wi aki** (middle ground) in the magical space in between things, and through **manitou kay-win-nan** (ceremony) I crossed thresholds into the spiritual realm, and in that sacred place I was gifted a **mikinak zhiishiigwan** (turtle rattle) for my bundle. What will the *manidoog* (spirits) gift to you to help you on your journey? Sit by the **ishkode** (fire) and offer them your *asemaa* (tobacco) for this is our way to communicate with the manidoog. Petition them for help on your journey. Pay attention

to your **bawaajignan** (dreams). Your dreams and visions are truth. Sit by the fire and drink **minikwe niibish** (tea, the leaf that we drink) and visit with all your relatives. The story of your collective wisdom journey cannot be standardized, it is unique to you, your relatives and to the woods where you walk. This apprenticeship with complexity is an arduous and evocative journey with many twists and turns, peaks, and valleys. Your helpers will guide you if you listen to them. They will sit with you in grief and in joy. Sometimes when you walk in brush, amongst trees you might get scratched by the branches, the journey is not always smooth when you are making a pathway for the future, you might stumble. You must persevere even if you fall. You will see the helpers in 3D and hear them in stereo. Healing a system will begin with healing self. Hang your colours high in the trees, introduce yourself to *aki* (land) and the waters, so that they know who you are. I have seven colours and I met seven beings on my walk in the woods of complexity. And remember if you lose your way, go to a high place, and look for your relatives, they will guide you home.

Eleanor remarked that "it's not only a smooth pathway for the future, there are times when you might even stumble. You must persevere." Bert said, "It's a real awesome story, it's easy to follow and at the same time it's complex. It's good." And based on that I feel I already earned my PhD. The Elders loved it! Ocean added, "I was like wow, nodding my head along the way—it was beautifully written. It spoke to me." Just imagine if all I submitted for my doctoral dissertation was the paragraph above, my story. Those few words are years of struggle and endurance and learning. I shared with them the following about yarning with Tyson Yunkaporta during the Café at the Edge of the World:

> I've let go of the idea of a framework, model, or theory. What happens to Anishinaabe knowledge, it gets standardized and *named*. Complexity doesn't do well with that—and yarning with Tyson, when you name something it slips away. That's what has happened to me on my journey—as soon as I name something, an institute or relational systems theory—as soon as you name it, it slips away from you. This is a story, stories are alive, and it's not boxed in. And very particular to my journey as Melanie, like the Melanie story. Anyone else on that same walk is going to have a different thing.

The result of my inquiry into decolonizing systems thinking and complexity is an 'un-framework', *Anishinaabe gikendaasowin* it is not about standardization but rather about personalization. Instead of using the four colours of the medicine wheel we will use my colours. Anishinaabeg have our own colours along with our spirit names and clans.

During this yarn we also discussed the language to describe the seven beings/spirits/helpers I met on my journey (formerly referred to as the principles). We would use *mashkikiwan* (medicines) to shift *biskaabiiyaang* because in healing self and systems we are seeking the medicines to help us and *biskaabiiyaang* in one process in that healing journey. So, we zoomed out a bit. Next *naa-wi aki* means middle ground (Fontaine & McCaskill, 2022, p. 20). Fundamental to *naa-wi aki* was the need for distinct groups to understand the worldview and cultural practices of the other, in effect, it is reconciliation through separation. Next was thresholds, the need to cross a threshold to shift consciousness and this we changed to *manitou kay-win-nan* (ceremonies) (Fontaine & McCaskill, 2022, p. 9). Instead of hospitality we shifted this to *oshkaabewisag*

(helpers) which is in reference to the helpers who travel with me on my journey, including the turtle rattle and eagle feather I was gifted during my PhD program. Everyone on a collective wisdom journey needs helpers. *Ishkode* (fire) remained the same. Next was dreams, visions, and soundscapes which we changed to *bawaajige* (dreams). One of the major features of Anishinaabeg spirituality is belief in the spirit world and that consciousness resides there, and so we believe that spirit beings are not only real, but that it is possible to nurture relationships with them. Ceremonies, prayer, meditation, visions, and dreams are all part of "spiritual endeavour" (Stonechild, 2016, p. 91). Thus, this being/helper indicates that a collective wisdom journey towards systems transformation is a spiritual endeavour. Finally, the relational methodology of *minikwe niibish* (tea) remained the same. I emailed Eleanor for some final spellings of *Anishinaabemowin* (our original language) and the seven being/helpers I met on my journey are:

- Mashkikiwan (medicines)
- Naa-wi aki (middle ground)
- Manitoukewinan (ceremonies)
- Oshkaabewisag (helpers)
- Ishkode (fire)
- Bawaajige (dreams)
- Niibiishaabo (tea)

I shared that I was most interested in seeing Ocean develop her second composition (see Figure 7.8) to tell this story. Ocean said, "When I was drawing and sketching, the more I did the second one, the more I liked it. I'm already envisioning the end in my head, excited to add colour and space things out." I added that I loved the teapot in her third composition (see Figure 7.9). Was the Hygge Manifesto (Wiking, 2016) about principles or was it really about the helpers who help the Danish live well? The book does have an adorable drawing of a teapot too on page 127 under the title, Ceramics. The author says, "A nice teapot, a vase on the dining table, that favourite mug you always want to drink out of—they are all *hyggelige* [emphasis in original] (Wiking, 2016, p. 127).

And this is where my accidental Indigenous autoethnography ends. The un-framework of *Niigani Miinigowiziiwin (we give these gifts to the future)* is still being created and that work, that learning, and those shared teachings, will live on beyond my doctoral studies. GGS and I met with systems practitioners to show them the latest compositions alongside my story to get their feedback, a series of yarns which prototyped the visual communications tool. We also had another yarn with Eleanor and Bert. The final infographic was completed at the end of January 2023. I am choosing to omit that final infographic and the final version of the story that accompanies it from my published doctoral dissertation because that would be naming it, boxing it in, labelling it … and then it would slip away. You may however listen to the evolving story and view it on my website in a digital flipbook at www.melaniegoodchild.com where it was published in February of 2023. Two key factors went into my decision to omit the final versions of the infographic and story, which are:

1) It is a living spirit
2) I am still learning

7.10 Study limitations and future research

I am reading a lovely book right now called "This Monk Wears Heels: Be Who You Are" by Kodo Nishimura (2022), a queer Japanese Buddhist monk and celebrity makeup artist. The book is about being who you really are, totally unapologetically. Nishimura observes, "when I understood how the system works, I became free" (Nishimura, 2022, p. 154). He suggests three steps to free yourself (that helped him to be who he is today): acquiring information, meeting people, and traveling. Those three simple steps are elements of my journey too. The story offered in this dissertation in the previous chapters began when I participated in Getting to Maybe in 2015 and met Dr. Frances Westley and Dr. Dan McCarthy. I deepened my studies by joining them as a doctoral student and Research Fellow at WISIR. I began to meet all kinds of other people in the field of systems thinking, complexity, and social innovation. I traveled all over the world from Stockholm, Sweden to Gorca, Slovenia to Niagara Falls, Ontario to Stowe, Vermont and many places across Turtle Island from 2015 to 2020 for convenings on social innovation and systems change. While living in southern Ontario I went home and visited all the communities where I have family and went to many ceremonies. I met philanthropists and other supporters who built what could be characterized a *shadow network* for my work, particularly after the publication of the first article (Goodchild, 2021) which to date has had over 34,000 views/downloads. And at its deepest core, my doctoral study is very personal, it's about how I can be unapologetically myself as an *Anishinaabe*kwe (Ojibway woman) who is a doctoral candidate at this time. During this inquiry I read a good deal of literature on decolonizing the academy just to situate myself to complete my coursework, comps exam, and research proposal milestones in the program. Then I wrote three pieces of published writing for the manuscript-based dissertation. In this concluding chapter I shared a snapshot of where my work is at and how my thinking has evolved, and continues to evolve, given the emergent nature of anyone's learning journey.

This research was initially guided by four overarching questions:
5. Is *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy) a "game-changer" (see Olsson, Moore, Westley & McCarthy, 2017; Tjornbo & Westley, 2012) or "path breaking" (Smith & Raven, 2012) for social innovation and *transformations* to sustainability?
6. How do we *set the conditions* (see Westley et al. 2011) that support *Anishinabe i-zhi-chi-gay-win zhigo kayn-dah-so-win* (Ways of doing and knowing) to generate social innovation and *transformations* to sustainability?
7. How does *relational systems thinking* as an Indigenous standpoint theory, a practice, a pedagogy, and an emerging field stimulate movement towards social innovation and *transformations* to sustainability?
8. How do we bridge two epistemologies in a way that does not choose sides but rather enables multiple ways of knowing to *share ontological space* (Windchief & San Pedro, 2019) in the academy, thereby supporting the *pluralization* of *transformations* discourse?

Taken together these four guiding questions are focused on linking complexity and sustainability theories to *naa-wi aki* (middle ground) for understanding, perhaps even modeling, sustainability transitions. Initially for my analysis in this final chapter I sought to build a rationale to understand *relational systems thinking* (Goodchild, 2021; Goodchild, 2022) as more than an

Anishinaabe standpoint theory, perhaps it could be most useful as an Anishinaabe *complexity-framework* for understanding and modeling transitions to sustainability (using the teachings and heuristic of the medicine wheel), so I had planned to draw heavily in this final chapter on Peter & Swilling's (2014) work on complexity, with their descriptions of the *probabilistic*, *integrative*, *inclusive* and *adaptive* nature of complex adaptive systems. But my work evolved and I moved away from the framing of these inquiry findings as theory/model/framework.

I intended then to explore the actualization and/or diffusion of *relational systems thinking* as a principle of *naa-wi aki* in post-secondary education settings since that is the complex adaptive system where my *di-bah-ji-mo-wi-nan* (stories of personal experience) took place throughout this dissertation. The term diffusion seemed appropriate to analyze *relational systems thinking* as an Indigenous standpoint that has in fact been taken up by and adopted by a shadow network of supporters. Diffusion is the process through which an innovation—a new idea or practice—is communicated through certain channels over time among the members of social system (Rogers, E.M. 2003, cited in Lindberg & Hagen, 2022, p. 195). Diffusion studies say Lindberg and Hagen, have shown a predictable over-time pattern when an innovation spreads, the familiar S-shaped cumulative adoption curve. In the short time the new idea of *relational systems thinking* (Goodchild, 2021) was shared with the systems thinking scholarly and practitioner community via a peer-reviewed journal article, it has had uptake tracked via downloads on the JABSC website and through anecdotal personal communications with me at a variety of global speaking events over the past year and half. It also led to the launch of my successful consulting business called *Gaa-gitigewaad* (those who garden).

But is *Niigani Miinigowiziiwin*, as it has evolved, a representative of *Ojibway-Anishinabe bish-kayn-di-ji-gay-win* (pedagogy), a *game-changer*? From the definition of 'game-changer' argued by Westley et al. (2016) I conclude that the ideas, collectively of decolonization/reconciliation/indigenization, are potential game changers at a macro-level.

> Game changers are broadly conceptualized as 'macro-phenomena' (events and trends) that are perceived to change (the rules, fields and players in the) 'game' of societal interaction. The dominant understandings, values, institutions and social relationships through which society is organized and defined may fundamentally change in response to game-changing events and trends (Westley et al., 2016, np).

This overlaps with the idea of social innovation in that they both address fundamental shifts in values, institutions, and social relationships in society. Game-changers, however, point out Westley et al., (2016) are defined as macro-phenomena that are endogenous to the activity of the agents involved in a social innovation. Social innovation theory is a whole systems and multi-scale approach says Tjornbo & Westley (2012) "that looks at the influence of micro-, meso-, and macro-level drivers of transformation" (Tjornbo & Westley, 2012, p. 167). In terms of scale, shifts in institutions at one scale can allow for new ideas, programs, and projects to get traction and secure resources needed for further transformation (Westley et al. 2016, np). One could argue that a limitation of my inquiry is that it was deeply personal and perhaps only worthy of consideration as an innovation at a micro scale. I would argue that that is its greatest novel contribution to research. I will let you decide.

The game changer of *decolonization* was used by me at a micro-level scale (as a grad student studying at a PWI), as a social innovator/entrepreneur, to affect the trajectory of my innovation work. In some ways my decolonizing work grew out of my individual scholarship as a doctoral candidate and was diffused through a publication and guest lectures around the world, and grew by influencing the broader systems (both post-secondary education and the practitioner field of systems awareness) to make them more responsive to the innovation (described as 'scaling up', Westley and Antadze, 2010, cited in Tjornbo & Westley, 2012, p. 168).

From the social innovation literature, it is apparent that processes of social innovation move through distinct stages that involve, first "the generation of new ideas in response to observed needs, and second, the establishment and diffusion of these ideas in an existing system" (Mulgan et al., 2007, Westall 2007, Biggs et al. 2010, Westely and Antadze 2010, Moore et al. 2011, cited in in Tjornbo & Westley, 2012, p. 176). My struggle to generate a new idea, *relational systems thinking* (Goodchild, 2021) was brought about by the unmistakable Western, Euro-centric nature of conventional systems thinking and complexity science in the discourses recognized by my graduate program (discussed throughout this dissertation). Because I was afforded protective space (Smith & Raven, 2012), when we at WISIR chose not to immediately develop WIII at UW, to develop my own ideas about resilience thinking, transitions to sustainability, and social innovation, I generated a new idea in response to an observed need (that need being decolonization). The entry into my shadow network of a global philanthropy who committed resources to my work was the tipping point for me to make this inquiry micro—personal. Until that point, I kept studying things from the perspective of the audience, not me.

I was given the freedom to innovate, and my work went in several different directions over the past few years. For instance, in the direction of decolonizing science and technology (hence my involvement with NASA and the Canadian Space Agency's Earth Observation work with Indigenous communities and becoming a member of the Engineering Change Lab's stewardship group). My work managed to secure new resources, both at WISIR and via the shadow network that emerged in support of my efforts. Shadow networks are "incubators" for new ideas and approaches (Westley et al. 2011, p. 771) like *relational systems thinking*. I found kindred spirits on my journey who like me are interested in deep systems awareness and transformations. As an institutional entrepreneur I was seeking to influence post-secondary institutions as well as the broader field of systems practice. I worked simultaneously with my network to build the innovation niche of *relational systems thinking* into an innovation regime and to destabilize the dominant landscape and regime to secure the required resources. *Relational systems thinking*, at the broader institutional or landscape level, has acted to "nibble" at the resilience of the dominant system (Westley et al. 2011, p. 771). This is known as shifting resilience.

Rather than focus on preventing critical transitions that tip a system into an undesirable *basin of attraction* (see chapter 1, Figure 1.1 on Basins of Attraction), institutional entrepreneurs are often doing the reverse, attempting to tip a dominant system into a more desirable or innovation basin of attraction. That is what decolonization for me is about. The reframing of my 'complexity modelling framework' with 'principles' to a 'story' of the 'beings/spirits/helpers I met on my journey' is my micro-level contribution to shifting the dominant regime of *neo-colonialism* (and a healthy dose of neo-liberalism). I was offered a window of opportunity at WISIR, fed by the decolonization efforts of Indigenous scholars at the landscape level, to nurture an innovative

alternative to conventional systems thinking and complexity science. *Niigani Miinigowiziiwin* as a niche innovation is currently in Time 2 in terms of cross-scale dynamics, wherein the innovation regime of *Ojibway-Anishinabe bish-kay-di-ji-gay-win* (pedagogy) basin of attraction is deeper and more stable while the dominant regime is becoming shallower and less stable. It remains to be seen if the innovation regime of Anishinabe pedagogy's basin will become deep and stable and the resources of the previous dominant regime will be drawn into the innovation regime to create a transformed system.

My recommendation for future research is simple: walk in the woods with complexity and introduce yourself to the land, meet your helpers, offer them a cup of tea, and share your story of what emerges so that we all can learn.

7.11 Reflections

The *shadow network* for me and my approach to decolonizing systems thinking and complexity, mentioned briefly in Chapter One, consisted of philanthropists who funded my early work including the McConnell Foundation, the Suncor Energy Foundation, the Ontario Trillium Foundation, the Canadian Women's Foundation, the Garfield Foundation, and the Mastercard Foundation; along with organizational partners such as the Academy for Systems Change, the Presencing Institute, the Society for Organizational Learning, and the Wolf Willow Institute for Systems Learning where I am part of each of their collaborative faculty and deliver diverse programming with an anchor in decolonization and *relational systems thinking*; the University of Vermont, Master's in Leadership for Sustainability (MLS) program[25] where I taught my first course in *relational systems thinking* (NR395 Relational Systems Thinking Summer 2022) as a Scholar Practitioner Faculty member in the Rubenstein School of Environment and Natural Resources; and the Royal Roads Master of Arts in Leadership that has adopted a *relational systems thinking* stance for their curriculum. The global philanthropy who has supported me these last few months offered me protective space to pursue my work with integrity. WISIR at UW, specifically the network of social innovation supporters that I tapped into thanks to Dr. Frances Westley and Dr. Dan McCarthy, was a key factor in securing resources to support my education and my early projects. With great humility and generosity, both Frances and Dan stepped aside and offered protective space for me to do my work, something they did not have to do. Early on they let go of their vision for WIII and empowered me to try something new. To the Knowledge Keepers and Elders with whom I have yarned many times, and to the land that holds me up, and to the spirits/beings/helpers who have helped me wake up the spirits, I am forever grateful. *Anishinaabe gikendaasowin* is a living framework for seeking knowledge and wisdom, for coming to know. The knowledge that found me, who came to me on this journey, did so because I petitioned the *manidoog* for help. I asked the spirit beings to help me.

As I began to wrap up my dissertation, I came across a book edited by Timothy B. Leduc (2022), wherein *Gae Ho Hwako* (Norma Jacobs) shares teachings about the Two Row Wampum. She says the Two Row Wampum teaches us to maintain what we have in our canoe so that each of us can live by what has been given to us. My Uncle Dan shared with me that the sacred space

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[25] See https://www.uvm.edu/rsenr/leadership-sustainability/ for more information about this innovation program

between the birchbark canoe and the sailing ship is the river of life and that sometimes, when there are *high winds*, we will fall into the river between the two vessels, into the sacred space between. These high winds refer to the times of conflict. The river of life herself is now in jeopardy, "it's all hands-on deck" Uncle Dan often says. When you fall into the river you must know who you are, know your affiliation. Are you canoe or are you ship? The canoe and the ship must help one another help the river of life. You must know who you are to do so. Whether you are of the canoe or of the ship you must ask the spirit beings to help you. When you ask them to help you then you are recognizing and affirming that they have helped us for thousands of generations. Ask them to give you strength and power to help even one person, change one life. Uncle Dan says when there are high winds, and we fall into the river, into the sacred space between, we are strategically positioned in the middle, and we need the right thoughts and the right words from both vessels to come to one mind. He acknowledges his teacher, the late Jake Thomas, who taught him about these things. The Two Row Wampum will exist as long as Mother Earth is in motion. Norma Jacobs says:

> We have forgotten about *o da gaho de:s* (the sacred meeting space) between the ship and the canoe, where we originally agreed on the Two Row and to which we must return today if we are to talk about the impacts that we have experienced because of its violation. It is always about finding a way to that sacred space where we can do ceremony to acknowledge, validate, and really understand what came into our lives when we met Western culture" (Leduc, 2022, p. 7).

The learning journey that produced this dissertation took place in that middle space, the sacred space, because doctoral studies were *high winds* for me. I had to double-down on ensuring *Anishinaabe gikendaasowin* was central to my work, that I was tapping into the brilliant thought paths of the ancestors who were systems thinkers, experts at spiritual pattern recognition. Our knowledge comes from a place of spirit. As my Uncle Dan says, "that knowledge never failed us, we humans have sometimes just failed to use it" (2023). If we spend time with the Two Row says Norma Jacobs, it can help us to consider where we have come from to reach our present moment and thus can guide our future actions.

> It can teach us the value of keeping our cultural ways of living separate and independent, while also recognizing that when we walk side by side in a spirit of respect for each other, it is possible to connect and learn. We can maintain a friendship so as to travel on these waters together, but we should stay on our *row* by affirming its concepts and philosophy of life" (Leduc, 2022, p. 7, emphasis in original).

The wholistic process of being in ceremony and petitioning the *manidoog* for help throughout my learning journey enables me to say with conviction that I know who I am, I am Anishinaabe: *Mii wa'aw eyaawiyaan*! This is who I am! (Jourdain, 2018, p. 26).

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Appendix

Supplementary Material A: Glossary of *Anishinaabemowin*

This is a glossary of *Anishinaabemowin* (Ojibwe) words that appear throughout the text. The source for each word is given in parenthesis where available. I use a variety of writing systems to convey *Anishinaabemowin/Ojibwaymowin* (our original way of speaking), depending on the sources of the teachings. From words by Makwa Ogimaa, an Ojibway-Anishinabe from the community of Sagkeeng in Manitoba, who chooses to "ignore the rules of those who invented the written language" as an acknowledgement of and resistance to linguistic colonization of our stories and memories (Fontaine & McCaskill, 2022, p. 221) the spelling will be phonetic; from other sources Ojibwaymowin will be spelled to reflect the Fiero system of orthography more familiar to contemporary second language acquisition (SLA) learners of Ojibwe (Jourdain, 2018, p. 7). In English, I will be using Anishinaabe, Anishinabe, Ojibway and Ojibwe/Ojibwa interchangeably depending on where the teachings come from, they all mean the same. And I use the language as taught to be Anishinaabe knowledge keepers, my sister Eleanor Skead from Wauzhushk Onigum First Nation and her husband Bert Landon from Shoal Lake First Nation in Treaty 3, the homelands of my maternal *nookomis* who was from Couchiching First Nation in Treaty 3.

Aadizookaan – the spirit of or character in a traditional or sacred story or legend (Geniusz, 2009)

Aki - land

Aagimakobawatig - a place where black ash grows beside a rapid (Davidson-Hunt & Berkes, 2003)

Akinoomaagewin - this means how to live well by giving our attention to the earth and taking direction from her (Borrows, 2018).

Aniibiish - a leaf or tea (Grover, 2017)

Aniibiishike – he/she makes tea and (Grover, 2017)

Aniibiishkaa – there are many leaves (Grover, 2017)

Animoshi Minis - where the howling of dogs was said to have been heard in the past (Davidson-Hunt & Berkes, 2003)

Anishinaabe – an Ojibwe person (Geniusz, 2009)

Anishinabe bish-kayn-di-ji-gay-win – pedagogy (Fontaine & McCaskill, 2022)

Anishinaabe-gikendaasowin – Anishinaabe knowledge (Geniusz, 2009)

Anishinaabe-izhitwaawin – Anishinaabe culture, teachings, customs, history (Geniusz, 2009)

Anishinabe i-nah-di-zi-win – ontology (Fontaine & McCaskill, 2022)

Anishinabe nah-nahn-gah-dah-wayn-ji-gay-win – epistemology (Fontaine & McCaskill, 2022)

Anishinabe nah-nahn-dah-way ji-kayn-ji-gay-win - Areas of research (Fontaine & McCaskill, 2022)

Anishinaabekwe – Anishinaabe woman

Anishinaabekwe indaaw - I am an Anishinaabe woman

Anishinaabe Mino Bimaadiziiwin - the good life

Anishinaabemowin – Ojibway language (Geniusz, 2009)

Asemaa – tobacco (Geniusz, 2009)

A-zhi-kay-ni-mo-nahd-a-di-sid bay-mah-di-sid - How we use this way of thinking, knowing, and doing to find answers (Fontaine & McCaskill, 2022)

Bagijigan (plural: bagijiganan) – offering (plural: offerings) (Doerfler, Sinclair & Stark, 2013)

Bagijige - the act of making an offering (Doerfler, Sinclair & Stark, 2013)

Bawaajige – dreams (Eleanor Skead)

Ba-wi-ti-gong - where the Fish Were Good and Lived Well, currently known as Sault Ste Marie, Ontario on the shores of the St. Mary's River (Fontaine, 2020)

Baawaating – place of the rapids, currently known as Sault Ste. Marie, Ontario

Biboon - it is winter

Bimaadiziimagad kosha Ojibwemowin is what his Nookomis used to say to Anishinaabe language teacher Gordon Jourdain, which means "Ojibwe is a living language, it is alive" (Jourdain, 2018)

Bimaadiziwin - life

Biskaabiiyang – an approach to research that attempts to decolonize the Anishinaabeg and anishinaabe-gikendaasowin. The stem verb here is *biskaabii* meaning to return to oneself and also used in reference to decolonization (Geniusz, 2009; Simpson, 2011)

Biin-di-go-daa-di-win - To enter one another's lodge (Fontaine & McCaskill, 2022)

Boozhoo nindinawemaaganidok - greetings my relatives

Dabasendiziwin – humility

Dagwaagin - the fall season

Debwewin - truth

Dibaajimowin – teaching, an ordinary story, a personal story (Geniusz, 2009)

Doodem – clan system

Gaa-izhi-zhawendaagoziyang – that which was given to us in a loving way [by the spirits] (Geniusz, 2009)

Gaa-gii-kwe-win – teaching

Ga-gii-kwe-win-nan – teachings, stories with life lessons, the act of giving out the teachings (Eleanor Skead & Bert Landon)

Gaa-gitigewaad – the name of my consulting business, it means 'those who garden'

Gaa-gway-de win-da-mah-gay-win – inquiry - (Fontaine & McCaskill, 2022)

Gaanikooshkooshkaag Zaagaiwan - a lake where a specific type of plant grows (Davidson-Hunt & Berkes, 2003)

Gete-anishinaabe – one of the old ones, an old time Indian (Geniusz, 2009)

Gichi gakinoo'imaatiwin - the act of great or deep teaching (Eleanor Skead)

Gichi gakinoo'imaatiwin - the act of great or deep teaching (Eleanor Skead)

Gidinawendimin – we are all related

Giiwedinong - the North

Gitchinayaashing - describes a big point (Davidson-Hunt & Berkes, 2003)

Gitigaani Minis - an island where gardening occurred (Davidson-Hunt & Berkes, 2003)

G'da-kii-mi-naan - experience of knowing and understanding our relationship with the land; our original relationship with the land (Seven Generations Educational Institute, n.d.) and my friend Albert Hunter, Anishinaabe knowledge keeper from Rainy River First Nation in Treaty 3, who

told me it means 'everything', everything in Creation, the sun, the moon, the stars, waters, trees, rocks and animals, and us humans, our sacred place in relationship to all of Creation

G'doo-demonaanik ki-nah-mah-gay-win-nan - teachings of our clan system (Fontaine, 2020)

Gwayakwaadiziwin - honesty

Indigoo Anishinabemong idash – is what I am known by the spirits in Ojibwe

Indinawemaagnag - all of my relations/relatives

Indizhinikaaz – is what I am called, named

Indizhinikaa zhaaganaashiiong/ingikeniogoo gaye – is what I am called in English/is what I am also known by

Indoonjibaa - is where I come from

Ishkode – fire

Izhinikaade ishkonigan wenjiiyaan – is the name of the First Nation that I come from

Kay-go-wah-ni-kayn andi-wayn-ji-ahn - don't ever forget where you come from (Fontaine & McCaskill, 2022).

Maang (loon)

Madoodiswan – sweatlodge (Geniusz, 2009)

Mamasinijige is the act of twists and turns…and moves. *Mamasinijiwan* is the water flow, in twisting and turning. There always has to be context with ojibwe words. Like you need to introduce how the word has been used (Eleanor Skead).

Manaaji'idiwin – respect

Mandamin - corn

Manidoog – spirits (Geniusz, 2009)

Manitous – spirits (Keith Boissoneau)

Manitou kay-wi-nan – ceremonies (Fontaine & McCaskill, 2022)

Manitoukewinan – ceremonies in our dialect in Treaty 3 (Eleanor Skead)

Manoomin - wild rice

Mashkiki – medicine (Geniusz, 2009)

Mashkikiwan – medicines (Eleanor Skead)

Mashkikiiwikwe – medicine woman (Geniusz, 2009)

Mashkikiiwinini – medicine man (Geniusz, 2009)

Miinigowiziiwin - sacred knowledge bundle - each of us Anishinaabeg has a miinigowiziiwin. *Miinigowiziiwin* is realizing the gifts Creator has bestowed upon you. It comes from *miinigo* (you are given) and *iziiwin* (from someone else). This is a teaching gifted to me by my sister Eleanor Skead.

Migizi miigwan - eagle feather

Miigwetch/miigwech - thank you

Mikinaak Wigyaam - Turtle Lodge

Mikinaak zhiishiigwan - turtle rattle

Mikinaako-minis - Turtle Island - North America. There is an understanding that we Anishinaabeg were placed on this face of *ni-maamaanaan Aki* (our mother the earth) by our Creator – *Naawe-ii wenji-waakaabig Manidoo* (at the centre of the one who initiated all of creation (Jourdain, 2018, sharing the teachings of Edward Benton-Banai).

Minikwe niibish - the leaf we drink (Grover, 2017)

Mii wa'aw eyaawiyaan! This is who I am! (Jourdain, 2018)

Moonz indoodem - I am moose clan

N'swi-ish-ko-day-kawn Anishinabeg O'dish-ko-day-kawn - Three Fires Confederacy (Fontaine & McCaskill, 2022)

N'zhwa-sho-gi-ki-nah-mah-gay-wi-nan – the seven teachings (Fontaine, 2020)

Naa-wi aki - Middle ground (Fontaine & McCaskill, 2022)

Nah-nahn-dah-way ji-kayn-ji-gay-win - Digging around (Fontaine & McCaskill, 2022)

Nibi – water

Niibish - leaf

Niibiishaabo – tea in our dialect in Treaty 3 (Eleanor Skead)

Nibwaakaawin – wisdom

Ni di-bah-jim - I'll share my story (Fontaine & McCaskill, 2022)

Ni di-bah-ji-mo-win - my personal story (Fontaine & McCaskill, 2022)

Niigani Miinigowiziiwin – we gift these gifts, teachings, knowledge to the future taught to me by my sister Eleanor Skead.

Niigii – brother (Keith Boissoneau)

Niingaabii'anong - West

Nimaamaa - my mother

Nimishoomis - grandfather

Nimishoomis wiigwaas – grandfather birch (Geniusz, 2009)

Nitam igo – introduction (Fontaine, 2020)

Nookomis (grandmother)

Nookomis giizhik – grandmother cedar (Geniusz, 2009)

O-dah-bah-ji-gahn - sacred bundle, Medicine Bundle (Fontaine & McCaskill, 2022)

O-di-ni-gay-win zhigo Nay-nahn-do-jee-kayn-chi-gayd - Digging around and doing research (Fontaine & McCaskill, 2022)

Ogichidaa or **o-gi-chi-dah** – strong heart protector (Fontaine & McCaskill, 2022)

Ojibway-Anishinabe bish-kayn-di-ji-gay-win – pedagogy (Fontaine & McCaskill, 2022)

Ojibway-Anishinabe o-dah-bah-ji-gahn - medicine bundle (Fontaine & McCaskill, 2022)

Ogishkibwaakaaning - where wild potatoes grew (Davidson-Hunt & Berkes, 2003)

Opwaagan - Sacred Pipe

Oshkaabewis – traditionally trained apprentice, ceremonial attendant, ceremonial messenger (Geniusz, 2009)

Oshkaabewisag – helpers (Eleanor Skead)

Shkaakaamikwe - our earth mother

Sibiskaagad. Sibi (river), biskaa (flexible), gad (it is). You might say that Resilience is described as a river flowing flexibly through the land. Anishinaabemowin is embedded in the land. Love you cousin! (Rene Meshake)

Waabanong – East

Waabooyaan - blanket

Wayekwaase - it is finished (Fontaine, 2020)

Wiigiwaam - lodge

Wiigiwaaman - lodges

Zaagi'idiwin – love

Zhaawanong - South

Zoongide'ewin - bravery