

Round Peg, Square Hole: Interdisciplinary Indigenous Research in the Academy

Sharla Peltier

Abstract: Historically, Indigenous Knowledge has been subjugated knowledge. This paper illustrates a response to this societal problem that embodies an Anishinaabe research approach. An exploration of the historical development of the disciplines and academia within a Western-European paradigm illustrates that the institution of the Academy is rooted in bodies of knowledge or disciplines. A critical examination of Western or linear constructs of knowledge in light of circular, relational Indigenous Knowledge is presented. The paper presents the ideas that Indigenous Knowledge is the null-discipline and Anishinaabe ways of coming to know align with 'deviant interdisciplinarity'. A model for conceptualizing Indigenous research process is presented. As Indigenous research paradigms are explored and demonstrated in the academy, new knowledge emerges to support relationships and reconciliation.

Keywords: Anishinaabe; culture; ecology; indigenous; interdisciplinarity; interrelation; knowledge; relation; research methods; research process

Résumé : Historiquement, le savoir autochtone a été jugé inadéquat. Cet article illustre une réponse à ce problème sociétal qui incarne une approche de recherche Anishinaabe. Une exploration de l'évolution historique des disciplines et des universités au sein d'un paradigme occidental montre que l'institution universitaire s'enracine dans un savoir disciplinaire. L'article présente un examen critique des constructions occidentales, ou linéaires, du savoir à la lumière du savoir autochtone circulaire et relationnel. L'étude soutient que le savoir autochtone est non-disciplinaire et que la manière Anishinaabe de parvenir à la connaissance se fonde sur une « interdisciplinarité déviante ». Elle présente un modèle pour la conceptualisation des processus de la recherche autochtone. Comme les paradigmes de la recherche autochtone sont explorés et démontrés dans le secteur universitaire, de nouvelles connaissances émergent en faveur des relations et de la réconciliation.

Mots-clés : Anishinaabe; autochtone; culture; écologie; interdisciplinarité; interrelation; méthodes de recherche; processus de recherche; relation; savoir

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The purpose of this paper is to discuss the relevance of disciplinarity and interdisciplinarity concepts to an Indigenous research paradigm. A review of the historical development of the disciplines and academy and a critical examination of the Western-European, linear way of “seeing” with trust in empirical evidence precede my introduction of the concept that Indigenous Knowledge is the null-discipline. I briefly review the development of interdisciplines and definitions of interdisciplinarity. Critical Indigenous¹ philosophy is central to my research field of study regarding Anishinaabe ways of coming to know (theory and praxis) and this aligns with the notion of ‘deviant inter-disciplinarity’. In this paper the topic and research process brings the academic literature from Aboriginal education, Indigenous philosophy and narrative case study methods to bear on research concerning Anishinaabe ecological relational knowledge² and pedagogy. A model for conceptualizing the Indigenous research process is presented.

Disciplinarity

The scholarly work of Klein (2005), Squire (1992) and Weingart (2010) provide a discussion about historical knowledge formations and the founding of the academy. Indigenous scholars have illustrated ancient Indigenous Knowledge and ways of knowing that the academy has ignored until relatively recently. The incorporation of

¹ The term Indigenous refers to the first peoples that occupied the continents of the world and is used in this research context to refer to all first peoples-unique in our own cultures-but common in our experiences of colonialism and our understanding of the world (Wilson, 2008, p. 15).

² *Anishinaabe* ecological relational knowledge refers to ways of knowing inter-relationships and interconnections with *Aki* (Land) and each other according to Ojibway/Algonquin perspectives of this research project locale.

*Anishinaabemowin*¹ conveys worldview perspectives and exemplifies the Indigenous paradigm and ways of knowing.

Weingart (2010) states that philosophy emerged in Western civilizations from concerns about understanding knowledge production and applying a classification. The Western experience of the pre-modern order of knowledge as a science of spatial classification was outgrown by increasing abstraction (mathematical conceptualizations) towards the modern order of temporalization of complex sets of information.

Klein (2005) illustrates the historical development of the disciplines and begins by describing the Greek cultural influence on education's philosophical underpinnings. During the third century, the Greek word, *paideia* connoted human wisdom and this defined Plato's Academy as the first interdisciplinary school (lacking subject boundaries) based on living a virtuous life through a physical, moral, and social development of the "whole person". As Greek culture gradually converted from oral to written form and the concept of history replaced myth, the belief that knowledge resides within certain written texts emerged.

The Roman exploration of "humanistic inquiry became associated with exploring the meaning and purpose of human existence expressed in particular symbolic modes". Aristotle's work promoted specialization and originated "the Latin root of the word [discipline], the subject as a distinct object and body of content" framing today's disciplines (Klein, 2005, 15). Scientific studies were systematized in a hierarchical deductive structure starting from first principles (natural sciences, metaphysics, philosophy of nature, and study of life or the soul) and the Lyceum Academy pursued a broader and more empirical basis of education promoting the study of objects and physical evidence.

¹ *Anishinaabemowin* refers to the Aboriginal languages of the Anishinaabek people, spoken by the Algonquin, Chippewa, Delaware, Mississauga, Odawa, and Ojibway and Pottawatomi people of the Great Lakes Region.

Written works and the Bible, in particular, contributed to the legacy of integrative values in education, humanities and interdisciplinary studies (Klein 2005). In the early Middle Ages, Christian writers applied the Bible and ideas of Christianity aimed at creating a harmonious idea of unitary knowledge. Questions of faith and reason were systematically addressed in scriptures and biblical commentaries that became the norm. The educational programs and philosophical principles from the European and English tradition were established in the first institution of higher education on Turtle Island¹ in 1636 and continued for two and a half centuries.

In the seventeenth and eighteenth centuries, the realm of science became broader and more complex and influential. Weingart (2010) illustrates the development of the disciplines and the Academy. Groups of academic scholars collected data and made judgements of relevance to problems, developing more specialized language. In the early 1800's, the gap between specialist and laypersons became evident as formation of the disciplines arose with further specialization resulting in a disciplining of modern science. A discipline was understood to consist of a relatively discrete and specific body of knowledge. By the end of the century, research moved from the (royal) academies into the universities. The universities produced new knowledge through research and teaching and the academies became specialized scientific associations focussed on publishing research findings (Weingart, p. 7).

Squire (1992) discusses interdisciplinary development in the United Kingdom and presents a three-dimensional, pyramidal framework signifying a discipline:

¹ Turtle Island is a generally accepted Aboriginal term for North America which is represented specifically within this locale through the Anishinaabe oral tradition re-creation story about how a new Earth was formed after the Great Flood (Benton-Banai, 1988).

Disciplines can be defined in terms of three dimensions...The first of these dimensions manifests itself in the content, topics or problems which are addressed [by a discipline]; the second in the methodologies, techniques and procedures which are used; and the third in the extent to which the discipline treats its own nature as the subject of reflexive analysis (202).

Klein (2005) describes in great detail the application of knowledge shaped through development of the Academy explaining how taxonomies of knowledge mediated and directed social change. During the 18th Century, subjects were assuming increasingly distinct identities and the relationship between the divine and the human was being secularized. Theoretical knowledge gained by observation and contemplation was organized into today's disciplines of mathematics, physics, and (first) philosophy and practical knowledge systems or liberal arts including grammar, rhetoric, logic, arithmetic, music, geometry, and astronomy. Sciences and theories of science and knowledge production continued to evolve and academic disciplines became concerned with structuring the production as well as the distribution of knowledge. The application of knowledge has been shaped through the academy and taxonomies of knowledge mediated and directed social change.

Klein (2005) explains the process of disciplining the humanities in education which included "turns" in the disciplinary model emerging from interdisciplinary societal responses. "Language was central to understanding the nature of human culture and reality, and philology [originating with Plato] was the most powerful approach to studying language" (27). By the end of the 1880's the ideas of "cultural distinctiveness and continuity of Europe, in particular, were reinforced by a pedagogical concept of civilization that reasserted the primacy of culture over nature. Together the notions of civilization and culture filled a vacuum left by the disintegration of moral philosophy" (29). Klein describes moral philosophy as a range of human and natural sciences linking all knowledge.

In the twentieth century, a general education movement arose that displaced religion from the humanities and included the arts (to address freedom, social problems, and values) which were considered to be “the arts of all humans, providing guidance for individuals and their responses to cultures” (Klein, 30). In the 1930’s, the University of Chicago developed a model of education focussed on modes of thought and inquiry that included a canon or standard. The canon was meant as a framework to preserve a cultural grammar for interpreting experience and also to involve values for a normative function. “The collective ideals of culture were presumed to lie in texts [Great Books] that provided the connective synthesis of universality” (31). During the twentieth century, the movement of logical positivism and the search for unifying principles in science emerged and this continues today.

Within the universities, disciplinary associations became the structuring principle of knowledge formation. Internal to the university, disciplinarian’s views about the relative importance of their knowledge created disciplinary borders as intellectual structures while disciplines were also affected by human ties to social, economic, and political communities and these factors also influenced the defining of fields and communication processes. Internal and external factors influenced disciplinary motivations, opportunities, applications and development. The original ‘disciplines’ of physics, chemistry, biology, psychology comprise the common framework for various sub-disciplines today and have expanded from their original function as communities of communication.

Indigenous Knowledge is ‘the Null Discipline’

I frame my perspective that Indigenous Knowledge is ‘the null-discipline’ within the context of discussions pertaining to the Western developmental progression of the disciplines and to the discourse on Indigenous philosophy. The Western-European concept of knowledge

is very different from that of Indigenous Knowledges. We can appreciate that academic disciplines are rooted in the West from earliest recorded times. Unlike the context of western development of disciplining knowledge, the sphere of Indigenous Knowledge development on Turtle Island has no central opposing tendencies of unity and differentiation in knowledge.

Scholars from diverse academic and cultural perspectives have provided information about Indigenous Knowledge as a process situated within a context of relationships. A few examples from the body of literature are presented here. “Indigenous knowledge...has approaches rooted in the notion that our existence is part of an interconnected or interdisciplinary universe” (Hankard, 2013). The philosophy that knowledge comes from the Earth¹ is exemplified by “a broad sense of knowledge with a specific place and the pedagogy contained within the stories that were conceived within that place” (Kulneiks, Longboat, & Young, 2010, 19). *Anishinaabe* scholar Lana Ray (2012) illustrates that Indigenous Knowledges are not static bodies but are processes. “Traditional knowledges are not held to the standards and constricted to the boundaries of Western knowledges” (p. 90). Indigenous Knowledge is an animated process and experience.

Battiste and Henderson (2000) contend that attempting to define Indigenous Knowledge is inappropriate as Indigenous Knowledge does not fit into the Western conceptualization of culture and it is not a uniform concept but is a diverse knowledge that spreads throughout different peoples in a number of layers. It is interconnected within the people and their community and cannot be separated from the knowledge holder. The authors suggest that the process of understanding is more important than a definition of Indigenous

¹ Earth, and other words that are typically not capitalized appear in this thesis with a capital to denote an Indigenous voice and Indigenous perspective in this paper.

Knowledge. Mi'kmaq scholar and educator Battiste (2008) states that "No uniform or universal Indigenous perspective on Indigenous knowledge exists - many do" (p. 501). Cree philosopher Ermine (1995) discusses Indigenous Knowledge as an interaction of life experience, relational collectivity, and inner knowing, for example, "[e]xperience *is* knowledge" (p. 104).

Further critical discussion about Western concepts of knowledge formation underlying the academic disciplines illustrates my viewpoint that Indigenous Knowledge represents the null-discipline. The formation of the Academy on Turtle Island seems to be remarkably oblivious to Indigenous Knowledge. The synchronic narrative concerning Indigenous peoples on Turtle Island (languages, cultures, thought) interrupts the ongoing "master narrative" and provides a noteworthy critical perspective.

Western ideologies are based in written texts derived from a linear historical perception and dichotomy of myth versus history while Indigenous Knowledge systems are expressed through story orally in Indigenous languages and represented with iconic symbols (petroglyphs, medicine circles, birch bark scrolls). Indigenous orality¹ encompasses oratory skills for leadership and historical knowledge as well as storytelling representing Truth and the reality of walking in two worlds, or seeing physical and spiritual life. What a person shares from the heart in words is considered to be their truth. Historical accounts, personal anecdotes, and legends are true. It has only been within the past century, that Indigenous Knowledge has been written down using Roman orthography and other written forms such as syllabics (Sugarhead, 1996).

¹ The term orality refers to a form of history which can account for the constitution of knowledges, discourses, etc.

While Roman and Greek texts endorse wisdom and truth regarding goodness, beauty and justice, Indigenous philosophy of life is understood through human and other-than-human interconnectivity. The Roman study of literature and language endorsed oratory where logic, or dialectic provided skeletal arguments for speeches and rhetoric constructed persuasive arguments and eloquence (Klein, 2005). Within the context of Indigenous Knowledge, the teachings in the form of oral traditions have been handed down by the Elders to the young for centuries. “Stories in their deepest form are connected to place...traditional stories from Indigenous elders...keeps an interconnected body of ancestral knowledge alive” (Kulnieks, et al, 2010, p. 20). Indigenous philosophy and ways of knowing are part of a wholistic, generative process that is inextricably tied to ancient language. Attempts to convey and understand culture, language and knowledge using the English language are in effect meagre representations that are framed by analogy and a foreign grammar.

Largely absent from the academic dialogue of Indigenous philosophy are the perspectives from Indigenous Keepers of the Medicine Bundle - those who express and live the Medicine Way of “seeing 360 degrees” (Dumont 1976). Indigenous philosophy encompasses a perspective of “a whole and comprehensive vision that entails not only vision before but also vision behind (a 360° vision) to perceive and understand the whole nature of an object or event - it’s physical reality as well as its soul” (Dumont, 1976). The Indigenous circular vision includes not only that which can be seen in ordinary reality, but also that of the unseen, perceived when one can *see* beyond ordinary seeing. This way of knowing and thinking is ageless in comparison to the development of Western thought and disciplines. According to Dumont (1976), Indigenous reality encompasses the dream or vision (non-ordinary sacred reality) that is simultaneous with our present. This means a special understanding of what Westerners refer to as legendary and mythological times.

The hegemonic tradition of Western perspectives frames the defining of the disciplines and the development of disciplinary approaches. An investigation of the meaning and praxis of colonialism is becoming a central activity of the Indigenous intellectual community (Haig-Brown, 2008, Kanu, 2011, Simpson 2004, Turner, 2006). The recent addition of a critical Indigenous philosophy illustrates that the academy on Turtle Island has historically been enigmatic. Canadian social and academic spheres have been positively impacted by the work of critical Indigenous scholars, educators and political leaders cognizant of the historical colonialist dialogue concerning Aboriginal education who have made a call for educational transformation.

The recently established critical and Indigenous research methodologies and Indigenous approaches within the academy (Battiste, 1998, 2008; Kincheloe & Steinberg, 2008; Denzin & Lincoln, 2005; Gehl, 2012; Grande, 2008; Haig-Brown & Archibald, 1996; Haig-Brown & Dannenmann, 2002; Kurtz, 2013 Semali & Kincheloe, 1999) have been born from a thirty year process of de-colonization research by Indigenous scholars and allies (Battiste & Henderson, 2000; Medicine, 2001; Pelletier, 1972; Smith, 1999; Wilson, 2008).

Indigenous Research Context

Indigenous Knowledge systems were threatened and almost extinguished by the establishment of Reserves in the eighteenth and nineteenth centuries and the imposed Indian Act system of administration first enacted in 1876 with revisions since. Connection to *Aki*¹ and social and ceremonial traditions were severed as Aboriginal people were confined to specific tracts of land (Reserves) and traditional governance structures were negated. “The state sponsorship of the cultural

¹ *Aki* is the Anishinaabemowin term for Land. The textual style for *Aki* and other concepts (Land, Elders) are capitalized in this paper to reflect the importance of these terms in this research paradigm.

annihilation agenda outlined in subsequent Indian Acts spanning the late 1800s through the mid-1900s in Canada represented a systematic and conscious effort to destroy Indigenous Knowledge systems and assimilate “Indians” into mainstream Canadian society” (Simpson, 2004, 377). The 150 years of Indian Residential Schools (1879 - 1996) has been the primary intergenerational weapon to eradicate Indigenous Knowledge as language, family and community connections were lost over six consecutive generations (Royal Commission on Aboriginal Peoples, Volume 1, Part 2, Chapter 10, 1996; Truth and Reconciliation Commission, 2014).

The realities of the original peoples of Turtle Island within the context of foreign power, language, and thought have been invisible and historical truths suppressed (Battiste, 1998; Dion, 2009; Little Bear, 2009; Kanu, 2011; Simpson, 2014). Colonial government policy and law opposed and undermined Aboriginal community governance and social structures (Begaye 2008; Turner, 2006). Genealogy¹ and the problem of discursivity² (Foucault, 1980) illustrate the productivity of power and forced tolerances by European monarchical idealism. Discourses profoundly affect the social experience regarding power dynamics. Most Canadians, including Aboriginal people, have a limited understanding of Aboriginal culture and history as a result of early French and British colonial policy that originated this “burden of separation” in Canada. “The tradition of federal responsibility for Indian matters inhibited the development of a proper relationship between the provinces and the Indian people as citizens” (Turner, 2006, 129). In the field of education and within the context of schools

¹ Genealogy is a form of history which can account for the constitution of knowledges, discourses and domains of objects. Foucault applies this term in social criticism to consider subjective local knowledges or marginalised memories (Foucault 1980).

² Discursivity refers to the centralisation and hierarchisation of particular scientific discourses (Foucault 1980).

in particular, the historical lack of relationship or phenomena of 'unconstructive silence' (Laprise, 2014) is evident in the social and political distance between Aboriginal peoples and educators.

Today, Aboriginal people are in the process of critical awakening and cultural recovery. The profile of Aboriginal peoples within the Canadian population has been raised in recent years through political (e.g. First Nation Land Claims) and social movements (e.g. Idle No More, Missing and Murdered Indigenous Women) and a global concern for the environment. A growing awareness of potential applications of Indigenous ecological perspectives to respond to environmental issues is underway. Global leadership (United Nations 2008), national government (Royal Commission on Aboriginal Peoples, 1996; Truth and Reconciliation Commission, 2014; United Nations, 2008) and provincial responses and policies (Ontario Ministry of Education, 2007) illustrate a climate of change.

Aboriginal perspectives are complex and the education system's intent and focus in a scientific and linear perspective, makes invisible a whole way of *seeing*. History is being re-defined as Aboriginal people tell their stories and the crucial role for Aboriginal Elders and critically aware educators (allies¹ and Aboriginal Teachers) within the classroom has come to light (Vizina, 2008). The dawn of the new day for mutual respect and understanding creating integrative approaches for addressing issues and solving problems is upon us. Remembering Indigenous Knowledge and ways of knowing is relevant in contemporary education.

¹ "An ally is a non-Aboriginal person in a 'meaningful, non-oppressive' [alliance with an Aboriginal person in a relationship] of respect and trust...[with] a deep understanding of the interrelated and often mutually reinforcing complexities of power, privilege, identity, and difference" (Fitzmaurice, 2010, 364).

Interdisciplinarity

Specialization within academic fields has developed in response to the challenges of the modern world and new interdisciplinary approaches to studying knowledge and culture have emerged within and across disciplines. Crease (2010) discusses interdisciplinarity in the domain of the physical sciences illustrating how postmodern social forces have influenced the perspective that scientific disciplinary boundaries are arbitrary.

Chandler (2009) explains that disciplines are not static and can evolve beyond the structure of the institutional framework and illustrates the change process within the Academy. Academic disciplines transform as newly important topics and new approaches to topics expand into new fields or 'shadow disciplines'. These are referred to as “studies” and include cultural studies and ethnic studies. “Interdisciplinary research is not simply changing science - its disciplines and the boundaries between them - but forcing the question of what science itself is. Its boundaries are shifting, in ways that make us mindful that it could have been otherwise, and doubtless will change still more in the future” (99).

In Turtle Island, the development of Indigenous Studies has occurred relatively recently. In Canada in the 1990's, area studies led to Native/Aboriginal studies described by Klein (2005) as a transdisciplinary field of Canadian studies and by Weingard (2010) as a “sub-discipline” of Canadian studies. O'Brien (2013) and Klein (2005) trace the development Native American studies through the interdisciplines of ethnic studies and American studies (113). Competing academic ideologies are evident in culture wars (traditional European humanism, cultivation of critical intellect, essentialism of cultural studies) in the humanities and Klein presents the perception that interdisciplinary fields interacting with the disciplines has created a shift in the metaphor of knowledge toward a “complex and dynamic web of relations” (54).

The concept of interdisciplinarity is evolving and changing as scholars and researchers engage. Moran (2002) views interdisciplinarity as a critical response to the disciplines. He illustrates the historical relationships of knowledge and power that created the disciplines in the Academy to order and structure knowledge. The term 'discourse' is explained in the sense that "disciplines are clearly discursive constructions in that their power arrangements permit certain ways of thinking and operating while excluding others" (14). Carp (2001) supports an approach aimed at "enhancing integrative praxes by connecting and transforming knowledge formations" (79). I relate to the epistemological critique and process of seeking the excluded truths and understanding their roles in guiding human conduct with an effect of tempering what is otherwise held to be knowledge.

Moran relates interdisciplinarity to the undisciplined subject of philosophy and embraces the value of the interdisciplinary research approach.

[T]he traditional search for a wide-ranging, total knowledge...represents a more radical questioning of the nature of knowledge itself and our attempts to organize and communicate it. In this sense, interdisciplinary interlocks with the concerns of epistemology-the study of knowledge-and tends to be centered around problems and issues that cannot be addressed or solved within the existing disciplines (15).

...[I]nterdisciplinarity has produced some of the most interesting intellectual developments in the humanities over the last few decades, precisely because it's problems and shortcomings are not obscured by established structures or conventions (184).

Moran identified the opportunity for 'deep naturalization of knowledge' as interdisciplinary researchers critically evaluate their most basic assumptions stemming from within intellectual and institutional constraints to become receptive to "...different ways of structuring and representing their knowledge of the world" (187).

In 1992, Squire discusses a definition of interdisciplinarity and presents the application of the term to

signal something new or unusual in terms of drawing on or integrating a number of ...distinct or separate areas of study ...our conception of interdisciplinarity will depend on our conception of its constituent elements, i.e. disciplines...the notion that all disciplines conform to a standard model or set of criteria has been undermined by...A non-standard or variable conception of disciplines...When we explore interdisciplinarity...we are exploring not a single or standard phenomenon, but a range of phenomenon, with a diversity of rationales, forms, outcomes, and problems (204).

A review of theoretical approaches to interdisciplinary research in the academy illustrates that interdisciplinarity imbues a sense of creativity that requires more than an eclectic mix of concepts, taxonomy, and methods. Szostak (2002) provided an apt interdisciplinary process which he states is grounded in the work of Klein & Newell (1996), Newell (2001) and Repko's 2008 presentation of a ten-step interdisciplinary research model. In 2012, Stozak defined the process of interdisciplinarity and illustrated research engagement in integration. The process of doing interdisciplinary research is not confined to the structure of a discipline that accepts only a minority of the possible theories and methods applied to a subset of phenomena studied but rather embraces a freedom to explore *any* theory or method or phenomena that is appropriate to the question.

The first steps involve identifying an interdisciplinary research question. The second set of steps guide the researcher to identify relevant phenomena, theories, methods, and disciplines. The third set of steps involves evaluating disciplinary insight. The fourth set of steps focus on finding common ground across disciplinary insights. The final steps require reflection, testing, and communication of results (9).

The process is described as having an iterative (non-linear) nature where the researcher revisits earlier steps as later steps are performed.

My Research

My research area of pertains to Aboriginal education with a focus on *Anishinaabe* cultural ecological relational knowledge, a specific area

of Indigenous knowledge. *Anishinaabe ecological relational knowledge* is a descriptive term for ways of knowing inter-relationships and inter-connections with *Aki* and each other within the specific knowledge system context of localized content, meaning, and protocols. Learning about the inner process of balancing the heart, mind, intuition, and body through being in-the-moment and journeying to the inner space of reflection and self-knowing are fundamental to exuding positive perspectives outwards to relationships with others and for understanding of and appreciation for Indigenous perspectives.

Deviant Interdisciplinarity

The Indigenous research process that I embody in my field of study can be considered as “deviant interdisciplinarity”. Fuller (2010) introduced this concept as he discussed application of the philosophical phenomenon called the ‘parallax view’ (reconciling different sensory inputs) to consider perceptions of intellectual history. ‘Deviant interdisciplinarity’ presupposes a ‘parallax view’ of intellectual history and proposes another side to the story “which reflects a different sense of how things came to be as they are and how they might turn out to be in the future” (51). Fuller relates this type of interdisciplinarity to the process of European scientific ‘Mode 1’ knowledge which is an internally directed and supply driven account of knowledge versus ‘Mode 2’ knowledge which is produced by a ‘demand-driven’ process of interdisciplinarity. Mode 2 knowledge production is also called transdisciplinary and is often defined in categories of broader social relevance. Fuller frames deviant interdisciplinarity in intellectual history by noting attempts to reset the epistemic clock at zero by proposing new foundations for knowledge as not only a signal of modernity, but also veering into deviance because disciplinary differences are perceived as barriers in the quest for a unified sense of knowledge and power. Deviant interdisciplinarity frames consideration

of diverse knowledge domains and the recovery of and pursuit of paths not taken such as consideration of parallel possible worlds.

My application of critical Indigenous philosophy to the research topic draws on a deviant interdisciplinarity approach or semantic shift as it introduces the Indigenous worldview and philosophy which challenge the knowledge status quo by bringing perception and acknowledgment of the unseen dimensions. I am passionate about contributing to a new idea of what counts as knowledge, and engaging in research that is framed within an Indigenous research paradigm.

Interdisciplinary, interrelational Indigenous research process

Indigenous research is interdisciplinary according to the nature of the research question and the process of the researcher. This section illustrates this within the specific context of my field of research. The interdisciplinary process aligns with the circular non-compartmentalized nature of Indigenous knowledge. Critical Indigenous scholars avoid the application of Western perspectives such as epistemology (way of knowing), ontology (worldview), and axiology (way of doing embedded in Indigenous value systems) to the study of Indigenous knowledge. Respect for diversity and acknowledgement that Indigenous people of Turtle Island represent a myriad of Nations with distinct historical, cultural, and social realities is a fundamental concept. Collective principles have been delineated by the breadth of Indigenous language families on Turtle Island and these are subject to scrutiny in light of the specific Indigenous community dynamics. Not only does interdisciplinarity present a complementary effect for approaching Indigenous knowledge, but provides opportunity for a holistic way of answering research problems with consideration of the social interaction of our interrelationship with life and society (Hankard, 2013, 50). “In keeping with Indigenous perspectives, this holistic

view asserts that no one segment of our being or the natural world exists within a 'silo'" (Hankard, 2013, 51).

As I engage in an Indigenous research process, I continually traverse the border between the academic bodies of knowledge and qualitative research methodologies and the socio-cultural realities of an Indigenous paradigm. I engage in a wholistic process of embodying new knowledge. Figure 1 represents the interdisciplinary process of my research in Anishinaabe ecological relational knowledge and ways of knowing.

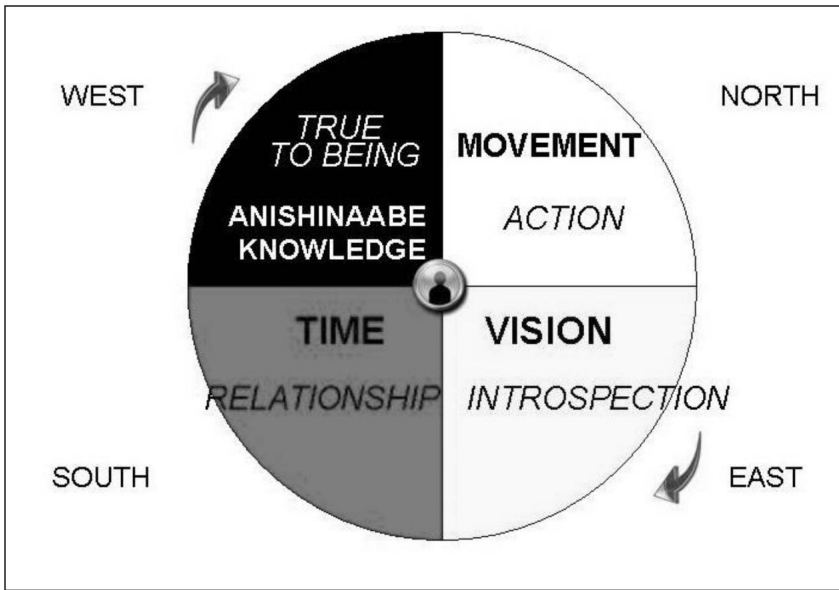


Figure 1. Indigenous Interdisciplinary Research Process

The Medicine Wheel framework is appropriate for conceptualization of the interconnections and interdisciplinarity of an Indigenous Research paradigm. The Medicine Wheel is an ancient symbol of Native people on Turtle Island. Bopp et al. (1989) illustrate that the Medicine Wheel provides a framework for understanding the universe reflected in our being - visualizing oneself in the center, connected equally to all points. It is "a symbolic tool that helps us

to see... [the] interconnectedness of our being with the rest of creation” (Awaitka, 1993, p. 41).

As the researcher within an Indigenous paradigm, I situate myself within the centre of the Medicine Wheel within the context of discovering answers to questions. I engage in the research process mentally, spiritually, physically, and emotionally. The Indigenous research experience was not a sequential enactment of steps, but an integrated way of coming to understand and embody new knowledge about Anishinaabe ecological relational knowledge and ways of knowing in the schools.

The Eastern Direction represents the process of introspection and intuitive receptivity to the unseen to support new insights and vision. For example, in my role as the researcher, my introspective analysis of questioning educational pedagogical theory and social practices led me to envision a case study research methodology to demonstrate alternative ways of being and doing within the learning environment through an Indigenous pedagogical approach. Foundational theoretical knowledge of educational curriculum, instruction, and evaluation of student learning informed by experience and the literature are given voice to “talk back to me”, and clarity regarding the research context and methodology in my case study emerges.

The relevance of social contexts within research places in Indigenous research are illustrated in the Southern Direction. Here, commitment is lived. Relationships are foundational to my experiences as an educator and my lived experience as an *Anishinaabe kwe*¹². Indigenous ways of being in-relationship inform my views and practices of interaction as a researcher with research subjects. I reach out to Elders and spend time on *Aki* to activate listening, observing and learning through experience and reflection. Time commitment for the building of relationships in the field is a crucial component of Indigenous research. Authentic relationships within the research site

community ensures that in my role as the researcher I understand problems and carry out research pertaining to relevant inquiries.

The Western Direction of the schematic depicts the interplay of the researcher's emotional responses, beliefs and values and bias as a researcher. At times I am frustrated by the enormity and power of the literature and policy that echoes Western colonialism and perpetuates the marginalization of Indigenous people. I trust the power of re-awakening the human caring mode for each other and Mother Earth. My vision and passion for creating positive change for the next seven generations of school children and Indigenous scholars drives my focus and tenacity.

The potency of a narrative inquiry approach enacted in my research frames transparency of my personal bias, experiences, and expertise and facilitates interpretation of the research story as it unfolds. This includes an explanation of the students' and teacher's context (internal, external, temporal aspects) and research reporting in a narrative style of perceptions and reflections shared in first person voice. Presentation of my truth, in a credible representation of a cultural, social, individual and communal sense of what is real and relevant to the Indigenous research context is significant. My role as researcher means engaging in storytelling about the research experience. Being in a state of critical awareness while I read, talk with family and colleagues, with receptivity to the guidance of my ancestors and Creation brings Truth to where I come from, where I am, and where I am going. The scholars and *Anishinaabek*¹ who have passed this way before are part of me as I look back and carry forward. This is foundational to an Indigenous Knowledge paradigm where knowledge is experience and knowledge transfer occurs through story.

¹ *Anishinaabek* is the plural form of *Anishinaabe*.

Doing Indigenous research is represented in the Northern Direction (white) on the schematic. My Indigenous research approach interfaces with life experience, and active information-seeking within various academic bodies of literature that are brought to bear on the research topic of Anishinaabe ecological relational knowledge and pedagogy. My engagement in reviewing the Aboriginal education, Indigenous studies, Indigenous social work and sociology frameworks, and cultural anthropology literature in virtual libraries, at the library on campus, during visits to the offices of academic colleagues who loan me books, and in face-to-face interactions with Elders and Keepers of Anishinaabemowin is ongoing over the course of the research project. Phenomena, stories, theories, methods, and perspectives are brought to bear on the research topic. Field work in a community school entails travel to the classroom and school yard learning environment. Storytelling and participation in story Circles provides experience with an Indigenous pedagogy and context for observing and interacting with research subjects.

My Indigenous research process provides a glimpse of factors that shape the creation of conceptual space for Indigenous Knowledge in the academy. In line with cultural practices, the research story is “given away” with the intention that the details are pivotal for students and colleagues to generalize to their world. As I share my research story, it provides provocation of things to notice, reflect upon, and do. The researcher’s sensibility in actions and beliefs from the wisdom of experience serves to inform the reader’s praxis.

Conclusions

The Traditions and stories of Elders continue to inform *Anishinaabe* identity and consciousness and continue as a discourse. As an *Anishinaabe Kwe* (woman), what I bring forward is not neutral and my voice represents my experiences. The Indigenous research process that I use does not document the final accumulation of experience and knowledge but

stands to support my path forward into the future. The cyclical interdisciplinary Indigenous research process continues for me as I re-vision, relate, re-learn and re-move to embody new understandings.

An Indigenous research paradigm provides me with opportunity for self-reflection and action – putting the new understandings into my sacred bundle. I acknowledge and show gratitude to *Shkagamik-Kwe* (Mother Earth) and *Aki* for our relationship and the nurturing they provide in this learning journey.

References

- Awaitka, M. (1993). *Selu: Seeking the corn-mother's wisdom*. Golden, Colorado: Fulcrum Publishing.
- Battiste, M. (2008). Research ethics for protecting Indigenous knowledge and heritage. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.), *Handbook of critical and Indigenous methodologies* (p. 497-509). Thousand Oaks, CA: Sage Publications Inc.
- Battiste, M. (1998). Enabling the autumn seed: Toward a decolonized approach to Aboriginal knowledge, language, and education. *Canadian Journal of Native Education*, 22, 16–28.
- Battiste, M. & Henderson, J. S. Y. (2000). *Protecting indigenous knowledge and heritage: A global challenge*. Saskatoon: Purich Publishing Ltd.
- Begaye, T. (2008). Modern democracy: The complexities behind appropriating Indigenous models of governance and implementation. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.), *Handbook of critical and Indigenous methodologies* (p. 459-469). Thousand Oaks, CA: SAGE Publications Inc.
- Benton-Banai, E. (1988). *The mishomis book*. Hayward, WI: Indian Country Communications Inc.
- Bopp, J., Bopp, M., Brown, L., & Lane, P. (1989). *The sacred tree*. Lethbridge: Lotus Press.
- Carp, R. M. (2001). Integrative praxes: Learning from multiple knowledge formations. *Issues in Integrative Studies*, 19, 71-121.
- Chandler, J. (2009). Introduction: Doctrines, disciplines, discourses, departments. *Critical Inquiry* (35), p. 729-746.
- Crease, R. P. (2010) Physical sciences. In R. Frodeman, J. T. Klein, & C. Mitcham (Eds.), *The Oxford handbook of interdisciplinarity* (p. 79-102). Oxford, New York: Oxford University Press.
- Denzin, N. K. & Lincoln, Y. S. (2005). Preface. In N.K. Denzin & Y.S. Lincoln (Eds.), *The Sage handbook of qualitative research: Third edition* (p. ix-xix). Thousand Oaks, CA: Sage Publications, Inc.
- Dion, S. D. (2009). *Braiding histories: Learning from Aboriginal peoples' experiences and perspectives*. Vancouver: UBC Press.
- Dumont, J. (1976). Journey to daylight-land: Through Ojibway eyes. *The Laurentian University Review*, 8(2), 31-43. Reprinted in D. R. Miller, C. Beal, J. Dempsey, and R. Wesley Heber (Eds.), *The first ones: Readings in Indian/Native studies* (p. 75-80). Craven, SK: Saskatchewan Indian Federated College Press.

- Ermine, W. (1995). Aboriginal epistemology. In M. Battiste & J. Barman (Eds.), *First Nations Education in Canada: The Circle Unfolds* (p. 101-112). Vancouver: UBC Press.
- Foucault, M. (1980). *Power/knowledge: Selected Interviews and other writings 1972-1977*. C. Gordon (Ed.). New York: The Harvester Press.
- Fuller, S. (2010) Deviant interdisciplinarity. In R. Frodeman, J. T. Klein, & C. Mitcham (Eds.). *The Oxford Handbook of Interdisciplinarity* (p. 50-64). Oxford, New York: Oxford University Press.
- Gehl, L. (2012). Debwewin journey. *AlterNative: An International Journal of Indigenous Peoples*, 8(1), 53-65.
- Grande, S. (2008). Red pedagogy: The un-methodology. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.). *Handbook of critical and Indigenous methodologies* (p. 233-254). Thousand Oaks, CA: Sage Publications Inc.
- Haig-Brown, C. (2008). Taking Indigenous thought seriously: A rant on globalization with some cautionary notes. *Journal of the Canadian Association for Curriculum Studies*, 6(2), 8-24.
- Haig-Brown, C. & Dannenmann, K. (2002). A pedagogy of the land: Dreams of respectful relations, *McGill Journal of Education*, 37(3), 451-469.
- Hankard, M. (2013). Traditional ecological knowledge, interdisciplinarity and Indigenous knowledge. In Ali Reguigui (Ed.). *Perspectives on Interdisciplinarity, Human Sciences* (p. 45-71). [Monograph Series] 13, Sudbury, ON: Laurentian University.
- Kanu, Y. (2011). *Integrating Aboriginal perspectives into the school curriculum: Purposes, possibilities, and challenges*. Toronto: University of Toronto Press.
- Kincheloe, J. L. & Steinberg, S. R. (2008). Indigenous knowledges in education: Complexities, dangers, and profound benefits. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.), *Handbook of critical and Indigenous methodologies*, (p. 135-156). Thousand Oaks, CA: Sage Publications Inc.
- Klein, J. T. (2005). *Humanities, culture, and interdisciplinarity: The changing American academy*. Albany, NY: State University of New York Press.
- Klein, J. T. & Newell, W. H. (1996). Advancing interdisciplinary studies. In J. Gaff & J. Ratcliff (Eds.). *Handbook of the undergraduate curriculum*, (p. 393-415). San Francisco: Jossey-Bass. (1996).
- Kulnieks, A., Longboat, D., & Young, K. (2010). Re-indigenizing curriculum: An eco-hermeneutic approach to learning. *AlterNative: An International Journal of Indigenous Scholarship*, 6(1), 15-24.
- Kurtz, D. L. M. (2013). Indigenous methodologies. *AlterNative: An International Journal of Indigenous Peoples*, 9(3), 217-229.

- Laprise, A. (2014). Freedom of Knowledge: Why the Incorporation of Aboriginal Perspectives in Canadian Education Systems is Vital. *Undergraduate Journal of Indigenous Studies/Dbaajmowin*, 2, 123-132.
- Little Bear, L. (2009). *Naturalizing Indigenous Knowledge, Synthesis Paper*. Calgary, AB & Saskatchewan, SK: Aboriginal Learning Knowledge Centre - Canadian Council on Learning. Retrieved from http://www.afn.ca/uploads/files/education/21._2009_july_cclalkc_leroy_littlebear_naturalizing_indigenous_knowledge-report.pdf
- Medicine, B. (2001). *Learning to be an Anthropologist and Remaining 'Native': Selected Writings*. In B. Medicine & S.-E. Jacobs (Eds.). Chicago, ILL: University of Illinois Press.
- Moran, J. (2002). *Interdisciplinarity: The new critical idiom*. New York: Routledge.
- O'Brien, J. M. (2013). Balancing disciplines and interdisciplines in a new professional terrain. *Aboriginal Policy Studies*, 2(2), 108-114.
- Ontario Ministry of Education. (2007). First Nation Métis and Inuit Policy Framework. Available on the Ministry of Education's website, at <http://www.ontario.ca/edu.ca>
- Pelletier, W. and Poole, T. (1972). *No foreign land: The biography of a North American Indian*. Toronto, ON: The Canadian Publishers McClelland and Steward Ltd.
- Ray, L. (2012). Deciphering the "Indigenous" in Indigenous methodologies. *Alter Native: An International Journal of Indigenous Scholarship*, 8(1), 85-98.
- Repko, A. F. (2008). *Interdisciplinary research: Process and theory*. Thousand Oaks, CA: Sage Publishing.
- Royal Commission on Aboriginal Peoples, 1996. *Report of the Royal Commission on Aboriginal Peoples*, Ottawa: Canada Communications Group. Available on the Queen's University Website at: https://qspace.library.queensu.ca/bitstream/1974/6874/5/RRCAP1_combined.pdf
- Semali, L. M. & Kincheloe, J. L. (1999). Introduction: What is Indigenous knowledge and why should we study it? In L. M. Semali, M. Ladislaus, & J. L. Kincheloe (Eds.). *What is Indigenous Knowledge? Voices from the Academy*. London: Garland Science Publishing
- Simpson, L. (2014). Land as pedagogy: Nishinaabeg intelligence and rebellious transformation. *Decolonization: Indigeneity, Education & Society*, 3(3), 1-25. Retrieved from <http://decolonization.org/index.php/des/article/view/22170/17985>
- Simpson, L. (2004). Anticolonial strategies for the recovery and maintenance of Indigenous knowledge. *American Indian Quarterly*, 28(3 and 4), 373-384.
- Squire, G. (1992). Interdisciplinarity in higher education in the United Kingdom. *European Journal of Education*, 27(3), 201-210.
- Smith, L. T. (1999). *Decolonizing methodologies: Research and Indigenous peoples*. London: Zed Books.

- Sugarhead, C. (1996). Ojibwe stories from Lansdowne House written by Cecilia Sugarhead. In J. D. Nichols, Ed.). *Algonquian and Iroquoian linguistics*. Winnipeg, MB: np.
- Szostak, R. (2012). The interdisciplinary research process. In A. F. Repko, W. H. Newell, & R. Szostak (Eds.). *Case studies in interdisciplinary research* (p. 1-20). Thousand Oaks, California: Sage Publishing.
- Szostak, R. (2002). How to do interdisciplinarity: Integrating the debate. *Issues in Integrative Studies*, 20, 103-122.
- Truth and Reconciliation Commission. (2014). *Truth and reconciliation commission of Canada: Interim report*. Ottawa, ON: Author. Retrieved from the Truth and Reconciliation website at: <http://www.justice.gov.za/Trc/report/index.htm>
- Turner, D. (2006). *This is not a peace pipe: Towards a critical Indigenous philosophy*. Toronto, ON: U of T Press.
- United Nations (2008). United Declaration on the Rights of Indigenous Peoples, Author
- Vizina, Y. (2008). *Nourishing the Learning Spirit: Elder's Dialogue*. Saskatoon: Canadian Council on Learning's Aboriginal Learning Knowledge Centre.
- Weingart, P. (2010). A short history of knowledge formations. In R. Frodeman, J. T. Klein, & C. Mitcham (Eds.). *The Oxford Handbook of Interdisciplinarity* (p. 3-14). Oxford, New York: Oxford University Press.
- Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. NS: Fernwood Publishing Company Limited.