

Unpublished paper

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Native Ways of Knowing:

Let me Count the Ways

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Abstract

This paper reviews Native Ways of Knowing and similar terms in academic scholarship. Part I introduces questions to guide a discussion on Native Ways of Knowing. Part II deals with the assumptions or general framework for this discussion and definitions. Part III describes a continuum to analyze the use of the terms Native Ways of Knowing (NWK), indigenous ways of knowing, and traditional culture in academic venues. The description is helpful as means of placing scholarship on Native Ways of Knowing contextually and temporally in mainstream academic review. Part IV deals with sample scholarship described using a non-hierarchical typology of process, position, person, and product (results). It draws on twenty-five pieces of scholarship in the last decade. Part V presents a term lattice derived from use of the terms in representative publications and draws conclusions about the use of terms.

Native Ways of Knowing: Let Me Count the Ways

There are over 500 distinct indigenousⁱ communities in North America alone. Each indigenous community belongs to a specific language group and recognizes and practices cultural traditions in combinations that distinguish communities from each other, especially to insiders. Some indigenous communities share a language heritage or land base, yet remain distinct in other characteristics. The attempts of non-indigenous social scientists to categorize and subsequently explain certain traditions and practices are confounded by the research lens which attempted to offer explanations rooted in Western, largely male, perspectives, but also by non-indigenous researchers who, for the most part, explained all tribes in much the same way. One example of outsider perspectives which failed to acknowledge insider understanding is the inability to distinguish between matriarchal and patriarchal governance systems (Wagner, S.F, 1996, Teuton, 2003, Moogk, P.N. 2003). This is just one example; however, its origin in historical records has been impacted by popular culture through the preponderance of representation in textbooks and the media.

This paper acknowledges the depth of tribal identity and yet seeks to explore examples of inter-tribal consensus. Barnhardt and Kawagley explain this process as recognizing generalization as indicative, but not definitive (2005: 10). The task in this process seeks the balance of perspectives. Native Ways of Knowing, in contrast to Western education practices, is acquired and represented through the context of place, revolving around the needs of a community and the best efforts to actualize a holistic understanding of the community's environment. Western educational practices dissect and disconnect knowledge. The primary difference between the two lies in the emphasis of Native Ways of

Knowing on “knowing,” as a verb and Western educational practices that emphasize the accumulation of “knowledge,” a noun.

Native Ways of Knowing is found in scholarship generally with examples and comparisons to Western practice in science and mathematics. Examples of the different insights or perspectives provided by Native Ways of Knowing to mathematics, to weather, to cultivation or the study of rivers and oceans can be found in such texts as Cajete (1994), Eglash (1999), well as in the body of work produced by the Alaska Rural Systemic Initiative.ⁱⁱ However, Native Ways of Knowing is also explored in literature, linguistics, and governance through a wide variety of venues not described in this paper. This paper does not explore Native Ways of Knowing outside of educational research and pedagogy.

This paper is organized in five major parts. Part I introduces questions to guide this discussion. Part II deals with the assumptions or general framework for this discussion and definitions. Part III describes a continuum to analyze the use of the terms Native Ways of Knowing (NWK), indigenous ways of knowing, and traditional culture in academic venues. The description is helpful as means of placing scholarship on Native Ways of Knowing contextually and temporally in mainstream academic review. Part IV deals with sample scholarship described using a non-hierarchical typology of process, position, person, and product (results). Part V presents a term lattice derived from use of the terms in representative publications and draws conclusions about the use of terms.

Counting the Ways

This paper explores the following four questions:

1. Each culture’s knowledge and understanding of the world varies with their tribal understanding bound by traditions and experiences. With over 500+

distinct tribal entities, are there correspondingly 500+ Native Ways of Knowing?

2. Is there an accepted definition of Native Ways of Knowing, and if so, what current research perspectives have emerged?
3. What similarities are found in academic scholarship to suggest that Native Ways of Knowing crosses the geographical and political boundaries of tribes?
4. What differences are found in academic scholarship to suggest that Native Ways of Knowing is linguistically or culturally specific to a group?

Dissemination

Published scholarship on Native Ways of Knowing has increased in the past decade; the publications in Table 1 are representative of this timeframe. These variables contribute to the increase in publications:

- The growing number of Native scholars,
- Changes in venues for such scholarship, and
- The creation of academic journals which target issues and research in Indian Country.ⁱⁱⁱ
- The global access to information as a result of technology.

These changes reflect the capacity and privileging of Native voices often with the sponsorship of non-native scholars. What one could have characterized as “voices in the wilderness” in the latter half of the twentieth century has grown into a global sharing of indigenous knowledge. This paper does not attempt to catalogue the quantity of publications within the last decade or to attribute publications on Native Ways of Knowing to time specific eras. The author proposes a quantitative rule of acceptance (Figure 1) which could

be used in future research to describe the dissemination of the works of Native and non-Native scholars using Native Ways of Knowing, indigenous knowledge systems, or traditional knowledge. This type of categorization and cataloguing of materials, whether in general or specific to a field, would serve as a gauge to assess the availability of academic venues. Potentially, the gauge would determine if venues were to close. The Likert technique would require an assessment based on volume of scholarly publications and could include publication dissemination numbers. The scale could be defined specifically to a time period based on the researcher's intent. A total numerical value can be calculated from all designations.

Scholarship by Native people on NWK can be described on a historical continuum from aversion to acceptance in mainstream literature (See Figure 1).

Stages of Acceptance in Mainstream Scholarship

0	1	2	3	4	5
Aversion	Ambivalence	Acquiescence	Acknowledgement	Aid	Acceptance
- Negative				+ Positive	

FIGURE 1: Proposed scale of acceptance to be used in assessing availability of scholarship on NWK in academic, peer-reviewed journals.

The definitions of the variables designed for this proposed scale are:

Aversion: Tending to extinguish scholarly publication; devaluing the research of indigenous scholarship; active resistance through review of manuscripts.

Ambivalence: Non-committal; co-existence of opposing attitudes toward indigenous scholarship; believing it not worthy of specific attention.

Acquiescence: Passive assent or agreement to inclusion of indigenous scholarship in mainstream publications.

Acknowledgement: Recognition of the existence and validity of indigenous scholarship.

Aid: Co-authorship; to furnish support in publication of indigenous scholarship.

Acceptance: Favorable reception, approval, agreement in and belief in indigenous scholarship as equivalent to mainstream scholarship; privileging all voices.

In proposing this scale for Stages of Acceptance in Mainstream Scholarship, the author proposes vigilance on the dissemination of indigenous scholarship in academic communities.

Native scholars now provide perspectives contributing to education, science, medicine, mathematics, literature and governance as a result of the acceptance of non-indigenous scholars in these, and other, fields. Notable examples can be found in the research projects, evaluations, and related scholarship sponsored by The National Science Foundation (NSF) in the United States and Social Sciences and Humanities Research Council (SSHRC) in Canada. In both instances, Native perspectives and research can be described on the continuum in the top three stages in Figure 1(3-5).

This paper considers the generalities and commonalities that some Native scholars portray using the term Native Ways of Knowing. I suggest the continuum in Figure 1 for further research and rely on the statement that Native Ways of Knowing can be found in levels 3-5. The paper also relies on the following assumptions about Native Ways of Knowing to frame this discussion:

- Indigenous pedagogy is valued among North American Indian cultures.
- Native Ways of Knowing is not a debate about the effects of colonization, but actualizing NWK in a curriculum is a political act of self-determination.
- Among 500+ distinguishable indigenous peoples, there are distinct similarities and distinct differences in the languages, traditions, religions, and governance systems.

- There are some examples suggesting mainstream scholarship is moving to the acceptance phase for Native Ways of Knowing.

The paper proposes the scale of acceptance and the set of assumptions as the context to a review of samples from scholarship in the past decade. The review of scholarship in this paper is limited to work by and about indigenous peoples in North America^{iv}. Table 1 was constructed by selecting representative articles, including a brief statement of the scope of the article with author's name, and a column listing the terms used in the article. As the title of this paper indicates, the author was interested in the similarity or differences in term usage to describe Native Ways of Knowing. Column 1 in Table 1 is the author's label, based on Grint's typology for an Essentially Contested Concept (Gallie). This designator positions the term(s) used in the article to represent Native Ways of Knowing in one of four categories.

Person, Product, Position, Process

To begin a discussion about the use of the term Native Ways of Knowing, I reference Grint's essay using Gallie's notion of an Essentially Contested Concept (Grint, 2005). The typology for his analysis is Person, Result, Position, and Process. Modifying that typology for this discussion, it becomes:

- Person: Is it "who is" Native that makes it Native Ways of Knowing?
- Product: Is it "what", the product achieved, that makes it Native Ways of Knowing?
- Position: Is it "where" the research or practice operates that makes it Native Ways of Knowing?
- Process: Is it "how: we get things (research or practice) done that makes it Native Ways of Knowing?"

As an “essentially contested concept”, Native Ways of Knowing mirrors other terms in “limited advances” in the specificity of the term; however, the typology reveals that there is consensus for an understanding of the use of the term Native Ways of Knowing in the literature. In reviewing the samples presented in this paper, it is clear that some terms in column two of Table 1 overlap. Some terms involve more than one element in this typology, but it is also clear that the terms are radically different when used by an insider as compared to a scholar (even a Native scholar) who is an outsider in the Native community where the research or practice is found^v. Grint’s typology is particularly relevant because it is a non-hierarchical, allowing the complexities of usage to mirror indigenous cultural assumptions of community and tribal cultural values.

Limiting the scope of this discussion to the past ten years, twenty-five (25) pieces of scholarship were reviewed. Table 1 identifies the scholarship as correlated to the typology in column one: Process, Product, Person, Position. The “Terms” column lists the representative terms found by scanning the text. The last column identifies the author/s and a brief statement of scope. Table 1 does not differentiate between Native and non-Native authors; however, the term lattice in Figure 2 separates the two. Essentially, the term lattice in Figure 2 acknowledges that Native and non-Native scholarship on Native Ways of Knowing exists and may be influenced by Native language fluency.

Selected Articles on Native Ways of Knowing

TABLE 1

TYPOLOGY	TERMS	ABSTRACT
Process	<ul style="list-style-type: none"> • indigenous • Aboriginal 	AARE: The author reflects on the research methodology used to embed a sense of ‘community’ within the research act.
Process	<ul style="list-style-type: none"> • indigenous • Aboriginal • traditional teachings 	ALFRED: Taiaiake focuses on Native communities’ shared experiences and knowledge as requisite to understanding an indigenous reality.
Process	<ul style="list-style-type: none"> • Aboriginal knowledge • Aboriginal ways of knowing • traditional knowledge 	ARCHIBALD: Using examples of teaching styles, specifically, ritual, repetition, and relationships, the author defines storywork: sharing traditional knowledge by engaging the learner with a story and creating a synergy with the listener to prologue this journal edition.
Process	<ul style="list-style-type: none"> • indigenous knowledge systems • Native Ways of Knowing • cultural knowledge 	BARNHARDT/KAWAGLEY: Asserting the need to reconstitute the relationship between indigenous peoples and their environments in order to document the integrity of locally situated cultural knowledge and skills, the authors critique the learning processes by which knowledge is acquired, transmitted and utilized.
Process	<ul style="list-style-type: none"> • Aboriginal • indigenous 	BATTISTE/BELL/FINDLAY: Methods and practices to decolonize postsecondary research and policy for Aboriginal students and teachers are presented.
Product	<ul style="list-style-type: none"> • indigenize • culturally relevant curricula 	BOYER: The development of culturally relevant curricula reflecting traditional values and language is a political act.
Product	<ul style="list-style-type: none"> • indigenous • indigenous articulations • tribal choice 	BRUYNELL: The author frames a logic of indigenous politics to examine indigenous political claims and activities from various historical events.

Product	<ul style="list-style-type: none"> • traditional knowledge • indigenous knowledge • ecological knowledge 	BRUYERE defines traditional knowledge for use in exploring examples of ways in which modern science and traditional knowledge are complementary.
Person	<ul style="list-style-type: none"> • Aboriginal world-view • indigenous 	CARDINAL: A personal essay which proposes a definition of indigenous; it is reflective of circle work and dream work as research methods.
Person	<ul style="list-style-type: none"> • cultural literacy • cultural ways of knowing and learning 	CHINN: This research study examines theories of relationship building among individuals from various cultural backgrounds using a community based professional development program.
Product	<ul style="list-style-type: none"> • Aboriginal • indigenous ways of knowing • ways of knowing and communicating 	GEORGE: The author outlines her work in the development of Native Literacy and Learning through the National Aboriginal Design Committee, Toronto, specifically, The Rainbow and cognition.
Person	<ul style="list-style-type: none"> • indigenous • Talking Circle • Aboriginal holistic 	GRAVELINE: This is an example of scholarship which models more traditional oral interpretations; the text is supported by extensive description footnotes, references, and appendix.
Process	<ul style="list-style-type: none"> • Aboriginal • Native • holistic 	KENNY: This public policy paper provides support for Aboriginal and non-Aboriginal researchers working in an Aboriginal context using a holistic approach.
Position	<ul style="list-style-type: none"> • culturally negotiated • Yup'ik ways of knowing 	LIPKA documents the scope of a Yup'ik mathematics curriculum which uses native culture and language in formal schooling.
Position	<ul style="list-style-type: none"> • Native 	LOMAWAIMA: Reviewing newer tribal research protocols, the author argues for responsible and respectful scholarship in Indian education.
Position	<ul style="list-style-type: none"> • Aboriginal • holistic • Medicine Wheel 	MCLEOD: The article explores the collaborative team effort of a group of Aboriginal educators who empower students through personal Aboriginal language development using traditional values and practices.
Person	<ul style="list-style-type: none"> • Native 	MEDICINE reviews the role of elders in knowledge acquisition and reflects on idealized culture and contrived culture.

Product	<ul style="list-style-type: none"> • indigenous • Native Ways of Knowing and learning 	PEASE provides an extensive review of language immersion activities in North America.
Product	<ul style="list-style-type: none"> • indigenous • tribal world-view 	PEWEWARDY provides a model of best practice to engage non-Indian collegiate students in exploring similarities and differences across ethnic memberships.
Product	<ul style="list-style-type: none"> • culturally-centered learning 	PRICE: Indigenous education and Western education are both important to native students for survival.
Process	<ul style="list-style-type: none"> • indigenous world view • ways of knowing, being and doing 	STEINHAEUER: Building a case for the need of a standardized indigenous research methodology, the author provides a comprehensive review of indigenous research methods.
Process	<ul style="list-style-type: none"> • Aboriginal knowledge • intangible heritage 	THOMAS: This paper argues that scholars should be persuaded to find appropriate alternative approaches for recognition and protection of indigenous intellectual property rights.
Position	<ul style="list-style-type: none"> • talking circle • indigenous • Native world view 	TRANSNATIONAL ARCTIC: Final report of the CATANAL workshop which explored the potential use of technology to translate native languages with computer-assisted technology to preserve those languages utilizing the expertise of analytical, computational, applied and socio-linguists.
Process	<ul style="list-style-type: none"> • Native Ways of Knowing • indigenous • culturally appropriate 	WARNER/WILSON: The authors outline the implementation of indigenous pedagogy in an urban Indian environment.
Person	<ul style="list-style-type: none"> • spiritual knowledge • indigenous 	WILSON shares personal insight and reflects on the spiritual perspectives needed to balance Native people today.

Native Ways of Knowing lattice

Table 2 was designed using the terms representatively found in the articles from Table 1.

The specificity of a definition for any one of these terms relies on the author(s)'s perspectives or purposes, i.e. it is often situational and even more frequently, place bound. Yet Table 2 illustrates the commonalities found among the terms. Each term exemplifies a belief system and way of thinking that is distinct from euro-centric, industrial systems and plays a critical role in the preservation and renewal of North American indigenous communities.

The review of scholarship represented in Table 1 indicates a range of term usage. Table 2 configured the terms based on the typology of Person, Place, Position, and Process to determine if the function or intent determines the term usage. The terms in Table 2 are listed and grouped alphabetically. Not all of the terms found in Table 2 are represented in the word lattice, but the representative family of terms can be found and are differentiated in the three columns in Figure 2.

Table 2
Terms and Typology

Person (5)	Product (7)	Position (4)	Process (9)
Aboriginal holistic Aboriginal world view cultural literacy cultural ways of knowing and learning indigenous Native spiritual knowledge Talking Circle	Aboriginal culturally relevant culturally centered learning ecological Knowledge indigenize indigenous indigenous knowledge indigenous ways of knowing indigenous articulations Native Ways of Knowing & learning traditional knowledge tribal world-view tribal choice ways of knowing & communicating	Aboriginal culturally negotiated holistic indigenous Medicine Wheel Native Native world view Talking Circle Yup'ik ways of knowing	Aboriginal Aboriginal knowledge Aboriginal ways of knowing cultural knowledge culturally appropriate holistic indigenous indigenous world view indigenous knowledge systems intangible heritage traditional teaching traditional knowledge Native Native Ways of Knowing ways of knowing & connecting ways of knowing, being & doing

Table 2 is developed from Table 1, specifically from Typology (column 1) and Terms (column 2). Table 2 provides more specificity for the analysis of term usage. Based on Table 2, the articles reviewed often were described as Process (9), Product (7), Person (5), and Position (4). Nine of the twenty-five articles were categorized as Process and the term “indigenous” or “aboriginal” were found most often; the table represents a summary of frequency of terms. “Native Ways of Knowing” was used in Process and Product but not in Person or Position; “native world view” was used in Position.

For Product, the terms most often used is “indigenous;” Native Ways of Knowing was only used once. For articles described as Person, the term “indigenous” is found in three articles. Native Ways of Knowing is not used in this set of articles. Position is represented least in the articles; Native world view can be found once in this set. None of the terms were duplicated in Position. The majority of articles were Process and Product; the term “indigenous” used more frequently than the other terms. Based on Table 2, we are able to create a word lattice to further explore the use of terms.

The purpose of this word lattice is to represent data, including synonyms, without grammatical constraints, to determine the use of terms most often associated with Native Ways of Knowing; the synonyms for Native Ways of Knowing are shown in the outboxes below the lattice. Conventionally, word lattices are designed to parse a sequence of words using algorithms designed to grammatically validate sentence structures or hypotheses about sentence structures. Essentially, this word lattice was designed to map the use of terms found in the representative scholarly texts. The lattice includes variables of scholarship origin (Native and non-Native); focus on Research or Practice; and

linguistic ability (Native language speaker or non-Native language speaker). These variables would serve as indicators for future research.

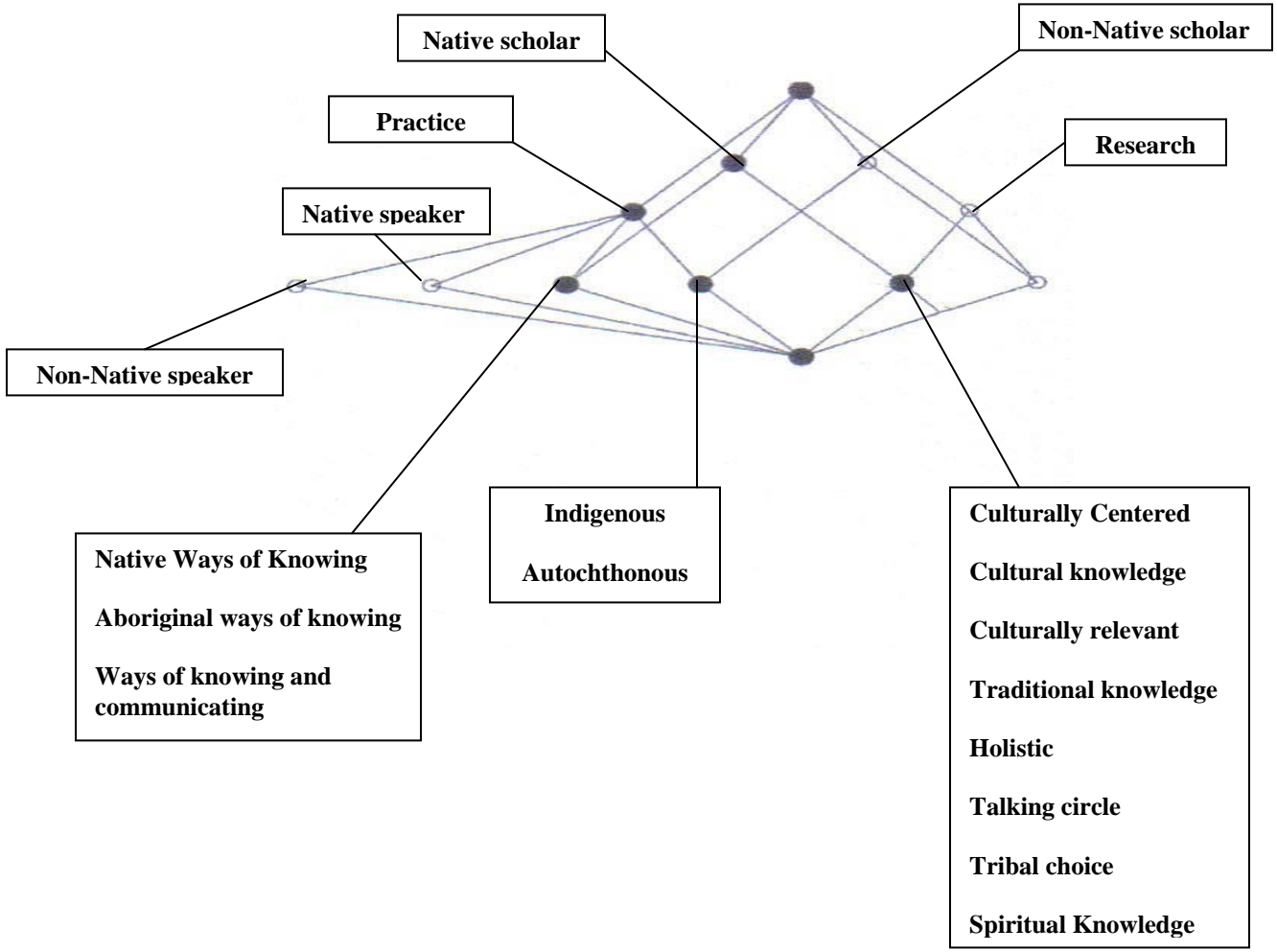


Fig. 2. Term use lattice depicting the options for Native Ways of Knowing, Indigenous and Traditional created by Native scholars (with and without language fluency) and non-Native scholars engaged in research and practice.

The lattice in this example is a conceptual scale illustrating the relevance for the chosen set of attributes or descriptors. The attributes found in the text boxes below the lattice are relevant when analyzing the semantic structures and the linguistic results achieved from term usage. “It is the central task for any natural language processing application to disambiguate the words encountered in a text to determine to which lexical entries they belong. Normally this involves both the use of a lexicon as well as the use of a syntactic parser.”^{vi} Natural language processing relies on the written text alone and so while Figure 2 includes variables that relate to the background and, perhaps, intent of the author, the study of such terms as “indigenous ways of knowing”, “Native Ways of Knowing,” or “traditional knowing” would be limited.

The use of the scale, typology, and term lattice to attempt to answer the questions in Part 1 may be flawed to the extent that Native scholars will critique the analysis with the “apple and orange” analogy. Essentially, the scale, typology, and lattice, including the structure of each represents an attempt at quantitative analysis—the compartmentalization of Native Ways of Knowing, derived from Eurocentric, Western social science. So while my first example of outsider misrepresentation of culture is embedded in historical fact, the analysis herein may be an insider misrepresentation of term usage. If this analysis is open to this criticism, how does the author contextualize the analysis to mitigate such criticism.

Snow and rain

Stuart Derby (1994) recorded a list of 49 terms for snow used by Greenlandic Eskimo; William Poser (2004) records a similar list of 49 terms snow and other forms of water in Carrier, the native language of much of the central interior of British Columbia.

Native Hawaiian scholars list over 100 words for rain (Hanohano, 2005). The nuances and subtleties of word usage are familiar to all peoples. Native Ways of Knowing, indigenous ways of knowing, traditional ways of knowing-- each relates knowing to place--knowing to a *specific* place. On this baseline, each of the terms shares enough of a definition as to be synonymous. Linguistically there are more reasons to know the differences in snow in places where snow is an integral part of life, in the same way that there are multiple terms for rain in a place where the effects of rain impacts our lives. This Native Way of Knowing about the weather is specific to place.

So while the frequency of term usage is important, it is the context (place) of term usage that tells whether it is important to the user. Indigenous ways of knowing and Native Ways of Knowing appear to contextualize the concept of knowing through comparative differences with Western ways of knowing. The examples of the word use for snow and rain would indicate that complex system of categorization occurs in Native languages.

The globalization of our world through technology is the single most representative explanation of a movement to acknowledge Native Ways of Knowing in scholarship. None of us are place bound, in the historical sense. Understanding our place/s enriches all our lives through Native Ways of Knowing, regardless of the nuances of term usage.

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ⁱ Indigenous is defined as originating and living or occurring naturally in an area; in this article it is politicized. Indigenous people are those people who live on their own land historically, but who have little or no political power on that land.

ⁱⁱ www.ankn.uaf.edu/arsi.html

ⁱⁱⁱ The legal definition of the boundaries of Indian Country was set June 25, 1948 in the U.S. Supreme Court. This discussion does not limit the use to specific geographic parameters cited in P.L. 83-280. Indian Country Defined. P.L No. 83-280, 18 U.S.C. § 1151 (1948) nor does limit it Indian Country by a political boundary dividing North America.

^{iv} Original paper presentation developed for First Nations, First Thoughts, Annual conference at the University of Edinburgh Centre of Canadian Studies, May 5-6, 2005 targeting scholarship from Canada and the United States.

^v This paper does not differentiate between Native and non-Native scholar as author.

^{vi} For a more complete description of the use of formal concept analysis in natural language processing see Priss (1999).