

Indigenous Knowledge: Foundations for First Nations¹

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Abstract

Introduction

Indigenous knowledge is a growing field of inquiry, both nationally and internationally, particularly for those interested in educational innovation. The question “What is Indigenous knowledge?” is usually asked by Eurocentric scholars seeking to understand a cognitive system that is alien to them. The greatest challenge in answering this question is to find a respectful way to compare Eurocentric and Indigenous ways of knowing and include both into contemporary modern education. Finding a satisfactory answer to this question is the necessary first step in remedying the failure of the existing First Nations educational system and in bringing about a blended educational context that respects and builds on both Indigenous and Eurocentric knowledge systems.

Whether or not it has been acknowledged by the Eurocentric mainstream, Indigenous knowledge has always existed. The recognition and intellectual activation of Indigenous knowledge today is an act of empowerment by Indigenous people. The task for Indigenous academics has been to affirm and activate the holistic paradigm of Indigenous knowledge to reveal the wealth and richness of Indigenous languages, worldviews, teachings, and experiences, all of which have been systematically excluded from contemporary educational institutions and from Eurocentric knowledge systems.

Through this act of intellectual self-determination, Indigenous academics are developing new analyses and methodologies to decolonize themselves, their communities, and their institutions (see Martin Hill, 2000; Womack, 1999; Cajete, 2000a, 2000b; Kawagley, 1995). This essay adds to the empowerment of Indigenous peoples by offering a review of literature that addresses why Indigenous knowledge has been eluded in Western knowledge systems, how Indigenous knowledge is understood, and what protections are available within Canadian systems.

Strategies for Maintaining Eurocentric Thought

Eurocentric thought asserts that only Europeans can progress and that Indigenous peoples are frozen in time, guided by knowledge systems that reinforce the past and do not look towards the future (Blaut, 1993). Several strategies have been used to reinforce the myth that regions outside Europe contribute nothing to the development of knowledge, humanities, arts, science, and technology. These strategies include the blind reliance on and citation of Greco-

¹ <http://winhec.org/wp-content/uploads/2016/06/WINHEC-Journal-2005.pdf>

Roman references despite the fact that the Greek alphabet is largely of Syrian/Lebanese origin; the manipulation of dates and demotion in importance of non-European knowledge such as Mayan, Hindu, and Arabic numerals, the concept of zero and algebraic notations, the use of decimals, and the solution of complex equations; the Europeanization of the names of outstanding scientists and their devices, scientific documents, and processes to undermine equal and fair assessment of the global history of knowledges (for instance, a comet identified by the Chinese as early as 2,500 years ago is attributed to Haley); and the classification and trivialization of non-European science and technological innovations and invention as “art” (Ascher, 1991).

These strategies have caused Indigenous peoples to be viewed as backward and as passive recipients of European knowledge. Indigenous knowledge became invisible to Eurocentric knowledge, to its development theories, and to its global science. Consequently, Indigenous knowledge was not captured and stored in a systematic way by Eurocentric educational systems. Indeed, in some cases there has been a concerted push to erase it. The persistent and aggressive assimilation plan of the Canadian government and churches throughout the past century, the marginalization of Indigenous knowledge in educational institutions committed to Eurocentric knowledge, and the losses to Aboriginal languages and heritages through modernization and urbanization of Aboriginal people have all contributed to the diminished capacity of Indigenous knowledge, with the result that it is now in danger of becoming extinct.

Indigenous Renaissance and Transformations in Value of Knowledge

The reversal of this process by Indigenous scholars was and remains a direct consequence of their extended experience of and learning in the condescending Eurocentric educational system. For as long as Europeans have sought to colonize Indigenous peoples, Indigenous knowledge has been understood as being in binary opposition to “scientific,” “western,” “Eurocentric,” or “modern” knowledge.

Eurocentric thinkers dismissed Indigenous knowledge in the same way they dismissed any socio-political cultural life they did not understand: they found it to be unsystematic and incapable of meeting the productivity needs of the modern world. Yet, Indigenous scholars discovered that when they tried to use European knowledge to unravel the challenges faced by their people, they met with contradiction and failure, and they began to question the supremacy of Eurocentric thought.

In their quest to help their people, Indigenous scholars and professionals turned to ancient knowledge and teachings to restore control over Indigenous development and capacity building. They sought answers within the rich treasure that has played such an important role in building their unity and dignity: the neglected knowledge and teachings of the elders.

Indigenous scholars discovered that Indigenous knowledge is far more than the binary opposite of western knowledge. As a concept, Indigenous knowledge benchmarks the limitations of Eurocentric theory -- its methodology, evidence, and conclusions -- reconceptualizes the resilience and self-reliance of Indigenous peoples, and underscores the importance of their own philosophies, heritages, and educational processes. Indigenous knowledge fills the ethical and knowledge gaps in Eurocentric education, research, and scholarship. By animating the voices and experiences of the cognitive “other” and integrating them into the educational process, it creates a new, balanced centre and a fresh vantage point from which to analyze Eurocentric education and its pedagogies.

A generation of Indigenous graduate students has successfully exposed the Eurocentric prejudices against Indigenous ways of knowing and the Eurocentric biases that associated Indigenous thought with the barbaric, the primitive, and the inferior. Along with Indigenous undergraduates, these graduate students have activated a renewed interest in Indigenous knowledge in every Eurocentric discipline and profession. For example, in Canadian law the courts' acceptance of concepts of Aboriginal rights and title are directly related to Indigenous students' and peoples' respect for Indigenous law. In the arts, sciences, and education, these same concepts are categorized into Indigenous knowledge and pedagogy.

Since the 1970s, international and national fields of enquiry and innovation have validated the usefulness and significance of Indigenous knowledge. In Canada, the Royal Commission on Aboriginal Peoples, building on many studies that preceded it (see Assembly of First Nations 1988, 1992), has unequivocally stated the importance of Indigenous knowledge. Since the Royal Commission released its reports in the early 1990s, more and more literature has challenged the suppression of Indigenous knowledge and has underscored the importance of bringing it into the mainstream to establish a body of knowledge that can be drawn on for the common good.

In the last decade of twentieth century, the acceptance of Indigenous knowledge by scholars and policy makers generated an explosive growth in the number of publications on the relevance of Indigenous knowledge in a variety of policy sectors and academic disciplines. International policy makers developed principles and guidelines for protecting Indigenous knowledge from predators and biopiracy (see Shiva, 1997 and Gollin, 1999), and Indigenous knowledge and its pedagogies have generated a decolonizing and rethinking of education for Indigenous peoples (McConaghy, 2000). The new theoretical and methodological paradigms that have been created to understand Indigenous knowledge have illustrated its role in creating shared capacities that can alleviate poverty and create sustainable development (Clarkson et al., 1992; Canadian International Development Agency, 2002).

Today, the literature animates the fundamental theory and methods of Indigenous knowledge as a means to accord its protection and to raise its social value and its status as a system of knowledge, while Indigenous scholars generate the necessary intellectual space to create a conceptual and analytical framework for its development (see Battiste & Henderson, 2000; Cajete, 2000, 1995; Kawagley, 1995; Alaskan Native Knowledge Network, 1998).

All this activity has made Indigenous education a highly contested terrain. The traditional Eurocentric view of Indigenous peoples and their heritage as exotic objects that have nothing to do with science and progress now competes with a developing intellectual nexus of postcolonial and poststructural theories that underscore the importance of Indigenous knowledge and languages.

The renewed interest in Indigenous knowledge has sparked a reconsideration of the universal value of Eurocentric knowledge, which requires a reformulation of the legitimate conditions for Indigenous education (McConaghy, 2000). Such rethinking of education from the perspective of Indigenous knowledge and learning styles is of crucial value to both Indigenous and non-Indigenous educators who seek to understand the failures, dilemmas, and contradictions inherent in past and current educational policy and practice for First Nations students. The immediate challenge is how to balance colonial legitimacy, authority, and disciplinary capacity with Indigenous knowledge and pedagogies.

Indigenous Knowledge: Roots and Routes

Indigenous knowledge has been exposed as an extensive and valuable knowledge system. According to the categories used by Eurocentric knowledge, it is a transcultural (or intercultural) and interdisciplinary source of knowledge that embraces the contexts of about 20 percent of the world's population. Indigenous knowledge is systemic, covering both what can be observed and what can be thought. It comprises the rural and the urban, the settled and the nomadic, original inhabitants and migrants. Other names for Indigenous knowledge (or closely related concepts) are "folk knowledge," "local knowledge or wisdom," "non-formal knowledge," "culture," "indigenous technical knowledge," "traditional ecological knowledge," and "traditional knowledge."

The standards for respecting Indigenous knowledge are better developed internationally than they are in Canada. The international standards include the United Nations' *Principles and Guidelines for the Protection of the Heritage of Indigenous Peoples*, *Convention on Biological Diversity* (and the continuing efforts of its secretariat), and *Science for the Twenty-First Century: A New Commitment*. All of these instruments are central to helping to formulate Canada's agenda in First Nations education.

Indigenous scholars and human rights experts in the United Nations Sub-Commission on the Elimination of Discrimination and Protection of Minorities have elaborated and ratified the *Principles and Guidelines for the Protection of the Heritage of Indigenous People*. These principles provide a holistic context and related research agenda for Indigenous knowledge. They acknowledge that the heritage of an Indigenous people is a complete knowledge system with its own concepts of epistemology, and its own scientific and logical validity. They also acknowledge that diverse elements of an Indigenous people's heritage can be fully learned or understood only by means of the pedagogy traditionally employed by these peoples themselves (Daes, 1993).

Indigenous knowledge comprises all knowledge pertaining to a particular people and its territory, the nature or use of which has been transmitted from generation to generation (Daes, 1993). This knowledge includes "all kinds of scientific, agricultural, technical and ecological knowledge, including cultigens, medicines and the rational use of flora and fauna" (Daes, 1993).

The principles elaborated by the UN sub-commission have been incorporated in the International Labor Organization Convention 169, by the educational sector of UNESCO, in the *Indigenous Treaty on the Declaration of Indigenous Rights*, in the proposed *American Declaration on the Rights of Indigenous Populations*, and in the *Quebec City Summit of Americas Action Plan* (2001).

In the scientific arena, Indigenous scholars and advocates have stimulated an interest in the contribution of Indigenous knowledge to a better understanding of sustainable development. The United Nations Conference on Environment and Development, the Canadian International Institute for Sustainable Development (CIISD) and the Canadian International Development Agency (CIDA) have all entered this dialogue (Clarkson et al., 1992).

Knowledge of the environment is being lost in communities around the world, and there is an urgent need to conserve this knowledge to help develop mechanisms to protect the earth's biological diversity. The United Nations *Convention on Biological Diversity* recognizes the

importance of Indigenous knowledge to the conservation and sustainable use of biological diversity, acknowledges the contributions of Indigenous knowledge as innovative approaches to environmental studies, and recognizes the validity of Indigenous science. It also recognizes the value of Indigenous knowledge, innovations, and practices to scientific knowledge, conservation studies, and sustainable development (Clarkson et al., 1992).

In 1999 the World Conference on Science, assembled under the aegis of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Council for Science (ICSU), urged governments to promote understanding of Indigenous knowledge systems. Conference participants requested the sciences to respect, sustain, and enhance traditional knowledge systems and recommended that scientific and traditional knowledge should be integrated into interdisciplinary projects dealing with links between culture, environment, and development (UNESCO, 1999).

Challenges for Indigenous Knowledge in the Academy

Canada has participated in, ratified, and affirmed most of the international obligations. However, Canada's educational institutions have largely ignored, and continue to ignore, Indigenous knowledge and pedagogy. In the educational crisis that has been articulated over the past thirty years, First Nations peoples have drawn attention to the value and importance of Indigenous knowledge in their Aboriginal and treaty right to education.

The failures of the past have exposed the shortcomings of the Eurocentric monologue that has structured modern educational theory and practice. In forcing assimilation and acculturation to Eurocentric knowledge, modern governments and educational systems have displaced Indigenous knowledge. It is clear, however, that the exclusive use of Eurocentric knowledge in education has failed First Nations children (Schissel and Wotherspoon, 2003). Indigenous knowledge is now seen as an educational remedy that will empower Aboriginal students if applications of their Indigenous knowledge, heritage, and languages are integrated into the Canadian educational system.

Despite this realization, few universities across Canada have made Aboriginal education a mission or a priority. Few teacher training institutions have developed any insight into the diversity of the legal, political, and cultural foundations of Aboriginal peoples, often treating Indigenous knowledge as though it were a matter of multicultural and cross-cultural education. Consequently, when educators encounter cultural difference, they have very little theory, scholarship, research, or tested practice to draw on to engage Aboriginal education in a way that is not assimilative or racially defined, as opposed to being legally and politically shaped by constitutional principles of respect for Aboriginal and treaty rights.

Canadian courts have responded to the issue of Aboriginal rights by drawing on constitutional principles to reaffirm the right of Aboriginal people to have their rights respected and protected. It is time that educators did the same. The task, then, is to sensitize the western consciousness of Canadians in general and educators in particular to the colonial and neo-colonial practices that continue to marginalize and racialize Aboriginal students and to the unique rights and relationships Aboriginal people have in their homeland. If Indigenous knowledge and pedagogy are to be integrated effectively into the national and provincial curricula, educators must be made aware of the existing interpretative monopoly of Eurocentric education and learn how the fundamental political processes of Canada have been laced with racism.

Recognizing the interpretative monopoly that Eurocentric thought reserves for itself is the key to understanding the new transdisciplinary quest to balance European and Indigenous ways of knowing. This academic effort seeks to identify relations between the two generalized perspectives of Eurocentric modernism (and postmodernism), and Indigenous knowledge (and postcolonialism). The contradictions, gaps, and inconsistencies between the two knowledge systems suggest that the next step needed in the quest is a deeper understanding of Indigenous knowledge.

To date, Eurocentric scholars have taken three main approaches to Indigenous knowledge. First, they have tried to reduce it to taxonomic categories that are static over time. Second, they have tried to reduce it to its quantifiably observable empirical elements. And third, they have assumed that Indigenous knowledge has no validity except in the spiritual realm. None of these approaches, however, adequately explains the holistic nature of Indigenous knowledge or its fundamental importance to Aboriginal people.

The Quandary of Defining Indigenous Knowledge

In Eurocentric thought, Indigenous knowledge has often been represented by the familiar term “traditional knowledge,” which suggests a body of relatively old data that has been handed down from generation to generation essentially unchanged. Taking the immutability of Indigenous knowledge as a given, much Eurocentric research has focused on identifying knowledge, practices, and techniques used by Indigenous peoples, recording their local names, and cataloguing their reported uses (Barsh, 1997).

In this taxonomic approach, it is the categorizer who decides whether a teaching, technology, or practice is Indigenous and unique to a given heritage or society, adopted from Eurocentric knowledge, or a blend of local and introduced components. Using these taxonomic studies, Eurocentric scholars provided definitions of Indigenous knowledge based on their partial framework, methodologies, and perspectives. Much effort was expended highlighting the differences between Eurocentric and Indigenous knowledge in terms of their respective ideological underpinnings, substance, methods, and so forth. In the literature, these differences were highlighted by underscoring the superiority of Eurocentric knowledge and its classifications and the inferiority of Indigenous knowledge.

The taxonomic studies, however, did not generate any generally accepted definition of Indigenous knowledge. Many attempts were made, but most were confusing (or at least led to confusing applications) since not only did they tend to cast too wide a net, incorporating into the definition concepts that would not be considered part of Eurocentric knowledge, such as beliefs and value systems, but they also failed to recognize the holistic nature of Indigenous knowledge, which defies categorization.

Indigenous knowledge is an adaptable, dynamic system based on skills, abilities, and problem-solving techniques that change over time depending on environmental conditions, making the taxonomic approach difficult to justify or verify. Most Indigenous scholars and educators have noted the practical and conceptual limitations of taxonomic categories posing as Indigenous knowledge. The subject is controversial, however, and cannot be resolved in this paper. What can be said is that focusing on the similarities between the two systems of knowledge rather than on their differences may be a more useful place to start when considering how best to introduce educational reform.

The second approach to Indigenous knowledge is illustrated by the Eurocentric definition of

Indigenous knowledge as “the unique, traditional, local knowledge existing within and developed around the specific conditions of women and men Indigenous to a particular geographic area.” (Grenier, 1998). There is no doubt that the commercial value of Indigenous knowledge to modern scientists is its empirical content, but to treat local knowledge as merely empirical trivializes its significance to Indigenous peoples. It is an increasingly common approach, however.

Some relatively recent work by scientists and conservation biologists has employed Indigenous people as a source of quantitative wildlife population data (Ferguson & Messier, 1997). This approach assumes that Indigenous or First Nations people are good field observers of biophysical phenomena—that is, that they can be reliable data collectors for modern scientists. Indigenous knowledge is presumed to have been assembled a long time ago by a process of trial and error, and is now reduced to an unwritten canon that can be elicited from any capable local informant.

Another modern example of this second approach to Indigenous knowledge can be found in the Netherlands Organization for International Cooperation in Higher Education for Indigenous Peoples, which has created a “dossier” on Indigenous knowledge to provide news and information about the contribution of science and technology to the needs of developing countries. This dossier is part of a series of in-depth guides that focus on key topical issues at the science-development interface with Indigenous knowledge and present the experiences and perspectives of those working in the field through analytical policy briefs and topical opinion articles. The organization also monitors the collection, application, and dissemination of Indigenous knowledge, ensuring the full participation of the local people involved. Although the aims of the organization are commendable, they are not evaluative.

A third approach to Indigenous knowledge has gone in the opposite direction, abandoning any concern for the empirical validity of Indigenous knowledge systems and treating them as purely normative or spiritual (Nazarea et al., 1998). This approach, like the second approach discussed above, ignores the fact that within any Indigenous nation or community people vary greatly in what they know (Biggelaar & Gold, 1995). There are not only differences between ordinary folks and experts, such as experienced knowledge keepers, healers, hunters, or ceremonialists, there are also major differences of experience and professional opinion among the knowledge holders and workers, as we should expect of any living, dynamic knowledge system that is continually responding to new phenomena and fresh insights.

Unfortunately, this third approach to Indigenous knowledge includes many Indigenous scholars, who seem afraid that critical empiricism will somehow disprove or de-sanctify Indigenous knowledge and its pedagogy. Often, the argument is cloaked in the concept that Indigenous knowledge is “sacred,” thus in some sense immutable and inviolable. This approach can be self-defeating. Donning the protective cloak of sanctity and religious freedom is an admission that Indigenous people are the hapless victims of biophysical forces that they can endure only as awesome mysteries. In other words, they are as ignorant and superstitious as Eurocentric observers have long maintained.

These three approaches illustrate the challenges of placing Indigenous knowledge within Eurocentric frameworks and disciplines. None of these Eurocentric perspectives acknowledges the extent to which Indigenous communities have their own knowledge holders and workers.

Indigenous peoples have their own methods for classifying and transmitting knowledge, just as they have Indigenous ways of deriving a livelihood from their environment. Information, insight, and techniques are passed down and improved from one generation to another. Knowledge workers observe ecosystems and gather eyewitness reports from others so that they can continually test and improve their own systematic, predictive models of ecological dynamics. In the real world of changing ecosystems and changing diseases, knowledge holders and workers must adapt rapidly or lose credibility and status. To presume otherwise is to imply that the clients of such knowledge systems are either ignorant or very submissive: they are either incapable of recognizing an erroneous wildlife forecast or unsuccessful medical treatment, or they are unable to criticize their knowledge keepers.

Indigenous knowledge is also inherently tied to land, not to land in general but to particular landscapes, landforms, and biomes where ceremonies are properly held, stories properly recited, medicines properly gathered, and transfers of knowledge properly authenticated (see Morphy, 1995; Basso, 1996). Ensuring the complete and accurate transmission of knowledge and authority from generation to generation depends not only on maintaining ceremonies, which Canadian law treats as art rather than science, but also on maintaining the integrity of the land itself.

Protecting Indigenous Knowledge

Indigenous knowledge is constitutionally protected in Canada law as Aboriginal and treaty rights (Battiste & Henderson, 2000). Indigenous knowledge is inexorably linked to Aboriginal and treaty rights under s. 35(1). As such, to ensure the continuity of Aboriginal customs and traditions, the Supreme Court of Canada has determined that a substantive Aboriginal right will normally include the incidental right to teach such a practice, custom and tradition to a younger generation. Similar reasonable incident rights exist in treaty interpretation that would apply to education provisions. Federal and provincial educational law, regulation, and practices have yet to implement or reconcile with the constitutional rights to teach Indigenous knowledge.

Indigenous knowledge is best protected under sections 35 and 52 of the *Constitution Act, 1982*. It cannot be adequately protected under Canadian copyrights and patents for intellectual or cultural property laws, which distinguish sharply between artistic works (with copyright and “neighboring rights” to artistic performances), commercially valuable symbols (with trademarks), and useful scientific knowledge (with patents). For example, a patent, a trademark, or a copyright cannot adequately protect a ceremony that uses striking sacred-society symbolism to communicate empirical knowledge of medicinal plants. The medical knowledge may be patented, but the patent will expire in a matter of years. The text and music for the ceremony can be recorded (or “fixed”) and copyrighted, but only the recorded version will be protected and only for the lifetimes of the performers plus fifty years. The symbols can be protected as trademarks forever, but their significance will be diminished when they are taken out of context.

Indigenous knowledge thus embodies a web of relationships within a specific ecological context; contains linguistic categories, rules, and relationships unique to each knowledge system; has localized content and meaning; has established customs with respect to acquiring and sharing of knowledge (not all Indigenous peoples equally recognize their responsibilities); and implies responsibilities for possessing various kinds of knowledge.

In the context of the Education Renewal Initiative, the dissemination of Indigenous

knowledge should be targeted towards current First Nations students and to the next generation, ensuring that the study and development of Indigenous knowledge and the skills of their ancestors are valued and available in both the sciences and the humanities. Young students must feel that it is rewarding to pursue careers based on the traditional knowledge of their forebears and on the ancient and dynamic ancestral languages.

Conclusion

Most Canadians, both Aboriginal and non-Aboriginal, have long accepted some of the fundamental assumptions underlying modern public school education. We have assumed that knowledge is a kind and necessary form of mind liberation that opens to the individual options and possibilities that ultimately have value for society as a whole.

At one level, knowledge and education appear beneficial to all people and intrinsic to the progress and development of modern technological society. But public schooling has not been benign. It has been used as a means to perpetuate damaging myths about Aboriginal cultures, languages, beliefs, and ways of life. It has also established western knowledge and science as dominant modes of thought that distrusts diversity and jeopardizes us all as we move into the next century.

After nearly a century of public schooling for tribal peoples in Canada, the most serious problem with the current system of education does not lie not in its failure to liberate the human potential among Aboriginal peoples, but rather in its quest to limit thought to cognitive imperialistic policies and practices. This quest denies Aboriginal people access to and participation in the formulation of government policy, constrains the use and development of Aboriginal cultures in schools, and confines education to a narrow view of the world and its knowledge foundations that threaten the global future.

Cognitive imperialism is a form of cognitive manipulation used to disclaim other knowledge bases and values. Validated through one's knowledge base and empowered through public education, it has been the means by which whole groups of people have been denied existence and have had their wealth confiscated. Cognitive imperialism denies people their language and cultural integrity by maintaining the legitimacy of only one language, one culture, and one frame of reference.

As a result of cognitive imperialism, cultural minorities have been led to believe that their poverty and impotence is a result of their race. The modern solution to their despair has been to describe this causal connection in numerous reports. The gift of modern knowledge has been the ideology of oppression, which negates the process of knowledge as a process of inquiry to explore new solutions. This ideology seeks to change the consciousness of the oppressed, not change the situation that oppressed them.

What is apparent to Indigenous peoples is the need for a serious and far-reaching examination of the assumptions inherent in western knowledge, science and modern educational theory. How these assumptions create the moral and intellectual foundations of modern society and culture have to be studied and written about by Aboriginal people to allow space for Aboriginal consciousness, language, and identity to flourish without ethnocentric or racist interpretation.

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