

Indigenous Knowledge: Questions, Issues and Challenges^{1,2}

Carole Lévesque*

Over the past fifteen years or so, the subject of Indigenous knowledge – more often referred to as traditional Indigenous knowledge or ecological knowledge³ has attracted growing interest. As Indigenous peoples have emerged as major players and partners on the national and international scene, this knowledge has come to represent a new sphere of cultural and political affirmation for them. Throughout North America, hundreds of documents, produced by the scientific community and by Indigenous and government organizations, have broached the subject from various angles (see Chabot and Lévesque, 2001, among others, for a compilation of the recent literature on the topic). The number of conferences and discussion workshops on Indigenous knowledge is continuing to grow every year, and the legitimacy of this knowledge as a relevant source

¹ Translation: Evelyn Lindhorst.

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* INRS Urbanisation, Culture et Société.

³ The expression *Traditional Ecological Knowledge* (TEK) is fairly common in the English-language literature on this topic. However, my use of the expression *Indigenous knowledge* is not equivalent to the typical use of the notion of traditional knowledge. Rather, I associate the expression *Indigenous knowledge* with a far more comprehensive notion, one that seeks to understand not only particular systems of knowledge but also the historical and social conditions associated with the emergence and dissemination of this knowledge, a matter I will return to later on in this text.

of information to help protect ecosystems, increase our understanding of environmental phenomena, and manage natural resources has been recognized on countless occasions by the governments of many countries, including Canada. This recognition has also been manifested in the special provisions targeting the protection of this knowledge in numerous international conventions and several national policies and programs.

We can cite as an example the commitments made in this regard at the 1992 Rio Summit (or Earth Summit) that were duly included in the text of the international Convention on Biological Diversity (CNUED, 1992). A similar focus is also seen in the recommendations of the Canadian Environmental Assessment Agency (CEAA) — which is responsible for ensuring implementation of the provisions of the Canadian Environmental Assessment Act — and in some of the provisions of the Department of Indian Affairs and Northern Development's sustainable development strategy, as well as in the principles advocated by Environment Canada, especially in the context of its Northern Ecosystems Initiative. Several Canadian International Development Agency (CIDA) programs also include special provisions that concern not only the knowledge of Indigenous peoples but also the need to integrate this knowledge into scientific knowledge, particularly in projects aimed at protecting and managing natural resources.

There is no doubt that interest in Indigenous knowledge has in part been triggered and reinforced by the growing environmental awareness that has emerged in the West since the mid-1970s. A number of observers have viewed this knowledge, which expresses a different type of relationship with the natural world, as an alternative to the exploitative and disorganized practices of governments and large corporations: practices that are leading to the destruction of plant and animal resources, and thus imperilling the biodiversity of ecosystems and even the very survival of the planet. But despite the popularity of this subject in many spheres, it is still extremely difficult to describe this knowledge on a theoretical or methodological level, which leads to numerous problems when attempts are made to apply this knowledge. In this text I will examine some of the key questions currently being raised in regard to the links and correspondences between Indigenous knowledge and scientific knowledge, and especially in regard to the nature of the knowledge shared by Indigenous people and the transmission of this knowledge.

1. BETWEEN CONTRAST AND INTEGRATION

The knowledge specific to Indigenous people can be very broadly defined as oral information that has been handed down from generation to generation for hundreds and even thousands of years.⁴ This information consists of organized bodies of knowledge, or, in other words, coherent systems of knowledge, which several authors have referred to as *Indigenous science* (see in particular Clément, 1995). The production of this knowledge is based on a systematic approach aimed at comprehending reality; it relies on the accumulation of diverse data, using a number of methods and intellectual operations (observation, classification, transmission) as well as specialized concepts (Mailhot, 1993). This knowledge is thus seen as the expression of a particular means of apprehending reality; it is encoded in a culture, in the sense that it is a part of culturally-specific systems of representation, and it conveys values and a particular view of the world, of nature and of life.

Many researchers approach the topic of traditional knowledge by comparing it, and indeed contrasting it, with science. In this perspective, the emphasis is placed on such characteristics as the oral nature of this knowledge, its basis in observation and experience, its holistic, intuitive and qualitative aspects, and the fact that it is not directed toward the domination of nature. Conversely, science is understood as a system of knowledge specific to the Western worldview. It is based principally on written documentation; it is taught and learned out of context; it is compartmentalized, analytical and quantitative; and its ultimate aim is the domination of nature and the world. In this way of thinking, it is important to establish the greatest possible distance from science since, from the outset, the objective is to distinguish traditional knowledge by defining it as a very different and autonomous field of knowledge. In stressing how distant it is from science, researchers generally point to the spiritual dimension of traditional knowledge or, in other words, the aspect that ultimately differentiates it from science. Unlike science, these researchers claim, traditional knowledge does not create a separation between nature and culture, and it is seen as the expression of a fundamental and unified understanding of the place of human beings in the universe (Berkes, 1999; Simpson, 1999).

⁴ Researchers studying this topic most often refer to the definition produced in 1995 by the Dene Cultural Institute (cited by Stevenson, 1996: 281): “Traditional environmental knowledge is a body of knowledge and beliefs transmitted through oral tradition and first-hand observation. It includes a system of classification, a set of empirical observations about the local environment and a system of self-management that governs resource use. Ecological aspects are closely tied to social and spiritual aspects of the knowledge system. The quantity and quality of TEK varies among community members, depending upon gender, age, social status, intellectual capability and profession (hunter, spiritual leader, healer, etc.). With its roots firmly in the past, TEK is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socio-economic changes of the present.”

At first glance, it is easy to see the weaknesses of an approach that so strongly emphasizes contrasts, an approach that more often than not tends to set up hermetic categories and to rank criteria by placing them in a relationship of superiority or inferiority. The setting up of a duality of this kind, i.e. Indigenous knowledge vs. science, is directly in line with a number of persistent and deeply-rooted oppositions: tradition vs. modernity; rational vs. irrational; universal vs. local, science vs. myth and religion, etc. On the other hand, often inspired by a need to define the intrinsic nature of this knowledge “from within,” and by a desire to demonstrate its legitimacy, this approach, when it goes beyond a fundamental dichotomy, can lead to a profound questioning of human beings’ various types of knowledge, since it introduces the perspective of the coexistence of these various types of knowledge, and indeed their right to coexist.

Since the mid-1990s, as the topic of traditional knowledge has gained greater visibility and acquired greater legitimacy, perceptions have changed on its relationship with science. The emphasis is now on incorporating Indigenous knowledge into scientific studies. For example, specialists studying climate change or the migrations of caribou populations often ask local populations about their own observations concerning these phenomena. This approach of incorporating or integrating traditional knowledge is currently the most popular strategy. But even when it is the focus of constructive initiatives and real efforts are made to satisfy the requirements of this approach, it is still generally influenced by the positivistic dictates of science. Traditional knowledge is then robbed of its significance. At best, it is absorbed and assimilated into a particular type of data, generally empirical, or instead, reduced to simple geographic data or isolated bits of information obtained in response to specific questions, such as: Where do you hunt for caribou? How far out does the bay freeze?, etc. Traditional knowledge is thus judged and measured according to standard scientific indicators.

More often than not, traditional knowledge is used to validate scientific data. A phenomenon observed by a scientist and subsequently confirmed by a hunter, in whole or in part, is immediately given “experimental veracity,” without anyone ensuring its actual validity or looking at the status of the person transmitting the information in question. Isn’t traditional knowledge then likely to become a new testing area for scientific experiments in many regions, especially the North, where there are a growing number of studies on environmental phenomena and where the people most directly concerned by these phenomena are Indigenous people?

Such a trend is increasingly occurring in the field of environmental assessment in the Indigenous milieu, particularly in the North. Environmental assessment processes, which are governed by Canadian and Québec laws on environmental protection and quality of the environment (such as the Canadian Environmental Assessment Act, which I mentioned earlier), provide a normative framework for the carrying out of development projects (mining, oil and gas, hydroelectric, road projects, etc.) where it is important to determine the impacts and effects, both positive and negative, on the physical and social environment before the project begins. The guidelines issued by the various review committees in Canada consequently urge proponents of these major projects to study the anticipated project impacts and to recommend mitigation or remedial measures designed to limit, as much as possible, any adverse environmental effects. In the past few years, these guidelines have included provisions for incorporating Indigenous knowledge into the studies in question. But there are generally very few instructions or indications accompanying such requirements, so that they are applied in a wide, and often surprising, variety of ways.⁵

2. QUESTIONS ABOUT THE NATURE AND TRANSMISSION OF INDIGENOUS KNOWLEDGE

The problems in characterizing the field of study of traditional knowledge go beyond the issue of how this knowledge relates to science. When we look at how traditional knowledge should be defined or how it is transmitted, there are still a number of questions and challenges. Since this knowledge is oral in nature, it is clearly transmitted from one individual to another in a very personal way. Elders are considered to be the legitimate holders of this knowledge, which was handed down to them by their ancestors, and which they in turn are logically expected to pass on to others. Moreover, this knowledge reflects a particular way of life, generally the hunter's way of life. Yet very few Indigenous youth want to become hunters nowadays.⁶

⁵ The method of taking Indigenous knowledge into account is often left up to the proponents, who then have all the leeway they need to limit this requirement to public consultation activities, informal meetings with particular individuals, or public opinion surveys. In some extreme cases, the government stipulation to take Indigenous knowledge into account is simply understood to mean noting the presence of Indigenous people in various places at various times. For example, the fact of bringing together a group of Inuit or Indian people in a meeting hall has sometimes been viewed as proof that this knowledge is being taken into account. An epistemological reading of the situation could in fact induce one to admit that knowledge cannot exist separately from the human beings who hold this knowledge, so that bringing these individuals together is the ultimate expression of Knowledge in action. But there is little chance that, in the case of environmental assessment especially, the proponents' intentions might be of a similar order.

⁶ A fairly recent survey (Lévesque and Johnson, 2002) involving some 70 youth, aged 16 to 25, in an Indigenous community in Québec's subarctic region confirms this situation. Every one of these young people, both girls and boys, unequivocally expressed their interest in learning techniques and knowledge related to life in the bush, but all of them also felt that it was essential to learn other kinds of knowledge and skills in school. The challenge, in their eyes, lay in linking the two worlds.

Since traditional knowledge is largely assimilated through experience, it must be given concrete form in action. In other words, it is through the practice of hunting that it will probably continue to exist and be handed down. Without hunting, is the knowledge likely to disappear, or to lose its relevance? Does this mean that Indigenous people living in urban areas or who no longer hunt or fish have no such knowledge, or have no access to this knowledge? Does this also mean that this type of knowledge does not change, or that it does not evolve? That it is in some way the reflection of a natural and primordial order that existed prior to the modern order, which can be said to have marked the end of this “authentic” way of life?

Moreover, the way in which this knowledge is currently understood and defined is clearly associated with environmental issues: the provisions dealing with Indigenous knowledge in international conventions and government programs are all concerned with issues of environmental assessment, natural resource management or the protection of biodiversity. The relationship with nature, the transmission of this special relationship, and the continual use of natural resources are seen as specific characteristics of the knowledge held by Indigenous people. From this perspective, can we then suppose that in all other areas, Indigenous people have no knowledge?

Some of these questions have already been raised by researchers attempting to conceptualize the field of traditional knowledge and to clarify its scope. Stevenson (1996), for example, has produced a sophisticated classification in which traditional knowledge is considered in a category independent from that of non-traditional knowledge. In the category of traditional knowledge, Stevenson distinguishes between ecological knowledge and social, cultural and spiritual knowledge. And finally, in the category of ecological knowledge, he considers knowledge specific to the environment, knowledge concerned with the relations that human beings have with ecosystems, and the ethical principles governing these relations. Similarly, Berkes (1999) and Usher (2000) have also proposed their own particular definitions and categorizations highlighting various types of information and different levels of analysis.

When it is a matter of the transmission of Indigenous knowledge, once again, science has no clear answers. Given its nature, can Indigenous knowledge be transposed, that is, transmitted to scientists, written down, and analyzed according to scientific parameters, without being distorted? In other words, can we study this knowledge? Can we at least disseminate it more broadly? Is Indigenous knowledge ultimately a matter for initiates only? Questions of this kind are not insignificant (Wentzel, 1999). They are currently supporting an ideological position to the effect that only Indigenous people themselves can understand

the real scope of their knowledge. This position is also dominating the debate on intellectual property rights associated with this knowledge.

On one level, it is clear that the very complexity of the topic may appear to be a source of obstacles that are hampering attempts to develop a specific field of study on the knowledge held by Indigenous people. It is these obstacles that are currently making it difficult to take this knowledge into account and to apply it, and that are resulting in the rejection of this knowledge by a number of scientists. And yet, in my view, these problems are related not so much to the nature of the knowledge and how it is transmitted, but rather to an incomplete and, indeed, inadequate characterization of this knowledge. When, in discussing traditional knowledge, the only reference is still to a type of science mistakenly limited to academic knowledge, there is little chance of avoiding the dual pitfalls of comparison and/or integration. It is also very difficult to separate the issue of traditional knowledge from the larger context of relations between Indigenous and non-Indigenous people.

3. SOME AVENUES TO EXPLORE

When, as happens in many studies, Indigenous knowledge is seen as a source of information or geographical data, this is already a conceptual distortion. There is no doubt that Indigenous knowledge contains relevant information about the natural world: people living in close interaction with nature obviously develop an expertise and practices that are tested and proven through experience. But Indigenous knowledge is much more than information, just as science cannot be reduced to data alone. Knowledge, in whatever form, essentially develops and is renewed through the relations it brings into play between individuals; it crystallizes expectations about the social world and the natural world. Together with skills, experiences and representations, various forms of knowledge constitute dynamic and autonomous wholes. Consequently, Indigenous knowledge cannot be isolated from, compared to or contrasted with scientific knowledge; nor can it be integrated into the latter because, in expressing different views of the world, it takes certain social skills and requires that different paths be followed for this knowledge to be applied and reproduced.

The question of social skills, of how knowledge is produced and how it is applied, is not neutral. Knowledge does not develop and does not evolve in a vacuum, cut off from the real world and from human

beings (Barth, 2002). Recent works by a number of philosophers, sociologists and historians of science in fact highlight the social and historical conditions influencing the production of scientific knowledge, for example, and the rules, mechanisms and motivations that affect how this knowledge is circulated and how it is transmitted (Barnes, Bloor and Henry, 1996; Bourdieu, 2001; Latour and Woolgar, 1986). The processes influencing the development, transmission and use of knowledge continually interfere with its content, whether this knowledge is produced by scientists, or by Indigenous hunters.

Also, when questions about the knowledge shared by Indigenous people lead to a challenging of science, we again need to ask what kind of science we are talking about. Science is generally viewed as a “unidirectional” and homogeneous whole. And yet it is clear that the methods and expertise of specialists in the natural sciences are very different from those of social scientists. The two types of science are not necessarily opposed, but there is a difference in their essence. Even within the social sciences, the differences in approach and focus are such that one cannot necessarily assume that all scientists are talking about the same thing or work in the same way. A relevant example here is the holistic perspective that is said to represent a particularity of Indigenous knowledge. When this is discussed in the absolute, we tend to lose sight of the fact that ecology is also based on a holistic understanding of environmental phenomena; and we also tend to lose sight of the fact that anthropology, in studying the human condition, is primarily characterized by a global and integrated approach, and that relations between human beings and nature have long been an especially fruitful area for the production and renewal of knowledge in this discipline.

When authors like Berkes (1999) and Stevenson (1996), for instance, stress how important it is to not isolate knowledge from the context in which it is embedded, and emphasize the philosophy or worldview that underlies actions and practices, we can clearly see how close this type of approach is to the many avenues explored by generations of anthropologists in their study of *culture*. In some cases, the resemblance is so marked that we might ask whether the study of Indigenous knowledge has not in fact become a new way of considering culture and attempting to understand its mechanisms and manifestations, or indeed, a new way of defining the anthropological challenge. We have to ask such a question when one of the main tendencies in current research on traditional knowledge is to view everything that concerns Indigenous people, in any field, as a component of traditional knowledge.

Moreover, as we have already stressed, the question of Indigenous knowledge is an integral part of the

movement of affirmation that is currently dominating relations between Indigenous and non-Indigenous people. Indigenous people are seeking *recognition* based on their *knowledge*. This whole area of Indigenous knowledge brings into sharp focus the stumbling blocks in our own relationship with knowledge and the power often associated with knowledge. What is at stake with knowledge, whether it is denigrated or not, and whether or not we understand what this knowledge consists of, is the expression of a difference, and an affirmation of identity. In a way, we again find ourselves struggling with the issue of human rights, which was so dominant a concern in the debates of the 1970s and 1980s. This time, however, in today's "information society," we are dealing with the ultimate expression of modernity: that is, knowledge.

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