

Traditional Ecological Knowledge and Inuit: Reflections on TEK Research and Ethics

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ABSTRACT. The intimate knowledge that Inuit possess about the environment has figured prominently in North American Arctic research since at least the mid-1960s, when adherents of Julian Steward's adaptationist perspective essentially displaced the acculturation paradigm that until then had dominated Inuit studies. While Nelson's *Hunters of the Northern Ice* is the prototype of integrating traditional ecological knowledge (TEK) into the cultural analysis of Inuit, virtually all ecologically framed research on Inuit adaptation since has drawn extensively on TEK, if only as one of several information sources. Recently, however, Inuit and agencies and individuals concerned with the conduct of research in the North have expressed concern about the appropriation of this culturally specific knowledge. In the contemporary research environment of Nunavut, TEK is now a political (as well as scientific and cultural) concern. More specifically, I conclude that 1) TEK is not qualitatively different from other scientific data sets; therefore, its analysis and interpretation must be subject to the same "rules" that apply to other forms of information; 2) TEK, because it is frequently contextualized in individuals, demands closer ethical treatment than it has previously been accorded; and 3) the protection of TEK from "abuse" by scientists through intellectual property rights initiatives is problematic and unlikely to serve the long-term interests of either Inuit or researchers.

Key words: traditional ecological knowledge, Inuit, research and ethics, intellectual property rights

RÉSUMÉ. La connaissance intime qu'ont les Inuit de l'environnement a tenu une place importante dans la recherche nord-américaine sur l'Arctique depuis au moins le milieu des années 1960, alors que les tenants de l'optique de l'adaptation prônée par Julian Steward supplantèrent essentiellement le paradigme de l'acculturation qui avait jusque-là dominé les études sur les Inuit. Alors que l'ouvrage de Nelson, *Hunters of the Northern Ice*, représente le prototype de l'intégration du savoir écologique traditionnel (SÉT) dans l'analyse culturelle des Inuit, pratiquement toute la recherche dite environnementale sur l'adaptation des Inuit menée par la suite s'est inspirée très largement du SÉT, ne serait-ce que comme source d'information parmi plusieurs autres. Récemment cependant, les Inuit et les agences et individus concernés par la conduite de la recherche dans le Nord se sont dit préoccupés par l'appropriation de ce savoir spécifique au plan de la culture. Dans l'environnement contemporain de la recherche au Nunavut, le SÉT est actuellement une préoccupation politique (de même que scientifique et culturelle). Plus précisément, nous concluons 1) que le SÉT n'est pas qualitativement différent des autres ensembles de données scientifiques et que, par conséquent, son analyse et son interprétation doivent être soumises aux mêmes «règles» que celles qui s'appliquent à d'autres formes d'information; 2) que le SÉT, en raison de sa contextualisation fréquente chez des individus, doit faire l'objet d'un traitement éthique plus strict qu'on ne lui a accordé auparavant; et 3) que la protection accordée au SÉT face à l'«abus» qu'exercent les savants, par le biais de mesures concernant le droit de propriété intellectuelle, pose un problème et a peu de chance à long terme de servir les intérêts des Inuit ou des chercheurs.

Mots clés: savoir écologique traditionnel, Inuit, recherche et éthique, droit de propriété intellectuelle

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INTRODUCTION

[TEK is] knowledge and values which have been acquired through experience, observation, from the land or from spiritual teachings, and handed down from one generation to another (Definition of TEK in GNWT policy statement, as quoted in Abele, 1997:iii)

TEK is *knowledge*. (Hunn, 1988:14; italics in original)

In recent years, scientists have come to Nunavut in search of Inuit traditional ecological knowledge....when Inuit

knowledge is collected...it is almost always taken out of context, misinterpreted or given meaning different than it had in the first place (Stevenson, 1996a:3).

The first of the above statements constitutes the formal definition of traditional knowledge as defined by the Government of the Northwest Territories. The second and third, both by anthropologists, encapsulate two important contemporary, if not necessarily harmonious, views of traditional ecological knowledge that together intimate why TEK has become not only an important intellectual issue, but also an increasingly political topic in the contemporary North.

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I must immediately say that I agree with Eugene Hunn—TEK is knowledge. At the same time, I disagree very strongly with any contention that Inuit knowledge is “almost always” de-contextualized or misinterpreted, especially if this statement carries an implication that these outcomes are general and deliberate on the part of researchers.

Because of my specific interest in Inuit research within Nunavut, the ensuing discussion will focus particularly on aspects of the collection and use of Inuit traditional ecological knowledge. Because much of this discussion relates as much to statements of opinion as it does to facts, as these terms are generally defined, it will be voiced in large part in the first person. Further, the term TEK is used here in broad context, not least because it has become such a general referent in the literature. Thus, while recognizing that “knowledge” conceptually means the accumulated body of information that may be said to form a worldview, here I will occasionally use the term TEK to refer to “data,” meaning uninterpreted observations, and at other times to refer to “information,” that is, to analyzed or interpreted data.

While a considerable synonymy has developed to describe non-Western sources of information on environmental processes and elements (see, for instance, Kuhn and Duerden, 1996), the acronym TEK will be employed here exclusively to mean traditional ecological knowledge. Thus, my use of TEK is intended to convey the knowledge held by Inuit that pertains to the dynamic interactions that occur among all the elements, cultural as well as biophysical, within the northern ecosystem.

The terms “indigenous knowledge” or “traditional knowledge” are sometimes used by various commentators as synonyms for traditional ecological knowledge (as is the case in the Government of the Northwest Territories *Traditional Knowledge Policy*). In the present discussion, however, both these terms are interpreted as including, but also as being more encompassing than, traditional ecological knowledge alone. Following from this, indigenous/traditional knowledge is understood to form a significant, if not always exclusive, part of the cultural context referred to by Stevenson (1996a:3) for TEK.

In the present discussion, therefore, I use Hardesty’s (1977:291) baseline definition that TEK is “[a system of] knowledge developed by a given culture to classify the objects, activities, and events of its universe.”

Finally, regarding Stevenson’s (1996a:3) conclusion that TEK, when interpreted by non-Inuit, is “given meaning different than it had in the first place,” I must note that insofar as my research experience among Inuit has involved aspects of traditional ecological knowledge, interpreting this knowledge is exactly what I have endeavored to do. I consider it an important aspect of my professional efforts to examine and render comprehensible (interpret)—at least for myself—the ways and means by which Inuit interact with their environment. The fact that I have chosen to formally frame my research within an adaptationist/ecological perspective, an approach that Inuit themselves

may not consciously acknowledge (although they certainly live it), means that explanatory differences regarding the motivation for and meaning of Inuit ecological activities almost certainly do take place. However, any interpretive discordance that has occurred has been of qualitative degree rather than of substantive kind.

TEK IN INUIT RESEARCH

Traditional ecological knowledge, as a conceptualization and expression of what Inuit know about their environment and its processes, has formed an important aspect of scientific inquiry among Inuit far longer than TEK, as a “research type,” has had intellectual currency. For instance, one can read Boas’s seminal statement (1888:417) on the relationship between sea ice type, ringed seal abundance, and Inuit settlement pattern as an incorporation of TEK in the earliest systematic work done among Canadian Inuit.

The same can also be said for the ethnographies produced by Stefansson, Jenness, Rasmussen, and Birket-Smith. Although these authors only rarely made explicit reference to individual hunters as their source of information, traditional knowledge of local ecology clearly played a considerable role in their formulations. Indeed, in a wider sense, Boas’s experience with Inuit traditional knowledge may have influenced his formulation of cultural relativism (Boas, 1968), although again such influence is nowhere directly noted.

One of the clearest and most direct examples of the incorporation of traditional ecological knowledge in the recent literature on Inuit is to be found in Nelson’s treatise, *Hunters of the Northern Ice* (1969). Working from within a definite ethnoecological perspective, Nelson exhaustively examined Iñupiat knowledge and use of the sea ice environment. While it often reads like a sea ice handbook, *Hunters* repeatedly emphasizes that successful adaptation to this aspect of the Northwest Alaskan environment requires a detailed understanding of both physical and biological processes. Moreover, it stresses that such understanding is an all-life endeavor, as much embedded in the details of Iñupiat culture as in the efforts of single individuals.

Nelson’s work at Wainwright, Alaska (Nelson, 1969) certainly represents the most detailed examination of Inuit TEK about the marine component of the Inuit ecosystem (which he followed with a similar analysis of Athabaskan ethnoecology, cf. Nelson, 1973). While replete with the particular attributes of the area in which it was conducted, Nelson’s 1969 study most definitely provided a baseline, if not a template, that strongly influenced my own research among Inuit over the next decade.

Efforts to better integrate Inuit TEK within its broader cultural context, however, took place more slowly (see Lowenstein, 1981; Nelson, 1981). Why this occurred is an interesting question, although not one that I feel equipped to pursue at present. Regardless, Nelson’s almost

microdetailed approach to Inuit-environment interactions strongly influenced the way the biophysical aspects of the northern ecosystem came to be addressed in a broad range of cultural ecology-oriented work by archaeologists and cultural anthropologists, sometimes loosely categorized as “subsistence research” (see, variously, Kemp, 1971; Freeman, 1976; Binford, 1978; Keene, 1985; Smith, 1991).

Interestingly, from the early 1970s through the mid-1980s, some of the best research done toward culturally contextualizing Northerners’ traditional ecological knowledge developed from work carried out among Subarctic Cree and Athabaskan societies. Significant examples may be found in Feit (1973), Nelson (1973, 1986), Brody (1981), Cruikshank (1981, 1984), and Ridington (1988). In terms of similar ethnoecological contextualization among Inuit, one important exception to this “Subarctic dominance” must be noted: Fienup-Riordan’s (1983) work at Nelson Island. Like the Cree and Dene literature cited above, Fienup-Riordan’s study, in contrast to most cultural ecological analyses of Inuit at that time, encompassed the ideological component(s) of Yup’ik ecological relations as much as it spoke to the material elements of their hunting.

This is not to say that the great body of ecological research among Inuit since *Hunters of the Northern Ice* has ignored TEK as a culturally developed framework. Indeed, probably most researchers working on the cultural ecology of Inuit since 1970, to include myself, would argue that their work leans heavily upon (if it does not fully integrate) such emic knowledge. Until quite recently, however, direct reference to Inuit TEK by members of this research generation has been sparse. In this regard, I contrast my own published work, much of which has had a distinctly ecological orientation, with the substantive work of, for instance, Nakashima (1988, 1991, 1993) or that of Gunn et al. (1988), McDonald and Fleming (1993), and Stevenson (1996b). Even so, Subarctic researchers have a considerably longer tradition of explicitly referring to the substantive and theoretical contributions of TEK (see Feit, 1973; Brody, 1981; Cruikshank, 1981, 1984; Waldram, 1986; Johnson, 1992, for the Dene Cultural Institute; and Berkes, 1993).

One of the main ways that traditional ecological knowledge has found a place in much literature on Inuit is as a point of intellectual discussion that contrasts TEK’s essential “differentness” in formulation and transmission with Western scientific knowledge and practice. TEK has developed as a critical focus through the prodigious efforts of Freeman (1985, 1989, 1992), Bielawski (1992), Hobson (1993), and Stevenson (1996a, b, c, 1997), all of whom have variously emphasized the methodological-philosophical distinctiveness of TEK from Western science.

Thus traditional ecological knowledge possessed by Inuit has come to form a significant, indeed almost generic, component of at least cultural ecological research in the Canadian Arctic since the early 1970s. Nonetheless, it is important, especially given the central ethical and information roles currently being ascribed to TEK (see SINT-

East, 1995a; Wenzel, 1996), that essential points of friction between researchers and Inuit regarding such knowledge be recognized. As Hobson has explained, “northern aboriginal peoples depended on *their* knowledge, *their* special relationship with the environment, and *their* ways of organizing themselves and their values” (Hobson, 1993:2, emphasis in original).

Rarely has the research literature on Inuit explored the dimensions of Inuit traditional ecological knowledge as fully or directly as TEK has been explored by many Subarctic colleagues working among Dene and Cree societies. Nevertheless, several recent research efforts indisputably have a considerable history of incorporating Inuit TEK. This history is most evident in toponymy research (Müller-Wille, 1987). Land use studies (see Freeman, 1976; Brice-Bennett, 1977; Riewe, 1992) and harvest studies (NHRC, 1976; BRIA, 1982, 1983, 1984, 1985; Gamble, 1984) also have clearly relied upon (and frequently acknowledged their debt to) locally held Inuit ecological knowledge. In land use and harvest studies, however, confidentiality issues have often precluded more specific acknowledgement of Inuit collaborators.

TEK AND THE EVOLVING RESEARCH ENVIRONMENT

While I may understand traditional ecological knowledge to be well integrated into a wide range of Inuit-related research, it is also apparent that other researchers disagree, albeit not always for identical reasons (see Bielawski, 1992, 1996; Stevenson, 1996a). Even more important, at least some Inuit apparently do not share my positive view (see Flaherty, 1995).

Finally, recent changes in the Nunavut Research Institute’s research protocol (NRI, 1997) indicate that traditional ecological knowledge is assuming a new status: essentially, it is perceived as including virtually any aspect of research involving Inuit. As stated in that document,

Traditional knowledge can be defined very broadly to include knowledge on all issues associated with life and the environment. Indeed, most research priorities outlined in this Agenda incorporate traditional knowledge. (NRI, 1997:5)

In light of this, it is useful to speculate about how such a view may necessarily affect the way researchers acquire and use traditional ecological knowledge information. Recent research literature on the Inuit demonstrates some consensus on the importance of including traditional ecological knowledge appropriately within research. But far less agreement exists on why this is not being accomplished now, or on how the evolving particulars of such inclusion may affect methodological and theoretical approaches to northern science. In this regard, it is useful to examine the contra views of the present situation.

Bielawski (1984) was among the first researchers to point out the importance of harmonizing the practice of southern science in the North with the sociocultural and practical needs of aboriginal Northerners. She emphasized several critical points, including 1) the educational potential of science in the North (researchers could provide “role models” and be educators of “novice scientists”); 2) the need to make information locally accessible to individuals and communities; and 3) the importance of scientists’ informative participation in northern policy development. She also alluded to the need for southern scientists to appreciate the richness of traditional ecological knowledge information to be found among Northerners. It is especially regarding this last point—that an emic perspective exists, which can inform scientific inquiry—that Bielawski’s observations on TEK, as both an object of study and a source of alternative interpretation, can provide a baseline for current discussions of traditional ecological knowledge in relation to Inuit research.

In fact, the reality of traditional ecological knowledge as an active component of research can be discerned in Kemp and Brooke’s (1983) analysis of the evolution of research within the Makivik Corporation following the James Bay and Northern Quebec Agreement of 1975. Kemp and Brooke noted that the basic concern in Nunavik, rather than the ethical proprieties of southern science, was that Inuit “expertise and knowledge...have equal weight and value for identifying and solving problems.” Further, “deep suspicions about the relevance of science still exists [sic] and there is a legacy of doubt about the ability of science to work in the interest of anybody other than scientists and southern institutions” (Kemp and Brooke, 1983:1). Precisely these concerns are at the heart of more contemporary Inuit critiques of southern scientific practice regarding TEK (Flaherty, 1995); moreover, they appear to underlie the similar perspective held by a number of non-Inuit researchers.

Since at least the late 1980s, anthropologists (Freeman, 1989, 1993; Collings, 1997) and other northern researchers (e.g., Gunn et al., 1988) have widely critiqued Western science as it relates to TEK, principally with regard to clashes of Inuit emic and scientists’ etic views of specific events. Separately, however, some researchers have redirected their criticism away from the relevance of northern research or its ability to serve Inuit in a particular context. They focus instead on what may be inherent points of epistemological conflict between traditional ecological knowledge and science, especially their respective methodologies and the established premises of each. Thus, more recent analyses by Bielawski (1992, 1996) and Stevenson (1996a, c), in which traditional ecological knowledge systems of understanding are framed in opposition to that of science, are of particular interest (for wider context, see Agrawal, 1995; Sillitoe, 1998).

Bielawski (1992:6) undertook her more recent critical examination of the properties of traditional ecological knowledge and science in terms of what she refers to as

“philosophical realism.” Her rationale for this approach rests on key a priori assumptions: first, that the natural world “is real and amenable to explanation”; second, that “the objects of nature exist in and of themselves, were here before science, and will remain regardless of the activities of inquiry directed toward them.” From this base, she determined that with respect to its formation, Inuit knowledge compares well to formal science in many of its aspects; that both are, in fact, “consensual, replicable, generalizable, incorporating, and...experimental and predictive” (Bielawski, 1992:6). Conversely, she found critical differences between scientific and indigenous knowledge, noting that the latter does not seek to control experimental parameters, increase the accuracy of its measurements over time, or comprehensively address universal phenomena “beyond cultural boundaries”; nor does it develop explanation for its own sake (Bielawski, 1992:6).

In many respects, Bielawski’s grounding of her analysis in “philosophical realism” sounds very much like the cultural relativism—sans Boasian particularism, which required, as Harris (1968:251) has put it, “an almost total suspension...between fact and theory”—that is a central attribute of most, if not all, contemporary cross-cultural studies. This aside, however, Bielawski (1992, 1996), in the second of the two capsule case studies, brings to issue the way some kinds of research (geology and biology are cited) have intentionally sought *not* to incorporate Inuit within their spheres of inquiry. In such research, as one informant scientist stated, “people are overburden” (Bielawski, 1992:7). The result is to exclude potentially valuable insights from TEK. This example makes more comprehensible why at least some Inuit, as Kemp and Brooke (1983) put it, have been moved to reject southern-conceived research categorically, as inadequate to address the interests of Inuit. It also speaks, unfortunately, to the split that endures between the “hard” and the “soft” sciences.

The second principal commentator on the differences between TEK and science is Stevenson, who, in analyzing the role of indigenous knowledge in the northern environmental impact assessment process (Stevenson, 1996c), undertakes a more encompassing criticism of science and its practice in relation to indigenous and/or traditional knowledge. The central element of his critique is based on what he (1996c:288) terms the “high-context” nature of traditional ecological knowledge (or, as he states, ‘indigenous knowledge’) versus the “low-context” approach of formal science.

In setting this opposition, Stevenson (1996c:287) explains that the high context quality of aboriginal knowledge is derived through the individual construction of knowledge—essentially that “experience is knowledge and knowledge is experience.” Further, such individual knowledge becomes general through the experiencing of like phenomena by others. By way of contrast, he then (1996c:288) notes that formal science relies on “information” to provide meaning and understanding, or essentially that scientific knowledge does not require recurrent, direct

experience. He provides a useful enumeration of the substantive methodological and conceptual differences between these two knowledge systems, as well as the values that he perceives to underpin them (Stevenson, 1996c: Table 1).

Despite these substantial differences, Stevenson (1996c) still concludes that, rather than being inherently exclusive, the two knowledge systems share a considerable degree of complementarity, and that this complementarity is a matter of necessity, not mere convenience. TEK can eliminate the methodological deficiencies that inevitably inhibit a formalistic method, which has difficulty integrating disparate data types, works on an abbreviated time scale, and is often “monotypic” in its focus. Conversely, science, because of its capacity—among other things—to engage in the focused measurement and analysis of tightly bounded questions, can usefully inform indigenous populations in areas of inquiry where traditional ecological knowledge may be too coarse. Science can answer questions like “How dry is dry?” That is, “scientific knowledge is good at quantifying” (BHP Diamonds, 1995: Appendix IV-C2, p. 25, quoted in Stevenson 1996c:289).

Ultimately, and rightly, Stevenson (1996c:289) concludes that such complementarity—to mean a balance between traditional and scientific knowledge systems—then “depends on the [research] question.” Only when this is first established is it possible to discern “what the appropriate blend of traditional and scientific knowledge should be at a given time.”

IS TEK A SPECIAL RESEARCH GENRE?

In light of both the manner in which traditional ecological knowledge has to date generally been incorporated into Inuit research and the criticisms that have been directed at this usage, it is appropriate to ask whether TEK forms a special category of research. My answer is that it is qualifiably special because of the way TEK is constructed—not as something separate from its possessors’ lives, but as something integral to the individual.

This association with the individual is important in several respects. The most obvious is from the perspective of research ethics. Because we generally assume (and are not infrequently told) that traditional ecological knowledge is a broadly held body of information, there is a tendency to ignore just how specific the source of TEK items may be.

In fact, what an individual reveals about his or her knowledge of sea ice, caribou, or *inuksuk* may be as identifying as, if not more so than, other forms of information (monetary income; harvest counts) that are frequently elicited from respondents, to which confidentiality is routinely assigned. Thus, the insistence found in various Nunavut research protocols (SINT-East, 1995a, b; NRI, 1997) regarding informed individual consent before the collection of TEK, a provision of the research application process that I have vociferously questioned in the past, shows commendable institutional foresight.

No less important to the way research may be affected is the degree to which individuals form the context of traditional ecological knowledge data. A very real issue may be just how generalizable individual traditional knowledge is. In this regard, Krupnik and Vakhtin’s (1997) Siberian Yupik work is important. As a careful reading of Stevenson on Inuit knowledge of harp seals (1996b) brings out, considerable variation about the details of a species and its behavior may exist even among the most experienced members of a single hunting community.

Thus, the way TEK-related data are handled may require modification (see Ferguson and Messier, 1997). My experience with students has been that what an Inuk may say about animals, seasonal ice conditions, or the like, all too frequently is immediately extended to all Inuit. In fact, TEK, precisely because individuals contribute both subjectively and selectively, requires the same level of independent “truthing” as other kinds of data, either from other community members, through participant observation, or by other means. Just how structurally embedded even the most mundane elements of TEK actually are (Wenzel, 1981) may be questionable precisely because this information is so contextualized in individual experience.

In the larger context, that of Inuit culture, there is a tendency to forget that local ecological knowledge may be affected by external sources of information. As Krupnik and Vakhtin (1997) point out, traditional ecological knowledge, at least as it may be partially constructed by individuals, has become as open to novel sources of data as other elements of Inuit culture. Hence, the need to “truth” TEK as to its actual sources may become increasingly necessary.

Perhaps the most sensitive aspect of accomplishing the “appropriate” blending of TEK with scientific knowledge concerns our ability to discern how Inuit logically link the elements of TEK into a coherent operational system. The critical assessments by Bielawski (1992) and Stevenson (1996a, c) highlight points of friction regarding the methodological recognition of TEK and its incorporation into the framework of northern research, but fail to illuminate substantively how Inuit structurally integrate experienced events into a larger knowledge framework.

After noting that formal science is reductionist and TEK holistic in their respective approaches to “knowing,” neither Bielawski nor Stevenson attempts to discover how the TEK whole is articulated. Stevenson’s (1996c) Table 1 makes it very clear how research is formally framed in science. Particularly important is understanding the logic that guides the scientific process, from identifying a question through analyzing data to reaching an interpretation. However, it is by no means as clear how the TEK end product (that is, a functionally useful body of information) is actually constructed in terms of either its initial or its secondary premises. Nor is it clear how these premises receive verification, or whether such premises, or at least some of them, are widely shared.

These matters may be exactly as they are often described—completely subjective and quintessentially

particularized—but I see very little effort, with some notable exceptions (see Nakashima, 1991; Scott, 1996), to determine whether there is any ordered basis to how Inuit address ecological relations. To not seek this ordered basis—even if to do so we must begin from our own basics in taxonomy and ethology—is the greatest disservice our science does to TEK. As Nakashima (1991:66) points out, while there may be a difference in the cultural end products that scientists and Inuit respectively construct, there also exist “striking similarities in intellectual process.” It is in the explication of the formational processes of TEK that a more solid basis for fruitfully integrating aspects of these two systems may be derived. Such a focus, at least to me, would make TEK a special type of inquiry.

DOES TEK NEED SPECIAL RULES ?

This is a question that is rapidly taking on an importance quite separate from intellectual concerns of what traditional ecological knowledge is or how it might be researched. Rather, it relates to the propriety of non-Inuit engaging in such research or interpreting the resulting data (Stevenson, 1996a).

Aspects of this larger issue recently broke into public view in a *Globe and Mail* article (9 August 1997:D1-2; but see also Howard and Widdowson, 1996; Abele, 1997; Berkes and Henley, 1997; Stevenson, 1997). The article, entitled “Getting into the Spirit of Things,” explored the application of traditional ecological knowledge, particularly as it may be rooted in aboriginal spirituality, to the BHP environmental impact assessment (EIA) process. The controversy was initially ignited because of Howard and Widdowson’s (1996:34) opinion that consideration of TEK, as required under Northwest Territories legislation, constitutes a violation of the Canadian Charter of Rights and Freedoms. Yet clearly a larger question underlies the BHP situation: Who has the right to access and interpret traditional ecological knowledge? Howard and Widdowson recount that aboriginal leaders involved in the BHP-EIA felt that consultation with traditional knowledge holders was essential to avoid misinterpretation and, further, to protect the “intellectual property rights” of TEK holders.

The misinterpretation of traditional knowledge, be it ecological or other, is a concern that most nonaboriginal researchers share with the holders of TEK. However, the invocation of intellectual property rights in relation to TEK and indigenous knowledge generally, while the subject of important current discussion within Nunavut and beyond (Cleveland and Murray, 1997), has not previously been a formal aspect of northern research (SINT-East, 1995b:3). Thus, the formalization of such rights, whether through the Nunavut research licensing procedure or otherwise, would be a “rules” change of considerable significance.

The view that Inuit have rights to traditional ecological knowledge by virtue of its constituting an intellectual property, while not yet under wide general discussion, has

been raised in at least two fora. Flaherty (1995) and Stevenson (1996a) have both offered strong statements in which the misuse of TEK by non-Inuit is central, and both suggest that intellectual property law offers recourse.

In addressing the Fourth National Students’ Conference of the Association of Canadian Universities for Northern Studies, Flaherty (1995:183), while not invoking the concept of intellectual property rights outright, spoke of the concern among Inuit over “the exploitation and appropriation of Inuit knowledge, practices and culture” that occur through research. Although never exact as to the nature (or extent) of this appropriation, Flaherty is explicit about the character of exploitation that she understands to occur through the action of research:

Southerners come north, do their field research over a number of months, usually the summer, get to know people in the community, then go south to write and publish their findings. They are acknowledged as the “experts,” more so if they have included Inuit in the data collection and can cite them in their research. (1995:184)

Because it is Flaherty’s view that research contributes heavily to “a larger process of development or change” (1995:178), the influence “experts” exert on policy translates into “the freedom to exploit Inuit knowledge for...gain” (1995:179). And although Flaherty is not precise as to how such connections occur, the fact that she interprets “freedom of expression” to be “freedom of exploitation” leads me to conclude that a major part of her concern lies with the way scientists interpret results. She then suggests that this situation can best be redressed through the institution of a fully, presumably community, participatory approach to research, in which “the decision-making of the identification and design of the research, the process and its uses” (1995:185) would be controlled by Inuit.

While Flaherty at most only alludes to intellectual property rights via her desire to see the “uses” of research controlled through a participatory process, Stevenson (1996a:12) is most direct with respect to such rights and Inuit ecological knowledge. In his view,

Inuit own the intellectual property rights to their ecological knowledge, even if much of it has yet to be written down. No researcher has the right to document or use Inuit knowledge without Inuit permission. And, when their knowledge is recorded by outsiders, Inuit have the right to insist that it not be taken out of context or misrepresented....Inuit have the rights to own and control access to their ecological knowledge.

He then notes that

Many Inuit view the extraction of their TEK from its broader cultural context as a form of theft....At best, piece-meal extraction of Inuit TEK...invites

misrepresentation and misinterpretation. At worst, it represents a form of misappropriation and cultural exploitation. (Stevenson, 1996a:14)

Clearly these two documents provide much to think about on a variety of issues that extend from how participatory research relationships may be created to the limitations that intellectual property rights, if applied to traditional ecological and other data, might impose on researchers' "freedom of expression." The matter is particularly difficult because, unlike the genetic plant resources in which, Cleveland and Murray (1997) have argued, indigenous farmers have proprietary interest, Inuit traditional knowledge rarely has manifested such materialization. (However, the role of TEK in understanding and perhaps ameliorating the environmental impact of exogenously derived development efforts may be considered such a materialization. See Stevenson, 1997; Duerden and Kuhn, 1998.) The issue of culture itself as intellectual property has recently been addressed extensively by Brown (1998).

Immediate concern must center on 1) the problem of possible misinterpretation of traditional ecological knowledge through its cultural decontextualization (see ACUNS, 1982; RCAP, n.d.) and 2) the conundrum presented to researchers by our adherence to a perceived reductionist methodology. Not surprisingly, the fact that these two matters are not easily separated makes each essential to the discussion of traditional ecological knowledge.

As stated earlier, I consider interpreting the data that I collect to be among my principal responsibilities as a researcher. That my interpretations retain the cultural context in which these data occur is also, in my view, essential. However, what precisely may constitute appropriate or correct contextualization is also very much a product of interpretation. It is very possible that, among all the Inuit of Nunavut, there is at least one Inuk who will find fault with my analysis of an aspect of traditional ecological or other knowledge that I have gathered at Clyde River. In fact, it is highly likely that there is at least one Inuk in Clyde who would find cause to disagree with some facet of my analysis of Inuit ecological relations. Given the range of knowledge and experience within the population of Clyde, such disagreement is more than a possibility, as I have discovered on various occasions.

When it comes to context, and considering that each person's experience or knowledge of an experience is part of the totality of context, the fact that some individuals have not lived or do not know an aspect of local ecology means that complete contextualization may be impossible. Extreme as this hypothetical example may seem, it strikes me that this impossibility could in fact be surmised from a reading of Flaherty (1995) or Stevenson (1996a).

A few years ago I published a paper on changes in the geographic pattern and social organization of summer camps in the Clyde area (see Wenzel, 1994) based on longitudinal data gathered from some 30 summer camps observed for one- to ten-week periods between 1972 and

1989. The paper showed how economic constraints that I interpreted as related to the collapse of the sealskin market had led to a marked change in the distances that such camps are located from Clyde River. In addition, since the seal ban, camp leadership had shifted from extended family heads to persons who possessed important economic resources. When I sought confirmation of my conclusions regarding the placement and construction of contemporary summer camps from a number of Clyde Inuit, many stated that I was in error. Two years later, however, several former critics spontaneously informed me that now they too saw changes of the kind I had noted, although each also made me aware that "traditional" exceptions still existed.

The essential point is that perspective is a critical element in research, and that emic embeddedness is not always the best vantage point for interpretation at a given moment. The fact is that I can never achieve contextual completeness in my research; however, such completeness may not always be essential, or even desirable, in examining a particular situation or condition.

Another example concerns Stevenson's (1996b) study of Inuit knowledge of harp seals, undertaken at the behest of several Nunavut governmental and quasi-governmental agencies. The data were collected primarily through Hunter and Trapper Organization-sponsored meetings with hunters and elders in three Baffin Island communities. Among other objectives, these meetings were intended to "discuss...views on the collection, interpretation and use of Inuit ecological knowledge" by non-Inuit.

In the course of this research, a number of Inuit stated that the more a species is hunted, the more abundant it will become. While much of the information on harp seals and their ecology in the report is essentially presented in the unembellished words of the Inuit, Stevenson (1996b:6) felt the necessity to interpret this aspect of Inuit ecology in the following terms:

This is a fundamental belief of Inuit, and can be explained in biological terms....Animal populations which are hunted regularly have less disease, reproduce faster, and have more to eat than animals which are not hunted.

Of interest here is not the nature of this particular etic interpretation, but the fact that a need to reinterpret an essential element of the Inuit ecological worldview was felt at all. That the report later (Stevenson, 1996b:8) explicitly iterates that Inuit must "protect their ecological knowledge from misinterpretation" is more than a little ironic. Certainly the invocation of a Western biological explanation differs not at all from the interpretative path many researchers follow at other times when seeking to comprehend TEK-based explanations of ecological processes or events. However, it also points up the role that interpretation plays in the activity of research, whether formulated through participatory approaches or from the "outside."

As Bielawski, Flaherty, and Stevenson make clear, the problem of research methodology has at its root the inherently different ideologies in which these two systems of knowledge are based. Further, as Flaherty (1995:183) acutely notes, the agencies that fund northern research base their decisions at least in part on whether a project conforms to an expected protocol, and their control over the whats and hows of research exemplifies the differential in power between Inuit and non-Inuit.

Looking at this situation from my own perspective and that of Nakashima (1991), I am not sure that so large a methodological gulf exists between southern and northern ecological science as some have projected. However, I reiterate that without exploration of the structures that frame each system, rapprochement, except at the most superficial levels, will be impossible.

I find security in the methodologies, both theoretical and practical, that I employ. They organize and focus the scope and direction of my inquiries, structure my data collection, and offer a framework in which to develop my analysis and interpretation of a given data set. By conforming to these protocols, I minimize the dangers of overgeneralizing from limited information or untested assumptions.

It is not only granting agencies and the southern scientific establishment that place emphasis on these protocols. The Nunavut Research Institute (SINT-East, 1995b:1) states that research is *“the study and investigation in some fields of knowledge which uses scientific methods to discover or establish principles”* and, further, that “research projects,” among their features, include a component in which *“analysis and interpretation of data follows scientific methods”* (italics in original). Insofar as the NRI guide was developed through consultation with Inuit communities and organizations, the application of appropriate theoretical and technical approaches to all forms of data seems to be mandated.

Even if TEK and scientific approaches differ less than others have projected, intellectual property rights—with the implication of final control over the use of traditional ecological knowledge, as discussed by Stevenson and Flaherty—remain an important issue. Because of this concern, a considerable shift in the conduct of northern research may be required. Such a shift would surely affect end products, but probably also the way of identifying research questions. To my knowledge, only three major southern-produced works on or related to Canadian Inuit ecological knowledge include Inuit in their authorship (Smith and Memogana, 1977; Gunn et al., 1988; McDonald et al., 1997; see also Condon, 1996). In this regard, Flaherty and Stevenson’s point is well taken.

However, I suspect that with respect to Inuit intellectual rights to their traditional knowledge, shared authorship with southern scholars is a lesser issue than control of the results. Here only Stevenson provides some guidance, suggesting (1996a:18) that

Inuit ecological knowledge cannot enter the public domain...without prior Inuit approval. It may come as a surprise to people steeped in written and open knowledge traditions...but Inuit ecological knowledge is the exclusive intellectual property of Inuit. The researcher and/or...agency has no legal right to divulge Inuit ecological knowledge...to a third party without explicit Inuit permission.

The implications of this statement are obviously considerable, although in the same document the author equivocates to some degree. He notes that researchers are not being told “how, or what, to think” about interpreting Inuit ecological knowledge, but only that ecological knowledge and information released to researchers should be “presented and interpreted from an Inuit perspective” (Stevenson, 1996a:17). He adds that Hunter and Trapper Associations “cannot prevent a researcher from interpreting ecological knowledge s/he has obtained from his/her own western cultural bias. However, they can make it a condition of research that the researcher’s interpretation must be balanced with theirs” (Stevenson, 1996a:17). This seems to be a reasonable call for a balancing of interpretation. A close reading, however, clarifies the author’s view that a clear segregation should exist between interpretation of TEK-related information and its actual use or release. The latter should be allowed only with permission from a community or hunter and trapper organization.

Despite Stevenson’s (1996a:18) avowal of the legality of Inuit intellectual property rights over TEK information, as best I can discern his use of the concept differs markedly from the way it has been applied in other parts of the world (see Brush and Stabinsky, 1996; Cleveland and Murray, 1997). As Patel (1996:309), in particular, has pointed out, international convention, notably the General Agreement on Tariffs and Trade (GATT), sets intellectual property rights clearly apart in law from industrial property rights: that is, intellectual property is different from potentially patentable discoveries.

Even a forum like the United Nations Convention on Biological Diversity—which is sympathetic to expanding industrial/patent-type property rights into wide areas of the traditional knowledge realm that might find application in industries such as agribusiness or pharmaceuticals—appears to regard “non-technological” aspects of traditional ecological knowledge as remaining within “the common heritage of mankind” (UNEP, 1992). Hence, Stevenson’s claim—that Inuit maintain certain rights to TEK because such knowledge constitutes proper intellectual property and thus must remain under Inuit control until TEK holders and researchers agree on terms of use—is, at best, ahead of the times.

Until such terms are agreed upon, it would seem that the methodology suggested by the Tri-Council of Canada (1997:VII-7f) regarding ethical conduct for research involving humans offers a most sensible alternative:

There are many situations where collectivities may wish to react to the findings....It is usually inappropriate for the collectivity to seek (or to be given) a veto on report findings. At the same time, it is inappropriate for researchers to dismiss matters of disagreement...without giving them due consideration....Where any disagreement persists, it is a minimal requirement that researchers provide the collectivity with an opportunity to make its views known. Failing agreement, researchers should accurately report any disagreement on interpretation of the data in the final report.

Far from being a “pie in the sky” approach to the matter, the Tri-Council’s suggestion is one that has already found a place in the Arctic literature (Klausner and Foulks, 1982).

CONCLUSIONS

When reading the works of an important thinker, look first for the apparent absurdities in the text and ask yourself how a sensible person could have written them. (Thomas Kuhn, quoted in Gleick, 1996)

Can any conclusions be reached regarding whether TEK should be set apart from other types of information as a special genre requiring special rules? I tentatively suggest that the answer is yes.

First, with respect to whether Inuit traditional ecological knowledge is, or should be, a special field of northern scientific inquiry, my personal view is a qualified yes. I make such qualification because I distinguish between the loose incorporation of locally held environmental facts into research and the analysis of how traditional ecological knowledge is constructed in structural terms. It is the latter that I see as having crucial methodological, theoretical, and cultural significance and that, to date, has not been well served by non-Inuit science. (Formal scientific knowledge construction, in the way it has been transmitted to, or “translated” for, Inuit, has received equally poor treatment.)

This situation may exist largely because well-formulated ethnoscientific research, in which the focus of study is less on “facts” than on how Inuit construct and validate their system of knowledge, has not been undertaken among the Inuit in Nunavut. Nevertheless, an ethnoscientific approach to Inuit traditional ecological knowledge would, in my view, fully constitute a new and potentially highly fruitful genre of inquiry. It would also alleviate the problems attending the piecemeal etic borrowing of emically perceived environmental facts that sometimes now occurs.

As to whether Inuit traditional ecological knowledge requires special rules, my answer is more equivocal. In terms of deserving the most careful ethical treatment, to include informed individual consent, my answer is yes. But I also find the issue of intellectual property rights and, thus, final interpretive control, as it has put forward

obliquely by Flaherty and much more explicitly by Stevenson, unacceptable.

Where such categories of traditional knowledge may affect the explicit economic and cultural interests of Inuit, as in potential EIA conflicts (Sallenave, 1994), co-management of TEK and its research may be necessary. But in the larger context of Inuit research, I can only see the type of potentially restrictive interpretation some have ascribed to the concept of intellectual property as antithetical to both Inuit and Western social and scientific interests.

Ultimately, traditional ecological knowledge is too important both to Inuit and to non-Inuit for it to be reduced to a matter of “voice.” Much of what has been written about TEK seems to offer little beyond this stage. Yet numerous examples in the anthropological and other scientific literatures that concern Inuit traditional ecological knowledge well demonstrate that this body of knowledge, whether developed from individuals or from whole communities, has contributed to non-Inuit understanding of northern human ecological relations. Further, this contribution is especially clear when traditional knowledge has been treated systematically. That TEK must be treated as a primary systems element is, in fact, essential and paradigmatic to any attempt at realistic contextualization of TEK.

Abele’s (1997:iv) point, that southerners should be trying to learn from Dene and Inuit values and practices rather than worrying that those values might pollute liberal democratic institutions (which presumably include southern institutionalized science), is well taken. On the other hand, there are aspects of TEK, some (intellectual property rights) spurious and others (the confidentiality of individuals) positive, that scientists dare not (as Abele suggests they might) consider “silly.” All need to be addressed with respect, not only because they may represent changes in the conduct of research, but also because they say much about the perception of science in the North today.

The dialogue over traditional ecological knowledge and scientific research, which already has a long history, now appears to be entering a new phase that will prove to be as dynamic as any in the past. At the very least, Inuit will continue to contribute importantly to science. This is not surprising, since TEK, forming as it does one of the many aspects of Inuit traditional knowledge, has always importantly informed research on Inuit. However, no matter how the issues raised here are resolved, it is certain that Inuit will no longer be “silent partners” in future northern research.

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