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Decolonizing Sustainability through Indigenization in Canadian Post-Secondary Institutions

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Abstract: Sustainability discourse indicates a need to reconsider our approaches to social, economic, and environmental issues because, without deep transformation, global human survival is in jeopardy. At the same time, post-secondary education institutions in Canada are Indigenizing their settings but have rarely taken up sustainability and Indigenization as related concepts. In this research, participants delivering Indigenous programming in ten colleges and universities across Canada contributed their insights on the relationships between Indigenous worldviews and sustainability in their territories and institutions. The five key findings that emerged from the study are: (1) Indigenous worldviews are based on a belief in the sacred, which orients Indigenous knowledges and responsibilities for sustaining life on Earth; (2) sustainability is expressed as a function of tradition linking Indigenous identity with culture, language, and environmental health; (3) entrenching Indigenous knowledges throughout institutions is to sustain cultural identity; (4) national and international standards supporting Indigenous self-determination are primary drivers for the inclusion of Indigenous knowledges and advance the underlying principle of sustainability; and (5) Indigenous holistic learning includes social, economic, and environmental aspects of sustainability.

Keywords: Indigenous; Indigenous knowledge; sustainable development; sustainability; education; decolonize; traditional knowledge; post-secondary education

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1. Introduction

What would a sustainable world look like if global humanity had gotten everything *right*? It is difficult to imagine the kinds of world governments, legal systems, trade, transportation, and education systems that would have emerged around the world. What does sustainability even mean? One of the most well-known explanations of sustainable development came from the Brundtland Commission, in *Our Common Future*, which said: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [1] (p. 41). There are many scientists and other scholars who believe we are failing in this effort [2]. It seems a monumental challenge to pursue sustainable lifestyles in light of the reality of the human desire to have more than is needed, to accumulate wealth and power, and to control lands, resources, and citizenry. One wonders if it is even possible to slow or reverse our nature to be unsustainable. In Canada, the legacy of colonization built on exploitation and wealth generation has entrenched a legacy of unsustainable consumerism. Despite this, traditional teachings of Indigenous peoples across Canada contain unique philosophical worldviews about sustainability and continue to be upheld by their respective communities. Examination of the Western concept of sustainability in relation to Indigenous perspectives reveals how Indigenous knowledges can generate community and land-based resiliency and decolonize intergenerational knowledge transmission. Subsequently, post-secondary education institutions can become important sites across Canada where Indigenization is recognized as consistent with the social, economic, and environmental pillars of sustainability.

In Canada, Indigenous peoples are inclusive of First Nations, Métis, and Inuit under the *Constitution Act of Canada, 1982* [3]. First Nations and Inuit occupied traditional territories across Canada for millennia before colonization. Métis emerged as a Nation in the generations following colonization. The biological lineages of Métis people are acknowledged as having come from First Nations and European ancestors, but who came to be recognized as a distinct culture of people. Indigenous peoples' traditions are often based on ancestral teachings about relationships with non-human ancestors or relations within the natural world. As such, Indigenous peoples believe maintaining life support systems is essential not only for humans but also for all living things, and subsequently, try to honour these teachings in contemporary life. Interpreting environmental issues through Indigenous worldviews, whether First Nations, Métis, Inuit, or otherwise, requires thinking beyond mechanistic scientific methods and theories, social theories, and colonial legal processes to consider relationships among human and non-human elements of nature. My identity as a Métis person often gives me strength and insight into the need to honour the biological and cultural gifts of all my ancestors.

As an Indigenous educator and member of the Métis Nation, I have studied relationships between Indigenous worldviews and science education in Kindergarten–Grade 12 schools for some time [4,5]. I also spent time working for Métis Nation political authorities on environmental issues. During these years, I lamented how few published Indigenous science resources were available for use in schools or in other forums where evidence-based knowledge was influential. In my research, I set out to explore the linkages among Indigenous knowledges and sustainable development in post-secondary institutions (hereafter referred to as PSE) [6]. For decades, Indigenous peoples have called for Western education systems, and other elements of society, to decolonize as a process of undoing and repairing some of the damage to Indigenous peoples.

> Decolonization, however, does not mean and has not meant a total rejection of all theory or research or Western knowledge. Rather, it is about centering our concerns and world views and then coming to know and understand theory and research from our own perspectives and for our own purposes. [7] (p. 39)

Colonization and decolonization are more than a physical expression of habitation, they are also the connective intellectual, spiritual, and ethical systems of complex human social systems.

Expressing decolonized knowledge can also ensure that marginalized voices of all Indigenous persons, including men, women, youth, elders, and folks from the two-spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, and asexual communities are heard. Expanding the human range of thought is reliant upon many voices and perspectives that will contribute to our collective energy and ability to problem-solve.

At one time, sustainability was thought of primarily in the physical terms of environmental conservation. It began with a recognition that humans are overexploiting, polluting, and destroying the natural world faster than it can recover. Thomas Malthus put forward an environmental limits theory in 1798, in which he predicted limits to economic growth and food security because of resource scarcity caused by the growing human population and a limited amount of good agricultural land [8,9]. In 1962, Rachel Carson published *Silent Spring* on the effects of environmental toxins, and in 1968, Paul Ehrlich published *The Population Bomb* on connections among the human population, resource exploitation, and the environment [10].

Over time, broader scholarly attention to environmental degradation, development, and economics grew and branched into a variety of ideological streams, such as eco-theology, eco-feminism, and eco-socialism, each with particular points of view, histories, and recommendations for action. Academic disciplines concerned with environmental economics, deep ecology, and social ecology, among others, have also taken shape contributing to the development of over 67 sectoral sustainability assessment tools relevant to, for example, innovation, technology, human development, market economies, ecosystems, products, cities and other geographic areas, and energy [8,11].

Globalization has changed the way humans live and consume, resulting in a relational need for a commitment to slow or reverse, our damaging presence on Earth. Over the past few decades, individuals and governing authorities have expanded the meaning and definition of sustainability to be inclusive of social, economic, and environmental elements, which then led the global community to develop and implement the 2030 Sustainable Development Agenda and Goals [1,12]. Decolonization of sustainability is not a process of undoing entire systems that will return us to pre-colonial times in Canada, but rather it can be understood as a systemic process of re-shaping how we, and the generations to come, can think, live, and thrive on a healthy planet.

In my research [6], it was my contention that if similarities existed between the purpose and goals of environmental sustainability and Indigenous knowledges, then PSE institutions could become important sites across Canada where Indigenization is recognized as consistent with the social, economic, and environmental pillars of sustainability. In this regard, I came up with a series of questions that would help me explore my contention. I wanted to know how PSE places of learning serving Indigenous learners addressed environmental sustainability. I wanted to know what Indigenous philosophical principles concerning the environment and interconnectedness in relation to sustainability could be found in PSE. I wanted to know how curriculum, research, facility operations, institutional governance processes, and community outreach were linked to sustainability through practice and policy in PSE. Finally, I wanted to know how sustainability was practiced in PSE, and what policies drove those practices.

2. Research Context

To advance this exploration, I looked at a broad range of literature about the history of sustainability, Indigenous communities, and what was happening in community-based conservation. I looked at some knowledge systems of Indigenous peoples, including traditional livelihoods; land use, languages, and environmental decision-making. Then finally, I looked at Indigenous education, contemporary careers, sustainability in education, and practice–policy gaps in PSE. These areas of inquiry helped articulate the landscape of thought in particular areas of interest. While I mused about the question of what the Earth and human societies might look like if we had gotten things *right*, I also wanted to be clear about what we were doing *wrong*. I knew, from my academic and cultural experiences, that the scientific and traditional Indigenous communities had more in common than many people might have thought. Why does this matter?

I began by looking at what is at stake in our decision-making about living on a sustainable planet. In an article supported by over 15,000 scientists and other scholarly signatories, Ripple et al. offer a dire warning, "[W]e have unleashed a mass extinction event, the sixth in roughly 540 million years, wherein many current life forms could be annihilated or at least committed to extinction by the end of this century" [2] (p. 1026). The seriousness of these and other environmental issues point to the need for humanity to transform the way it views and interacts with the environment. Mass extinction is not projected; it is already underway. Despite widespread knowledge of environmental problems, human behaviour has been slow to change. Earth systems now support over 7 billion people and projections estimate a likely increase to between 9 and 12 billion by 2100, making sustainability the urgent issue of our time [9,13]. The United Nations and its subsidiary bodies have produced report after report based on scientific evidence, Indigenous perspectives, and national governments' reports about the declining state of our world. Global Environment Outlook 6 called for urgent action by world governments [14]. Despite begin a minority in their own traditional territories, Indigenous peoples' worldviews in Canada have remained a source of strength for many who understand the value of this enduring wisdom.

Creation stories of First Nation cultures in Canada convey that humans are the least important life form, being created last and being most dependent [15]. Human dependence is reflected in the importance Indigenous peoples have traditionally placed on the environment. This wisdom exists because Indigenous cultures and languages emerged

over millennia from their knowledge, understanding, and relationships with the natural world [16–18]. Embedded within Indigenous cultures and languages are the traditional laws intended to guide thought and behaviour. Traditional protocols, principles of culture, languages, spiritual belief systems, kinship, and relationships with non-human life forms demonstrate Indigenous peoples' understanding of their reliance on the natural world [19–21].

Indigenous peoples' traditions are often based on ancestral teachings about relationships with non-human ancestors or relations within the natural world. As such, Indigenous peoples believe maintaining life support systems is essential not only for humans but also for all living things and subsequently, continue to honour these teachings in contemporary life. Interpreting environmental issues through Indigenous worldviews, whether First Nations, Métis, Inuit, or otherwise, requires thinking beyond mechanistic scientific methods and theories, social theories, and colonial legal processes to consider relationships among human and non-human elements of nature.

3. Methodology

In this qualitative research project, I used a decolonizing approach informed by Indigenous methodology and Indigenous, critical, and emancipatory theories. By honouring Indigenous ways of thinking and acting, I could accommodate participants' subjective experiences and the process of recognizing socially constructed knowledge. Moving beyond strictly academic research meant including a social justice and action agenda for advocacy and participatory knowledge, and being a good relative, in the traditional Indigenous sense, by being accountable to all my relations as a researcher. Most Indigenous cultures across Canada recognize their relations as being more than biologically linked family members, extending to other entities such as plants, animals, minerals, and water. This recognition brings an added responsibility for Indigenous researchers. The methodology was adopted to identify foundational principles of Indigenous knowledges in relation to sustainability, critically examine what participants saw as benefits and constraints of advancing Indigenous knowledges in PSE, and gain advice from participants about future action planning.

Ten Canadian PSE institutions were included in the research (seven universities and three colleges). Two institutional sites were in Eastern Canada, two were in Northern Canada, four were in Western Canada, and two were in Central Canada. Each of the 10 participants provided a one to two-hour interview, by telephone or in person, and completed an online survey. In order to capture a broad spectrum of perspectives of individuals working in vastly different locations across Canada, serving the Indigenous peoples of various nations, I asked participants a series of questions that covered a range of topics related to their conceptions of sustainability.

Analysis of Research Findings 1 and 2 was based on participants' responses to the first research question: In the territory you work, what Indigenous philosophical principles concern the environment and interconnectedness in relation to sustainability in post-secondary education? An analysis of *sustainability* and *Indigenous knowledge* as themes in participant interviews provided the data used. Finding 3 was based on participants' responses to the second research question: In your PSE place of learning, how are *curriculum*, *research*, *facility operations, institutional governance processes*, and *community outreach* linked to sustainability through practice and policy? These areas of inquiry were taken up as a whole in interviews but analyzed thematically in interviews and surveys. Findings 4 and 5 were based on participants' responses to the third research question: In your PSE place of learning, how is the concept of sustainability practiced and what policies drive these practices? Responses in interviews were drawn from themes of *Indigenous knowledges*, *sustainability*, *conservation*, and *networking* as they pertained to the practices and driving policies in participant settings.

This research received approval from the University of Saskatchewan Research Ethics Office for: the ethics application, letter of invitation, research guide, consent form, transcript

release form, and telephone script. The University of Saskatchewan Research Ethics Office approved this research on certificate BEH 15-268.

4. Research Findings

4.1. Finding 1 Indigenous Worldviews Are Based on Spiritual Beliefs, Which Orient Indigenous Knowledges and Responsibilities for Sustaining Life on Earth

This finding indicated the importance of Indigenous spiritual beliefs within Indigenous knowledges that extend beyond communities and institutions. The belief systems learned and practiced by individuals connect them to all aspects of Creation, including accountability to non-corporeal and future generations of living beings. The finding also includes consideration of connection and renewal, intergenerational foundations, and transmission of worldviews. One participant affirmed:

> Sometimes, I get to bear witness to some of these students who, for the first time, go into a sweat lodge ceremony and they come out with this whole totally different renewed perspective on life and how they see themselves as part of it. [6] (p. 75)

A conclusion emerging from this finding is that although there are common principles, Indigenous knowledges are specific to particular cultures and belong to the members of that cultural community. The inclusion of Indigenous knowledges within PSE institutions, therefore, is primarily for the reinforcement of cultural identity [6] (p. 134).

4.2. Finding 2 Sustainability Is Expressed as a Function of Tradition Linking Indigenous Identity with Culture, Language, and Environmental Health

This finding indicated that understanding sustainability from an Indigenous perspective and acting on that understanding is related to the depth of cultural knowledge, linguistic fluency, and continued viability of Earth systems. Indigenous language speakers have the ability to understand concepts related to sustainability in their mother tongue that do not easily translate into English, or other languages. While some individuals may not speak their Indigenous language, they may have extensive understanding and knowledge of cultural teachings. Indigenous cultures and languages are linked to the natural world, reflecting the state of each in relation to the other, and containing the knowledge to live sustainably. One participant in the study explained, "You can hear the bush in the language. You can hear the animals. You could hear the natural world in the language itself. So, when we're talking about sustainable education, environmental education, it's written right within our languages" [6] (pp. 77–78). A conclusion emerging from this finding is that diminished Indigenous relationships with the natural world are detrimental to Indigenous cultures and languages. Consequently, weak knowledge of culture and language can negatively influence one's ability to understand how to live sustainably [6] (pp. 134–135).

4.3. Finding 3 Entrenching Indigenous Knowledges in Curriculum, Research, Facility Operations, Institutional Governance Processes, and Community Outreach Is to Sustain Cultural Identity

This finding indicated that the inclusion of Indigenous knowledges within PSE institutions is primarily for Indigenous learners. Meeting this need requires that others are equipped with some knowledge to be able to create the processes that can support the inclusion of Indigenous knowledges. It also suggests that broader society and other PSE learners become part of the learning process. Indigenous community members must be involved in partnerships with PSE institutions to facilitate the inclusion of Indigenous knowledges and to avoid breaches of traditional protocol. One of the Indigenous participants explained:

> The university has to recognize my way of thinking and my way of conducting research . . . I had to tell him, I think it's the university that has to reconcile that, not me. I'm just following what I've been exposed to all my life. I'm just following our worldview. I think the university has an obligation to recognize that and give it some validity so that we don't have to assimilate into the western methods of doing things. [6] (p. 89)

A conclusion drawn from this finding is that institutional personnel, including leaders of governance processes, faculty, administrators, and others need to understand why Indigenous knowledge should be included in their institutions. Because systems are integrated and comprise part of the holistic framework, relying solely only on Indigenous personnel is insufficient to understand the rationale of including Indigenous knowledge within institutions [6] (p. 136).

4.4. Finding 4 National and International Standards Supporting Indigenous Self-Determination Are Primary Drivers for the Inclusion of Indigenous Knowledges in Post-Secondary Education Institutions and Advance the Underlying Principle of Sustainability

This finding indicated that the application of Indigenous knowledges within PSE institutions must be drawn from local traditional cultural protocols, which are supported by national and international standards and instruments on Indigenous self-determination. The research and advice from the Royal Commission on Aboriginal Peoples, the Truth and Reconciliation Commission of Canada, and the UN Declaration on the Rights of Indigenous Peoples are among some of the many resources that PSE institutions should study and integrate within policy. Other standards and instruments available on Aboriginal and treaty rights, such as the *Constitution Act, 1982*, and Canadian case law, provide critical information about Indigenous peoples and their knowledges. It is through understanding these standards and instruments, as well as the processes that brought them to fruition, that Indigenous worldviews about sustainability might be better understood. One participant was adamant, "I think one of the most important things in this conversation are the principles around UNDRIP, the United Nations Declaration on the Rights of Indigenous Peoples, that really speaks to sustainability from an Indigenous perspective" [6] (p. 92). There were concerns raised in the study about whether PSE institutions would be able to advance these discussions and whether individuals charged with leading were equipped to do so. A conclusion drawn from this finding is that PSE institutional personnel need to improve their understanding of the importance of local traditional protocols as well as national and international standards that support and protect Indigenous self-determination. An additional conclusion is that the use of these standards will lead to a greater understanding of how sustainability is advanced through Indigenous knowledges [6] (pp. 135–136).

4.5. Finding 5 Indigenous Holistic Learning includes Social, Economic, and Environmental Aspects of Sustainability

This finding indicates that the holistic nature of Indigenous knowledges means that it contains the same elements considered to be pillars of sustainability. Learning about social aspects of human life cannot be isolated from economic factors or the state of the environment. Each is important to understanding the other [1]. Learning through an Indigenous worldview facilitates learning about the interconnectedness of the pillars and how they influence each other. One participant explained that Indigenous worldviews are complex and involve understanding interconnectedness in the same way that sustainability is a circular process and a collective issue. They said, "We need to get away from that view of sustainability being the environmentalist" [6] (p. 101). A conclusion drawn from this finding is that the walls within disciplinary learning must fade and allow for more interdisciplinary, transdisciplinary, and intercultural knowledge exchange and mobilization. An analysis of sustainability declarations, statements, and policies might initiate an exciting dialogue that sheds light on the convergences and divergences with Indigenous knowledges. A further conclusion is that PSE institutions already have many of the tools needed for adaptation to new realities of rapidly shifting global demographics, resulting from war, poverty, social inequities, climate change, and other conditions that contribute to environmental degradation. PSE institutions have the ability to re-create themselves and address learning processes that facilitate holistic thinking and professional development [6].

5. Consequences of the Findings

It is important to note the consequences that are inferred from the findings. First, Indigenous perspectives of sustainability are an outcome of holistic cultural worldviews that involve spiritual beliefs. These are interconnected and so considered part of the whole. That is, one cannot talk about sustainability from an Indigenous perspective without acknowledging and including the spiritual elements of knowledge, beliefs, values, and practices. A second consequence that comes from the process of institutional Indigenization, is that these efforts will be impeded if cultural identity is not foundational to decision-making. Without exception, all participants in this research expressed their belief that institutional Indigenization must be primarily focused on strengthening the cultural identity of Indigenous learners. This concept may sometimes become lost in the day-to-day efforts made by Indigenous scholars and allies to increase Indigenization; however, if institutions place the strengthening of Indigenous cultural identity as a foundational goal, other actions can be constructed to support achieving this goal. A third consequence of the findings is that Indigenous knowledges and sustainability could become more congruent in practice if supported by policies appropriate to Indigenous worldviews. Most people recognize that sustainability is critical to life on Earth. Often, people associate the concepts of climate change, species extinction, pollution, and the overuse of plastics as detrimental to our health. But there is sustainability inertia that occurs because knowing these things is incongruent with the way we want to live. Our value systems do not align with acceptance of the fate of the planet and all our relations. Linking knowledge of sustainability challenges with Indigenous worldviews can help provide a way of transforming and aligning our thinking.

6. Discussion

Three categories of consequences that emerged from the research findings enabled exploration of additional meaning of Indigenous sustainability derived from the data.

6.1. Category 1: Indigenous Cultural Identity

With the first research question, I sought to discover philosophical principles concerning the environment and interconnectedness in relation to sustainability in various Indigenous post-secondary education settings. Findings 1 and 2 identified that spiritual beliefs orienting Indigenous knowledge systems form the basis of how sustainability is understood, including in Indigenous education settings. These findings are significant because they reflect an Indigenous ontology concerning sustainability that is expressed through cultures, languages, and identities. That is, through learning Indigenous knowledges, one creates an Indigenous interpretation of sustainability. With a deeper understanding of Indigenous knowledges, gained through culture and language, there can be a deeper understanding of sustainability. The conception of Indigenous cultural identity within the research showed seven underlying principles including:

6.1.1. Spiritual Beliefs

Individuals should be able to develop at their own pace, and cultural camps, land-based courses, and a variety of activities taught by Elders or other cultural knowledge holders can ensure that this happens.

6.1.2. Holistic Thinking

Living and practicing mental, physical, spiritual, and emotional aspects of Indigenous knowledges reinforce and sustain cultures so they can be passed on intergenerationally.

6.1.3. Language

Since immersion is recognized as the best method to successfully acquire language [22], land-based language programming would seem to be pedagogically critical since it links land, language, and cultural knowledge.

6.1.4. Sustainability

Sustainability is a principle of Indigenous knowledges embedded in the philosophies, languages, and practices of Indigenous traditions; it is part of culture. Beckford, Jacobs, Williams, and Nahdee [23] believe as individuals' understanding of Indigenous knowledges develops, they will be better equipped to access the deep transformative thinking sought in sustainability.

6.1.5. Learning from Nature

The interconnectedness of Indigenous knowledges, land, and language is more effectively communicated by teachers and internalized by learners through the sensory experiences of being in nature than by learning passively in classrooms.

6.1.6. Respect and Responsibility

Shifting thought processes from personal gain to collective responsibility is a crucial part of Indigenous knowledge acquisition and leads to transformation in thinking and action.

6.1.7. Willing Participation

The introduction of Indigenous knowledges within formal education brings about a conundrum of how to move beyond education as "the handmaiden of assimilation" [24] (p. 139) and expose learners to Indigenous knowledges and history, including spiritual belief systems, while not forcing it on them [6] (pp. 107–113).

6.2. Category 2: Integrating Indigenous Knowledges for Sustainability

The second research question sought to discover how curriculum, research, facility operations, institutional governance processes, and community outreach are linked to sustainability through practice and policy. Curriculum, research, facility operations, governance, and community outreach were shown to be areas where Indigenization and sustainability were unevenly implemented or even understood as potentially complementary. Finding 3 indicates that in each of these areas, integrating Indigenous knowledges for sustainability should be carried out in support of Indigenous cultural identity. This finding is significant because participants interpreted sustainability as part of the Indigenous knowledge and identity of cultural communities, showing a direct relationship between sustainability and Indigenization within PSE institutions.

6.2.1. Curriculum

Social, economic, and environmental elements of sustainability mean making curriculum relevant through links to contemporary realities as part of the culture and suggesting the need to integrate content on political, social, and historical realities of Indigenous peoples. Grindsted and Holm [25] identified several sustainability declarations and statements available for use by higher education institutions around the world. An analysis in relation to Indigenous content is needed.

6.2.2. Research

Participants maintained that Indigenous rights mean that Indigenous communities should be full partners in creating and conducting research that involves them, their territories, or their knowledges. Indigenous communities want to develop and lead their own research on issues of importance to them. Jonas, Makagon, and Roe [26] identified at least 25 international instruments connecting Indigenous rights with conservation standards.

6.2.3. Facility Operations

Participants talked about the importance of creating or accessing spaces where Indigenous knowledges could be conveyed in an appropriate setting. Institutional adaptations might include access to land-based programming, cultural camps, and other spaces appro-

priate to the transmission of Indigenous knowledges that can accommodate place-based education [4,27].

6.2.4. Governance

Participants strongly maintained that leaders in charge of institutional governance, policies, and budgets are key to determining the extent of Indigenous knowledges within PSE institutions. They felt that even if Indigenous considerations have a place of importance in policy, support for Indigenous programming is often insufficient or financially insecure. Participants indicated that they had never been approached about discussing Indigenous knowledges and sustainability simultaneously, which might suggest that institutional leadership would benefit from new discourse on these matters [28,29].

6.2.5. Community Outreach

To develop these relationships, institutional leaders, educators, researchers, and even those within some Indigenous communities, need the capacity to increase their understanding of the value of Indigenous knowledges. As one participant made clear, not everyone in PSE is enthusiastic about taking part in Indigenous programming. Those with a different worldview may perceive Indigenous knowledges as a threat to their differing beliefs and value systems. Lingering indoctrination of colonial ideology's superiority affects both Indigenous and non-Indigenous people in society. Relationships can be built, even with those who have differing worldviews, if individuals participate in collaborative initiatives [6] (pp. 113–122).

6.3. Category 3: Expanding Sustainability Practices and Policies

The third research question sought to discover how sustainability is practiced and what policies drive these practices. The question allowed for discussion of PSE conceptions of sustainability as well as Indigenous conceptions of sustainability. Findings 4 and 5 indicate that social, economic, and environmental dimensions of sustainability are practiced through Indigenous knowledges and driven by the right of Indigenous self-determination supported by national and international standards. The findings also indicated that Indigenous PSE engagement in conservation and environmental decision-making could be increased if those programs participated in a network to build their capacity on sustainability issues. These findings are significant because non-Indigenous sustainability processes could become more congruent with Indigenous knowledges, and perhaps more successful, if they also supported policies appropriate to Indigenous worldviews. The category brought forward the concepts of sustainability and Indigenous knowledges, conservation, environmental decision-making, and networking.

6.3.1. Sustainability and Indigenous Knowledges

Participants in the research were unanimous that since the goal of cultural communities is to support Indigenous learners' cultural identity, Indigenous communities need to be involved with PSE institutions working to integrate Indigenous knowledges. Reliance on local Indigenous knowledge holders was seen by participants to be essential in ensuring integrity in teaching local traditions. Although sustainability planning may not be recorded in writing, Indigenous communities are aware of environmental changes within their traditional territories and act when needed. Decisions made by Indigenous communities about sustainability are based on a confluence of factors that might include a variety of social, economic, and environmental considerations.

6.3.2. Conservation and Environmental Decision-Making

Participants expressed strong views about the need to sustain a healthy natural environment since it is foundational to understanding Indigenous peoples' worldviews. Generally, projects that do not evolve from the local level are less successful, or fail, because they do not consider the spectrum of Indigenous knowledges that are based on intergener-

ational knowledge within a particular region [30]. Some participants in this study also said that top-down approaches imposed on people do not work. People have to be part of the decision-making processes.

6.3.3. Sustainability Networking

Academics have pointed out the absence of literature on Indigenous worldviews and sustainability in environmental education and the need for its integration [31–33]. One way to remedy this problem is to create more links among Indigenous academics and institutions. Research participants maintained that the formation of a national network would be very useful for PSE programs, enabling institutions to collaborate and take up issues of sustainability as they relate to Indigenous knowledges in PSE.

My discussion of the findings revealed and affirmed that Indigenous knowledges are culture-specific, belonging to those cultures from which it emerged and whose primary use is for reinforcement of cultural identity. Examining the real-world benefits of adopting Indigenous traditional cultural and linguistic practices that "reflected sustainability and harmonious interactions with the natural world" [34] (p. 67) goes beyond the study of environmental crises to rediscover and integrate new ways of human behaviour necessary in this millennium.

Based on the research conclusions, there are implications for PSE institutions addressing Indigenous knowledges and sustainability. For example, PSE institutions need to have programs and financial supports that facilitate traditional knowledge holders' participation in appropriate locations on and off campuses. As well, PSE institutions should develop and offer Indigenous programs that combine traditional cultural knowledges, Indigenous languages, and environmental education for campus communities, professional development, and Indigenous communities. Additionally, PSE institutions should retain Indigenous personnel to collaborate on the development of holistic frameworks appropriate to their region. In addition, PSE institutions should develop a series of training modules for professional and Indigenous community development, with information on national and international standards supporting Indigenous self-determination. Finally, PSE institutions should provide resources that support the development of a national PSE Indigenous sustainability network [6].

There are some other areas that would benefit from additional research, such as exploring local, regional, and global relationships between Indigenous knowledges and sustainability. There is a need to look at how PSE sustainability researchers and program administrators currently include Indigenous knowledges in their work. Research is needed on how an increased Indigenous presence within formal sustainability organizations and events might support dialogue and collaboration. We need a greater understanding of the generational benefits of Indigenous PSE programming. Finally, there is room for research on the integration of existing and new indicators of Indigenous knowledges and sustainability [6].

7. Conclusions

This research began as an exploration of the relationship between sustainability and Indigenous knowledges in various post-secondary education institutions across Canada, but it revealed much larger issues of cultural identity, Indigenous rights, and the struggles of those working to advance a paradigm shift within PSE institutions. At the outset of this article, I wondered if it is possible to slow or reverse our nature of being unsustainable. I believe that it is inevitable that we will change. I wondered if Indigenous peoples in Canada have greater insight because of their philosophical worldviews about sustainable development. I believe that they do, as evidenced by foundational cultural beliefs. These cultural systems must be protected and nurtured for future generations. Finally, I wondered how the Western concept of sustainability might be decolonized and better understood from an Indigenous perspective. This requires individuals who are working on sustainability issues in PSE institutions to begin a dialogue and collaborate on sharing leadership with

Indigenous people [6] (pp. 133–134). There must also be room for dissenting voices within the academy that reflect divergent views within Indigenous communities. Those facilitating discussions and exploration of decolonization and the construction of new knowledge systems must ensure that no one is marginalized and kept out of participating in shaping the social, economic, and environmental decision-making systems of sustainable development.

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