

**Storytelling for Engineering: Application of Relationality and Biocultural Frameworks  
of Indigenous Environmental Knowledge Systems in Systematic Problem-Solving**

Jayden Lefebvre

Trent University

ERST 2601Y 2024WI

Dr. Dan Longboat

February 10th, 2025

## 1 Who Was I?

My background in engineering has presented a significant hurdle when trying to ground my learning in Indigenous spirituality and knowledge systems: stakeholdership vs relationality, design (utilitarian function, form/formed) praxis vs biocultural (sovereign land, living/lived) praxis, systems thinking vs land-people-culture thinking, and the application of subjective lived experience and storytelling to problem-solving.

Ancestral intelligence in design and relationality in solution-stakeholdership<sup>1</sup>, consideration of perspectives and values, and placing your focus where it matters most has led to a surge in personal growth and reflection that has reset my priorities: the importance of personal relationships and community, and the significance of solving “people problems” over technical feats, and creating/solving problems that matter enough not only to accomplish but to make a part of who I become.

## 2 What Have I Learned?

My re-understanding human beings and myself as being inseparable from the natural world<sup>2</sup>, rediscovery of a love for the environment and transfer to Trent, the importance of the land and sources of Indigenous knowledge, and what I’ve learned so far:

Organic, regenerative practices, agro-ecology and polyculture (SAFS); sustainability, ecosystem services, resource extraction (ERSC); Climate Change, indicator species, biodiversity (BIOL); the

---

<sup>1</sup>To explore and begin to put into practice the **interactions of Indigenous and Western science in critical decision-making** to create solutions to common environmental issues.

<sup>2</sup>To understand that Indigenous Environmental Knowledges are a **way of being**, and **inseparable from aspects of daily living** such aesthetics, spirituality, metaphysics, social order, ceremony and most importantly the land.

Biocultural Framework, and the significance of diverse sources of truth in constructing a worldview for problem-solving in the post-colonial age (IESS).

Through this learning I have come to understand that there exists a necessity for a unifying narrative framework of being for all peoples that can be passed on from person to person through generations; a method of teaching that is holistic and that addresses the whole student, one that is intrinsically humanist and ecologically sound and that is grounded in a sense of interrelatedness and self-sovereignty of the Earth, its resources, and all living things<sup>3</sup> (Morcom 2017).

### 3 Who Am I Now?

Treaties tell stories of the land, our agreements, and the formation of new friendships; these factors - together - form a foundation for human health and well-being. In the same way, permits and regulations on resource extraction (informed by Indigenous contexts and lifestyles) must take into account historical relationships between sovereign peoples and the land they steward in order to secure the health and well-being of the creatures that inhabit it (Stelkia et al. 2020); in the same way that individuals require treaties to liberate themselves from institutional tyranny, the “bioculture” needs regulation to liberate itself from individual tyranny and the exploitation of ecosystem services via unsustainable practices. An evolution of storytelling for the post-modern age would regard our time in the present day as a winter (e.g. material, spiritual) whose purpose is to remind us to love what we had - so that we may preserve and protect what we may well have once again. In this way we will achieve ample preparation for a truly uncertain future<sup>4</sup>.

---

<sup>3</sup>To explore and begin to understand Indigenous land/water rights and responsibilities, **rights to self-determination and self-government**, and the diversity of strategies Indigenous Peoples use to resist colonization and globalization and the importance of cultural revitalization in terms of environmental and land protection.

<sup>4</sup>To investigate **revitalization, resistance and collaborative strategies** used by Indigenous Peoples in reaction to the land and natural environment.

Wildlife disappearance due to trophic collapse and loss of biodiversity serve as indicator species of climate change i.e. wildfires (Tree Canada 2024, March), and have led to the loss of traditional food and medicine sources of Indigenous peoples, particularly those that inhabit areas without access to arable farmland (Sangris 2025, February). How we go about fixing such a systemic problem directly relates to what stories we tell ourselves: therein lies the necessity for an Indigenous apocalyptic narrative (à-la-Revelations - the Horsemen have come and gone; what now?). Plant trees and the caribou shall return; “Oui - et ça devient possible”!

The youth are the future, but the elders are the present; they set the stage for what is to come. If we are to be successful, we must be aware and capable, and be led by those who have come before. We have seen what happens when that order is inverted: those who are the most aware/conscientious are the most likely to “drop out” and turn to apathy and nihilism; those who are the most capable/intelligent are the most likely to “sell out” and turn to frivolity and hedonism.

If we are to engineer a future for seven generations to come, it must not be the burden of the young - yet still, feeling the pressure, we as a generation turn to a consistent bombardment of information, leading inevitably to “analysis paralysis”. This inversion of social expectation (elders looking to youth for guidance) is the first step in the shredding of the social treaty between the individual and the institution. Ask not what youth can do for you, but what you can do to empower the young.

## References

- Morcom, L. A. (2017). Indigenous holistic education in philosophy and practice, with wampum as a case study. *Foro de Educación*, 15(23), 121–138. <https://doi.org/10.14516/fde.572>
- Sangris, J. (2025, February). *Q&A with Retired Chief of Dene First Nation* [Online via Class Zoom].
- Stelkia, K., Beck, L., Manshadi, A., Fisk, A. J., Adams, E., Browne, A. J., Dixon, C., McEachern, D., Ritchie, W., McDonald, S., Henry, B., Marsden, N., Behn-Smith, D., & Reading, J. (2020). Letsemot, “Togetherness”: Exploring How Connection to Land, Water, and Territory Influences Health and Wellness with First Nations Knowledge Keepers and Youth in the Fraser Salish Region of British Columbia. *International Journal of Indigenous Health*, 16(2), 351–357. <https://doi.org/10.32799/ijih.v16i2.33206>
- Tree Canada. (2024, March). *Bringing Back the Caribou: Planting 1 Million Trees on Tli Cho Lands in NWT* [Accessed: 2023-10-05]. <https://treecanada.ca/article/bringing-back-the-caribou-planting-1-million-trees-on-tli-cho-lands-in-nwt/>