



Indigeneering: The Future of Engineering Education

Presented to ASEE, May 2020

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Traditional Land Acknowledgement

- *I would like to take this opportunity to acknowledge the traditional territories of the people of the Treaty 7 region in Southern Alberta, which includes the Blackfoot Confederacy (comprising the Siksika, Piikani, and Kainai First Nations), as well as the Tsuut'ina First Nation, and the Stoney Nakoda (including the Chiniki, Bearspaw, and Wesley First Nations). The City of Calgary is also home to Métis Nation of Alberta, Region III.*

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Breakout Room Guidelines

Talking Circle Style

- Everyone's voice is equally as important
- When one person is speaking the rest are listening with empathy and an open mind
- Outside the circle what is shared is kept confidential unless you have the express permission of the speaker
- Select one person before time is up to summarize some key points to the main group after the breakout sessions – There will be 2 breakout sessions

Territory Acknowledgement

It is so important as engineers and educators to understand the traditional territory in which we live, and work, and those in which our projects take place.

The first step is to know how to find this out. When addressing large groups or starting meetings, it is becoming more common no matter what the topic to open with a land acknowledgement

Take a moment and visit

<https://native-land.ca/territory-acknowledgement/> - type your address in the search box

Locate the traditional territory you are on. See if you can find guidance on pronunciation. In your breakout room go around the circle and acknowledge the territory you are joining from.

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Indigeneering

Combining Scientific Principles with Indigenous perspectives of interconnectedness and respect for Mother Earth

- Deanna Burgart, Indigeneer

7 Sacred Anishinabek Teachings

- Love
- Respect
- Courage
- Honesty
- Wisdom
- Humility
- Truth

Poll Questions

- On a scale of 1 – 10, rate your level of awareness and exposure to Indigenous peoples; Native American, Alaska Native, Hawaiian, First Nations, Metis Inuit people in Canada or others
- Have you ever explored Indigenous perspectives in your work (Yes/No)
- Have you ever wanted to learn more about Indigenous peoples but didn't know where to start? (Yes/No)
- Do you identify as Indigenous as per the above definition (Yes/No/Prefer not to say)

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Indigenous Peoples in Canada

- First Nations, Métis, Inuit
- 1.4 Million people in Canada
- Fastest growing demographic
- Youngest demographic
- Increasingly more Urban
- 634 First Nations communities in Canada
- > 50 Nations and >50 languages
- Terminology is important

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Métis People in Canada

- Initially of mixed ancestry between settlers and First Nations – predominantly French
- Separate and distinct cultures and identities today
- Share common culture, ancestral language (Michif), history and political tradition
- In 2003 the Supreme Court of Canada affirmed that Métis people hold the same Aboriginal right to hunt for food as recognized in Section 35 of the Canadian Constitution

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Who are recognized as Métis by the Canadian government today?

- An individual must first demonstrate membership in a present-day Métis community that can trace its existence back to an historic Métis community with a distinctive culture.
- To prove membership, an individual must: self-identify as Métis, have an ancestral connection to an historic Métis community, and be accepted as a member by this community. The Supreme Court decision also stated that self-identification should not be of "recent vintage"-that is, made only to claim an Aboriginal right under s.35.

Inuit People in Canada

- People of the North, Singular is Inuk
- Inuit are an Indigenous people living primarily in Inuit Nunangat.
- Majority live in 51 communities
- Approximately 60 percent of Inuit people can conduct a conversation in Inuktut
- In Canada, the Inuit live in the territory of Nunavut, in the northern third of Quebec, in Labrador, & parts of Northwest Territories.
- Terminology - “Eskimo” is considered a pejorative term

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Indigenous Science

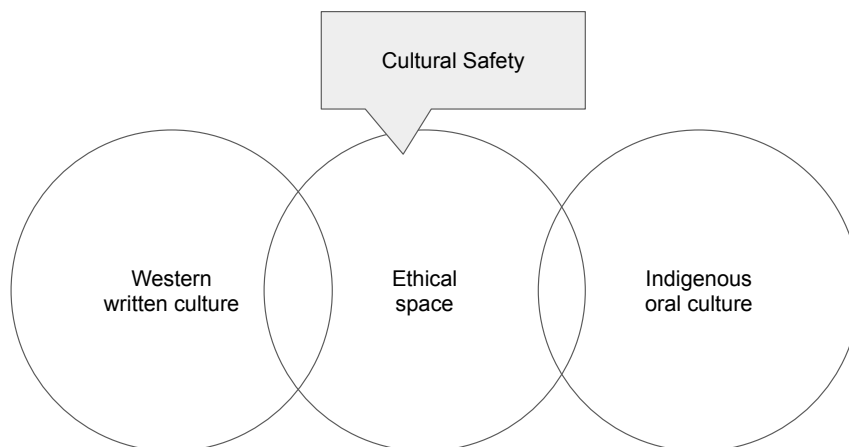


Image Source: Voices of Understanding: Looking Through the Window: Alberta Energy Regulator

From the teachings of Piikani Elder Reg Crowshoe

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Indigenous Knowledge and Ethics*

Sacred Teachings

- Traditional Knowledge passed on through ceremony
- Only those gifted with them can share the teachings publicly and transfer them
- Community specific around who can have access to this knowledge
- Bound by cultural protocols

Personal Knowledge

- Knowledge accumulated through individual education and study
- Gifts one is born with
- Gifts received through revealed knowledge
- Gifts received through dreams, visions, intuitions and meditation
- Not bound by cultural protocols

*Definition Source:
Jennifer Wemigwans

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Cultural appropriation and commodification

- Pan-Indigenizing sacred symbols and practices without acknowledging where they are from or getting permission from the Nation
 - Buying/using sage (smudge) in a way that is not in alignment with teachings
 - Wearing headdresses at music festivals
 - Dressing up as “Native” for Halloween
- Pan-Indigenizing Native “inspired” products or services without partnership or participation of Nations for personal profit

<https://www.latimes.com/lifestyle/story/2019-08-30/dior-sauvage-native-american-cultural-insensitivity>

<https://www.refinery29.com/en-us/2018/09/209453/pinrose-starter-witch-kit-sephora-canceled>

Cultural appropriation and commodification

- The difference between co-creating with Indigenous knowledge keepers and Elders and appropriating from Indigenous knowledge keepers and Elders
- Research “on” Indigenous people and communities and not with Indigenous people and communities
- Appropriation of sacred practices, items or ceremony without the proper protocols or Elder guidance
- Taking knowledge, information or resources from traditional lands without giving back to the communities

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Cultural appropriation and commodification

- Only acknowledging accomplishments and contributions in a Western way
- Implementing “Indigenous initiatives” for profit or funding
- Inviting Indigenous peoples to join research at the 11th hour
- Expecting Indigenous students and faculty to carry the load in creating more inclusive spaces for Indigenous peoples without adequate compensation or accommodation to do so in a good way

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Indigenous self-determination

- How to capture and share Indigenous knowledge in Western colonial spaces should be led by Indigenous peoples
- Capturing and sharing Indigenous knowledge in Western colonial spaces should equitably value Indigenous knowledge outside of Western academic and career experience and accreditations
- Indigenous peoples should always be included in work that impacts Indigenous peoples
- Nothing about us without us
- Academic spaces should seek to be more inclusive and welcoming to Indigenous peoples and perspectives

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Indigenous Worldviews and Perspectives

- Interconnectedness
- Original Stewards of the Land – Part of us
- Time is circular and relationships are long term (Seven Generations)
- Humans are not at the centre
- Culture of reciprocity and offering
- Shared wealth and gift giving

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Benefits of Incorporating Indigenous Knowledge into Engineering

- Interconnectedness vs. Silos – more cross-disciplinary collaboration and integration
- Cumulative impacts on air land and water considered with equal value to profit
- Long term view on project and asset lifecycles
- Seven Generations Vs. Quarterly Profit and 3 - 5 year Strategic Planning
- Reciprocity Vs. Exploitation
 - With the air, land and water
 - With Indigenous nations and their traditional territories

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IndigeSTEAM Retreat Outcomes

- **Two Eyed Seeing***. Honouring different ways of knowing and working to co-create an ethical space between Western teachings and Indigenous science and knowledge.
- **Relationship**. Relation to the land, relation to one another, relationship with Nations, communities, Elders, leaders and cultural protocols.
- **Time**. Building effective relationships with Indigenous peoples requires a commitment to honour the different perspectives on time. Time being circular, long term and not driven by one way of knowing.
- **Community**. In addition to the Communities and Nations we serve, participants felt a deep desire to create a community for Indigenous and non-Indigenous peoples working in this space for more collaboration, support and co-creation.
- *Two-Eyed seeing comes from the traditional teachings of Elder Albert Marshall of the Mi'kmaw Nation

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At the University of Calgary

- Overall Indigenous Strategy -
ii' taa'poh'to'p
(a place to rejuvenate and re-energize during a journey)
- Schulich School of Engineering
 - Indigenous Engineer in Residence
 - Indigenous STEM student club - .caISES West
 - Calgary Professional/Student Chapter of AISES
 - Teaching Chair focused on Integrating Indigenous Knowledge into Engineering
 - Environmental Engineering and Sustainability in Energy

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- Final thoughts?
- What is one key takeaway that you would like to implement or explore immediately
- How can you bring this back to make change in your institution and classrooms?

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