

Engineering Change Lab Workshop #13 Harvest

Principles of Indigenous Worldviews and Technological Stewardship

May 22-24, 2019

Nogojiwanong - Trent University, Ontario

The workshop took place in the traditional territory of the Mississauga Anishinaabeg, a group of Indigenous people comprised of the Ojibwa, Odawa, Potawatami, Chippewa, Mississauga, Algonquin, and Delaware communities. Before it became known as Peterborough (Ontario), the area was called Nogojiwanong, Ojibwa for “place at the end of rapids”.



About this Harvest

There are important sensitivities and complexities around trying to represent an event like this, where the goal was for the engineering community, composed primarily of settlers, to engage with and learn from Indigenous worldviews through a land-based experience.

We're aware that the format of this Harvest document aligns with dominant Western culture and contains inherent biases. Our aim is not to explain or represent Indigenous thinking but rather to provide a sense of what happened at the workshop and participants' experiences and responses. We hope it both serves as a reinforcement for those who attended the workshop and inspires others to learn more about how Indigenous worldviews can enhance our understanding of technology and its relationship to society.

Special Thanks / Miigwetch / Niá:wen

This unique workshop was a result of thoughtful and generous collaboration among many parties, without whom it would not have been possible:

Erin Alexiuk
Sateiokwen Bucktooth
Alex Campagnolo
Betty Carr-Braint
Leslie Collins
Chris Furgal
Melanie Goodchild
Stanley (Bobby) Henry
Emma Langley
Dan Longboat
Dawn Lavell-Havard
Gabe Maracle
Marisol Campos-Navarrete
David Newhouse
Skahendowaneh Swamp
Barbara Wall
Billy Whetung
Taylor Wilkes
Doug Williams

WORKSHOP GOALS

To learn and advance the Engineering Change Lab's work in **shifting engineering culture by connecting deeply with Indigenous worldviews.**

To host an interdisciplinary, national group of leaders for an intimate **conversation that disrupts conventional constructs about technology.**



FORMAT

A **landbased experience** focused on Indigenous principles and values, introducing participants to content to help them appreciate and potentially incorporate multiple ways of understanding technological stewardship within their ongoing work.

To centre the diversity of Indigenous cultures and perspectives, teachings were offered from two distinct Peoples present within Trent University's Chanie Wenjack School for Indigenous Studies: **Anishinaabeg and Haudenosaunee**. Melanie Goodchild, Anishinaabe and founder of the Turtle Island Institute, and Dan Longboat, Mohawk and founder of the Trent University Indigenous Environmental Studies program, held the frame and thread of the workshop over the two days.

As the workshop was held in Michi Saagiig Nishnaabeg Territory, Anishinaabeg knowledge holders welcomed the participants and worked with them on the land first, **demonstrating the importance of place in Indigenous knowledge systems.**

PARTICIPANTS WERE ASKED TO

- Embrace the principles of humility and respect in understanding that when the Elders share their beliefs and reflections with others it requires reciprocal responsibility
- Come with an open heart and mind in order to best receive the teachings that will be offered.
- Be adaptive in response to fluid schedules, and comfortable engaging with non-Western approaches to time and agendas.

PARTICIPATING ORGANIZATIONS

Actua • Allenvision Inc. • Cambium Aboriginal Consulting • Canadian Engineering Education Challenge • Canadian Federation of Engineering Students - University of Toronto & University of Ottawa) • Colleen M. Shannon Professional Corporation • Concordia University Gina Cody School of Engineering & Computer Science • Curve Lake First Nation • Engineers Canada / Stantec • EngiQueers Canada / Western University • EnviroNative • First Nations Technical Institute • Fleming College • Hatch • Hydro One / Superstar X • Indigenous Engineering Inclusion Inc. • McGill University's Faculty of Engineering • McMaster University's Faculty of Engineering • Mozilla Foundation • Ontario Ministry of Education / Durham District School Board • Ontario Society of Professional Engineers • Ontario Tech University's Faculty of Engineering and Applied Science • Professional Engineers Ontario • Reos Partners • Ryerson University's Faculty of Engineering and Architectural Science • Stratos Inc. • Suncor Energy • TRACKS Youth Program • Trent School of the Environment • University of Guelph School of Engineering • University of Manitoba Faculty of Engineering • Urban Systems • York University Lassonde School of Engineering • York University Science & Technology Studies Program

WEDNESDAY EVENING



Many participants travelled a long way to attend the first night, which was aimed at making space for coming together, to prepare everyone's minds for the next two days of building shared understanding.

After the group shared a meal, Melanie Goodchild led an opening circle and offered spirit helpers to enable people to introduce themselves from their heart.

Dan Longboat co-hosted this space.



The opening circle took 3+ hours, disrupting expectations related to professional engineering events

THEMES EXPRESSED IN THE CIRCLE

- Vulnerability; generosity, bravery, courage, gratitude
- Lack of experience with Indigenous ways of knowing, history, practices, etc.
- Eagerness to learn; openness; something 'missing' in people's work; looking for meaning in their work/life; searching for answers
- Acknowledge need for diversity in engineering beyond gender;
- Acknowledge limitations of engineering, but still celebrate the profession - looking to improve upon what it has to offer

GENERAL REFLECTIONS

- Who is here (and who is not)? Different people at this workshop than previous. Notably, many more women.
- Are we preaching to the choir?
- Who should be here?
- Are participants in positions of less power? Would they describe themselves as organizational change makers?
- Who do participants need to be in dialogue with at their organizations?
- How will participants bring the message/learning back?

THURSDAY Anishinaabe teachings



Start the day at the fire

Billy Whetung, Fire Keeper and Helper to Curve Lake Elder Gidigaa Migizi (Doug Williams)

Participants had a 7am start in the Trent University First People's House of Learning's Tipi, where a teaching of how to start a fire was offered.

Sunrise ceremony

Led by Curve Lake Elder Gidigaa Migizi (Doug Williams) & Barbara Wall, Bodwewaadmii Anishinaabeg knowledge holder and professional civil engineer

supported by Melanie Goodchild and Billy Whetung



Welcome to the territory

Elder Gidigaa Migizi (Doug Williams)

RESEARCHER PERSPECTIVE

From the unknown to the known: questioning objectivity

Chris Furgal, Associate Professor, Indigenous Environmental Studies Program, Trent University



Chris shared how his experiences conducting research on seals in northern Canada supported by an Inuit knowledge holder/hunter taught him that experts come in many forms and science is just one way of studying and understanding the world.

Questions for reflection:

- How do you know what you know?
- What position(s) are you coming from? What ontology, epistemology, axiology?
- What are your inherent biases? How can you suspend them?
- How can you be more open-minded?
- How can you better respect alternative forms of experts/knowledge holders and their processes?

THURSDAY Anishinaabe teachings

Naseyaawangwaan – Anishinaabe maple sugar making

Elder Doug Williams welcomed the group to his sugar bush at Curve Lake to learn Naseyaawangwaan using traditional and modern technology.



Maple syrup was heated using newer technology -- a gas stove. When it was ready, it was transferred to a traditional wooden trough and manipulated with wooden paddles until it turned to sugar.



The group learned that the wood helps absorb the moisture in the syrup and facilitates the sugar-making process.

Barb Wall demonstrated and shared her reflections on the women before her who had created maple sugar, and the different sensory cues (smell, bubble size, colour change) that signal when the boiling syrup is ready to be moved to the trough and transformed into sugar.

Participants took turns heating the syrup and transforming it into sugar -- putting it into jars so everyone could take some home!



THURSDAY Anishinaabe teachings

Activity: One-hour dialogue walk on the land with a partner

Participants were invited to engage with the land and reflect on Technological Stewardship in their context -- and gain a full-circle sense of how the maple sugar was made. From an Indigenous perspective, Technological Stewardship would not take an anthropocentric view, it would be about incorporating all of creation.

PARTICIPANT REFLECTIONS:

- Started off in the circle Wednesday by sharing vulnerable things & worries. This fed into relationship and trust building. Collaboration is easy to talk about, not easy to do. Have to work on relationship building before we get into the deeper learning.
- An innovation from long ago is still an innovation today. Boundaries like time and space are powerfully challenged at the sugar bush
- We've gotten away from understanding and appreciating the time, effort, and processes involved in creating products (e.g. seeing a chicken breast in the grocery store, and forgetting how that meat got to the shelf), because of capitalized/efficient systems.
- Learning about how there are different ways to arrive at knowledge should be part of ethics in engineering.
- The meandering walk—the land impacted the conversation. Looking at trillium flowers together, we were able to pause and this brought up different but relevant ideas.



- The lesson around taking what you *need*. We have a really weird relationship with need in western culture. Materially we have a lot, more than we need. There's a lot of talk that we don't have other things, like time, vulnerability, relationships to others and to spirit.
- Bringing our whole selves to work...there are some things that seem out of bounds there.
- Ethics are important in business and engineering but it is challenging to put a monetary value on it. The ECL, through this learning and expressing it to others, can help to put a value to it -- or help express this value to others.
- Patience and process as important. As a society, we tend to rush things. We're in a growth mentality, we don't step back to look at the impact of that. Where will this process lead? Can we think 10 yrs in the future, let alone generations into the future? This is very different from the way that the economy focuses on growing and building.
- Difference between minimizing impact on nature vs we are nature. When things are several steps removed from the forest, like the internet, how do we connect back to the land?

FRIDAY Haudenosaunee teachings

Thanksgiving address in the Mohawk language

Skahendowaneh Swamp, Trent University's Indigenous Knowledge Chair & Wolf Clan Faith Keeper

English translation offered by pupil Bobby Henry

After the address and translation, Skahendowaneh talked to the group about Haudenosaunee culture, especially the importance expressing thanks and the view of all nature as an extended family. He shared a "family corn" that outlined the women that make up his family tree, and the importance of each kernel – if one kernel is lost, that lineage does not exist.



Haudenosaunee medicine teachings

Sateiokwen Bucktooth, Snipe Clan Botanicals

Sateiokwen shared traditional teachings about plants that have healing properties, showing samples from her collection, and offering cedar and sweetgrass tea to participants.

She shared a key teaching around reciprocity – the plants provide healing and in order to do this they must be taken care of. It is practice never to pick all of a tree or plant, because it needs to rejuvenate and to have sufficient seeds to reproduce.

Studies are emerging that confirm traditional knowledge about healing properties of plants. At the same time, many plants are under threat or on endangered species "watch list" - e.g. ginseng due to overharvesting.

After the initial teaching, Sateiokwen guided the group outside and pointed out healing plants, with a focus on those growing in the First People's House of Learning Medicine Garden.



FRIDAY

Closing circle:

Building the meaning of technological stewardship together

Led by Melanie Goodchild and Dan Longboat

THEMES EXPRESSED

- Importance of gratitude; intentionality, healing;
- Safety (more than physical, also environmental and cultural)
- Significance of taking time to come together, respecting the process while not knowing the outcome
- Humility; can learn from anyone, at any time.
- Spirituality as a key part being human but not normally incorporated
- Indigenous Knowledge as living, breathing, adaptive
- Significance of hugging and finding a human bond over learning names, companies, hometowns
- Biomimicry; biology as the best engineer; don't need to reinvent the wheel – it's out there
- Reciprocity; responsibility with knowledge
- Feeling of disconnection from the earth
- Power of modelling change and values – respect, open heart; not just telling, but showing
- Engineering as anthropocentric
- Struggling with applying the learning; how to teach values if these are core; how to connect tech to spiritual and environmental when connecting to human is already challenging?
- Appreciating generosity of Elders; feeling welcomed
- Importance of being on the land
- Do we steward humanity's relationship with the Earth opposed to stewarding technology?
- Desire for personal/professional change, but not sure what to do.
- Respect, open-heartedness, having a good mind
- Surprise and concern over the discrepancy between Peterborough and Curve Lake in regard to clean drinking water despite their proximity

Closing celebration

Dinner at the Canadian Canoe Museum - Indigenous feast catered by the Pow Wow Cafe

featuring: wild rice salad, venison stew, 3 sisters sautéed with fresh sage, honey & chive baked bannock, cedar soda and sweetgrass soda

Participants were gifted with a sweetgrass braid, as well as the story behind the metaphor: Individually, one piece of sweetgrass is not very strong, but when braided together, it is extremely strong.

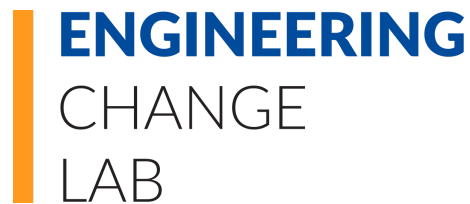
Learn more

Check out the resources Melanie Goodchild kindly compiled to help prepare participants for the workshop.

To learn more about the territory the workshop was held in, please see [Michi Saagiig Nishnaabeg: This is Our Territory](#) by Elder Gidigaa Migizi (Doug Williams).

Thanks to all participants and contributors for making the Indigenous Worldviews and Technological Stewardship workshop a success.

If you or your organization is interested in participating in a future workshop, please contact us.



365 Bloor Street East, Suite 2000
Toronto, ON

secretariat@engineeringchangelab.ca
www.engineeringchangelab.ca
[@EngChangeLab](https://www.instagram.com/EngChangeLab)