

Project 265

October 2016

The Wuchusk or Muskrat Project

Renée Carrière (Lead Researcher)
Master of Educational Administration
Cumberland House

Dr. Tim Jardine (Research Collaborator)
School of Environment and Sustainability
Toxicology Centre
University of Saskatchewan



Discover this report online at:
mcdowellfoundation.ca
McDowell Award Winner

This research was partially funded through a grant from the McDowell Foundation. However, the points of view and opinions expressed in project documents are those of the authors and do not necessarily reflect the views of the Foundation.

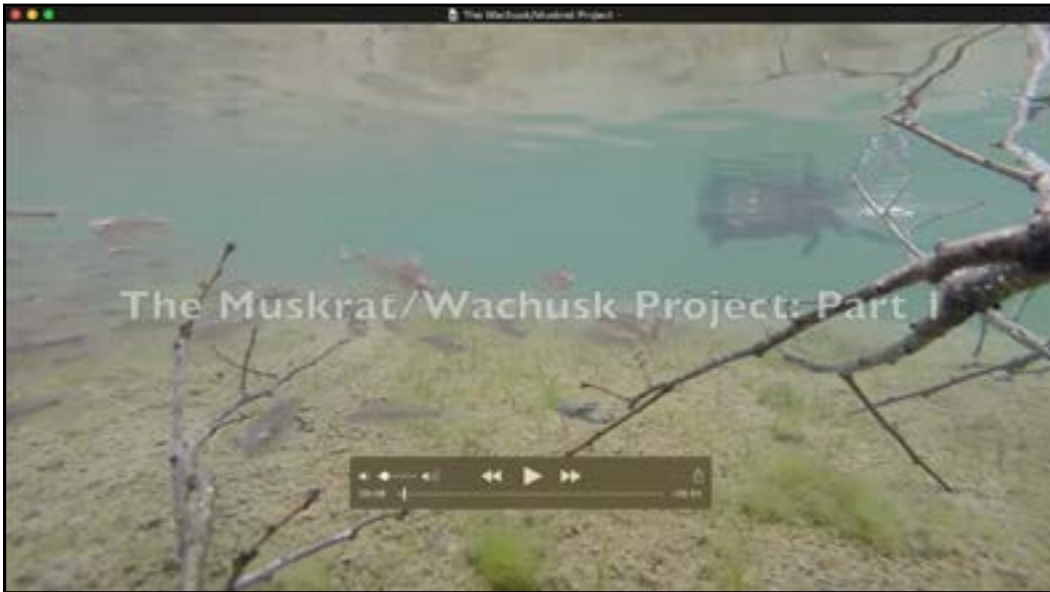
The purpose of the Dr. Stirling McDowell Foundation for Research Into Teaching is to fund research, inquiry and dissemination of information focusing on instruction (both teaching and learning) in the context of the public elementary and secondary education system. Specifically, it will:

- (1) Contribute to knowledge about teaching and learning.
- (2) Encourage educational inquiry through a wide range of methodologies.
- (3) Support the involvement of practising teachers in active research projects.
- (4) Encourage organizations as well as individuals to determine and act in areas of research and inquiry.
- (5) Encourage experimentation with innovative ideas and methodologies related to teaching and learning.

The Foundation is an independent charitable organization formed by the Saskatchewan Teachers' Federation in 1991. It is governed by a Board of Directors. The selection and evaluation of projects funded by the Foundation is carried out by a teacher-led Project Review Committee. Inquiries concerning research supported by the McDowell Foundation may be directed to the following address:

Research Coordinator
Dr. Stirling McDowell Foundation
2317 Arlington Avenue
Saskatoon SK S7J 2H8
Telephone: 1-800-667-7762 or 306-373-1660

© 2016 by the Dr. Stirling McDowell Foundation for Research Into Teaching Inc. Permission is given to use this work for educational purposes, except that authorization from the original source must be obtained for the use of any material that appears in the work with credit to another source.



The Wuchusk or Muskrat Project

Question

What are the challenges and opportunities of engaging students and the community to the science curriculum through land-/place-based education?

Background

Tansi. This project has been a journey in learning. It started out as a way to find answers to students' questions: Why is the river water so brown? What is rat root? Why are all the muskrats gone? Here is what has been discovered.

The Northern Lights School Division serves 18 communities and 21 schools that are scattered across the northern half of the province of Saskatchewan. The vision statement of NLS D is "Students of the Northern Lights School Division will have enhanced life experiences by developing skills, knowledge, and attitudes within the cultural context of engaged Northern communities."

The majority of the population of all of these schools and communities speaks both English and a second Indigenous language. Nineteen of the schools have a 95 percent student population that identify as First Nations and Métis. These communities exercise traditional economies and share common cultural values that are imbedded in teaching skills through relationships, story, and land.

The NLSD and its schools' vision and belief statement advocate for what seems to be an Indigenous worldview and yet, for the most part, only Eurocentric theories and principles of organization are practiced. In part, this gap between ways of learning and practice may contribute to the lack of student engagement (Goulet, 2014).

Cumberland House was established in 1774 and is the oldest settlement in Saskatchewan. Its population is 97 percent First Nations and Métis peoples who speak both Cree and English. The Cree language and the ways of learning and modelling specialized land knowledge are part of this community's epistemology. Local elders say, "The Land is the Language, it is us" (October 2014, Cree Language Committee Meeting). In Cumberland House there are two schools—one is funded by the federal government and is situated on Cumberland House Cree Nation lands and the second is a provincially-funded kindergarten to Grade 12 public school named Charlebois Community School.

The village of Cumberland House is one of the 18 northern communities served by NLSD. Of the 280 First Nation and Métis children in Charlebois Community School, only two children identify as being non-Indigenous. All prekindergarten to Grade 6 teaching, support, and maintenance staff of Charlebois Community School are Indigenous. For the most part, this group has a solid working knowledge of the Cree language and all have relational ties to the community. Attendance rates are significantly high in these grade levels (2013-14 Charlebois Community School Learning Improvement Plan).

On the other hand, the grades 7 to 12 teachers are all non-Indigenous and non-Cree speaking and only one is from the community. Attendance rates for these higher grades show a significant dropout rate that increases with each successive grade (2013-2014 Charlebois Community School Learning Improvement Plan). Most residents of Cumberland House have extensive experiences with the residential school system and also with their skills, knowledge, and attitudes passed on to them by their families (Bai, Hart, Jickling, & McKenzie, 2009; Wilson, 2008). Up until 1980, grade 10, 11, and 12 students had to attend school outside of Cumberland House—primarily 160 kilometres south in Nipawin or 310 kilometres south in Prince Albert, due to the lack of programs offered. Thus, Cumberland House is an Indigenous Cree-speaking community whose children are educated within a federally funded band-controlled school or educated inside the public and provincially funded Charlebois Community School.

This project is important and provides relevant study and research because students are disengaged from the schools in the community, resulting in substantial high school dropout rates. Therefore, it is hoped that the students of Charlebois Community School, its employees, and the community of Cumberland House engage and thrive in the land-/place-based education practices and outcomes of this project by offering, modelling, and incorporating "Enhanced life experiences by developing skills, knowledge, and attitudes within the cultural context of engaged Northern communities" (NLSD Vision Statement) so that student success may be achieved (Goulet & Goulet, 2014).

Objectives of the Study

It is posed that one of the tragedies of history was the failure of Europeans, with a few exceptions, to make any effort to work with, validate, model, study, record, participate in, or celebrate the extraordinary repository of Indigenous knowledge (Davis, 2009). Scholars and research indicate that Canadian curricula enhanced with Indigenous knowledge increases student and community interest and achievement in science, thereby improving relations with Indigenous families, community members, and transforming schools and students (Aikenhead & Michell, 2011).

This project has the land serve as the classroom for the inclusion of Indigenous knowledge and practices in science curriculum as a way to solve the local science issue of the depletion of the muskrat population. The depletion of the muskrat population also means the dwindling of a sustainable and important historical, cultural, and traditional livelihood for the people of Cumberland House.

Furthermore, it is hoped to demonstrate land-/place-based practices and how they engage students in the understandings and investigations of historical and traditional wetland management strategies of the local First Nations and Métis people for the improved health of the Saskatchewan River Delta. Authors and researchers suggest there is a critical need to bridge the gap between Indigenous knowledge and Western knowledge in order to seek out local science solutions (Aikenhead & Michell, 2011). Author Richard Louv contends that land-based education is to use the surrounding community, including nature, as the preferred classroom, and that this method aids in closing the learning gap and engages students (Louv, 2008).

Lastly, it is demonstrated that science teachers can influence Indigenous students' marginalization in science classrooms on the basis of students' cultural identities, values, and assumptions through inclusion of Indigenous ways of knowing and experiencing nature (Aikenhead & Michell, 2011); helping educators to appreciate that diversity creates new and different knowledge. When Indigenous students are offered school science experiences that are land-/place-based and respect their inherent ways of knowing nature, then they can participate and perceive themselves in science-related careers and occupations (Aikenhead & Michell, 2011).

The objectives of this project have been established to include but are not limited to the following:

- To advance the bridging of Indigenous and Western science knowledge.
- To promote the modelling of land-/place-based teaching pedagogy and practices with science curriculum.
- To increase high school science credit attainment rates for Indigenous students.
- To include students and community in wetland management research.
- To encourage Indigenous students to enroll and participate in science-related careers and occupations.
- To develop pride in culture, tradition, language, and livelihoods.

The following are activities that were used in gathering and presenting research information:

- The recording and transcribing by students of elder trapper interviews.
- Student and elder photography.
- Student wetland studies including GPS work, plant identification, collection, displaying, and weighing.
- Movie presentation of this project's photos.
- Student/teacher/community participation in wetland management policy development.

Findings and Conclusions

I found that the positives of engaging students and community with the science curriculum through land-/place-based education far outweighed the challenges. The primary challenge of land-based education is that teacher training is limited; teacher-training courses are taught within the confines of an indoor classroom and mainly through the lens of western instructors. This results in educators lacking in both the confidence and the experience to lead classes in land-based environments, strategies, and pedagogy.

A second challenge of land-/place-based education is that until an Indigenous worldview and knowledge, of which the land is a pillar, is placed on the same validated level as a Western worldview and knowledge, we as educators will continue to be disconnected from the very children we are to serve and they, in turn, will be disengaged from school. Ways of learning, understanding, and knowing vary from culture to culture.

Compelling positives from this project include:

- Student mastery of the curriculum outcomes due to varied teaching settings, resources, and student engagement.
- Student engagement in science curriculum as it helped build relationships with students, community, and parents because the science and science issues were authentic and included local community members' knowledge.
- Land-/place-based education experiences helped bridge Indigenous and Western knowledge by creating new knowledge. The Muskrat Project is finding answers to the students' questions of "Why is the river water so brown?" "What is rat root?" "Why are all the muskrats gone?" I hope the short film titled *The Wuchusk or Muskrat Project Part One* leads you to make your own connections of success and possibilities.

*As a side note, this research—that started from students' questions—is leading to the potential creation and inclusion of Saskatchewan environment policy in regards to the adoption of a fire burn template. **In late winter the practice of fire burning on the edges of frozen lakes is/was a traditional wetland management practice of Indigenous people. It is the curtailing of this practice that has, in part, led to the plummeting of the muskrat population. Thank you to all involved in this ongoing research; it has been life redirecting for myself. We all need to learn from each other in order to learn, love, and lead into action. Kinanaskomitin.

Acknowledgements

- Elders and Guides
- Bertha McKay
- John Carriere
- Ben Fiddler
- Dennis Fosseneuve
- Robert McAuley
- Josie Carriere
- Gary Carriere
- Darlene Sahyes
- Napoleon McKay
- Christie Crane
- Louisa Buck
- Dr. Tim Jardine
- Solomon Carriere
- Photography Producer and Field Guide – Michela Carriere
- McDowell Foundation
- Charlebois Community School
- The Northern Village of Cumberland House
- Cumberland House Cree Nation
- Cumberland House Local Métis 42 Inc.
- Northern Lights School Division
- Dr. Alex Wilson

References

- Abram, D. (1996). *The spell of the sensuous: Perception and language in a more-than-human world*. New York, NY: Random House.
- Aikenhead, G., & Michell, H. (2011). *Bridging cultures: Indigenous and scientific ways of knowing nature*. Toronto, ON: Pearson Publishing.
- Bai, H., Hart, P., Jickling, B., & McKenzie, M. (2009). *Fields of green: Restorying culture, environment, and education*. Cresskill, NJ: Hampton Press, Inc.
- Battiste, M. (2005). *Indigenous knowledge: Foundations for first nations*. Retrieved from <http://www.nvit.ca/docs/indigenous%20knowledge%20foundations%20for%20first%20nations.pdf>
- Chapman, I., McCaskill, D., & Newhouse, D. *Management in contemporary Aboriginal organizations*. Retrieved from <http://www3.brandonu.ca/library/CJNS/11.2/McCaskill.pdf>
- Davis, W. (2009). *The wayfinders: Why ancient wisdom matters in the modern world*. Toronto, ON: Anansi Press Inc.
- Gardner Chadwick, K. (2004). *Improving schools through community engagement: A practical guide for educators*. California: Corwin Press.
- Goulet, L., & Goulet, K. (2014). *Teaching each other: Nehinuw concepts and Indigenous pedagogies*. Vancouver, BC: UBC Press.
- Hardy, C., & Tolhurst, D. (2013). Epistemological beliefs and cultural diversity matters in management education and learning: A critical review and future directions. *Academy of Management Learning and Education*, 13(2), 265-289.
- Kovach, M. (2009). *Indigenous methodologies: Characteristics, conversations, and contexts*. Toronto, ON: University of Toronto Press.
- Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Halifax, NS: Fernwood Publishing.

2317 Arlington Avenue
Saskatoon SK Canada S7J 2H8
Phone: 306-373-1660
Toll Free: 1-800-667-7762
Fax: 306-374-1122
Email: mcdowell@stf.sk.ca

www.mcdowellfoundation.ca