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The Wuchusk or Muskrat Project

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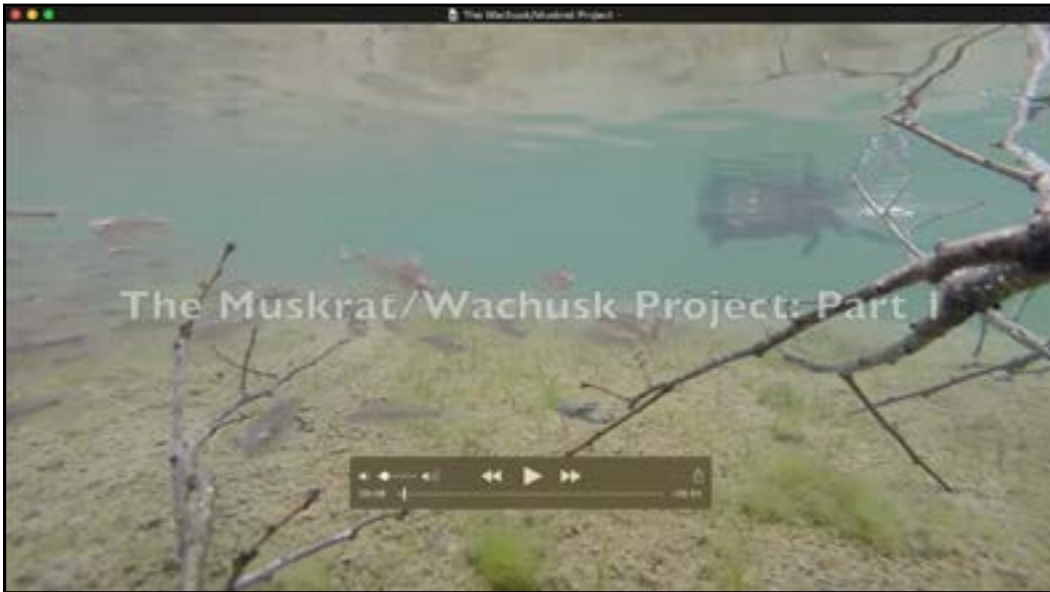
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The Wuchusk or Muskrat Project

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.

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