High School Mathematics and Indigenous Learners

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Overview

- Me
- Brief timeline of Indigenous People’s education
  - Pre-colonial education
  - Impact of Indian Residential Schools
  - Look at funding gap
  - Look at numeracy gap
- Where do we go from here?
- Success in my classroom
  - Relational success
  - Academic progress
- Questions
Awina niya ci?

Niya Gordon Naylor, Leduc ohci niya

Mother - Tracey Bear, Nehiyaw Iskwew
  ● Muskoday First Nation (Treaty 6) and Nisichawayasihk Cree Nation (Treaty 5)

Father - Garnet Naylor Moniyaw Napew
  ● Flin Flon, Manitoba

High School
  ● Mistassiniy School - Wabasca, Alberta

University
  ● University of Alberta, Augustana Campus (BSc. ‘11)
  ● University of Alberta (BEd. ‘13)
  ● University of Waterloo (MMT ‘24)

Places I’ve worked
  ● Sturgeon Lake School - Sturgeon Lake, Alberta
  ● Ermineskin Junior Senior High School - Maskwacis, Alberta
33%*

The rate of which off-reserve First Nations people had no certificate, diploma or degree (Statistics Canada, 2011)

This does not include on-reserve data.
Brief timeline of Indigenous People’s education

Pre-colonial education

Land-Based Education

- Developmental groupings - not age groupings
- Play based learning - differentiated between gender’s, as well as developmental stage

Informal and Formal

- Kinship - Familial/group education and knowledge
- Various Knowledge Keepers - context and time based
- Community Knowledge - Traditions
- Ceremonies

Brief timeline of Indigenous People’s education

Impact of Indian Residential Schools

The British North America Act (1867)
- The federal government takes authority over First Nations and reserves

The Indian Act (1876)
- Designed to assimilate First Nations people into the Euro-Canadian society.

Residential Schools (1883 - 1996)
- Amendments to the Indian Act allows for the creation (1883) and mandatory attendance (1920) of Indian children to Residential Schools.

The Sixties Scoop
- Another amendment of the Indian Act gives off-reserve organizations authority of the child welfare system on-reserve.

Local Control of Education
- Reserves took back control of education from the federal government and is the primary decision maker for on-reserve education.

Impacts
- Intergenerational Trauma
  - This has lead to detrimental personal and public health issues for Indigenous People's
- Generations of lost culture
- Generations of people who learned to distrust authority
- Generations of people who never learned to love
- High levels of distrust of any formal education system - including on-reserve, band controlled systems

https://www.thecanadianencyclopedia.ca/en/timeline/residential-schools
Ermineskin Indian Residential School

https://collections.irshdc.ubc.ca/index.php/Detail/entities/1080
Unlike most schools, on-reserve schools receive funding from the federal government. Educational funding is normally a provincial government responsibility.

This has lead to chronic underfunding of on-reserve education authorities. These authorities vary in size, depending on size of reserve membership base; most are small.

~4.3% per year disparity when comparing money received to the estimated money required to help close the educational gap of on-reserve schools.

This has lead to a growing gap in funding that is approaching a shortfall of $1,000,000,000

This funding shortfall does not include monies for many of the amenities that off-reserve schools have, such as:

- School libraries
- Technology (computers, connectivity, data systems)
- Sports and recreation
- Vocational training
- First Nations languages
- School board-like services
Funding Gap

Figure 2: First Nations education funding shortfall, annual and historical, 2005-2010

*Funding shortfall determined by calculating required expenditures adjusted for actual growth in inflation and population.

Indian and Northern Affairs Canada, Nominal roll statistics (1996-2010)

Numeracy gap is incredibly wide with Indigenous people.

Off-reserve First Nations people have a numeracy level that is 50% of non-Indigenous people. On-reserve numbers would be lower.

Grade 9 Math PAT - Students achieving acceptable standard in MESC
Strands in Grade 9 PAT Results - MESC
Math 30-1 - Students achieving acceptable standard in MESC
Math 30-2 - Students achieving acceptable standard in MESC
Numeracy Gap

Chart 1
Proportion with higher literacy and numeracy skills (level 3 or higher) among off-reserve First Nations, Métis and non-Aboriginal adults aged 25 to 65, 2012

percent

Off-reserve First Nations
Métis
Non-Aboriginal

Aboriginal identity

Literacy
Numeracy

Source: Statistics Canada, Programme for the International Assessment of Adult Competencies (PIAAC), 2012.

https://www150.statcan.gc.ca/n1/pub/75-006-x/2016001/article/14630-eng.htm
Where do we go from here?
Where do we go from here?

Focus on teacher preparation to deal with the educational gaps that are present in Indigenous populations.

Develop culturally sensitive materials that can not only close the gap, but explore the mathematics of the world in Indigenous cultures and life.

Take a trauma-informed approach to education.

- This has to come before any attempt at closing an educational gap.

Create connections with the families and communities.

- Creating summer programs for young children is a great way to strengthen skills and to maintain those connections

This is not a short term fix, this needs to be a long term investment.
My Classroom

Successes and Academic Progress

School is taking a more trauma informed approach to student discipline

More students enrolling in Math 10C than ever before (pre-calculus and foundations math)

- Has the lowest enrolment of the math classes offered, but increasing

Sending students to direct entry post-secondary programs (both general stream and through Indigenous student university entry programs)

Numeracy and Literacy is a board focus going forward to help close these gaps.
Questions?
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