

Culture-Based School Mathematics for Reconciliation and Professional Development



Sharon Meyer (project leader) and Glen Aikenhead (project contact person) mentored and collaborated with four rural mathematics teachers who took part in a two-day Indigenous culture immersion; a mandatory experience that initiated teachers into culture-based teaching.

The research was based on the following questions:

What supports do teachers need to enhance their teaching of Western mathematics in a sustainable way by bringing some examples of local Indigenous mathematizing into their classrooms?

What are the identifiable effects on non-Indigenous and Indigenous students as a result of their engagement with Indigenous mathematizing?

These are their lessons . . .

- Learning to teach Saskatchewan Indigenous mathematizing and Indigenous perspectives was experienced by the teachers as a journey upon which to embark.
- The current mathematics curriculum works against the sustainability of culture-based school mathematics.
- Continuous support for teachers must come from school administration, school divisions, and the Ministry of Education.

Unlearning before we learn . . .

We discovered the need for teachers to unlearn certain Euro-Canadian ways of understanding Western mathematics and perceiving the world; ways that interfere with cross-cultural understandings found in culture-based school mathematics. Of course, this was only if teachers had not already unlearned them. Unlearning included such ideas as:

- Including an Indigenous topic in a mathematics lesson is not enough to meet a culture-based standard for implementation.
- The popular yet erroneous assumption that mathematics itself is free from human values and any cultural features. This assumption suppresses a goal of Saskatchewan's mathematics curriculum: understanding mathematics as a human endeavour. The mistaken assumption either undermines or negates culture-based school mathematics.
- An unconscious cultural ethos of Eurocentric superiority that suppresses humility and marginalizes most Indigenous students.
- The unquestioned appropriation from non-Eurocentric cultures in very subtle yet disrespectful ways. It is so subtle that it seems like common sense to those who do it.
- The habit of dichotomous (i.e., either/or) thinking only. This habit suppresses holistic thinking: "degrees of both." Holistic thinking lets us see the world with two or more different, yet coexisting, fundamental ways of thinking.

Unlearning can be as fruitful as learning, because unlearning broadens one's openness to what can be learned. Yet unlearning is the more challenging process as it is at first invisible to most people in Canadian mainstream culture.

What students would tell teachers . . .

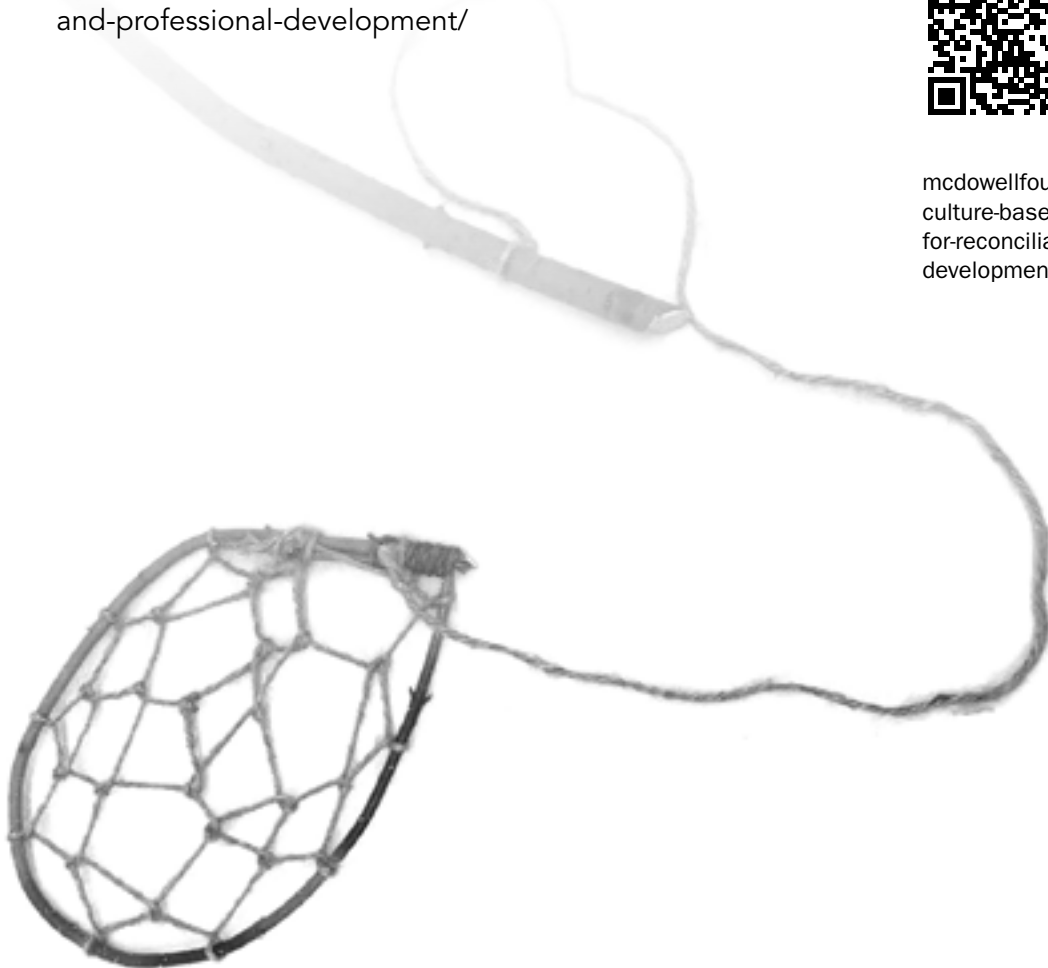
- Be confident in teaching mathematics in a different way.
- Go ahead and keep trying to teach mathematics by including Indigenous culture.
- Do more of it. Although we had two or three such lessons, we wish we had more.
- Learning information from stories is another preferred way of learning.
- Give us feedback to use for helping us reflect.
- Use activities rather than textbooks.
- Engage us intellectually, emotionally, physically, and spiritually. Different students have different preferred ways of communicating. Communicate over time, when possible, in all five senses (e.g., drumming communicated acoustically, and games often communicated emotionally).

What activities can you do in your classroom . . .

For video links and lesson plans, visit mcdowellfoundation.ca/research/culture-based-school-mathematics-for-reconciliation-and-professional-development/



mcdowellfoundation.ca/research/culture-based-school-mathematics-for-reconciliation-and-professional-development/



Teachers

Kevin Duchscherer

Serena Palmer

Krysta Shemrock

Danielle Vankoughnett

Principal

Sari Carson, Carrot River School

Research Team

Sharon Meyer

Glen Aikenhead

Kelley Cardinal

Danny Sylvestre

Ted View

