

## Restor(y)ing Mathematics, Restor(y)ing Ourselves: A Spiritual Turn in Mathematics Education

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Partly in response to the movements of Black Lives Matter and Land Back on Turtle Island; land and water rights severely threatened globally (e.g., Brazil and India) as well as proposed constitutions and new laws that name lands and waters as persons who have rights (e.g., Bolivia, Australia, and Chile); climate justice; Truth and Reconciliation processes in Canada and South Africa that have major implications for Indigenous education; a queer and trans movement; and a global pandemic that has shifted education to embrace socioemotional learning and care for one another, the global mathematics education community is situated in a unique moment to reconsider mathematics in helping us to get free and heal. In what way(s) are our research projects taking seriously the idea that the (school) mathematics that got us to this moment is not the (school) mathematics that will get us out? What is involved in radically dreaming towards a mathematical future that can help us to re-attach to each other and to our more-than-human relatives, to weave ourselves together? What are the languages needed to describe relations between various mathematics and mathematical forms as well as between various mathematicians? And, in what ways could this work be considered spiritual? In this presentation, I will draw upon the concept of restor(y)ing mathematics to highlight the ways we are engaging in Indigenous futurity and what that says about who we are becoming as researchers and persons.

We are always in and of relation, both with respect to others and with respect to the work we carry out. So, our research methods reflect not just our desires but also our sense of the futures we believe are possible. Our methodologies offer us the ability to deepen our relations with one another (Tachine & Nicolazzo, 2022), including our more-than-human relatives (Gutiérrez, 2017; 2019). Therefore, as researchers, as we begin to open ourselves to new ontologies (e.g., recognizing humans are not the center of the world), new epistemologies (e.g., embracing acts such as observing, making, storytelling, and dreaming as ways of knowing) (e.g., Barajas & Bang, 2018), and new axiologies (e.g., valuing relations and holistic views over discrete material objects, categorizing, and sorting), we are better able to embrace a spiritual turn in mathematics education, one that can continue the work of our ancestors and begin to put ourselves back together. Elsewhere, I have articulated the basis of this spiritual turn as desire-based research and Indigenous futurity (Gutiérrez, 2022) where I draw upon the concept of restor(y)ing from Bang et al. (2014). A spiritual turn recognizes that we have all been affected by the grief of diaspora and are trying to find our ways home. The work extends a sociopolitical perspective (Gutiérrez, 2013) by highlighting the axiological (e.g., ethical) aspect of our work and by engaging notions of time in non-linear ways. I offer questions we can consider if we aim to embrace this spiritual turn:

- In what way(s) is our research desire-based? And whose desires are centered?
- How are we performing futurity? What are our methods for moving into and inhabiting the next world? (What are our underlying theories of change?)
- What kind of (mathematical) futures are we making? And what does that say about who we are becoming as researchers or persons?

From the perspective of Indigenous futurity (Harjo, 2019), the concept of restor(y)ing allows us to engage with past, present, and future in entangled ways. Restoring focuses on bringing back that which has been erased largely by school systems and colonial scripts handed to us from the academy, as both of these places tend to reflect and perpetuate white supremacy and cisheteropatriarchy. By (2023). In B. Reid-O'Connor, E. Prieto-Rodriguez, K. Holmes, & A. Hughes (Eds.), *Weaving mathematics education research from all perspectives. Proceedings of the 45th annual conference of the Mathematics Education Research Group of Australasia* (pp. 15–16). Newcastle: MERGA.

recognizing that mathematics is much more than formalized symbols and proofs and instead can be considered more broadly as pattern, relation, structure, and logic, we can honor the ways everyday people and lands/waters recreate known/ancestral patterns, relations, structures, and logics to reattach to others and, therefore, to remake themselves as woven kin. Restorying is an act of radical dreaming that treats the future as a form of the present. By recognizing that we can gather under a tree for which the seed has only just been planted, we honor the ways everyday people and lands/waters constantly invent new patterns, relations, structures, and logics to reflect changes in the world. That is, new forms of mathematics can be created (e.g., a woven proof, non-axiomatic forms of mathematics) to address problem solving and joy. The forms of dehumanization and domination with which we have participated (e.g., privileging school outcomes such as increased tests scores as the only desired forms of success) become the backdrop for new possible futures. That is, whereas previously we might have seen equity work as something we did to “help others” (e.g., students who have been oppressed by society or school systems), we shift to seeing our work as having the potential to “liberate and heal us.”

A key aspect of a spiritual turn is recognizing that the work we do affects not just the students, teachers, and communities with whom we work, it affects us as persons. I offer the table *Restor(y)ing Mathematics: Restor(y)ing Ourselves* that reflects the relationship I see between mathematics and us as researchers/persons. With this table, I encourage us to see the ways we, our research, and mathematics are entangled with students, teachers, communities, and our collective futures.

## Restor(y)ing Mathematics: Restor(y)ing Ourselves

RESTORING (dispossession, erasure → attachment)		RESTORYING (dehumanization, domination → new futures)	
Mathematics	Ourselves	Mathematics	Ourselves
<ul style="list-style-type: none"> <li>Ethnomathematics</li> <li>Place-based mathematics</li> <li>Patterns, relations, structures, logics for problem solving &amp; joy</li> <li>Ecology of knowings</li> <li>Centering our more-than-human relatives</li> <li>Living mathematx</li> </ul>	<ul style="list-style-type: none"> <li>Sovereignty</li> <li>Self determination</li> <li>Upholding original instructions</li> <li>Learning our gifts and how to give them</li> <li>Observing, listening, making, singing, dreaming, pitching in, proper asking, &amp; ceremonies</li> <li>As we've always done</li> </ul>	<ul style="list-style-type: none"> <li>Mathematics as story</li> <li>Who speaks on behalf of mathematics?</li> <li>Narrating for a particular purpose (e.g., racial capitalism, eugenics, joy, abundance)</li> <li>Mathematics as literal (place-based) and abstract (aspects that travel)</li> <li>Mathematics as intervention (mathematx)</li> </ul>	<ul style="list-style-type: none"> <li>Storyed by our relations</li> <li>Who claims us?</li> <li>Reflective of &amp; allows us to adapt to changes in world</li> <li>What we're ready to experience/live</li> <li>Nepantla, In Lak'ech, reciprocity</li> <li>Towards becoming a good ancestor</li> </ul>

*We are in relation to mathematics; we are mathematics.*

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