

The Death of Mathematics: A Mythopoetic Inquiry

by

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Abstract

This paper challenges the deeply entrenched, self-replicating nature of mathematics educators, leveraging the groundbreaking and paradigm-shifting works of Wynter's (2015) *Autopoetic Turn / Overturn* and Doll's (2017) *Mythopoetics of Currere*. Through a deeply immersive analysis, this piece vividly captures the lived experiences of individuals who have faced countless struggles within mathematics classrooms, compelling mathematics educators to examine and confront the pressing issues within their own pedagogies. The examination is structured into two essential parts: firstly, an unflinching witness to the systemic violence and harm that pervades mathematics classrooms, and secondly, a call to action for mathematics educators to confront and address the structural violence that persists within their own classrooms.

This paper's unique contribution lies in its incorporation of the story of Wisahkecahk and the Birch Trees, shared by Cree knowledge keeper Solomon Ratt (Ogg, 2021). The wisdom found in this story of Wisahkecahk guides educators in their journey towards reinvention as they process their own anger and frustration when confronted with the harms resulting from their current pedagogies. It offers a supportive space for readers to acknowledge the harm normalized by the professed 'normal' human who encourages the continuation of harm-imposing actions. As an impetus for mathematics educators, it encourages them to listen to critical encounters shared by students who have experienced violence as a result of their instructors' pedagogies. Furthermore, it serves as a source of encouragement for those who have had little success in addressing personal and systemic harms, emphasizing the inevitability of failure as a natural part of the journey towards creating meaningful change.

Keywords: currere, mythopoetics, mathematics, mathematics education, pedagogy, systemic violence, Wisahkecahk

The Death of Mathematics: A Mythopoetic Inquiry

A Walk Through the Park

I was angry as I trudged through Mill Creek Ravine. Angry, stressed, and worried. And it seemed as though my dog was too. I had to break him up from his tussle with another dog; no damage thank goodness. I trudged through the snow, refusing to acknowledge the glistening snow hiding the life underneath. ‘They built this trail all wrong’ I thought as I walked, tight-chested and swinging myself just right so as to not slip on the ice. ‘Too steep! Why’d they have to go do that?!’ Even the snow seemed a little angry; it frowned wherever it had been stepped on. No more shining gleam where the dogs had run or humans had walked, just a series of sunken depressions tarnished with mud. Mid-November has never been classically pretty in Edmonton but perhaps I wasn’t expecting to notice quite so many imprints as I trudged through the park. Every branch and rock and snowflake that disturbed had every right to be angry as well. They had seen it all. They had taken a beating. The imprint of time witnessed in the sudden extrusions of branches, the pox that mark the stones, and the weathered banks of the stream that aren’t half as old as I believed they once were. You’d think these were timeless features but today they seem as though fresh scars from a life they didn’t wish for and couldn’t avoid; each feature originating from a time long past. Each a memory. Each telling a story. Each accounting for their appearance. This is not a timeless place. This is a place marred by time. My casual jaunt through the park seems false today. Do I walk by appreciating the beauty of its appearance? Does this speak to my refusal to acknowledge the very real occurrences that have formed them?

My dog snaps at each passerby while the history of this place weighs heavily on my conscience. I notice a tree sitting in the middle of the stream. Earlier this month it must have upheaved its entire root system for six tons of soil now sit upright; just one of the more recent events scarring this landscape. I imagine the stories washed away already. Mill Creek Ravine “represents an example

of a historic sacrifice zone. [... a space that has] been contaminated with toxic pollutants and in which the environment and the population living in these spaces have been effectively abandoned by the state” (Stewart, 2017, p. 33). Recent excavations have unveiled evidence of “mercury runoff from coal mines, animal waste from meat-packing plants and intense creek flooding from city storm drains [... that] forced residents to constantly relocate their houses, build homes on stilts and boil and filter their drinking water” (Stewart, 2017, p. 33). I imagine the lives built among the filth, having been turned, bent or prevented from growing in some directions and tossed around a million times. I imagine tens of thousands of scars, each one forgotten in time but leaving their imprint on the landscape. “During the 1970’s, a ten-year clean-up transformed the ravine into a city park” but the massive flooding and embankment transformation is testament to the “early industrial pollution, as well as [...] the storm drain city infrastructure built during the 1920’s” (Stewart, 2017, p. 35). My anger seems more than justified now. How might this place find balance?

The mathematics classroom is another example of a “historic sacrifice zone” (Stewart, 2017, p. 33). There is rarely acknowledgement of the damage caused by the effective abandonment by the state. Educators have long recycled lectures, problems, homework, standardized exams, and even explorative activities in their attempts to survive the polluting elements of uninformed administrative demands and disorganized specific outcomes that represent their professional responsibilities. Just as “industrially produced consumer goods, such as mechanically-produced soda bottles, tin cans and industrially processed meat, [have been used to demonstrate] the benefits of industry”, advocates of teaching practices have reported the successful navigation of 34% of their students as evidence of navigation through the murky waters of mathematics without consideration for the other 66% who demonstrate the drawbacks of these teaching practices (Aikenhead, 2017, p. 124). How many times have I asked myself ‘Why don’t I just do it the way I was taught? I took Math 30 in high school and I was fine’? How many times have I tried to convince myself that traditional methods, lectures, and note-taking

works? 'I've taught Math 10-4 before! Traditional methods served my students just fine,' I thought. But did they? I am not sure I can claim that anymore.

Of the 56% of students in Alberta that write a Mathematics diploma, only 77.8% pass (French, 2019). That is, 44% of students in Alberta do not write a Mathematics diploma and an 12% of students in Alberta write a Mathematics diploma and fail (French, 2019). Evidence demonstrating that some young adults have scored below 4th grade on the Wide Range Achievement Test dates back to 1966 confirming the failure of mathematics education beginning early in the lives of children and continuing late into their high school experience, a period that may be as long as ten years (Vacc, 1988). Traditional teaching practices have failed these students to the highest degree. Summative assessment practices have failed them. Lectures have failed them. Video lectures have failed them. Blocked lessons have failed them. Assigned homework has failed them. Worked examples have failed them. Explorative, hands-on activities have failed them. Rich mathematical tasks have failed them. Educators have failed them for years. And if I assume that their arrival through the doors of my classroom and into traditionally designed lessons will somehow serve them any differently then I will have failed them too. I will have chosen to sacrifice them to an obsession with harmful teaching practices because of my unwillingness to acknowledge their social reality for I will never initiate investigations of viable alternatives to these classroom norms.

I walk quickly through Mill Creek Ravine attempting to avoid any real human interaction, quite unsuccessfully, as the land screams loudly around me. I am shocked by just how deafening this landscape is. The history of violence towards the "small, impoverished community of industrial laborers, known as Ross Acreage" has shaped this place; even the snow cannot dampen the noise (Stewart, 2017, p. 34). It occurs to me that perhaps today isn't so loud. Perhaps today is a quiet day and I've just been unwilling to listen. After all, I wasn't around when the stream decided the tree needed to fall. Perhaps the tree was cursing that day as I am today. I walk through and around the edge

of the park afraid of running into the same nasty dog on the way back. I trudge through the field in my big boots hoping that a wide open area might scream less; it doesn't. I am reminded of the histories and experiences that alter our very appearance leaving scars and records with little verbal acknowledgement of what once was. And after finally arriving back home I sat in my car and I stewed in the unsettled nature of my responsibility to the historic sacrifice zone that I exist within, my own classroom, and how I might engage with educators in meaningful dialogue about this structural violence.

An Inward Journey of Self-Discovery

Join me as I call into question the dominant social order of my mathematics classroom and the values aligned with it. I am a member of the Métis Nation of Alberta from Region 6 and Treaty 8 Territory. As an educator, my worldviews are heavily influenced by academics of equity and the peace education community. For the past ten years, I have been employed in mathematics education where my teaching practices have carried out the telos of western ideology. Today, I am striving to challenge the status quo and create a safe and inclusive learning environment for learners.

I hope my values are ruffled, that I might question my practice as an educator, and that I might identify the violence experienced by my own students. and thus identify defective, unsuitable, and harmful teaching practices. I invite you to examine the failures in your classroom, where harmful teaching practices may continue to exist in a form of structural violence. Acknowledge these practices, critically analyze each one, and examine the underlying assumptions and their contribution to violence.

We cannot, Wynter (2015) suggests, address the difficulties of the planet without reflecting upon the world and taking stock of the evidence provided by rational thinkers, scientists, explorers, and jesters. "Rising from the dregs of society and giving rise to the projection of subversive 'prominent types' such as the rogue, the clown, and the fool" (Wynter, 1984, p. 32) are human beings

that offer themselves for examination in identifying the “falsehood and duplicity of the governing mode of the cultural imagination [...that has] come to saturate all human relationships” (Wynter, 1984, p. 32). Wynter

calls for our Autopoietic Turn towards the non-opacity of our hitherto genre-specific orders of consciousness and to the empirical reality of our collective human agency (2015, p. 39).

Implied by Wynter (1984) are the narratives mocking the status quo and shaking the core stability of the governing mode and its “self-justifying discourse” (p. 32) that is both “anachronistic and dysfunctional” (Wynter, 1984, p. 33).

Wynter (1984) posits a move that the original humanists effected to expose the heretical violations of Divine Causality; “a counter-system of figuration” (p. 29) that ushered in an age of rational thinking, that we might draw upon. She suggests that we listen to the experiences of those who play the role of “undermen, under-classes, underpeoples, under-cultures, under-creeds” that have been legitimated and determined by the abduction schema whose instituting is that of the human as a “natural being,” (Wynter, 1984, p. 55) else remain enthralled by our present circumstances. It is these stories that might play jester to my king, first bringing into consciousness those pains felt keenly by those relegated to other and then establishing in each case why they must be and questioning whether they should be any longer. In this way we might be incited to act reflectively.

According to Wynter (1984), we can effect an epochal shift from Natural Causality to Cosmogonic/Sociogenic Causality¹ by projecting “parodic forms of the Clown, the Fool, the Rogue”

¹ According to Sylvia Wynter, the emergence of Renaissance Civic- and (neo)Liberal-humanism led to the replacement of Christianity’s previously unchallenged principle of Divine Causality with the concept of Natural Causality (Wynter, 1984). Divine Causality refers to the idea that God is the ultimate cause of all events and phenomena, while Natural Causality asserts that natural causes can explain these phenomena instead of divine intervention. Wynter (2015) goes on to argue that to collectively survive, humans must “actualize the heresy of securing the non-opacity of our own agency and, with it, the full autonomy of the new order of cognition based on the new principle of Cosmogonic/Sociogenic Causality” (p. 32). In other words, we must assert our own agency and autonomy in order to thrive as a society.

(p. 52) in a carnivalesque manner. These forms can bring high seriousness down to earth. Someone needs to stand up, Wynter (1984) says, and laugh at those in charge and their insistence that they continue the way they have been; those perpetuating structural violence need to be “undermined by subversive laughter” (Wynter, 1984, p. 52). In hearing from these subalterns² there is a chance that we might examine the order/chaos schemas we live in and how they impact the real lives of the humans who are necessarily navigating them (Wynter, 1984).

As you begin to witness “structural contradiction” (Wynter, 1984, p. 39), narratives of “all subjects of the order, including those who most lose out” (Wynter, 2015, p. 28), and “the continued daily sacrificing of the interest of the referent “We” of our species being” (Wynter, 2015, p. 38), allow those “artificially instituted, cosmogonically chartered fictive modes of kind” (Wynter, 2015, p. 29) to disintegrate. Grant this counter exertion of “undermen, under-classes, underpeoples, under-cultures, under-creeds” (Wynter, 1984, p. 54) to spur change. Let the “clown/rogue/fool” (Wynter, 1984, p. 33) pave the way for an inversion. Enable the mages and smiths to assist in deconstructing humanism, just as humanity transformed itself from Divine Causality to Natural Causality and construct a new order of thought.

It is important to recognize that the conversations and concepts we encounter today can be challenging and even threatening to our self-esteem and worldview. However, engaging in these tensions is not without purpose. Just as a well-tuned instrument requires tension to produce beautiful music, so too do our conversations need tension to inspire positive thoughts and actions (Aoki, 1991). Aoki (1991) reminds us that tensionless strings produce no melody; they cannot sing or give voice to a song. In other words, let’s embrace the discomfort of these conversations as we seek to create something harmonious and beautiful.

² This term is often used in postcolonial studies and refers to groups of people who are socially, politically, and economically marginalized and lack agency within dominant power structures.

Before we start, let's review the language offered by Van Kessel & Saleh (2020) so we can navigate these difficult narratives together. They remind us to listen and acknowledge, take responsibility, and refrain from intolerance (Van Kessel & Saleh, 2020). If you find yourself dismissing the views expressed here, keep in mind that we are here to listen and acknowledge. Do not attempt to diffuse the conversations politely, as we are not here to be polite (Van Kessel & Saleh, 2020). And while you may have feelings of guilt, "refuse to accept that guilt; feel a sense of responsibility to live in good ways alongside others" (Van Kessel & Saleh, 2020, p. 6).

I invite you, readers, on an inward journey of self-discovery and "the first step of currere, the regressive phase, where we meet strange characters in [fiction/non-fiction] that allow us to meet our own unique strangeness" (Doll, 2017, p. 140). Consider the classroom that you witnessed while in grade school, the unexamined environments, and unchallenged expectations. I wish for you to be taken aback and taken within (Doll, 2017). The stories revisited in this paper, while found in mathematics education literature, are retold, questioned, and extrapolated, "making us work to see the meaning" (Doll, 2017). Each story is intended to keep you company, to remind you of "the beauty and value of the body", and to bring light into your life as we laugh and cry together (Doll, 201, p. 83).

These retellings are meant to "resonate on a deep level to which one must regress in order for the world within (past scenes, places, memories) to be synthesized with the world without (history, psychology, philosophy, ecology)" (Doll, 2017, p. 62). The characters within these fiction/non-fictions are here to bring a seemingly impossible improbability into a believable range of experience so that you might be swept away, changing who you are as an individual, willing to make incremental changes, and begin a journey of self-transformation.

As a storyteller, I implement Doll's (2017) suggestion and "resist the impulse to clarify" (p. 50) hoping this leaves enough room for "the material to loom inexplicable in the light of ignorance" (Doll, 2017, p. 50). I wish for it to enchant, destabilize, shock, and create in your mind a curiosity which

cannot be ignored. Such an enchantment buys you time to digest and an opportunity to return to these stories at later times, think about what has been told, and what it might mean to you as you feed your soul. Soul “thrives when life is taken in in a long slow process of digestion and absorption” (Moore, 1992, as cited in Doll, 2017, p. 52). I engage with this imaginative story telling to “show us the aliveness of life, including death” in hopes that you might be dislodged from your normative, that your heart might be moved, and that room might be made for those real human voices in your classroom (Doll, 2017, p. 67). It is our business here “to write dangerous fiction [... and] to crack open pious imaginations hardened by belief” (Doll, 2017, p. 67).

Help your body remember. Listen to the shiver up your spine, hear the stillness frozen in fear, feel the ache of love and heartbreak, embrace the comfortable feelings, arrive home after being away so long. Remember your experiences, your memories “lodged in pictures and feeling in the cells themselves” and recall any small caress or squeeze that might send a torrent of memory tumbling out (Doll, 2017, p. 83). I encourage you to “revisit, remember, rediscover [your] early self”, begin to “pay attention, to one another”, look within, and see yourself anew (Doll, 2017, p. 94).

The Death of Mathematics

These stories begin in primary school. The experiences of students who should be having fun, playing games, and enjoying their time in the classroom are described in Towers et al. (2018). Towers et al. (2018) present evidence of negative relationships and narratives of failure being established in the early years of formal schooling. During their interviews there was no mention of fun; John, a kindergarten student, said that learning mathematics was just “a lot of work ... doing super hard, super hard homework” (Towers et al., 2018, p. 152). These young students presented “an image of mathematics narrowly focused on numbers” (Towers et al., 2018, p. 152). John associated mathematics with work “that was to be completed without excitement” (Towers et al., 2018, p. 153).

Ariel, a grade 1 student spoke of math in terms of largeness and challenge but excused herself from engaging in problems she considered too hard (Towers et al., 2018). Rather, Ariel finds “an easier question”; one that she might mimic (Towers et al., 2018, p. 154). Already, in grade 1, mathematics was to be completed solo in a classroom where students “have to sit separate so we don’t talk to our friends” (Towers et al., 2018, p. 155). David, in grade 2, bluntly shared his feelings: “I feel like I don’t really want to be at school when we’re doing math” (Towers et al., 2018, p. 156). By the time Towers et al. (2018) interviewed David he had been convinced by his parents and his teachers that his previous difficulties, his wobbly writing, and his assessment results would be representative of his mathematical journey.

These narratives provide evidence of trajectories that begin early in life; complex trajectories guided by an affectual element that impacts the decision making of young peoples throughout their lives. Does John’s experience of homework impact his willingness to trade homework time for family time later in his life? Does Ariel ever reclaim the impactful authority that mathematics offers or does she remain dependent on her instructors and employers and continue to believe that mathematics is to be performed in isolation? Where might David find himself after several more years of feeling that he is a disappointment to both his parents and his instructors? Is there any further sense to be made for this young student? Imagine being so excited for school and being so sorely disappointed.

Stearns (2013) suggests that adults assign normative childhood experiences to children under their care and when children do not fit those normative our sense of loss turns into disappointment at the cost of “losing track of the particular children in front of us” (p. 74). That we transpose a child from “a time before” onto the children we currently interact with and experience a sense of loss when that ideal child doesn’t appear (Stearns, 2013, p. 75). This loss of a childhood, experienced by those who look back and remember, causes very real pain in the lives of children being compared to these idealized versions themselves (Stearns, 2013). When actualized, this loss experienced by adults leads

to children feeling hurt, defeated, bitter, and disappointed in themselves, being unable to meet the imagined needs of their caretakers.

Temper tantrums would define Alice's experience in the classroom; she would frequently "throw down a book and exclaim over how stupid math was" (Stearns, 2013, p. 79). During a mathematics exercise tears were streaming down her eyes, "I can't do it," she whispered to herself (Stearns, 2013, p. 77). Further validating Alice's feelings were the standardized exams administered in her classroom, which were met with anger and grief for they accomplished her teachers' real goals: "to find only the worst in her" (Stearns, 2013, p. 80). At an end-of-year picnic Alice "overheard her teacher saying, "This year's class was wonderful except for Alice" (Stearns, 2013, p. 76). "I wish I could escape from you, too!" Alice exclaimed, a testament to the message of disappointment she had received (Stearns, 2013, p. 82).

Will Alice always remember the moment she overheard those hateful comments from her teacher? Will she grasp for her sense of worth while simultaneously feeling unwelcome in classrooms? Will she remember wishing "to be with someone who wanted her, who made this abjectly known" (Stearns, 2013, p. 83)? Or will she remember being with someone who made her feel welcome? Has an environment been built where Alice can feel loved? Has Alice been convinced to participate further, to pour her time and creativity into the mathematical community? If Alice continues to experience mathematics as unwelcoming, demeaning, and harmful, will she pursue mathematics any further? Or will she look for another space where she feels welcome, capable, and valued?

Joseph (2021) shares the experiences of Black girls in the mathematics classroom by theorizing the teaching and learning of mathematics as promoting antiblackness, harming Black bodies, and trading exceptional cases of survival for a narrative of success reserved for rare exceptional students. Joseph demonstrated that many Black girls face teachers who "conflate low performance and low participation in mathematics with Black girls' behavior" (2021, p. 78). This issue is particularly

prevalent in schools with “no excuses policies around discipline” (Joseph, 2021, p. 78). Joseph (2021) argues that this harmful behavior impacts relationships between teachers and students. Those students who continue studying mathematics are rarely those who brilliantly embody mathematics itself but rather are those precious few who survive the onslaught of oppression they experience in the classroom (Joseph, 2021).

Joseph (2021) warns her readers that her findings demonstrate the unwelcomeness and intellectual violence imposed upon Black girls. For example, rather than describing Patti’s mathematical ability during reporting periods, Patti’s third grade math teacher chose to describe her demeanor: big, loud, and aggressive; a perspective then adopted by her peers during lessons (Joseph, 2021, p. 82). Stella, who loved to sing in class and preferred cooperative learning, was decidedly characterized as “unmotivated and not hard working” by her teacher who preferred authoritative pedagogies (Joseph, 2021, p. 83). Joseph (2021) asserts that the dominating, identity erasing stances taken by mathematics teachers impose psychological violence upon children, in particular, Ms. Charlotte Dial’s students who experience a near-military style discipline in their classroom (Joseph, 2021).

Will Patti embrace her big, loud personality or will she trade good communication for quiet subjugation? Will Stella ever contribute her musical talent in a spectacular combination of musical theory and mathematics or will she be celebrated in another community? Will Ms. Dial’s students embrace the hostile and punitive environment, choosing to study hard and contribute to their mathematical community or will they grow to love the freedom they find elsewhere, in communities outside academia altogether? Will these young humans seek out healthy spaces where whole communities can flourish? Will they find communities that embrace and celebrate their unique, growing brains? Will the mathematics community miss out on yet another group of talented young minds?

Larkin & Jorgensen (2016) remind readers that positive narratives are often the only narratives driving mathematics research. They present negative narratives formed as early as grade 3 to demonstrate the impact on young persons psyches. According to Larkin & Jorgensen's (2016) study, children described their mathematical experiences in negative terms. They used phrases such as "just a big blob of confusion" (p. 934), "it makes me frustrated" (p. 934), "people laugh at me" (p. 935), "they're smarter than me" (p. 935), "I feel sad" (p. 935), "a massive headache" (p. 941), and "it makes me feel sick" (Larkin & Jorgensen, 2016, p. 941). These young people "used highly emotive language such as hatred, boredom, [and] frustration," (Larkin & Jorgensen, 2016, p. 936) to describe physiological reactions towards their experiences of mathematics.

These young students describe classrooms that are all quiet, where there's no talking, and the teacher is yelling (Larkin & Jorgensen, 2016). In a classroom where "she could not understand it and because she was not allowed to work with other students who would be able to help her understand" (Larkin & Jorgensen, 2016, p. 940) a grade 3 students' feelings of dislike presently deepens and matures. If by grade 3 they are feeling sick to the stomach, experiencing headaches, and speaking of hatred, might they choose to discontinue their study of mathematics by grade 9? If their instructor yells at and punishes them for their efforts, how then is their view of the community of mathematicians developing?

A grade 6 student shared that "I don't like maths and maths makes me want to feel sick" (Larkin & Jorgensen, 2016, p. 936). Another grade 6 student feels "sad when I have to do math. Because it's so boring and there's nothing to do" (Larkin & Jorgensen, 2016, p. 937). And yet another grade 6 student shares that "it absolutely sucks. And it sucks because it's hard" (Larkin & Jorgensen, 2016, p. 938). If by grade 6 they have disconnected symbol from body, how much distrust might have developed by the time they reach grade 12?

Larkin & Jorgensen (2016) suggest that "mathematics education may be in troubled times" (p.

942) and speak to the depth of the developing emotional states of young persons in their mathematics classrooms. Larkin & Jorgensen (2016) provide a more certain accounting of

these base emotions that are well developed tools of emotional communication at their age to communicate the visceral reactions of unease that they are experiencing, perhaps for the first time towards academia, perhaps setting up their entire academic future for similar feelings of disgust and queasiness (p. 936).

To put it differently, if students associate mathematics with negative emotions and unpleasant physiological experiences at an early stage, it is unlikely that they will have a “positive experience of upper primary and secondary mathematics” (Larkin & Jorgensen, 2016, p. 943).

Lange & Meaney (2011) discuss the impact of math homework on the relationship between parents and their children. They claim that the time spent at home with family members is imposed upon by teachers who send inappropriately designed tasks into spaces where resources are scarce and relations are unable to accommodate for the learning that is intended (Lange & Meaney, 2011). It means less time with family, less time for adventure, and less time for health. According to Lange & Meaney (2011), children learn quickly that school staff are capable of exercising authority in the classroom and at home, that their bodies will experience the restraints of the classroom, i.e., butts in chairs, rather than “[riding] your bike to your friend’s house” and that their parents are unable to provide adequate help (Lange & Meaney, 2011, p. 37). Their time at home is reduced from exercising their creativity and artistic expression to filling in blanks.

According to Lange & Meaney’s (2011) conversations with Isabella, a grade 4 student, “obedience and compliance” (p. 43) were prioritized over mathematics in her mathematics classroom. Another grade 4 student, Maria, disclosed that the negotiated roles and healthy ties between her parents and herself had been disrupted, she had been “unable to cope” (p. 46), and that she had resorted to screaming, crying, running to her room, and slamming doors instead of completing homework

(Lange & Meaney, 2011). The rift between Maria and her parents is widened so far that at last they are unable to bridge the divide and Maria is left to her own devices. Imagine existing in a near constant state of conflict with the people who love you the most. Imagine the loss experienced when your caretakers punish or intimidate you on behalf of school authorities.

As these young individuals grow older might they begin to ask themselves more serious, life-impacting questions? Do I prioritize family? How can I do so and still remain within a domain that seems responsible for creating familial conflict? How might I raise my own family healthily given the invasive nature of classroom culture? How might my family time be different? As parents, these young students might find themselves at odds with a school community that has continued to send children into potential conflict zones for decades. Lange and Meaney (2011) nail it: they ask, “is it appropriate to send children off into the potential conflict zone of procedural mathematics homework knowing that it could lead to or reinforce emotional and mathematical trauma that could have a long-term impact” (p. 49)?

Drawing from Sfard and Prusak’s (2005) definition of identity, “a set of stories about persons that are reifying, endorsable, and significant” (as cited in Heyd-Metzuyanim, 2012, p .5), Heyd-Metzuyanim (2012) demonstrates how the interactions between students and teachers are contributing to the formation of identities. Heyd-Metzuyanim’s (2012) search for “stories about the current state of affairs (such as “I am a lousy mathematician”)” (p. 345) and “stories about how things are expected to be” (p. 345), lead them to conclude that a student confidently identifying as a mathematician may be dissuaded from continuing their involvement with the mathematics community by the third-person identities forced upon them during their time in the classroom (Heyd-Metzuyanim, 2012, p. 361).

By the end of their time together, Dana was describing herself to Heyd-Metzuyanim (2015) “as much less competent in mathematics than she had told in the beginning” (p. 359). Dana, a student who had been “willing to explicate her mathematizing” (p. 358), soon found herself negatively identifying

with mathematics following the “repeatedly missed opportunities [her instructor had] to hear Dana out, or to encourage her autonomous mathematizing” (Heyd-Metzuyanim, 2012, p. 359). Dana’s instructor had, unintentionally, created an environment where Dana had little opportunity to achieve explorative participation in the mathematical discourse and had thus encouraged their learner to become a passive, instruction follower whose contribution to classroom discourse was little more than saying “I didn’t get that stuff”, “What do I do?”, and “Tell me if I was right, OK?” (Heyd-Metzuyanim, 2012, p. 359). Rather than developing into an independent thinker able to verify her solutions, Dana took on the narratives of her instructor.

If Heyd-Metzuyanim (2012) can so easily perpetuate “ritual participation in mathematics and failure in the long run” (p. 363), have I also perpetuated such failure? Are students who are “extremely low achieving in mathematics (or: clueless in colloquial terms)” denied access to rich opportunities to develop their communication (Heyd-Metzuyanim, 2012, p. 349)? Will they ever be given opportunities to verify their own thinking? Are they being set up for failure by being treated as unable? Have I examined how my teaching practices discourage learners’ healthy development? Have I examined the effect my instructional routines have on the growth of learners? When will I take responsibility for those practices, admitting that I may be responsible for harming learners’ relationship with mathematics?

Towers et al. (2017) suggest that learners of all ages imagine how they might participate in mathematical discourses, as early as kindergarten and continuing throughout their academic career. The research from Towers et al. (2017) marks a departure from binary thinking and paves the way for understanding the spectrum of mixed relationships with our mathematics classrooms. According to Towers et al. (2017) previous emotional experiences influence the relationships that bud “when a connection [is] made between new concepts and previously learned concepts”, i.e., students can develop emotional relationships with concepts (Towers et al., 2017, p. 177). More often than not it was

fractions that was reported by students as the trigger of disengagement and dissociation. A deep dislike towards fractions was described by students as irritating, frustrating, and a stormy weather front that caused them to hide underneath an umbrella where they feel safe (Towers et al., 2017). Students described becoming more frustrated as they progressed through these curricula.

Towers et al. (2017) demonstrate that the educational system, particularly the way mathematics is taught, has a significant impact on students' emotional development and learning trajectories. The vital developmental years during which teachers spent time applying external pressure and encouraging the memorization of strategies, with "continued emphasis on standardized procedures of arithmetic" (p. 180), contributed to what Towers et al. refer to as a "nuanced emotional landscape" that includes learning trajectories beginning as early as grades 4 and 5 and stretching into upper middle school (Towers et al., 2017). Students "described themselves as dumb" and disconnected from their bodies, their intuition, and their gut feelings (Towers et al., 2017, p. 180). They began to rely solely on externalized sources for validation, and to derive "practically no intrinsic or esthetic value" from the activities they were participating in (Towers et al., 2017, p. 179). Students whose teachers "just [gave] the answers" were credited by students as having contributed to their dislike of mathematics (Towers et al., 2017, p. 174).

Towers et al. (2017) demonstrate that students are not either/or, they are simultaneous, and they feel all. The platforms of hate and love meld away into the complex tapestry of human emotion. The conversations Towers et al. (2017) had with grades 5, 6, and 7 students reveal a range of positive feelings and fun experiences, that were reportedly enjoyable, easy, and challenging for some while, simultaneously, other students reported feeling incompetent, inadequate, worthless, and being unwilling to make any further effort to improve. Even this early in their academic career they noticed that they were being unfairly compared to others, that their learning had departed from hands-on thinking, and that their mathematics existed only within their head (Towers et al., 2017). Towers et al.

(2017) leave us to ponder whether the actions taken by teachers in these periods of early learning had deepened the negative attitudes of the students they interviewed. I am left to wonder whether these negative attitudes are persistent and if they will impact the well-being of the child as they grow into adulthood.

Lambert (2019) introduces us to an entire community of persons living with disabilities. She acknowledges the impacts that these disabilities have on the physical lives of persons but she asserts that many of the difficulties encountered by persons with disabilities are the result of the result of the conditions of classrooms, mathematics classrooms in particular. The impact of these disabilities, including attention deficit hyperactivity disorder, learning disabilities, and mathematical anxiety, are only “understood as produced through interaction; children must be seen in a context” such as a classroom where children are labelled after having produced certain behaviors under specific conditions (Lambert, 2019, p. 3).

The experience of Desi, a sixth grader identifying herself as having attention deficit / hyperactivity disorder, stands out in Lambert’s (2019) work. “I hated it [smiling] with all my guts”, she said as she describes her loathing towards her mathematics classroom (p. 8). During summative assessments Desi described being confused, panicked, anxious, and “blanking out”; her working memory dysfunctional and inaccessible (Lambert, 2019, p. 11). She felt her classes were too fast paced, that she was expected to learn too quickly, and that she was unable to complete the work expected of her in the given time. Desi’s sixth-grade teachers described her as needy, apathy-based, and disinterested; those descriptions were not kept from her. Desi knew that her teachers thought of her as slow compared her to her peers and that they used the labels of her disability to describe her as an anomaly, otherwise unable to learn.

Imagine what Desi might accomplish when she finally realizes her true potential. Will she be able to shed the labels of her disability like a butterfly sheds its cocoon, bursting forth with energy for

STEM? Or will she be crushed by the negative, depressing environment she exists within? How will the comments from her teachers impact the choices she makes in the years to come? Will she ever feel drawn to an environment where the people within think of her as needy and apathetic? Will she reclaim her learning, embrace her 'slowness', and recognize her value as a member of the mathematics community? Or will she seek out an environment where she feels needed, even desired?

After a thorough review of mathematics education literature, searching 1662 essays for signs of emotion and fragmented pieces of identity, Martino and Zan (2013) reported a causal link between fear of mathematics and fear of being unable. Students, it seems, lose hope over time and begin to believe that they will never be successful, never be good enough, always miss the mark, and always be disappointing. Martino and Zan (2013) connect the emotional and physiological responses of negative experiences in grade school with their "negative influence on mathematical school performance" and math-phobia in adults (p. 1).

Martino and Zan's (2013) review unearthed narratives of excessive oversight by teachers that left students frightened; so scared that they got "goose bumps, because I am afraid" (p. 3), shared by a student in grade 4 or that they "forget everything" (p. 5) as one grade 8 student explained. Another grade 8 student disclosed that they were so afraid of making mistakes that they don't even try, they "just give up" (Martino & Zan, 2013, p. 7). Another student, from grade 10, recalled "a strong pain in my stomach and my head" (Martino & Zan, 2013, p. 8). One grade 13 student felt "even more stupid, thick and useless" (Martino & Zan, 2013, p. 4) the more their teacher blamed their lack of success on their work habits.

If students are fearful, frightened, in pain, or are made to feel inferior in mathematics classrooms are they more or less likely to continue engaging with mathematics when they are adults? While grade 4 students will probably be fans of scary movies when they are older, is it likely that they will want to be so fearful of their job that they grow goosebumps every time they arrive in the parking

lot? While grade 8 students may certainly learn how to bake cake, will they miss out on their retirement because they are too afraid of learning financial lessons needed to maintain their standard of living? Will grade 10 students continue to feel sick when presented with the unique problems life throws their way? Will grade 13 students purposefully choose to subject themselves to an environment that makes them feel unintelligent? Martino and Zan (2013) suggest that teachers should be prepared to modify their own actions and beliefs in order to stem the flow of learners away from the STEM disciplines.

Bishop (2012) reminds her readers that the “1996 administration of the National Assessment of Educational Progress (NAEP) showed that as students progressed through school, more and more would choose to opt out of further mathematics study if given the choice (12% in 4th grade to 31% in 12th grade)” (p. 36). Bishop (2012) begins to describe how “small differences in subtle details accrue over time” just as compound interest accrues slowly at first and begins to accumulate more quickly with time (p. 68). Bishop (2012) suggests that there are many small reasons one might choose to discontinue their relationship with mathematics and that each of these reasons are real, they are cumulative, and that they are common. Barriers that accumulate ensure a swift exit from the field of mathematics as students choose to avoid the senseless unkindness that they are subjected to.

Bishop (2012) describes a “thickening of identity” (p. 38) and demonstrates this thickening through her observations of two seventh grade girls, one who seems dominant and the other submissive. Teri continually asserts her authority over Bonnie saying, “show me what you didn’t do last night” and “we’re so freaking far behind in this ‘cuz you wouldn’t do anything” (Bishop, 2012, p. 54). Teri constantly picks at Bonnie, positioning herself as superior with statements such as “yeah, right, like you could do that” (Bishop, 2012, p. 54). Bonnie’s questions never seem to be resolved, she is constantly undermined by her peers, and she is “positioned as dependent, mathematically helpless, and at times, unknowledgeable” (Bishop, 2012, p. 57). These normative relationships and patterns of

discourse might be extrapolated to imagine a robustly enacted history of positioning by the girls as “mathematically dumb and mathematically smart” that they might continue throughout their high school experience (Bishop, 2012, p. 60).

Imagine for a second just how long it might take to change someone’s mind after they’ve convinced themselves, with supporting evidence (i.e., treatment from peers, instructors, and data from assessments), that they will be forever dependent and inferior to those ‘competent’ individuals. Imagine how long it might take Bonnie to overcome these barriers. Will Bonnie be able to reposition herself as a competent, growing, mathematizing learner? Is repositioning even possible? How many opportunities “to enact an identity other than the dumb one” (Bishop, 2012, p. 69) will present themselves to Bonnie? How long until Bonnie becomes cemented in her identity, unable to reposition herself at all without intervention? Will she ever choose study mathematics as an adult?

Lambert (2018) implicates “staff rooms, professional development, and even [...] academic research” (p. 1) in amplifying the construction of the identities of persons with disabilities without first consulting or speaking with persons of disabilities. Lambert’s (2018) analysis places persons with disabilities directly in conflict with deficit-based models of direct instruction that limit the conversations between teachers and persons with disabilities to those that meet the demands of the space that teachers have predefined. Lambert (2018) argues that classroom practices suffer “from the assumption that there is sufficient evidence that inquiry mathematics is not effective for students with learning disabilities” (p. 4) despite the lack of evidence supporting such a position.

Lambert argues “that ALL students with disabilities can make meaning in mathematics, with unlimited and often unrecognized potential as mathematicians” (2018, p. 2). One such student is Luis, who is identified as having a learning disability in mathematics. Luis’ case became of particular interest to Lambert (2018) as he “struggled to memorize” (p. 12) when his teacher insisted on using “a rule for subtracting a negative number” (p. 12). The “classroom instruction was focused on procedural

learning” (Lambert, 2018, p. 5) but Luis was unable to make any sense of the rules he was expected to follow. Additionally, he was unable to understand why anyone needed disconnected, randomly selected rules when sense-making served him better. The instructor limited Luis’s growth to math facts and algorithmic memorization based on his disability. Luis is denied access to the field of mathematics where “beyond a certain point in mathematics, it’s not really about calculations” (Lambert, 2018, p. 3).

Will Luis ever be afforded another opportunity to access the field of mathematics again or have Luis’ teachers squandered his time, costing him a future in the STEM disciplines? How many more students will be unable to overcome the difficulties caused by firmly held teacher’s beliefs and “pervasive deficit constructions of students with learning disabilities” (Lambert, 2018, p. 2) in their classrooms? How much longer will classrooms suffer from the assumption that “students with Mathematics Learning Disabilities will be confused by inquiry based mathematics” (Lambert, 2018, p. 12)? Should assuming “that students with learning disabilities cannot construct their own knowledge in mathematics” (Lambert, 2018, p. 5) be the default? Will researchers continue to make claims about persons with disabilities that are “indefensible, illogical, and unsupported” (Lambert, 2018, p. 2)?

Gholson & Martin (2019) describe a social construct that they call ‘blackgirl face’ that begins its development early and impacts students “ability to participate and perform effectively in mathematical contexts” (p. 392). Blackgirl face is defined by Gholson and Martin (2019) as the masking behaviors, such as aloofness and stoicism, that Black girls participate in “to counter the social vulnerabilities created by intersectional forms of racialized, gendered, and class-based oppression” (p. 391). Their research suggests that “the marginalized, minoritized, and oppressed engage in performances for survival and to resist exploitation, vilification, or disposability” (Gholson & Martin, 2019, p. 393). Rather than attempting to repair her relationship with mathematics, Cameryn, a grade 8 student that Gholson & Martin (2019) record, positions herself in such a way that the supposed impairment increases her social status. In this way, disliking mathematics becomes a protective barrier

inside which she can find like minds to connect with and dispel stress.

Cameryn “narrated her mathematics identity with clarity - as someone who disliked mathematics and did not consider herself as good at mathematics” (Gholson & Martin, 2019, p. 396). Throughout the year she described her experiences in mathematics class as: “it makes my head hurt” (Gholson & Martin, 2019, p. 397). She admitted to hating math and attributed her difficulties in other classes to her difficulties with math (Gholson & Martin, 2019). A “painful... endless-ness” (p. 398), is described by Cameryn; walking into the school knowing that she has math class that day, walking up to her classroom, and finally cocooning herself inside her hoodie as her body “contracts into a ‘C’ shape”, (Gholson & Martin, 2019, p. 398). Cameryn is given little creative licence as her teacher poses diligently to make corrections. While engaged in one-on-one instruction with her teacher, Cameryn resorts to soothing body motions and immediate check-ins just to make sure she does exactly as she feels her teacher expects her to.

Imagine spending every moment afraid. Imagine assessing each bodily movement and necessarily making “tedious micro-confirmations in mathematical work” (Gholson & Martin, 2019, p. 400) fearing that you will be harshly punished for making a mistake. Gholson and Martin (2019) argue that the accumulating nature of these micro-aggressions, combined with the necessary face-saving “relational labour” (p. 401) whenever a performance outside of their particular skill set is required, constitutes a very real pain experienced by students. Cameryn is unable to trust her own body and feels that she can no longer physically move without permission. Has Cameryn experienced a form of trauma? Is a classroom instructor qualified to address, or even aware of, the difficulties Cameryn is experiencing? Will Cameryn ever encounter opportunities to re-establish trust in herself and to create and pursue mathematics or has this extreme distrust and dysfunction been woven into the fabrics of middle school and high school?

Heyd-Metzuyanin (2015) provides an account of Idit, who identified as “a top math student”

(p. 520) in grade 7, but who was identified as at-risk as she fell towards failure over the course of several years before finally deciding that the whole of mathematics was not for her (Heyd-Metzuyanin, 2015). Heyd-Metzuyanin (2015) provides readers with the perspective necessary to view developments in what they describe as “highly stable [identities that] tend to change over relatively long periods of time” (p. 515). Idit’s support system concentrated on her grades, ensuring every problem was easy and shortcut solutions were available (Heyd-Metzuyanin, 2015). School work at home became punishment for poor grades and “getting the right answers” (Heyd-Metzuyanin, 2015, p. 522) became code for writing the correct symbols.

Idit’s mathematics lessons were followed by quiet work on individual problems that offered no opportunities for remediation in any meaningful form (Heyd-Metzuyanin, 2015). Idit was not asked to discuss her solutions with her peers, and asking questions was discouraged by those in her classroom who would belittle anyone who might “err or ask questions” (Heyd-Metzuyanin, 2015, p. 524). When Idit found herself face-to-face with the conceptual learning demands of grade 9, with only rote memorization and the mimicking of “endorsed narratives” (Heyd-Metzuyanin, 2015, p. 512) as tools, she was at last unable to mask her difficulties. Idit had grown from a confident problem solver with a bias against fractions to an avoidant, anxious young adult who experienced ‘blackouts’ on tests and would forget everything she had learned (Heyd-Metzuyanin, 2015).

Over the course of three years Idit’s “withdrawal from fractions” (Heyd-Metzuyanin, 2015, p. 533) developed into an identity that refused to consider problems she claimed to be “incapable of solving” (p. 533). Idit’s difficulties remained hidden in an environment that focused solely on the drill and practice of procedure (Heyd-Metzuyanin, 2015). Heyd-Metzuyanin (2015) leaves readers to imagine what will happen to Idit as she enters high school having developed unhealthily throughout middle school. Will Idit decide that she is also incapable of participating in science lessons? Finance? Cooking? Music or art? Might avoidance become the norm in her life? Has her quality of life

consequently been negatively affected? Will she experience anxiety and fear every time she encounters difficulties beyond what mimicry can address? How might this impact her health? How might this impact her ability to advocate for herself and her relations?

Chronaki & Kollosche (2019) interviewed a young adult named Anja who in grade 9 had decidedly chosen to refuse mathematics. The “uselessness of learning mathematics” (p. 465) combined with a “mathematics classroom [that] motivates students to hide their physicality and experience a kind of body-absence” (p. 465) is by this time, well-established and deeply felt by Anja. Her experiences in mathematics classrooms conflict with her active, thriving and community minded sense of self (Chronaki & Kollosche, 2019) who is rewarded with collaboration, friendship, social acceptance, and participation in a community elsewhere in her life.

At the time of the interview, Anja had completely disconnected pleasure from the study of mathematics instead regarding “mathematics as not only ‘difficult’ but associated with ‘danger’” (Chronaki & Kollosche, 2019, p. 461). In her mathematics classroom there was no “fun together with your friends” (p 462), no talking with each other, and ultimately she experienced mathematics as “a lonely endeavour” (p. 463). Anja recalled memories of crying in class, of being humiliated and socially rejected by her peers, and being “repeatedly [told] that [she] should be able to do it” (p. 463). The blackboard experiences that Chronaki and Kollosche (2019) describe as “an extreme experience of anti-togetherness [followed by] a voyeuristically perverted togetherness” (p. 464) comprised the reason why Anja is now avoidant of the practice of mathematics.

While Anja at one time might have found herself enjoying mathematics, pursuing a career where mathematics was an important prerequisite, or simply trying to prove that she could complete the tasks, a very different trajectory now takes hold, one of health and happiness, one which assigns physiological rewards to actions taken leading lives away from the subject of mathematics. Having now spent a lifetime in grade school and armed with the evidence needed to defend herself from

further harm, Anja finds herself discontinuing her relationship with mathematics altogether. There is little to suggest that Anja will ever return to mathematics or that she would ever be interested in disrupting her current trajectory. The dignity, bodily autonomy, and relevance she has found in communities elsewhere strengthen Anja's negative disposition towards mathematics.

Lambert et al. (2019) analyze the narratives of insiders to "offer much needed experiential data" (p. 1) from learners with disabilities largely ignored in mainstream education in favor of the mainstream perspectives of nondisabled individuals. Lambert et al.'s (2019) treatment of persons with disabilities as insiders frames these perspectives as exclusive and valuable in the contested academic realm of learning disabilities. The voices of persons with disabilities are amplified in Lambert et al. (2019) in an effort to counter dominant ableist narratives and inform future scholarly work. Lambert et al. (2019) suggest that there is a lack of education for professionals, that conversations with insiders about their difficulties are rare, and that secrecy and shame linger throughout lives.

Lambert et al. (2019) highlight literature like Jonathon Mooney's (2008) autobiography, in which he wrote about his experience as a young child. He remembers sitting in first grade staring at a page that shook like a heat line in a mirage; "the nausea of confusion and the fear of explosion overwhelmed your five-year-old frame" (Mooney, 2008, as cited in Lambert et al., 2019, p. 12). Eileen Kushner's story, as told by Kathy Young, is another example: "I kept being placed further and further back in the reading groups, [...] I couldn't figure out how the other classmates were getting it while I wasn't" (Kushner & Young, 2008, as cited in Lambert et al., 2019, p. 12). Grade school was particularly painful for these insiders and included "instances of crying, stomach pain, biting teachers, hiding in the bathroom, and paying other students to read for them" (Lambert et al., 2019, p. 12). It didn't stop there though; Lambert et al. (2019) shared a story from insider Tennessee R., whose Professor berated students angrily saying "If I could read this chapter while I'm feeding my kid his bottle than you can read this too" (Reed, 2009, as cited in Lambert et al., 2019, p. 13). Insider

Rosemary Peel recalls that: “The class broke into fits of giggles, the teacher looked bemused and I wished the floor would open up and swallow me” (Peel, 2015, as cited in Lambert et al., 2019, p. 13). And it wasn’t until insider Chris “stopped trying to memorize the [multiplication] tables by saying them over and over in my mind as I had been taught to do” (Lee & Jackson, 1992, as cited in Lambert et al., 2019, p. 14) that he began to overcome his difficulties in a classroom that “de-emphasized meaning-making in favor of memorization” (Lee & Jackson, 1992, as cited in Lambert et al., 2019, p. 14).

Is Jonathon going to volunteer his free time reading to young people at his local library? Or has the experience of humiliation spoiled any community service he might be interested in? Do the fits of giggles from classrooms echo every time Rosemary considers a public performance? Or has she since found a comfortable space to perform? Does Chris become a teacher of mathematics? Or will he find education an unwelcoming field fixated on pedagogies responsible for the harm pressed upon his younger self? As adults, will these insiders intentionally occupy spaces where they feel like anchors holding others back? Will they wish to pay the “tremendous emotional toll” (Lambert et al., 2019, p. 16) required to simply to exist in mathematical spaces?

Boaler et al. (2000) examined the effect of ability-grouping in mathematics classrooms on students’ identity to assess its impact on student self-image and self-talk when students were under the impression that they had been assigned an identity by a teacher. The study showed that the experiences of students who were grouped into higher/lower-ability groups, and the opportunities given to them, impacted the decisions these students made and the opportunities given to them as they progressed through high school. According to Boaler et al. (2000) ability tracking is of few “benefits to students in high tracks at the expense of significant losses to students in low tracks” (p. 633).

One student claimed that their teacher had told them “Oh yeah, you’re not going to be in set 1 next year.” Another student, one in a lower-ability group who was clearly perturbed by the behavior of

their teacher, claimed “Sir treats us like babies, puts us down, makes us copy stuff off the board, puts up all the answers like we don’t know anything” (Boaler et al., 2000, p. 638). “If you’re slow she’s a bit harsh really” said David, another student in a lower-ability group. And a whole group of students experienced staff pre-defining their success and failure, having already decided who will be a future participant in mathematics before they had begun; “The teacher told one of us that about a third of his class were not good enough for the top set and then during the lesson proceeded to identify the ones that were not academic enough; with the concerned students watching and listening” (Boaler et al., 2000, p. 635).

How many creative individuals have been dispirited because their instructors had a feeling about their ability? Who else feels unwelcome in a community that has been so disingenuous about who belongs there? Must we continue to treat our students as though the most they can accomplish is filling in blanks? Might those future entrepreneurs, artists, and engineers figure out the tough problems? Might we treat them as though they are able to shoulder the responsibility of running a business? Able to hold the financial future of their employees’ families with care? How would our classrooms look if we gazed beyond those students we perceive as the most able?

Andersson et al. (2015) argue that students who claim to be math haters may not have an inherent dislike of mathematics. Petra and Malin, for example, are two secondary school students who chose to enter the social sciences rather than pursuing a STEM career (Andersson et al., 2015). According to Andersson et al. (2015), Petra and Malin are merely participating in “the possibilities that pedagogical discourses make available” (p. 145) rather than playing out stable personality traits. The researchers understand these narratives as emergent, a complex web of experience coming together in each moment; an “inseparability of identity from its discursive, cultural, institutional context” (Andersson et al, 2015, p. 146). Context, they say, is critical in determining how persons see themselves; “task, situation, school organization and societal contexts” (p. 146) play roles in how

learners define themselves from moment to moment. It is within these contexts that dispositions come into being, dispositions that are as widely varied as the humans on earth. Gresalfi (2009, as cited in Andersson et al., 2015) encourages teachers to think of human disposition more as of an “interactive accomplishment” (p. 362) than a predetermined surety.

Petra went so far as say that she was “so sick and tired of school and maths so I was there physically but not mentally” (Andersson et al., 2015, p. 149). Petra would frequently state in class “in a loud voice that she hated mathematics” (Andersson et al., 2015, p. 152). Despite being interested in post-secondary opportunities and acknowledging that “I really need this course for my further studies” (p. 149), Petra admitted to doing “as little as possible so I just pass the course because I hate maths” (p. 149), seemingly disillusioned about the requirements of post-secondary institutions. Will post-secondary institutions pass over Petra as a result of having only barely passable grades? How many more opportunities will Petra miss out on because she was so disengaged with her mathematics courses?

Malin, while imagining her career, how she might spend her time, and where her energies might lie, shared “What I am sure of is that I will not study anything containing mathematics” (Andersson et al., 2015, p. 150). Malin states with certainty that she will not spend her life chasing something “so associated with difficulties and anxiety [that] no one hardly dares to talk about it” (Andersson et al., 2015, p. 150) at home. Unpleasant mathematical activities are hardly imagined as part of Malin’s evenings, let alone part of her career, no, she will likely not accept a position as a mathematician. How much energy will Malin expend simply attempting to avoid mathematics? Will Malin’s family continue to avoid conversations about mathematics? How will this impact her future financial stability and standard of living? And how has the field of mathematics itself been harmed as a result of the ostracization of creatives such as Petra and Malin? Might they have participated in solutions to climate change, financial crises, or world hunger? Can society afford to discourage minds

like theirs from participating in solutions?

Martin (2019) calls into question those narratives of black children who are unable to navigate “the violence of knowledge production [... in] a white institutional and anti-black space” (p 464). “Mathematical illiteracy” he says, “is not a naturally occurring trait of Black children” and yet it is used widely to describe Black children (Martin, 2019, p. 463). Therefore, it is inappropriate to describe an entire population as lacking “the capacity to mathematize their experiences, engage in abstraction and elaboration, and use mathematical symbols to create models of their everyday lives” (Martin, 2019, p. 463). And yet, incarnations of mathematics problems like “how many more slaves are needed in the cotton fields?” (p. 464) and “how many times did the two slaves get whipped together in one month?” (p. 464), Martin (2019) claims, continue to frequent classrooms in harmful manifestations of these beliefs as held by teachers.

The violence towards students hasn't stopped, Martin (2019) states, one teacher threw “a 16-year-old Black girl, identified as Shakara, from her desk and across her mathematics classroom” (p. 464); her friends were arrested for standing up for her. More subtly, educational authorities continue to use evaluations, advanced course placements, and curriculum reform to correct individual oddities, placing them back in line, “irrespective of their demonstrated performance” (Martin, 2019, p. 465). And even more obliquely, critical equity statements have become fractious; the National Council of Teachers of Mathematics now issues statements of equality rather than equity, directing resources towards persons of privilege alongside persons in need of support (Martin, 2019).

How many more learners will find themselves immersed in physically harmful environments? Will Shakara find healing from her trauma? Will she ever thrive or flourish in a mathematics classroom again? Will she be corrected by the purposeful harm caused by her teachers' supposedly corrective actions? Will learners continue to be subjected to harmful mathematical content? Will we continue to assign an entire population the lack of capacity to be human rather than admit that we are

flawed, unkind, bullies in need of reform? Or will learners demand a mathematics education which celebrates their humanity, enables them, and gifts them creativity and life?

Brown et al. (2008) documented the intended trajectories of students having completed their secondary studies. Their (2008) survey indicates a “clear relation between the predicted grade and the likelihood that students intended to continue with mathematics” (Brown et al., 2008, p. 4). Over half of the participants in their study cited that mathematics was “just too damn hard” for them to continue (Brown et al., 2008, p. 7). Having experienced what they feel represents the practice of mathematics as “‘hard’, ‘boring’, and ‘useless’” (p. 4) young adults report receiving the sage wisdom of friends and family: “everyone [...] says it is way too hard and not worth it” (p. 7), “my sister [...] persuaded me not to continue” (p. 7), and “I’ve been told by teachers it is too difficult for me” (Brown et al., 2008, p. 7).

Shockingly abrupt are the young adults who admit that their mathematics experience had “put me off it for life” (p. 10), who “would rather die” (p. 10), who “hate it when I get it wrong and get frustrated” (p. 10), or that they would never continue to participate in a mathematics community “because it SUCKS” (Brown et al., 2008, p. 10). They convince themselves that “learning more seems very daunting” (p. 8), that their “struggle with parts of math” (p. 8) will be representative of a struggle with all of math, and that they are not “at the correct level to attempt” (p. 8) further mathematics (Brown et al., 2008). They describe their classroom experiences as “tedious, isolated, [filled with] rote-learning, elitist, and de-personalized” (p. 9) and they expressed their frustration with the lack of autonomy and expression (Brown et al., 2008).

These young adults cite frequent stress, loathing, extreme anger and hurt (Brown et al., 2008). Brown et al. (2008) call it what it is - a fatal blow. It prompts the imagination: what is so awful that I would rather die than participate? What favors have learners been given if, by the end of their time studying mathematics, they have no desire to continue participating in it? How many years before their confidence returns, before they are able express themselves artistically, before they can engage with

creative problem solving or provide unique solutions to difficult problems. What hurt will still be felt years later? What opportunities have been lost to these individuals? What potential discoveries? What creative, artful expressions? What poetry has been lost to the world because these young humans lost faith in what may have provided meaning to them? Why would any healthy person remain in, or rather subject themselves to, a realm of learning that returns loss? This detest is deep, it chills to the bone, it envelops the life spirit in darkness, the physical body suffers exhaustion and illness, emotions live long past their welcome. The creative intellectual is undone.

Boaler & Selling (2017) follow two student cohorts for eight years after high school to provide their readers with a long-term perspective not seen elsewhere in the literature. Their findings indicated that if a school fails to develop flexible toolkits then that school becomes little more than a “psychological prison” (p. 13) where the teachers provide the answers, sensible or not, and their authority establishes “what they can do, or where the boundaries are” (p. 13). According to Boaler & Selling (2017) there is a connection between the development of “responsibility, agency, and authority” in students and their future trajectories (p. 12). Specifically, those students who are given opportunities to learn responsibility become more likely to pursue careers of higher socio-economic status (Boaler & Selling, 2017). Those who are not, i.e., the participants from Amber Hill, become unskilled workers “in jobs with a lower classification than their parents” (Boaler & Selling, 2017, p. 6).

Students from Amber Hill shared their mathematical experiences; they were “taught to follow rules: they rehearsed content through short questions, practiced methods they had been shown by their teacher, and used cues from questions to know which method to use” (Boaler & Selling, 2017, p. 7). They recalled the exams and how they were to perform things that “had no significance” (Boaler & Selling, 2017, p. 9) that they “don’t really use” (p. 9), and that they had since forgotten (Boaler & Selling, 2017). Boaler & Selling (2017) suggest that the experiences of students from Amber Hill

hindered their start in life; they were afforded fewer opportunities for upward mobility and additional barriers were placed in their way (Boaler & Selling, 2017).

What opportunities have the students from Amber Hill passed up? Are they interested in hearing what might have been? How might these stories be told while simultaneously uplifting those who have been hurt. Are they willing to revisit their experiences and imagine different lives? These young adults described their need for continued external validation and authoritative accountability. It seems that these young persons have lived years without any semblance of how to appreciate mathematical structure and artistic expression. Further, these students seem unable to envision themselves as professionals. Their experiences seem to have become barriers to their financial well-being and their mental health; barriers that contribute to a limited standard of living and hurt feelings that lasted years. Readers are left to wonder whether these students are convinced of their own healthiness.

Olivares and Ceglie (2020) investigated the long-term, sustained, attitudes towards mathematics of parents and the impact those attitudes had upon children. In this study, the narratives of those families with difficult relationships with mathematics revealed just how long lasting the effects of their education were. Parents who had negative experiences and attitudes towards mathematics influenced their children negatively, producing an intergenerational effect. This, despite years between the negatively associated experiences of the parents and the children's opportunity for reconnection and growth in the mathematics community.

Lynn insisted that her mother's bad attitude towards mathematics had rubbed off on her. She would "beg - get me out of this class. I can't make it" (Olivares & Ceglie, 2020, p. 82). Lynn's parents acted as an avenue of escape, fostering her negative relationship with mathematics. Lauren claimed that "she struggled more in math because her mother justified her abilities as the norm for their family" (Olivares & Ceglie, 2020, p. 80). "I don't see the point of taking this math. I'm never going to use it"

(Olivares & Ceglie, 2020, p. 83) she said, betraying the “degree to which they felt that math was applicable to their future goals” (p. 83).

Tori’s family was vocal about their hatred towards mathematics even professing that Tori’s difficulties are hereditary: “I don’t know if I passed down a bad gene or what,” Tori’s father shared, admitting his own difficulties with mathematics (Olivares & Ceglie, 2020, p. 80). Tori’s mother actively avoided assisting Tori with any mathematics homework saying, “Don’t ask me to help with your homework because I don’t know it” (Olivares & Ceglie, 2020, p. 80). And Tabby, whose “mother had to retake college algebra four times and still didn’t pass the course” (Olivares & Ceglie, 2020, p. 80) described mathematics as “a cinder block taped to her foot” (p. 80) acting as a wall in the way of her dreams and aspirations, preventing upwards and outwards movement. “It’s strange to say that a piece of paper can make me feel so nauseous,” (Olivares & Ceglie, 2020, p. 83) Tabby noted, reflecting on the physiological symptoms she felt in her classroom.

Where might we find Lynn after her escape from her mathematics classroom? Which place will welcome her? Which people will she find herself in the company of? Will Lauren allow her kids to earn a C in mathematics as her mother has allowed her (Olivares & Ceglie, 2020)? Who will break their generational curse? Will Tori overcome her father’s heredity-based beliefs about mathematical ability? Will she avoid mathematics like her mother, limiting her personal potential, finding different directions in which to improve her quality of life? Will Tabby bother finding achievement and satisfaction in mathematics? After all, few would suggest that “memories of crying or feeling physically ill” (Olivares & Ceglie, 2020, p. 83) are memories of a life well lived.

The concerns I expressed in 2021 seem more legitimate now. Negative experiences in mathematics classrooms must first be addressed if the participation rate of in mathematics is to be improved. The experiences of young Métis men, like Lorne, whose teacher said to him “Oh it’s the disappearing Mr. Lorne. Was there like, a Pow Wow in town that no one knows about? Were you

drunk or passed out somewhere?” (Cloutier, 1997, as cited in House, 2021, p. 13) make these learners less likely to participate in mathematics. “Yeah, the Math teacher in front of everybody,” Lorne shared, “and you know how those classes are: twenty, thirty people in a class and they’re all sitting there laughing” (Cloutier, 1997, as cited in House, 2021, p. 13). Lorne’s memorable experience substantiates the narrative of marginalized and underrepresented groups, such as Indigenous peoples, experiencing discrimination and aggressions in mathematics classrooms, leading to a lack of engagement and interest in the subject.

My conversations with Lorne, twenty years after the events of Cloutier (1997), sparked imaginative episodes in which we talked about the harm experienced in classrooms and how it impacted the choices we made (House, 2021). We talked about the need to acknowledge students, their difficulties, and why teachers haven’t addressed their harmful pedagogies (House, 2021). Every student we have known to experience our mathematics classrooms seemingly has not been enough to convince us, teachers, to change our practices. The distinct flourishing of a few students at the expense of the health of many students seems to render this harm invisible. They “have suffered, are suffering, and may continue to suffer for a long time” (House, 2021, p. 13). The high school completion rate of Indigenous Peoples and the Alberta Mathematics Diploma participation rates make more sense now.

The experience of generations has convinced whole communities that their efforts will be unfruitful, that the time they spend in classrooms is worthless despite their struggle, and that any attempt to fight, kick and scratch from elementary to high school will be pronounced deficient (House, 2021, p. 14).

The flood of stories from young people is utterly overwhelming, leaving me drained and struggling to process. The sheer magnitude of their efforts in the classroom and the weight of their emotional dysregulation is staggering. It is clear that these experiences represent the death of mathematics in their lives. How many more of them are out there, trapped in this emotional

slaughterhouse, struggling to overcome feelings of shame, inadequacy, fear, and despair? Their every instinct is screaming ‘flight, fight, or freeze’, yet we, as mathematics instructors, demand their conformity. We impose, smother, disrupt, and disempower them, leaving them feeling humiliated, discouraged, disengaged, and alone. Our actions speak volumes about the value we place on their well-being, and the message we send is one of discrediting, disrespect, and exclusion. It is a truly harrowing situation, and it’s up to us to recognize the gravity of the problem.

Momentarily my attention is drawn to different temporalities, I am reminded of my fleeting feelings of anger as I trudged through Mill Creek, of the smooth feeling of stones that tumbled in the creek, and of the weight of the pine tree balancing six tons of soil precariously in the air. Just as the rocks, streams, and forests are pockmarked, so too are learners displaced, disfigured, and rerouted in the places they occupy. Time takes a toll on learners, imprinting itself on them as they traverse their mathematics classrooms. Just as branches grow, extruding from surprising positions and in startling directions, so to do students grow, as each conversation and interaction pushes and pulls them in new directions.

I am drawn back to stories of learners who end their relationships and connections to mathematics. Just as the spring runoff topples trees, ending life, so to do torrents of harms and aggressions against students in mathematics classrooms topple them from participating healthily in communities of mathematics. It is through these stories that I am confronted with “the temporal durations of the mathematical concepts, objects, artifacts, creators and their stories” (Khan, 2020, p. 48). I find myself mourning the abbreviated nature of their life in mathematics; considerations of temporality inevitably including the death of mathematics in the lives of learners. I grieve. Their life in mathematics to be celebrated, surely. Their death? “Some deaths are not good deaths and are related to mathematics” shares Khan, indeed, these are not good deaths (Tran et al., 2020, p. 9).

Mythopoetics – The Capacity to Rebirth Oneself Through Story

Welcome, readers, to “the second phase of currere, the progressive phase” (Doll, 2017, p. 140) where we examine these dreams, that they might inspire a “change in the political and psychological landscape” (Morris, 2015, as cited in Doll, 2017, p. 140). There is a desperate need to reimagine these experiences, to place a shroud of mystification upon what once was interpreted as fact. “Memory is not fact, not prose, but what Thomas Wolfe called a ‘forgotten language’” (Doll, 2017, p. 37). Doll says, used in hopes that we might unsettle, deform, and jest to address “something” (Doll, 2017, p. 126).

The negative experiences of learners in mathematics classrooms, some of which are included in this paper, speak to the urgent need within mathematics education to provide counter-narratives, i.e., Wynter’s (1984) disembodied, rule following, solitary minded fool to our normalized and widely accepted image of the flourishing mathematics king (Chronaki & Kolloche, 2019). We must reflect upon the stories of those who have been labelled as “bio-evolutionary dysselected – i.e.,... [all] who are negatively marked as defective humans” (Wynter, 2000, as cited in Khan, 2020, p. 233). It is important that I hear them and consider my effort to raise humans healthily so as not to enact more trauma upon learners. This, I argue, is where mathematics educators fail. The abundance of positive experiences in the literature has saturated our available attentions at the exclusion of “other frames of reference and their historical/cultural past” (Wynter, 1984, p. 39).

In projects of deep disturbance, such as this project of sorrow, Doll (2017) encourages questions. Doll (2017) states that it is during these unclear moments that subjectivity and speculation can flourish and that we can find a truer sense of ourselves; “the vagueness of Something is the slight disturbance necessary for real self-work to begin” (Doll, 2017, p. 143). While referencing mythic characters, Doll (2017) identifies accounts of disturbance as “Tricksters, those disturbers at the threshold, those change agents, whose job is to unmake old harmonies” (p. 143).

Trickster characters play similar roles in Indigenous cultures through oral teachings. The

Trickster Wisahkecahk played such a role in my own youth, connecting “darkness with renewal” (Doll, 2017, p. 141). Wisahkecahk is often portrayed as the maker of his own dismay, making choices and behaving in ways that might be found humorous by listeners but which have disastrous consequences for Wisahkecahk. Stories of Wisahkecahk remind me of my responsibility to consider the lives of all those who live on this land, including Indigenous Peoples, and to live in a good way (NCCIE, n.d.). The metaphors found in Wisahkecahk and the Birch Trees, retold below, offer “those with eyes to see the under-layers of human action” (Doll, 2017, p. 98). There, in the shadows, various states of otherness lie ready to make claim and awaken consciousness to that which causes the ego to slumber” (Doll, 2017, p. 98). This story acts as a guide for me, presently “situated between anguish and maybe” (Grumet, 2016, as cited in Doll, 2016, p. 128), wallowing in heartache, in hopes that my “unhappiness can spawn connection with the senses; understanding derives from the senses” (Doll, 2017, p. 106).

Wisahkecahk had been hunting all day and had killed many ducks for himself. He cleaned the ducks and made a fire.

“I’m going to be so full!” he thinks.

He put some of the ducks on sticks to roast them over the fire. He wrapped some of the other ducks in leaves and clay, placing them under the ashes. The ducks began to cook.

But Wisahkecahk got tired of waiting for the ducks to cook. “I might as well take a nap,” he says. “Hey! Rear-end!” he says, “Wake me up when the ducks are done cooking!”. Then he goes to sleep.

Suddenly his rear-end makes a sound.

Still Wisahkecahk sleeps.

His rear-end makes another sound.

Still Wisahkecahk sleeps on not hearing his rear-end.

When he finally wakes up he looks at the fire. All his ducks have burned to a crisp because he has slept so long³ (Ogg, 2021).

³ A version of Wisahkecahk and the Birch Trees is available on the Cree Literacy website <https://creeliteracy.org/>. Solomon Ratt’s recording has been edited here to acknowledge the knowledge keepers in my own life who shared this with me when I was young and to best represent how I might retell the same story orally with an audience of educators (Ogg, 2021). I share this story in this place as a gift for mathematics educators. I hope that this might act as a catalyst; that they might begin a

Wynter tried to warn me. She said I could not know myself even as I enacted myself “in the genre-specific terms of our fictive modes of kind” (Wynter, 2015, p. 12). She claimed that I am convinced of the supposed improvements and the development of nations enacted by generations of thinkers and be-ers. I am trapped, per say, trapped by my growth into a society that values clarity, precision, and accuracy. I am asked to put my emotions aside, put away anything that might make me feel, provide specific evidences of my experiences, and over-subscribe to those experiences. I ignore evidence that cannot be immediately bound, prepared, and consumed. I feel unease with 100 years of mathematics education yet feel powerless to address “the misery that cannot be spoken” (Lim, 1996, as cited in Doll, 2017, p. 106).

Mathematics education has historically offered no meaningful dialogue nor any escape from the calm authority residing in fluency and abundant knowledge (Cloutier, 1990). Experiences in mathematics classrooms mirror that of the global social reality in that the stabilization of an ideal mathematics practice requires the “continued daily sacrificing of the interest of the referent ‘We’ of our species being - as well as potentially that of other species” (Wynter, 2015, p. 38). It is often structured to imbue powerlessness through learning situations that are inherently unpeaceful, aggressive, competitive, non-participatory, and that lack dialogue between the participants. This space of oppression has been one of naivety (Cloutier, 1990).

We, mathematics educators, are convinced by our own ignorance that our wellness is the “biologically absolute answer” (p. 35) and is worthy of the “negation of our collective co-humanity as a species” (Wynter, 2015, p. 37). We over-represent ourselves, optimize our way of being, our neural network, and the manner in which we receive our opiate reward (Wynter, 2015). We have celebrated ourselves and we reward those who find success in much the same way as we did. We are inclined to define success in the manner that we have found success; within our own biochemically rewarded

journey of self-discovery and that they might find meaning in the difficult stories told here.

experience to the exclusion of what others may have experienced. We suggest pathways expecting to release others from their pain but rather we entrench ourselves within the governing norms; our wellness does not translate well onto others who are struggling to find wellness.

There is an un-accounting of those who do not proceed with a relationship in the STEM disciplines. These are our friends, family, and relations. They complain about math. They complain about how unfairly they were treated in grade school. They fail assignments weekly; an unbearable load. They are told they are not good enough. As adults, they feel anxious about their overdue Canada Revenue Agency account. They refuse opportunities that may compromise their sense of healthiness. They necessarily search for niches of health. They are unconsciously drawn to places and professions where they do not feel themselves attacked, bullied, or hurt. Some remove the unhealthiness from their lives, others live with this unhealthiness and the disease that develops in their lives as a result, still others pass these traumas on intergenerationally.

Why do I continue to actively integrate normative practices into my lessons despite the knowledge that students develop unhealthily in my classroom? How can I possibly insist that the continuation of these practices is acceptable in any form? Instead of empowering my students I have become the purveyor of a form of structural violence against my students; I have participated directly in their marginalization. I have intentionally chosen to extend the suffering of students who have been consistently, and for an extended period of time, harmed by the education system. How can I continue to deny their experience? Am I so arrogant to think that I have it right? That there is no room for improvement? Am I in denial of the effect that my teaching practices are producing? My hope is this: that narratives compromised by unhealthy relations within the mathematics community might draw my attention and spur thoughtful reflection of my classroom practice. Their stories could change mathematics education forever.

Right away Wisahkecahk puts his rear-end toward the fire. "You were supposed to wake me up!" he says, "I'll teach you for not listening to me." And he cooked his rear-end over the

fire.

He left from there with a very sore rear-end that had begun to scab and walked for a long time. The pain in his rear-end only got worse the farther he walked. He began to scratch his rear-end and as he scratched he began to feel better.

So he keeps walking (Ogg, 2021).

I feel like a fool. Even after acknowledging that my students have suffered for years someone still needs to come along and slap me upside the head before I am able to concede that learners in my classroom are suffering. Why do I feel driven towards the ‘tried and true’ practices despite the damning evidence that educational institutions have failed students entirely? It’s not that my current teaching practices are any less work. I have spent hours marking assignments only to have students glance at the top of their page before throwing the assignment in the trash. I am driven towards practices that have condemned my students to further exile despite the time, effort, and personal cost necessary to actuate them.

I continue to measure and order classroom practices by the standards of Natural Causality (Wynter, 1984). I continue to relegate pedagogies like Critical Education, Education for Peace, and Indigenous Education to the sidelines, choosing instead to embrace efficient, secure, and ‘proven’ methods endorsed as ideal by educational stakeholders who champion dominant practices within mathematics classrooms. I continue to fight on terms defined as normal, relying on evidence that upholds the dominant practices leaving them unexamined and inevitably practiced. I continue to prescribe the order to the chaos within this internally consistent educational institution that offers practitioners security, stability, and money. I continue to be driven towards normalized practices of “self and, therefore, [away from] the mode of the Not-The-Self” (Wynter, 1984, p.33); the reigning ‘human’ variation ambiguously ordering the educational decisions I make, the teaching practices I choose, and even the stakeholder demands I encounter of ‘easily measurable, calculable, and reportable’.

I continue to be rewarded for measuring the degree to which I am failing my students rather

than spending time witnessing their challenges and accomplishments. Every program I have instituted inevitably devolves into a poorly-fitted colonial practice. I continue to believe ideas planted early in my teaching practice: that I am alone, that I need to start from scratch, that I am adhered to an “all-powerful and overwhelming [...] mysterious force” (Freire, 1970, p. 173) that I must comply with, and that nothing can be done to change it. My values must be exposed.

I am being driven away from educational lexicons of the ‘other’, from symbolic death, and from chaos as anomalies within education (Wynter, 1984). I have cast them out to the “negatively marked side of [the] systemically imposed *Color Line*” (Wynter, 2015, p. 9) where alternatives are domesticated. I have inconsistently applied them in practice as a topical ointment to treat ongoing systemic issues rather than practicing healing as a whole body of practice. I erroneously [limit my action to stimulating the demands of the people with singular dimension without considering further historical dimensions] (Freire, 1970). My refusal to listen to the voices of the harmed, a practice that drives me away from harmful educational practices, guarantees that the reward offered by a historical, authoritarian mannered educational institution. What is missing? A drive towards a flourishing state (Su & Jackson, 2020). What is missing? Normative educational structures becoming “the target of parodic anti-types, [such as myself,] erupting from the ‘chaos’ of the margins with the ludic weapon of laughter” (Wynter, 1984, p. 32).

Wisahkecahk was still hungry. He wanted to eat those ducks. They were supposed to fill him up. He was so hungry that when he saw some rock-lichen he stooped to pick some.

“Don’t eat us!” say the rock-lichen.

“Why not?” he asked, ignoring their responses “I am hungry.” He harvested a lot, eating them.

But he was still hungry. When he saw some rose-hips he stooped to pick some.

“Don’t eat us!” say the rose-hips.

“Why not?” he asked again. “I am hungry.” He harvested a lot, and ate them too.

When he walks by some grouse he takes his bow out but just as he was about to let an arrow go his rear-end lets out fart so loud it scares away the grouse.

He continues to walk, farting because the rock-lichen give him gas, and he has an itchy rear-end because the rose-hips make him itch. And he was still very hungry.

Suddenly he sees something on the road and picks it up.

“Wow! My Grandfathers have blessed me with some dried meat!” he says. He takes it and begins to eat it.

And that’s when he hears the birds begin to laugh. “Wisahkecahk is eating his scab! Wisahkecahk is eating his scab!”

“Go away! My Grandfather fed me this dried meat!”

“Wisahkecahk is eating his scab! Wisahkecahk is eating his scab!” (Ogg, 2021).

My busy, distracted, hyper-focused, indulgent self is convinced of his own infallibility and often extends his students’ suffering through his own naivety as he hopes to stumble upon an idea that will change education forever. I put myself at even more risk as I continue to learn from the plethora of incredible authors. For example, Czuy & Eagle Speaker (2019) and D’Amour (2020) both provide non-linear models of learning and encourage us to account for the humans in our classroom. Couture (2013) and Tran et al. (2020) offer lenses of human wellness and multispecies’ flourishing (Couture, 2013; Tran et al, 2020). Preciado-Babb et al. (2020) detail how meaningful sequences of learning activities might be constructed. And Liljedhal (2020) reminds us that we exist in a space where thinking can be actively encouraged or discouraged. These admirable authors offer tools that alleviate pains felt by their students but my confidence is a double edged sword.

Doll (2017) suggests that any mastery that I claim to have is not healthy nor is it well-informed; it is a front for the falsities I wish for. I endanger learners when I substitute teaching practices without ever consulting learners (Freire, 1970). I am at risk of mistakenly becoming messianic; providing alternative programs that do not meet the needs of my students (Freire, 1970, p. 166). I find myself imbued with power over persons – easily ignoring their pleas and instating pedagogical tools in classrooms without due consideration of their needs. I must remain constantly vigilant in my teaching practice. Only by reviewing classroom experiences and critical incidents can we actualize non-violent means in our classrooms (Cloutier, 1990). I must intentionally choose to confront the “unjust reality” (Freire, 1970, p. 174) that exists within my classroom.

Without such critical student encounters paving the way, each time I enter the classroom I must

necessarily ask ‘Why?’ Why bother teaching healthily? Why bother teaching for multispecies’ flourishing (Khan, 2020)? Why bother engaging in loving kindness? For without these critical student encounters there is only my own normative. The only students in my classes are those with similar experiences to my own. My teaching practice consists of only the best practices. Naysayers are empowered to enforce their ‘why don’t you just teach like this?’ schemas. There are none who have been harmed. There are none lacking voice. There are none who are unhealthy or unwell. And all flourish in my classroom. The narrative I hope against is the very narrative necessary to draw reflection. I must first demonstrate that the “dominant narrative” is in fact “bullshit” (Khan, 2020, p. 234) before I can challenge those entrenched models that serve “but a few very well” (Khan, 2020, p. 237). All further reflection, planning, and action rests upon this.

When Wisahkecahk smells the dried meat he realizes that it was true! He was eating his own scab. He was so angry that he ran through the forest hitting the scab against the birch trees and leaving marks as black as ash.

This is where we get chaga, which you can see today growing on the birch trees. This is good medicine (Ogg, 2021).

I have struggled to transform my mathematics classroom in a manner that addresses the evidence of structural violence. My teaching has been disconnected from the senses, resulting in “learning that is separate, unvivified, and undigested” (Lim, 1996, as cited in Doll, 2017, p. 107). Obsession with the western-bourgeois “mankind rhetorically overrepresented as humankind” has resulted in “forms of death to the human spirit” (Pinar, 1994, as cited in Doll, 2017, p. 128). I have been unable to sustain the effort needed to build programs that promote a flourishing state with a “focus [...] on the reality which mediates [them]” (Freire, 1970, p. 169). The fictional “objective limits” (Wynter, 1984, p. 40) that define our rewards and punishments, motivators and demotivators, and what I view as positive and negative continue to drive my “behavioral-praxis” right down to my practical activity (Wynter, 2015, p. 26). But the long “series of Human Others” (Wynter, 2015, p. 22) in my classroom implies that current actions may no longer be acceptable given my new agency.

I feel more driven than ever to purposefully engage in critical dialogue about instructional practices, put unique ideas and hands-on activities to the test, and to rethink even those effective practices best in line with an education of non-violence after having examined the impact that I have had on the lives around me. The true history of humans in mathematics classrooms, it seems, is tens of thousands of scars, each one forgotten in time but leaving their imprint. I have participated in the erasure of those who are being harmed. These stories can no longer remain hidden. Not only is it harmful for humans to feel they are alone, but it is also unethical to continue traditions of harmful educational pedagogies within mathematics classrooms. That is, I have rendered humans invisible in my haste to provide solutions. As a result, I continue to see humans hurt and I continue to see humans vacate the practice of mathematics.

As I interrupt the unfettering commitment to harm and offer “a different way to comprehend the mysteries” (Doll, 2017, p. 90) I find myself needing to laugh at myself more often. That is good medicine (Ogg, 2021). Just as we laugh at children when they are learning to speak, I misuse and mispronounce in ways that make me chuckle, and then I try again. In this way I better navigate and intentionally choose practices of non-violence. Skilled artisans ask me ‘Did that work?’ – “Nope,” I reply, as young learners nod in agreement. This trial and error, this making of mistakes, this exploring the playground in which I operate, and playing with the boundaries of possibility, these act as growth factors. I find myself growing towards conversations I have not had before. It is difficult, it seems, to put aside the falsities I have come to accept and be willing once again to feel emotions and thus overcome the “self conceived by others” (Pinar, 2004, as cited in Doll, 2017, p.128), welcoming a self representative of the experiences of all students in the classroom.

A Communal Act of Mourning

Khan (2020) suggests that ideas “have their time, not all of which is the mythical forever and ever” (p. 48). In suggesting such, Khan (2020) calls to attention the social, ethical, and moral

consideration of the role mathematics educators play in the lives of learners as mathematical leaders responsible for curating learning opportunities, including the responsibility to consider the death of ideas. To recognize when ideas have run their course, when teaching practices must be retired, when pedagogies must be laid to rest, Khan (2020) suggests that we “re-establish a kin-ship [...] with what is currently scribed as non-living” (p. 48). In this way, we can offer the “myth of mathematical time(lessness)” (p. 48) a timely death.

As we part ways I wish to return to those haters and ‘I would rather die’ers’ and enact Khan’s (2020) suggestion of “observing [...] carefully over a longer period of time” (p. 245). Every teaching practice, not just the ones we believe are violence-enacting, must be investigated for the violence they enact. Consider whether genuine education is taking place “if students largely rote learn to regurgitate ‘facts’ and ‘ideas’ for a final examination” (Swee-hin, 1988, as cited in Cloutier, 1990, p. 95). Examine the “child-centered and ‘activity based’ pedagogical methods that claim self-development and harmonious group relations” (Cloutier, 1990, p. 36). Demand that practices currently treated as ‘taboo’, ‘set apart’ and ‘sacred’ be put to the test. “Expose the assumptions of the dominant culture” (Doll, 2017, p. 79) hidden behind years of uncompromising success stories comprising of myths and biases.

Refuse to further the violence that students experience. Start the transition from ‘This is how I do things’ to ‘I cannot continue to do things like this’. “Parodically pull [...] down to earth the canonical models” (Wynter, 1984, p. 55) and project “hero figures” (p. 55) who can simultaneously offer a clean image and act as a fair villain. Look back at memories for those incidents that were allowed to happen that should never have happened (Doll, 2017). Begin to imagine the death of classroom practices, laying them to rest. Participate in acts of mourning as you let go of what you once you held so dear. And let what was felt here today compel you towards a life of being-different.

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