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Volume 48, Number 2, June 2023

URI: <https://id.erudit.org/iderudit/1101588ar>
DOI: <https://doi.org/10.18357/jcs482202320747>

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Publisher(s)

Canadian Association for Young Children

ISSN

2371-4107 (print)
2371-4115 (digital)

[Explore this journal](#)

Cite this article

Mathurin, G. (2023). Re (Imagining) Water Pedagogies in Early Childhood Education and Care Programs. *Journal of Childhood Studies*, 48(2), 16–24.
<https://doi.org/10.18357/jcs482202320747>

Article abstract

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Re (Imagining) Water Pedagogies in Early Childhood Education and Care Programs

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This paper discusses possibilities of relational world making with water. Many Canadian early childhood education and care programs continue to engage water through a developmentalist lens, such as through practices that focus on containing, extracting, and trapping water. Children's explorations, such as with sensory water bottles and water tables, are predominantly viewed through narrow learning and developmental milestones. This deficit perspective maintains colonial and commodified relations with water. This paper presents some ways children and early childhood educators can create liveable worlds with water.

Key words: liveable worlds; water pedagogy; world-making; early childhood education and care programs

Presencing Black land relations and geographies

I am a first-generation immigrant of Afro-Caribbean descent on Turtle Island. I acknowledge that I live, write, study, and work on the traditional territories of the Mississaugas of the Credit First Nation, Huron-Wendat, Anishinaabe, and Haudenosaunee. I am responsible for respecting, honouring, and caring for the land. I am in the process of decolonizing my mind through un(learning) and re(learning) about Indigenous peoples and their relationship to the land.

I recognize that my ancestors were stolen and involuntarily displaced through the trans-Atlantic slave trade. They were forcibly removed from their ancestral lands in Africa, and placed across various lands, including the Caribbean, Latin America, Canada, and the United States. I acknowledge

Black land relations with places in Canada such as Amber Valley, Alberta; Hogan's Alley, Vancouver; Africville, Nova Scotia; Holland Township, Grey County, and Owen Sound, Ontario; and many more geographies where there is an erasure of Black presence, Black families, Black children, and Black communities.

Relationship with water

My childhood was in St. Lucia, and my connection to water is part of my history and ancestors. The island of St. Lucia is surrounded by water and situated in the Caribbean Sea. St. Lucia is also a volcanic island with steam fumaroles and boiling pools on the southern part of the island in the town of Soufriere (Ander et al., 1984). I view water as powerful, yet there is a sense of peace, hope, life, and abundance in its stillness. My childhood was filled with fun exploring water in many ways that enabled my curiosity always to want to know more about its existence. I was curious to find out if the water I used for drinking, cooking, bathing, swimming, fishing, and playing was the same water my ancestors used or if it had been the same water from the earth's formation all along. Is there anything like new water, or is the same water going in a circular motion for all humans and nonhumans to share?

Hurricanes may seem dangerous and unsafe to many people, but after the storm had passed and it was raining, this was one of my favourite learning moments with water. Water brought many treasures to the surface and at

the same time created new tracks and ravines to explore. I often visited the rivers/creeks with my teachers, and the learning that occurred impacted my childhood. Learning about and with little tadpoles in water was also a reminder that water always invites children to explore. I observed those tadpoles grow and never took them out of the water because I knew that the water was their home.

Practicing in an ECEC program, I noticed that children were not allowed to jump in puddles or play outside while it was raining due to the educators' notion that they would get cold, wet, or dirty. This belief conflicted with my views of childhood because water has been a significant part of exploring and learning in various ways, such as rainfall, creeks, rivers, ravines, oceans, dew, waterfalls, and many water sources. There is so much knowledge to learn while engaging with water. For example, the sound of raindrops on leaves differs from the sound of raindrops on a window. Children can learn with water when space is made for them to explore in many ways instead of trapping water through water tables and sensory water bottles. I never entirely understood the filling and dumping of water tables and its Eurocentric way of viewing children from a developmentalist lens. During my childhood, water was never trapped or contained for learning, playing, or exploring. Is there a chance for world making with water?

Caring for water in ECEC programs

Early childhood educators (ECEs) could consider care in creating liveable worlds when children explore water in all its forms. For Deborah Bird Rose (2017), "care is an ethical response involving tenderness, generosity, and compassion" (p. 58). What does care look like with water? Is it about not wasting? Is it about protecting water from containment, pollution, extraction, and environmental damages, among many others? Rose states, "care is an ongoing assumption of responsibility in the face of continuing violence and peril" (p. 58). This quote makes me think of the water table when children splash and dump the water on the floor. The educators' responsibility is to fill the water table even though water is intentionally dumped out of the water table. I imagine this as water violence, knowing that many children, families, and communities in Canada and globally are without drinking water. Such pedagogical approaches "focus on what water can do for children's learning and development" (Nxumalo & Tepeyotl, 2020, p. 212). The absence of water presence as noncontainment exploration is entangled with settler colonial relations (Nxumalo, 2016) that perpetuate rampant consumption justified by developmentalism as the primary focus of children's learning.

Decisions can determine whether educators and children want to live well with water. For instance, learning alongside situated Indigenous water relations and knowledges can be an important part of water pedagogy (Nxumalo, 2021). Living well in relation to water includes attunement to well-being, belonging, a sense of community, interdependence, and reciprocity. How do educators and children live well together with water? I want to imagine water pedagogy with liveable futures. But I am compelled to ask, how are liveable futures with water possible when humans possess and oppress an extension of life that continues to be "taken for granted" (Nxumalo, 2016) "through human-centred ways of knowing" (Nxumalo & Tepeyotl, 2020)?

Water can be silent, calm, loud, and unruly with so many entanglements, tensions, and complexities to grapple with because many humans have not understood how to make liveable worlds with water. Through normative human engagement with water, children mimic adults' ways of knowing to engage with water. Those tensions make me wonder who decides if the water table should be an integral part of the ECEC program. What is in the spray and sensory water bottles to normalize this as essential to children's learning? Is there world making with water or are children living well with water containment in a bottle and table?

Soufriere Sulphur Springs and Diamond Waterfalls

I want to start this conversation by sharing one of my experiences with water through my relationship between Soufriere Sulphur Springs and Diamond Waterfalls in St. Lucia. My great-grandparents and their generations (elders) have passed this relationship down to the younger generations like myself. During my childhood, Soufriere Sulphur Springs and Diamond Waterfalls were a place for physical and emotional healing. I visited this place at least twice a year but very early in the morning, from 4 am to 6 am, because by 9 am, the water in Soufriere Sulphur Springs would be too hot to take a bath. My family drove about two hours to get there, and as a child, I was aware that this water had healing properties. My family always discussed how vital the sulphur springs' water was to the well-being of humans. The sulphur springs are one of the main tourist attractions (Geothermal energy in St. Lucia, 1989) and the world's only drive-in volcano (Caribbean Journal, 2016).



Figure 1. Soufriere drive-in volcano.

The Soufriere drive-in volcano is situated in Soufriere Sulphur Springs Park. During my childhood, I walked through the volcano with my family beside the circular grey steam fumaroles shown in Figure 1. The volcano is the primary source of nourishment for the sulphur springs' water and Diamond Waterfalls, which I will discuss.

At the time of my encounter with the sulphur springs' water and Diamond Waterfalls, I also visited family members who lived in Soufriere. The town of Soufriere is located within the caldera of the Soufriere volcanic centre, known as Qualibou (Ander et al., 1984). Soufriere is also known for its rich fertile soil, agriculture, and abundance of locally grown foods due to the minerals from the sulphur springs. Soufriere Sulphur Springs and Diamond Waterfalls have also been captured as anthropocentric sightseeing commodities for capitalism. In these places water has also come to be viewed by some as a capitalist commodity. Even in these places water has become susceptible to containment for tourism.



Figure 2. Soufriere Sulphur Springs stream.

I visited the sulphur springs every year throughout my childhood. The sulphur springs are waters that connect me to my ancestral roots, knowing that this tradition was a significant part of my childhood, identity, and connection to the land. My family believed in taking a trip or two to the sulphur springs every year.



Figure 3. Soufriere Diamond Waterfalls.

I visited the sulphur springs' stream first and then the Diamond Waterfalls for another bath; this was always the order which continues even to this date. The water rejuvenates and gives life to plants, rocks, and the land. The minerals in the Diamond Waterfalls from the sulphur springs showcase the strength of water without human extraction.



Figure 4. Soufriere Diamond River.

The water in the Soufriere Diamond River, shown in Figure 4, flows straight from the Diamond Waterfalls and is mineralized by the volcanic activity upstream, which turns the water into a shade of graphite from the volcanic mud (Diamond Botanical Gardens, 2022). The Soufriere Diamond Waterfalls and the Diamond River caused me to think of how humans can live well with water as a way of healing that invites positive energy in humans, nonhumans, and the earth to preserve life. Water epistemologies vary based on culture, local/traditional knowledge, and the connection of humans and nonhumans to water, among many other factors. For example, Marlen Villanueva, a Pame educator, wrote about “relational ontologies of water that include the capacities of water for emotional and physical healing; inseparability of water from human bodies; and the many places through which waters come together, including the rains and rivers” (Villanueva, 2018, as cited in Nxumalo & Villanueva, 2020, p. 217). In all its abundance, water provides knowledge of how life is sustained and preserved through various channels such as rivers, oceans, creeks, rain, dew, and lakes that have been taken for granted by human ways of capitalist consumption, extraction, and anthropocentrism.

Water through an anthropocentric lens

Anthropocentrism and extractivism are interconnected with children’s inheritances of “ecologically damaged worlds such as those related to water vulnerabilities” (Nxumalo & Villanueva, 2020, p. 211). Viewing water through the lens of extraction “privileges humans as the central actors” (Nxumalo, 2016, p. 650) and creates a ripple effect on children’s learning and how children are approached through a deficit lens. There is anthropocentrism in the everyday exploration of water when children only view water in the form of play, sensory stimulation, and consumption through the water relations of child development (Nxumalo & Villanueva, 2020). It is an anthropocentric practice that maintains ongoing settler colonialism and childhood innocence when water is not viewed as a central part of world making. Here, I refer to world making as children having a relationship with water and learning with water instead of learning about water.

Many children are protected from the precarities of water through discourses of childhood innocence. For instance, Figure 5 shows how the sulphur springs’ water is trapped through human-made objects to keep it safe for tourism and enjoyment. Many local and visiting children may be unaware of why the sulphur springs’ water is in constructed mud baths. Some children may need help understanding what the sulphur springs looked like dating back to the 1960s, 70s, 80s, 90s and even earlier when the warm volcanic water flowed only like rivers and streams without being sectioned into mud baths, which is evident in Figure 1. My childhood experiences with the sulphur

springs differed from that of constructed mud baths being accessible all day. Throughout my childhood, humans could not access the sulphur springs by noon and onwards or sometimes earlier due to how hot the water was. Hence, my family travelled early in the morning to access the sulphur springs, as stated earlier.

The photograph shared in Figure 5 is an example of water through the lens of anthropocentrism. Humans have taken the natural flow of water from the sulphur springs and converted it to Eurocentric containment, where water needs to be trapped to enable healing properties and enjoyment in the name of tourism or revenue. Rose (2017) notes, “in an ecologically attentive recursion, we find that man is the only animal to voraciously, relentlessly, and viciously wreck the lifeworld of earth” (p. 55). Some humans destroy water in ways that are normalized, creating anthropocentric worlds instead of liveable worlds. Water needs its freedom from the various ways that some humans have oppressed it.



Figure 5. Soufriere Sulphur Springs mud baths.

Reconfiguring pedagogical relations with water

Water needs careful attention to create liveable worlds that enable us to participate in what Rose (2017) calls “the shimmer of life” (p. 58). For instance, refiguring presences (Nxumalo, 2016) in ECEC programs can be an invitation to reconfigure pedagogical relations with water in anticolonial ways. In this regard, Indigenous knowledges are necessary to counter anthropocentric imaginaries of water and enact liveable futures with water. Early childhood programs can learn from and with Indigenous reciprocal ontologies and epistemologies in relation to water. Educators can inquire into how they might learn, in nonappropriative ways, alongside situated, emplaced Indigenous acts of living well with water, including caring reciprocal practices such as water songs (Nxumalo, 2021). Importantly, “refiguring presences are non-innocent” (Nxumalo, 2016, p. 648); they are forms of liberatory practices and thought that are active and unfolding without innocence and neutrality (Vintimilla & Pacini-Ketchabaw, 2020). Refiguring presences in relation to Indigenous peoples, lands, and waters reimagines relationalities with water outside of ongoing settler colonialism while interrupting the erasure of Indigenous knowledge in ECE (Nxumalo, 2019). In my un(learning) and re(learning) about Indigenous peoples’ relationships to water, I imagine that anticolonial water pedagogy is not necessarily preprogrammed, structured, or routine, like the Eurocentric ways of practicing, planning, or engaging children in most ECEC programs. Instead, it centers

intentional relations focused on living well with humans and nonhumans that go beyond the Eurocentric ways of depicting water as only for commodity, consumption, and pleasure. With anthropocentric ideologies, capitalist movements, global extractions, and ongoing settler colonialism, how can children and educators navigate these challenges to create more liveable worlds in ECEC programs? These acts of ongoing settler colonialism are present in early childhood education. How can water be invited to early childhood education spaces without being oppressed by containment?

Educators could also learn how children in different geographies engage with water when with their families. Is it the same or different? While taking care to avoid a single story of certain childhoods, educators could also take an interest in learning how children from different parts of the world relate to water. As a child, learning with water did not only exist through a faucet or tub. I went to the ocean, rivers, ravines, and creeks a couple of days a week. It was part of my childhood and upbringing. Quite often, the primary source from the reservoir that distributed water through the taps in my community would be shut off without warning for hours or sometimes days. The children in my community understood that this was an opportunity to explore our imagination and extend our learning with water with our families through the rivers, ravines, or oceans where we spent eight to ten hours a day.

Disrupting developmentalism in water pedagogy

There are many ways that educators could engage children in conversations about learning with water. To reconceptualize ECE water pedagogies, educators should acknowledge that learning and exploring with water is where the making of liveable worlds could happen. These adventures could occur in rain, puddles, creeks, lakes, rivers, oceans, and ravines, which are beyond the experiences of a water table, sensory water bottles, and spray water bottles. That makes me think of reimagining how water is typically contextualized, approached, and explored in activities, experiments, and learning with children. As Nxumalo (2016) calls it, “anthropocentric imaginaries” (p. 641).

While visiting the Soufriere Sulphur Springs and Diamond Waterfalls as a child, I never brought plastic bags or bottles to extract water. I understood that the water stayed in this space, and I respected the surroundings. I also knew that the water allowed humans to explore the therapeutic benefits of a specific temperature for a certain amount of time. My family taught me that the plants, waters, rocks, and everything in Soufriere Sulphur Springs Park are connected. The interconnectedness was evident in the colours of the rocks, the greenery around the sulphur springs and the Diamond Waterfalls, with the many species of plants and flowers that bloomed.

With all these childhood experiences, what does it mean for me to live well and engage in world making with water?

As an ECE who practiced in a childcare centre, I recognized that water is not only for consumption. For example, the sulphur springs' water is rich in minerals and has many benefits to humans, but it is not for drinking or cooking. However, it is a good food source for nonhumans, such as plants, rocks, and nature. On this note, I think about how water comes in various colours, such as reddish-brown due to the nutrients and richness of the soil. I reflect upon the learning that could occur if children were exposed to discussing the many bodies of water, which may be still or move from one place to another depending on geographical features. For instance, the Soufriere Sulphur Springs, Diamond Waterfalls, and Diamond River differ in colour, temperature, and flow even though they are interconnected. I am aware that my relationship with water could be similar yet different from many educators' practices. Here is an example of similarity in practice. My colleagues and I often placed food colouring in water for the children to explore sea creatures, bubbles, and sensory bottles. The colour of the water was never the primary focus of the children's play; however, they explored the objects in the sensory bottles and water table and popped or

blew the bubbles. Most times, water was only acknowledged and discussed when the floors or the children's sleeves were wet. The children also announced when the water became very foamy due to the bubbles or when they shook the sensory bottle and observed the movement of objects in the water. Other examples where water was seldom recognized were around washing fruits and vegetables, dishes, or baby dolls. To enrich the children's experience, my colleagues and I always thought that adding objects to the water would encourage learning. The main focus was always on how the children could explore the objects in the water in connection with the developmental domains and skills in *Learning for Every Child Today: A Framework for Ontario Early Childhood Settings* (Excerpts from ELECT, 2014). Reflecting on these practices, I recognize how a developmentalist approach plays a significant role in how some ECEC programs engage children with water.

The shimmer in water

Water can be unruly and messy simultaneously, whether in its loudness and stillness to invite humans to its abundance where it gives life and causes humans and nonhumans to flourish together, which is the epiphany of the "shimmer of life" (Rose, 2017). Some children have the opportunity to experience this abundance of water in its fullness without it being trapped or contained for sensory stimulation, experiments, and play. Such experiences illustrate that "pedagogy is interested in creating an experience" (Vintimilla & Pacini-Ketchabaw, 2020, p. 631) with children instead of on or for children. Such experiences make me think of shimmer, world making, and liveable worlds that can occur with water in all its forms. What is the shimmer in water that educators need to consider alongside children in ECEC programs? As Blaise and Hamm (2019) assert,

shimmer exceeds human action. It captures our attention, like the ways in which leaves, wind, and sun bring together a brilliant sparkling effect of leafy light patterns and connections that can literally stop us in our tracks or take our breath away for the slightest moment. (p. 94)

This quote makes me think of how the shimmer in water exceeds normative ECE views of water through consumption, sensory experience, or sink and float. I think that if all educators allowed themselves to create liveable worlds with water, they would experience its fullness. What does this mean for living well for 21st-century childhoods?

Anticolonial practices with water

Dominant early childhood pedagogies primarily focus on learning about water instead of learning with water (Pacini-Ketchabaw & Clarke, 2016). Vintimilla & Pacini-Ketchabaw (2020) note that "pedagogy commonly engages with the arts as a medium for making the familiar strange and proposing otherwise possibilities" (para. 11). The authors make me think of new ways to engage and relate to water. These new ways are complexities that educators and children need to grapple with, knowing how water containment is continuously normalized through ongoing settler colonialism and childhood innocence. For example, when it rains, children could explore the sound of water on various surfaces, such as on leaves, rocks, concrete, windows, and slides. With this exploration, children could observe the distinct smell that arises when water touches the ground on a hot summer day as opposed to when it is cold in the fall or winter. These are all ways that children and ECEs could learn with water. Children cannot have these experiences if they are not allowed to go outside in the rain to explore and learn with water. Rose (2017) points out, "we are called to acknowledge that in the midst of all we cannot choose, we also make choices" (p. 61). Therefore, the choice is with all humans, including the educators and children in ECEC programs.

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