

Outdoor Play and Learning (OPAL): Activating “Loose Parts” in Undisciplined Childhood Environments

Nikki Rotas

Rowan University, USA

Submitted February 19, 2019; accepted September 12, 2019

ABSTRACT

OPAL – Outdoor Play and Learning, in collaboration with Earth Day Canada, is a national program that encourages outdoor play in public schools across Canada. This paper focuses on the implementation of OPAL in an elementary school in Toronto. The initial implementation strategies of the program are discussed, which include efforts to create a play policy framework that centres childhood relations with the outdoors or ‘environment’. Employing posthuman and/or more-than-human frameworks, I examine the potential of OPAL to become a practice of learning *with* environments as opposed to learning *about* the environment. This is a significant shift in childhood thought and practice that requires serious consideration and pedagogical attention to how environmental education can move toward transdisciplinary practices in more-than-human worlds.

Keywords: OPAL (Outdoor Play and Learning), movement, loose parts, partial objects, matters of care, transdisciplinary

Humans are in (and of) an anthropogenic epoch that is experiencing extreme weather events, including mass flooding and fires. Despite these visible signs of climate change, in which the human has had a hand in making, the production of atmospheric poisons – in its many forms – will continue to extinct more than human bodies. In fact, on the very day I am writing this paper in Toronto, Canada and on the land of the First Nations, Inuit, and Metis peoples, the Canadian government has forcefully moved into unceded Wet’suwet’en territory in order to erect a proposed gas pipeline that adds fuel to the climate crisis and directly dismisses Indigenous rights and promises of reconciliation. The more-than-human consequence of this very pipeline will be made evident in a future time where multispecies flourishing will have paid the catastrophic price. Scholars across transdisciplinary fields, including the posthumanities, new materialisms, environmental humanities and multispecies studies, have put into question human relations with the earth, and further questioned what is at stake in a past and present time of careless destruction (Alaimo, 2016; Asberg & Braidotti, 2018; Braidotti, 2013; Barad, 2007; Bennett, 2010; Colebrook, 2016; Haraway, 2016; Neimanis, 2015; Kirksey, 2014; Puig de la Bellacasa, 2017; Tsing, 2015; Yussoff, 2017). Similarly, environmental education scholars and educators working with young children in schools and communities want to know how human relationships with the earth might be rethought in ways that do not privilege the anthropos, but rather how these relationships might attend to and care for all of the earth’s organisms (Lenz Taguchi, 2010; Lloro-Bidart, 2018; Malone, 2018; Murriss, 2016; Nxumalo, 2017; Rotas, 2015; Rautio, 2013; Taylor, 2016; Taylor & Pacini-Ketchabaw, 2015). Rather than dwell in crisis scenarios of hopelessness and despair, educators might seriously grapple with the following questions:

How might the child collectively build and sustain relationships of attention and care for more than herself? How might she come to create meaningful relations and, in turn, learn from these relationships that collectivities of attention and care sustain worlds worth living? The above questions demand modes of inquiry that attend to reciprocal relationships of potential and/or capture that emerge between an organism and its immediate environment (Gins & Arakawa, 2002; Stengers, 2010). It is imperative to investigate these modes of knowing and what such practices do. It is also important to ask the question of *how* researchers and teachers working with children and families might activate such possibilities of attention and care. How to trigger the potential for rethinking what it means to be human and the knowledge that comes to count? And what is at stake ethically, politically, and epistemologically when questions are shifted toward a speculative practice that re-invigorates a relational environmental education that is undisciplined? Moving toward this shift of attention, I centre OPAL (Outdoor Play and Learning) as a speculative practice that is grounded in outdoor play. Outdoor Play and Learning, in collaboration with Earth Day Canada, is a national program that encourages outdoor play in public schools across Canada. The program seeks to develop context specific outdoor play practices and relationships of attention and care with local and global environments. The play policy framework is grounded in the *United Nations Convention on the Rights of the Child (UNCRC) (Article 31 – The Child’s Right to Play)*. The Convention, including Article 31, demands that children be recognized as competent and capable citizens affecting their local and global environments.

Working with a public school in Toronto, Canada, and with children (ages 4-12), the initial implementation strategies of the program are discussed below, which include efforts to create a play policy framework that centres relations with the outdoors and/or immediate environment. The policy framework and implementation strategies were created by teachers, students, and administrators who foregrounded, Article 31, and who have been developing school-wide environmental education practices for the past five years. Drawing on the post methodologies of artist-architects Gins and Arakawa (2002), and the philosophies of Deleuze and Guattari (1977), I grapple with idealized notions of outdoor play as a practice that connects children to ‘nature’. The common trope of nature-based environmental education discourses that foreground the developing child as steward and saviour of the earth will, therefore, be disrupted (Nxumalo & Rotas, 2018). I employ Gins and Arakawa’s concept of the ‘architectural surround’ as a methodology and/or what they refer to as ‘procedural architecture’. I also draw on Deleuze and Guattari’s concept of the ‘partial object,’ and in doing so, I explore the posthumanist possibilities of OPAL and suggest that the practice informs early childhood environmental education through its valuation of collective learning processes of attention and care. Linking theory with practice/methodology, I grapple with the framework’s anthropocentric worldviews and simultaneously see the potential of OPAL to reinvigorate a relational environmental education that is undisciplined. I see the potential of OPAL to become a practice of learning *with* environments as opposed to learning *about* the environment.

In the concluding section of the paper, I turn to the more-than-humanist writing of Erin Manning (2018, 2007), Brian Massumi (2017), and Maria Puig de la Bellacasa (2011) to grapple with what it might mean to attend to and care for practices that are not valued in neoliberal structures of schooling and capitalist production. Taking up posthuman and/or more-than-human frameworks in relation to early childhood and the field of education (more broadly) is a significant and timely shift. It is this very emerging field of research that, within the last decade, labours to support transdisciplinary forms of thinking and doing that are necessary in times of environmental precarity, loss of species habitat and flourishing, and political inaction (Snaza et al., 2016; Snaza et al., 2014; Taylor & Hughes, 2016). Lastly, I offer a lingering note that is inspired by Stefano Harney and Fred Moten’s (2013) concept of ‘study’. The use of several concepts within this concept-dense paper is intentional as concepts speculate; and following Deleuze (1994), they force and/or activate thought. Thinking with Harney and Moten, for example, and the theoretical

concepts of post-thinkers, it is then, my intention to labour with these concepts and connect them to the material practice and policies of OPAL. In so doing, I work toward a significant shift in childhood thought and practice that requires serious consideration and pedagogical attention to how environmental education might move toward transdisciplinary practices that operate across theoretical and methodological boundaries that optimize new ways of being with animate and inanimate matter – matter that makes, depletes, and surrounds bodies. Practices like OPAL take seriously the capacity of the child to enact a relational ethics of attention and care through the very act of speculating and imagining objects and their environments as if they were otherwise.

OPAL: Outdoor Play and Learning

Children (4-12 years-old) spend most of their day at school and/or on school grounds. A child spends a minimum of 7 hours a day learning in a formal setting outside the family and home. The 1989 United Nations Convention on the Rights of the Child positions children as active thinkers and creators of worlds (inside and outside of the home). The Convention of 1989 and, specifically, Article 31 states that the child has the right “to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts.” OPAL’s framework is grounded in Article 31 and aims to create opportunities for play that collectively emerge in outdoor spaces such as schoolyards and playgrounds. Emerging research suggests that lack of play and/or play deprivation is seriously affecting the physical health and social emotional relationship of children with local environments (Madsen et al., 2011; Pellegrini & Holmes, 2006). In Toronto schools there are several programs in place to reduce obesity in young children, increase physical activity, and promote well-being through play-based learning and movement practices, such as DPA (Daily Physical Activity) (see Ontario Ministry of Education, 2013, 2005). While recess and the daily school lunch hour allot time for unstructured play, over-engineered playgrounds that reduce creativity, problem-solving and risk-taking are mitigating factors in reducing the quality of play for children (Knight, 2016; Propa et al., 2017). In the initial phases of OPAL, in this particular Toronto school and community, a play policy framework was drafted in order to determine school beliefs and objectives of play. The school’s play policy included the following eight components (see Table 1.1 below).

Table 1.1
Eight components of school play policy

<i>SCHOOL PLAY POLICY</i>
1. Play is an integral part of a child’s healthy development
2. All children have the right to play
3. We value time and choice in play
4. Play is freely chosen, self-directed and intrinsically motivated
5. We balance the risks, challenges and benefits of play
6. Adults will support and encourage child-led play opportunities
7. We will provide an enriched space for children to be active and engaged in play
8. Outdoor play is an important part of our students’ environmental education

Teachers, in collaboration with consulting mentors from Earth Day Canada, drafted the policy with “the aim to create a school environment that strengthens student resiliency, imagination, creativity, and

learning” (School Play Policy, 2018). Importantly, teachers indicated that valuing play is a “commitment to ensuring the health and wellbeing of our communities and our planet for this generation and all generations to come” (School Play Policy, 2018). Further echoing the United Nations Convention on the Rights of the Child (1989), the school’s play policy included the following key points (see Table 1.2).

Table 1.2
Key points outlining the eight components of school play policy

KEY POINTS: SCHOOL PLAY POLICY	
PLAY POLICY	KEY POINTS
1. Play is an integral part of a child’s healthy development	By supporting play, we aim to create a school environment that strengthens student resiliency, creativity, and learning.
2. All children have the right to play	A commitment to children’s right to play is a commitment to ensuring the health and wellbeing of our communities and our planet for this generation and all generations to come.
3. We value time and choice in play	This policy will ensure sustainability of individual play and quality play provisions.
4. Play is freely chosen, self-directed and intrinsically motivated	Play is child-led, fun, and inclusive.
5. We balance the risks, challenges, and benefits of play	Our school acknowledges that taking risks is an essential step in the development of the child and thus, benefits the child’s social, emotional, and physical well-being. We will work from a shared understanding of risks vs. hazards (i.e., risks contain the possibility of harm that can be assessed and managed. Hazards cannot be managed and should be avoided.)
6. Adults will support and encourage child-led play opportunities	We see children as competent and capable.
7. We will provide an enriched space for children to be active and engaged in play	Our play landscape will allow for children to engage with and explore the environment.
8. Outdoor play is an important part of	We need to encourage inquiry and exploration

our students' environmental education

of the surrounding environment.

We share the responsibility for care and sustainability of our play practice and environment with students, staff, and community members.

The play policy centres the child; however, the key points and conversations that support the policy simultaneously value learning with environments and sustaining relationships of care. The play policy, in particular, offers an understanding of the child as an organism affecting and affected by its environment. Gins and Arakawa's (2002) methodologies are grounded in speculative architectural methods that recognize the human-child-body as an affective organism. They propose a speculative practice that is interested in what the organism can do and how one's immediate environment is always a potential site that supports new ways of being with animate and inanimate matter. Gins and Arakawa's speculative thought/practice stretches the boundaries of environmental education, as it urges a thinking that contemplates how children might engage with their local environment (i.e., architectural surround), and in ways that create and sustain relationships of attention and care.

The Organism and Its Environment

An architectural surround, as Gins and Arakawa put it, cannot be stepped into. Surrounds and/or environments must be relationally created using emergent methodologies and/or 'procedural architecture' (Gins & Arakawa, 2002). Procedural architecture is a practice of building and inhabiting environments that facilitate observation and learning (Keane, 2013). Its methods optimize engagement with materials and bodies in unexpected ways that produce new thought and action (i.e., meaning) (also see Pacini-Ketchabaw et al., 2016). Surrounds must resist being set up in advance in order to optimize the conditions for the tentativeness of emergent learning. Tentative spaces are where the child can "figure herself out" relationally (Gins & Arakawa, 2001, p. 44). A child, for example, can turn a forest or a desert into an architectural surround (Gins & Arakawa, 2002). Gins and Arakawa explain that it is how the child moves through the forest and desert (i.e., place and space) that will affect how and what materializes. They write:

Advancing and cutting paths, fending for herself and defending herself, she uses her limbs to erect enclosures or break them. That which has been architected blocks, guides, facilitates, comforts, contains or suggests containing. (Gins & Arakawa, 2002, p. 44)

Gins and Arakawa's architecture is similar to the perspective of the urban ecologist who contends that environments must be engaged as living landscapes that change with the passing of time as *chronos*, as well as in a temporal sense of time that is affected by the movement of bodies through space. Similarly, Nigel Thrift (2008), an urban geographer and a material-spatial thinker of cities, describes an environment as "that which surrounds" (p. 103). However, for its inhabitants, Thrift insists that "the environment does not consist of the surrounds of a bounded place but of a zone which their pathways are thoroughly entangled. In this zone of entanglement – this meshwork of interwoven lines – there is no inside or outside, only openings and ways through" (p. 103). Thrift describes this process as an 'ecology of life' that traces and continues to thread the meshwork of an entangled life. Importantly, the school's play policy outlined the capacity of the child to lead her own learning through inquiry and exploration. In addition to

the key points listed in *Table 1.2*, teachers began to understand their role in play differently. A shift from ‘supervisor’ of play toward ‘participant-observer’ that supports child-led play emerged. Teachers, for instance, understood their role as one that required being attentively “part of the environment, but available for students who require more [direct] support” (Play Policy, 2018). The following recommendations were made to support teachers shifting perceptions of play (see Table 2):

Table 2

How to supervise play in the school yard (Staff Fact Sheet – Earth Day Canada, 2018)

SUPPORTING PLAY

1.	WATCH	Get a good understanding of what is going on, and if students are managing risk independently.
2.	WAIT	Check-in with yourself, and weigh your fear against actual risk.
3.	MOVE CLOSER	Get another perspective. See if your presence cues children to manage the situation differently.
4.	INTERVENE <u>without</u> SHUTTING DOWN THE PLAY	Inform students about the risks and give guidelines for them to manage those risks. Negotiate with students the modifications to manage the risks (i.e., moving activity from asphalt to grass).

Resonating with Gins and Arakawa’s architecture, the school’s play policy sought to optimize the learning environment through actions and perceptions that affirmed the material and spatiotemporal movement of children in relation with their environment. In conversation with teachers leading to the final draft of the play policy, they insisted that the “play landscape should offer space for physical challenge, social gathering, creativity, and child-led play” (School Policy, 2018). The framework prompted teachers to rethink their supervisory role and relationship with the play landscape. In order to support OPAL practices, teachers felt that they need to “let go” and/or resist controlling how children played and what children played with. In hopes of changing how teachers support play (i.e., through co-shaping rather than instructing/directing play), the introduction of ‘loose parts’ was a key aspect to the success of the program.

Akin to Deleuze and Guattari’s concept of the ‘partial object,’ loose parts are non-representational figures. For instance, a partial object is a porous part of a machine that is itself dispersed (Deleuze & Guattari, 1987). Similarly, loose parts are natural or synthetic materials that are moveable and that can be combined and incorporated into outdoor play practices (Earth Day Canada, 2019). A cardboard box, watering hose, and a pile of dirt, sticks and stones are all considered loose parts. As Deleuze and Guattari note (1987), partial objects are “entryways and exits, impasses the child lives out politically, in other words, with all the force of his or her desire” (p. 13). Entangling these two concepts (i.e., partial objects and loose parts) with Gins and Arakawa’s methodology, I would like to emphasize that teacher-student-environment dichotomies and the routine logics of play must be rethought in ways, that again, engage the environment as an architectural surround. The surround must be inhabited, negotiated, and rebuilt in ways that change perceptions of what learning might look like. Routine logics as it relates to play, and in a North American context, include discourses that position play as merely ‘fun’. Another logic understands

play as that which must be closely monitored and directed by teachers for risk of children harming themselves or other children. What OPAL offers is a belief in the child to inquire, imagine, and enact a relational ethics of attention and care. OPAL practices are context specific and created collectively, centering the needs and desires of schools and communities. What the play policy framework potentializes is multiple ways of engaging and learning that recognize the relationship between child, environment, and loose parts/partial objects.

Partial Objects and Loose Parts

Consulting mentors initially provided the school with a few loose parts, such as industrial spools and rubber tires. These initial parts were used to generate momentum, encouraging staff, parents and school volunteers to gather upcycled materials from home or local businesses and organizations. Pool noodles, a watering hose, massive cardboard boxes, buckets, vibrant curtains, pots and pans, and tattered bedsheets were loose parts gathered by the school and community. The school was quite successful in gathering a great amount of loose parts. In order to house the objects, a medium-sized shipping container was purchased and placed on the schoolyard. Students engaged with loose parts in many different ways that included bending, twisting, knotting, stretching, ripping, stacking, and hitting (with the use of the foam pool noodles). Using these objects in creative ways, children built and dismantled forts, towers, houses, hammocks, and makeshift scooters and wheelchairs. The introduction of loose parts activated a surround that was less concerned with what to do with an object or what was expected of it or the child-body, but rather invited a way of being with the immediate environment and its parts in yet-to-be determined ways.



Figures 1 and 2. Children playing with loose parts (i.e., pylons and pool noodles) on the schoolyard. Medium-sized shipping container was purchased to house the loose parts.

Deleuze and Guattari's philosophies offer early childhood educators a creative toolbox of concepts to work/think with (see Jackson & Mazzei, 2012). Their concept of the partial object lends well to theorizing loose parts as material and spatial objects that co-shape the surround and/or learning environment through emergent collectivities of play. Thinking about loose parts as partial objects, Deleuze and Guattari warn that it is not enough to say that the object is a creative tool of expression. The object must be connected to the process of production, and for purposes, here, the process of play and how it works and

what it does. For instance, tables are not mere tables (Deleuze & Guattari, 1977). In relation to OPAL, an industrial spool is not merely a spool used for capitalist industry, or a loose part for play. Capital and nature are connective modes of process and production that plug into one and other (Deleuze & Guattari, 1977). Capital and nature move (Massumi, 2017). They are both partial processes, loose parts that inform how and what children learn. For example, the table or the spool become noticed and attended to. The loose part is perceived and connected to other partial objects to make meaning. The human is a relational species and a classed, sexed, and raced body that intends, attends and desires its environments for the basic needs of life and learning, and ultimately for the process of production. Loose parts are additive objects; that is, they already add to worlds, and they do not need the human to become additive. Partial objects are alive, and as Bennett (2010) notes, in the sense that they are co-constituting forces of agency that produce cultural, ethical, political and economic lives. The table, and similarly the spool, was never intended for a specific purpose either than for its (industrial) use. In the context of a schoolyard, however, the spool becomes an unfamiliar object, a tool of inquiry that for no other purpose was – through play – used to experiment with bodies in movement. It is this very speculative movement that shapes the surround. It challenges bodies to invent new modes of being with their surround that attend to and negotiate these very bodied differences (in culture and capital) with potential care and constraint.



Figures 3, 4 and 5. Child playing with an industrial spool that has been transformed into a ‘loose part’ to support the movement of her body across the time and space of the school playground.



Figures 6 and 7. Using various loose parts, children engage in OPAL practices.

How Movement Attends and Cares

In the introductory paragraph of Brian Massumi's (2017) book, *The Principal of Unrest: Activist Philosophy in the Expanded Field*, he writes that the "world has always been in movement" (p. 7). He notes the movement of human bodies out of and across continents, as well as the complexity of movements of return. The experience of mobile bodies across historical time puts into question what we think movement is which, as Massumi notes, is often thought of as displacement, or a change in location. And it is, indeed, this reality that is recounted in the many painful and violent stories of forced migration. Movement is also a qualitative change; it is a change of relation that further puts into question what the human thinks moves. Massumi (2017) writes:

[A]s the human entered into entanglements as it moved through history, it underwent changes in its very nature. It underwent qualitative change. Displacement is just the visible trail of qualitative changes in nature. Displacement is not just a shift of place. It's the index of a becoming: movement not just from one spatial location to another, but from one nature-changing entanglement to another. It's always a question of transformation – transformation in relation. (p. 8)

Massumi's conceptualization of movement rethinks issues of fixed identity and the relation of the modern human species to other human and/or not-quite deemed human, and more-than-human species and objects across time. Movement, from this perspective, is understood as that which moves with animate and inanimate bodies, and that which moves through, implicates, and transforms how the human species thinks and becomes. Partial objects such as the spool move because they are always implicated in a process of production and thus 'questions of transformation' (Massumi, 2017). Transformed into a makeshift wheelchair, the spool and its relation with this particular child activated qualitative modes of inhabiting a temporal environment that enabled her to explore different ways of moving/becoming through time, space, and place. The spool also put into question the privilege of able-bodiedness and dominant narratives of ability in early childhood play. It is not, however, the act of physical movement from one location of the playground to the other that is the point, here. The importance of partial objects and/or loose parts are the relations they enter into (i.e., relations of privilege and constraint). OPAL and its loose parts value qualitative change that transforms how the child sees and how she moves, and what that movement does and/or how it might be constrained. OPAL encourages risk-taking and resiliency; it challenges the emerging child to disrupt what should come next in attempts/intents to figure out what she does not know yet. What does this mean for early childhood environmental education practices? What do practices like OPAL and loose parts do to facilitate an attention and care for differences across places of displacement and settlement, and temporalities that shape how and who knows what it means to live with a planet and its inheritances? The latter question is of course complex and OPAL – in its early stages of development – can only grapple with these questions and the many questions that arrive in the midst of speculative play. Although, there are ways in which OPAL engenders an attention and care for a future time where humans and objects are not for mere labour and use, but rather themselves productive of relational transformations that attend and care with environments. OPAL reminds us that learning is a process of attention and care that potentializes a present and future time that rethinks normative relations with the earth and its objects.

OPAL, Attention, and Care

Manning (2007) describes the improvisational dance of the tango as a movement of attention. It is an ethico-political act that demands commitment to a process that challenges and becomes with other(s).

Resisting the dichotomous role of self/other, the dance is an improvised production that moves bodies to think, act, and feel (Manning, 2007). Thinking, acting, and feeling are part of a process of displacement that always starts over, leaving trace of both violence and care (Manning, 2007). Both are learned actions; just as is the desire to be attentive. To then become attentive is a learned practice that demands ethico-political modes of knowing beyond observational methods of documentation. Memory will also not suffice. Attention operates at the level of affect, which does not belong nor is it contained in the individual child. In the desire to affect and attend, Gins and Arakawa carve out a political space for non-individualistic politics (Manning, 2013). They understand that new modes of being and knowing are not possible if what teachers and children build from are pre-existing content and pedagogies. And so, to attend to the immediacy of environments is a practice of 'letting go'. It is a practice that learns to *let go* of routine choreographies that constrain how and what children know about environments that sustain their bodies. It requires, at this point in historical time, to grapple with curriculum documents and policies (at all levels of state) that constrain bodies to myopic discourses that dictate what objects are, who people are, and how to use them for purposes of capitalist production and consumption. The act of attention is a desiring act to think *with* environments and it is also a proposition for early childhood environmental practices to engage in 'matters of care' (Puig de la Bellacasa, 2011).

Feminist techno-scientist, Maria Puig de la Bellacasa (2011), proposes a rethinking of teaching and research practice. Instead of employing methods to prove facts about the earth – what Puig de la Bellacasa refers to as 'matters of fact' – teachers and researchers might reinvent practices with the goal of generating more caring relationships (i.e., 'matters of care'). Matters of fact would then be understood as matters of care. Puig de la Bellacasa describes her proposition as a speculative effort to think possible futures of non-violence. Engaging in matters of care in environmental education is thus not so much a practice that explains the 'construction of things' (Puig de la Bellacasa, 2011), and it certainly does not exclude such thought either. Engaging with care is one of many commitments to attend to 'neglected things' (Puig de la Bellacasa, 2011) like loose parts and unformed thought (i.e., thinking).

Puig de la Bellacasa (2011) asks: "How can an ethico-political concern such as caring affect the way we observe and present techno-scientific agencies, things and notions" (p. 86)? She argues that this is a question that goes beyond concerns of child and teacher dispositions. There is a tremendous amount of literature and best practices that centre child and student dispositions in the early childhood field, and in ways that require more complexity. Teachers need to think beyond human-centred dispositions and lessons that teach teacher candidates how to be 'professional'. Teacher candidates need to tell their own stories, and this, too, is part of the reflective process of becoming a teacher. However, the ethics and politics of caring must critically intervene and question how childhood stories are made and told (Puig de la Bellacasa, 2011; Haraway, 2016). Ways of telling, studying, representing, and playing have ethical and political consequences (Barad, 2007; Puig de la Bellacasa, 2011; Haraway, 1991; Haraway, 2016). I will return to the concept of study in the concluding section below. But, first, I want to emphasize that neglected stories, things, and parts tell teachers and researchers something very important. Neglected things tell them that they do not yet know the possibilities in letting go and making space for stories of resiliency and creativity and imagination. Early childhood classrooms and teacher preparation programs are not yet ready to attend to matters of care that activate the discarded, the neglected, the not told, not thought with, and the yet to be thought. It is time to attend, to care, and to study with partial objects and thus partial knowledges worth refiguring.

Study: A Lingering Note

Practices like OPAL are not necessarily connected to environmental education curriculum, and this is an important point. Environmental education must become undisciplined. It must shift from mere studies of fact toward a study that attends to how bodies assemble and engage in transformations and/or becomings with environments of potential and constraint. To study, and the way I am employing Stefano Harney and Fred Moten's (2013) concept, means something more-than what the 'good' student does in preparation for a test or exam. They demand that learning must not become an object of study where the child "dissolves into the student" (Harney & Moten, 2013, p. 109). Dissolving must be resisted. To study is a commitment to being in 'always already' (Barad, 2007) transformation with other bodies (Harney & Moten, 2013). It is an undisciplined, speculative practice of playing...

talking and walking around with other people, working, dancing, suffering, some irreducible convergence of all three...being in a kind of workshop, playing in a band, in a jam session, or old men sitting on a porch, or people working together in a factory – there are these various modes of activity. (Harney & Moten, 2013, p. 110)

What practices of study, care, and attention facilitate is a co-shaping of experience that reminds the pedagogue that the child is more-than. The child is an interstice of potential that textures experience and, therefore, expresses a quality that co-shapes environments (Manning, 2018). Understanding the child as a co-constituting species affirms the potential of the child to recognize the echoes of past and present stories that shape futures where what has been taught to be recognized is no longer the knowledge that forms (Manning, 2018). For environmental education practices in the early years, what I hope might form are these very undisciplined, speculative practices that dig deeper into the complexities of more-than-human worlds. For example, practices that are orientated toward activating architectural surrounds, rather than architecting student dispositions might become a starting point for seriously reconsidering childhood best practices and relationships to environments and climate. What the pedagogue thinks she knows is at stake, and this is indeed an uncomfortable state 'where shit breaks down' (Harney & Moten, 2013). Echoing Harney and Moten, and Deleuze and Guattari, it is perhaps a matter of objects breaking down before they can be recognized in another form. Perhaps it is this future form of study that will attend to the inheritances of the planet in ways orientated toward care and attention. Perhaps what is needed in the field of early childhood environmental education is for *shit to break down*.

References

- Alaimo, S. (2016). *Exposed: Environmental politics and pleasures in posthuman times*. Minneapolis, MN: University of Minnesota Press.
- Asberg, C., & Braidotti, R. (2018). (Eds.). *A feminist companion to the posthumanities*. New York, NY: Springer.
- Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham: Duke University Press.
- Bennett, J. (2010). *Vibrant matter: A political ecology of things*. Durham, NC: Duke University Press.
- Braidotti, R. (2013). *The posthuman*. Cambridge, UK: Polity Press.
- Colebrook, C. (2016). 'A grandiose time of co-existence': Stratigraphy of the Anthropocene. *Deleuze Studies*, 10(4), 440-454.
- Deleuze, G., & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis, MN: University of Minnesota Press.

- Deleuze, G., & Guattari, F. (1977). *Anti-Oedipus: Capitalism and schizophrenia*. New York, NY: Penguin.
- Earth Day Canada. (2019). *Outdoor Play and Learning Program for Schools*. Retrieved from: www.earthday.ca.
- Gins, M., & Arakawa, S. (2002). *Architectural body*. Tuscaloosa, AL: University of Alabama Press.
- Haraway, D. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Durham, NC: Duke University Press.
- Haraway, D. (1991). *Modest_Witness@Second_Millennium.FemaleMan@_Meets_OncoMouse™: Feminism and Technoscience*. New York: Routledge.
- Harney, S., & Moten, F. (2013). *The undercommons: Fugitive planning & black study*. Brooklyn, NY: Autonomedia.
- Jackson, A. Y., & Mazzei, L. (2012). *Thinking with theory in qualitative research: Viewing data across multiple perspectives*. New York, NY: Routledge.
- Keane, J. (2013). *An Arakawa and Gins experimental teaching space: A feasibility study*. *Inflexions*, 6, 234-249.
- Kirskey, E. (2015). (Ed). *Multispecies salon*. Durham, NC: Duke University Press.
- Knight, L. (2016). Playgrounds as sites of radical encounters: Mapping material, affective, spatial and pedagogical collisions. In N. Snaza, D. Sonu, S. Truman, & Z. Zaliwska (Eds.), *Pedagogical matters: New materialism and curriculum studies* (pp. 13-28). New York, NY: Peter Lang.
- Lenz Taguchi, H. (2010). *Going beyond the theory/practice divide in early childhood education: Introducing an intra-active pedagogy*. New York, NY: Routledge.
- Madsen, K. A., Hicks, K., & Thompson, H. (2011). Physical activity and positive youth development: Impact of a school-based program. *Journal of School Health*, 81(8), 462– 470.
- Malone, K. (2018). *Children in the Anthropocene: Rethinking sustainability and child friendliness in cities*. London, UK: Palgrave Macmillan.
- Manning, E. (2018). Me lo digo un pajarito: Neurodiversity, Black life, and the university as we know it. *Social Text* 136, 36(3), 1-24.
- Manning, E. (2007). *Politics of touch: Sense, movement, sovereignty*. Minneapolis, MN: University of Minnesota Press.
- Massumi, M. (2017). *The principles of unrest: Activist philosophy in the expanded field*. London, UK: Open Humanities Press.
- Morris, K. (2016). *The posthuman child: Educational transformation through philosophy with picturebooks*. Routledge Contesting Early Childhood Series. London: Routledge.
- Neimanis, A. (2013). Feminist subjectivity, watered. *Feminist Review*, 103, 23-41.
- Nxumalo, F., & Rotas, N. (Eds.). (2018). Interdisciplinary dialogues in environmental education research. *Journal of Childhood Studies*, 43(1), 1-3.
- Nxumalo, F. (2017). Stories for living on a damaged planet: Environmental education in a preschool classroom. *Journal of Early Childhood Research*, 1–12.
- Ontario Ministry of Education. (2005). *Daily physical activity in schools: Grades 1-3*. Ontario, CA: Queen's Printer.
- Ontario Ministry of Education. (2013). *Ontario early years policy framework*. Ontario, CA: Queen's Printer.
- Pacini-Ketchabaw, V., Kind, S., & Kocher, L. (2016). *Encounters with materials in early childhood education*. New York, NY: Routledge.
- Propa, F. A., Mitra, R., & Simon, B. (2017). What makes them happy? Exploring the relationship between outdoor play environment at school and children's happiness and wellbeing in Toronto, Canada. International Play Association Triannual Conference, Calgary, September, 2017.

- Pellegrini, A., & Holmes, R. (2006). The role of recess in primary school. In D. Singer, R. Golinkoff, & K. Hirsh-Pasek (Eds.), *Play = learning: How play motivates and enhances children's cognitive and social-emotional growth*. Oxford: Oxford University Press.
- Puig de la Bellacasa, M. (2017). *Matters of care: Speculative ethics in more than human worlds*. Minneapolis, MN: University of Minnesota Press.
- Puig de la Bellacasa, M. (2011). Matters of care in technoscience: Assembling neglected things. *Social Studies Science*, 41(11), 85-106.
- Rautio, P. (2013). Children who carry stones in their pockets: On autotelic material practices in everyday life. *Children's Geographies*, 11, 394–408.
- Rotas, N. (2015). Ecologies of praxis: Teaching and learning against the obvious. In N. Snaza & J. Weaver (Eds.), *Posthumanism and educational research* (pp. 91-103). New York, NY: Routledge.
- School Play Policy. (2018). *Rationale and reasons*. In collaboration with Earthy Day Canada and OPAL.
- Snaza, N., Sonu, D., Truman, S. & Zaliwska, Z. (2016). (Eds.), *Pedagogical matters: New materialisms and curriculum studies*. New York, NY: Peter Lang.
- Snaza, N., Appelbaum, P., Bayne, S., Carlson, D., Morris, M., Rotas, N., Sandlin, J., Wallin, J., & Weaver, J. (2014). Toward a posthumanist education. *Journal of Curriculum Theorizing*, 30(2), 39-55.
- Stengers, I. (2010). *Cosmopolitics I*. Minneapolis MN: University of Minnesota Press.
- Taylor, C. (2016). Edu-crafting a cacophonous ecology: Posthumanist research practices for education. In C. Taylor & C. Hughes (Eds.), *Posthuman research practices in education*. Basingstoke: Palgrave MacMillan.
- Taylor, C., & Hughes, C. (2016). *Posthuman research practices in education*. Basingstoke: Palgrave MacMillan.
- Taylor, A., & Pacini-Ketchabaw, V. (2015). Learning with children, ants, and worms in the Anthropocene: Towards a common world pedagogy of multispecies vulnerability. *Pedagogy, Culture & Society* 23(4), 507–529.
- The United Nations. (1989). Convention on the rights of the child. *Treaty Series*, 1577, 3.
- Thrift, N. (2008). *Non-representational theory: Space, politics, affect*. New York, NY: Routledge.
- Tsing, A.L. (2015). *The mushroom at the end of the world*. Oxford, UK: Princeton University Press.
- Yusoff, K. (2017). Epochal aesthetics: Affectual infrastructures of the Anthropocene. *e-flux architecture*. (www.e-flux.com).