Teaching With the Virus: Sociomaterial Assemblages and the Production of Schooling During COVID-19

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Using new materiality theory, we analyzed teachers' and administrators' descriptions of educational practices and everyday life in schools during the first year of the COVID-19 pandemic. During this time, the virus and the Provincial Health Authority were agential parts of classrooms that both restricted pedagogical possibilities, as well as created openings for something new to occur. As educators taught "with the virus," pedagogy and curriculum unfolded rhizomatically shooting off in different and often unexpected directions. Our research makes visible how teaching is always a co-creative act of participating with the material, affective, and relational landscapes of practice.

En utilisant la théorie de la nouvelle matérialité, nous avons analysé les descriptions faites par les enseignants et les administrateurs des pratiques éducatives et de la vie quotidienne dans les écoles au cours de la première année de la pandémie de COVID-19. Pendant cette période, le virus et l'autorité provinciale de santé ont fait partie intégrante des salles de classe, restreignant les possibilités pédagogiques tout en créant des ouvertures pour l'émergence de quelque chose de nouveau. Alors que les éducateurs enseignaient "avec le virus", la pédagogie et le programme scolaire se sont développés comme des rhizomes en prenant des directions différentes et souvent inattendues. Notre recherche met en évidence le fait que l'enseignement est toujours un acte cocréatif de participation avec les paysages matériels, affectifs et relationnels de la pratique.

Teaching with the Virus¹

Microscopic speckled spheres with spikey crowns, airborn and highly infectious, in the spaces in-between bodies.

Moving throughout our classrooms, lingering for hours, and contaminating surfaces.

Locating the invisible enemy using COVID dashboards, and delayed exposure notices. Directing affective flows of anxiety, wishing we could fix things, but knowing we can't.

Thinking with the virus and how it works policing splashes and sprays, supervising coughing, sneezing, and singing.

Considering air flow and face coverings, disinfecting and distancing, when teaching and learning.

Embracing grace, and following lines of flight. Finding our zen.

Teaching as more-than essential work. Caring without touching, hugging without caring.

Struggling to sustain the energy required to do more than what is possible each day. This is how we teach with the virus.

During the 2020/21 school year communities were adrift in COVID-19 numbers and alerted to the dangers of the coronavirus and the social and microbiological factors that contribute to its spread and mitigation. When schools across the province of British Columbia (BC) re-opened for in-person learning in September 2020 teachers, students, staff, and parents knew that the teaching and learning context had changed and that learning communities would be different. Current research regarding the impact of COVID-19 on teaching and learning has largely focused on the emergency transition to remote learning, including the digital disparities and academic inequities exacerbated by the sudden shift to online learning (Coleman-Brown et al., 2020; Gandolfi et al., 2021; Hill et al., 2020; Trinidad, 2020), as well as the pedagogical transition from in-person learning to distance education (Erümit, 2021; Günbaş & Gözüküçük, 2020; Johnson et al., 2020; Kaden, 2020). Indeed, our own previous research focused on the enormous disruption to rhythms and routines for families, and the shifting responsibilities for teachers, parents, and students when schooling moved online (MacDonald & Hill, 2021).

Although the impact of the pandemic on teaching and learning during the move to online emergency learning is well documented, less is known about the changes to in-person education as schools re-opened. Although the hard binary between "virtual" and "in-person" learning can be challenged on the basis that online learning is an embodied and material practice (Gourlay, 2021), little is known about teaching and learning alongside the virus in classrooms. Extending our previous work examining the initial impact of COVID-19 on teachers, students, and parents (MacDonald & Hill, 2021), this paper provides an examination of the 2020/21 academic year based on the descriptions of pedagogical practices and everyday life in schools from teachers and administrators within the Fraser Health region in the province of British Columbia. This research seeks to examine the ways in which the presence of COVID-19 within schools (both confirmed and possible) contributed to shifts in schools and addresses the question, *How has in-school teaching and learning been impacted by the pandemic response*?

Theoretical Framework

Inspired by our previous research focusing on the materiality of educational practice (MacDonald et al., 2020; Smythe et al., 2017), we have adopted a new materialist framework (Barad, 2007; Braidotti, 2013) to explore the agential nature of virus and the Provincial Health Authority within classrooms during the 2020/21 school year. New materiality theories illuminate the co-constitutive forces within human and non-human encounters and can serve to complexify understandings of teaching. This body of scholarship is a non-dualist approach that foregrounds the primacy of the matter, somatic realities, and the constitution of bodies. Within this approach, matter is understood as an agential force that is entangled with human agency and intentionality to co-produce our social worlds. To assist the reader, we provide explanations of two key ideas: (a) bodies and (b) sociomaterial assemblage that undergird our approach to new materiality theory and the analysis of our data.

Bodies

Within new materialist research, bodies—both human and more-than-human—are understood as open systems that are continuously meshing with other bodies to produce particular phenomena. Based on a relational ontology, subjectivities, pedagogies, and institutional realities, are understood as coming into being during the moment of contact, rather than as pre-existing static and stable entities who act upon one another (Barad, 2007). Barad (2007) referred to this process as intra-action (rather than interaction) to illuminate how bodies are in continual flux, shifting through their relationships with other contingent beings. New materialist educational researchers attend to ways in which various organic bodies, physical bodies, as well as discursive bodies bundle together in classrooms to produce various effects. In this regard, new materialist perspectives illuminate the distributed nature of teaching and learning. This meshing of bodies may include both "biological~viral" as well as "natural~cultural" to produce sociomaterial phenomenon that become significant within classrooms.

Sociomaterial Assemblage

Manuel DeLanda (2016) defined an assemblage as "the relation established in two groups, like the air that exists between them transmitting influences that connect them but do not constitute them" (p. 2). During the first year of the pandemic, the bodies of teachers and students became entangled with various social and material practices involved in enacting public health orders, such as distancing, mask wearing, and hand washing, all of which have become part of the pedagogical assemblage. As Hultin (2019) explained, sociomaterial research endeavours to "move away from a view of materiality as something distinct, bounded, and separate from human agency and intentionality, to an understanding of it as entangled with and thus, deeply co-constitutive of, agentic action and organizational realities" (p. 92). Although the virus can be understood as agential within assemblages of schooling, it is important to note that the virus is not an agent on its own, nor are humans. Rather, both are part of a relational network, which is continually redefined through a shifting web of connections and choices. That is not to say that humans have no agentic capacity, but rather that the ability to act is contingent upon the intra-active nature of the particular assemblage as it is constituted. As Bryant (2016) contended, "the manner in which we choose to 'actualize' phenomena involves a dimension of choice in which we are complicit. After all, we could always choose to actualize phenomena *differently*" (para. 30).

New materiality theory makes the co-constitutive forces within human and non-human encounters visible, providing new ways to understand schooling (Charteris et. al, 2017; Reddington & Price, 2018). For example, Reddington (2014, as cited in Reddington & Price, 2018) utilized a new materialist framework to illuminate sociomaterial relations including young men with autism spectrum in schools, by mapping bodily movement within school spaces. Her analysis highlighted the distributed agential capacity to resists conventions that were oppressive for youth with neurodiversities in certain spaces. For example, one youth did laps of the hallway to avoid the "confines" of the learning centre, serving to disrupt "his static medicalized position, a body with special needs, in the remedial environment" (Reddington & Price, 2018, p. 475). Charteris and colleagues (2017) explored the entanglements between the spatial organization, material objects, pedagogies, and the bodies of teachers and students in a school where the walls between classrooms were removed. This study illuminated how changing the classroom space produced new possibilities for subversive movements among students as they obscured the gaze of the teacher by inhabiting "nooks and crannies" (p. 815).

Few scholars, however, have used new materiality theory to advance understandings of COVID-19 as part of schooling. Heikkilä and Mankki's (2021) research, which explored the distributed and changing nature of teacher agency during the 2020 school closures from a new materialist perspective, provides a notable exception. Consequently, the goal of this project was to utilize new materialist theories as a conceptual framework for illuminating the complexities of in-person teaching during COVID-19 and contribute to new understandings of the sociomaterial practices of schooling.

British Columbian Context: March 2020 to April 2021

Under public health orders, K–12 schools were closed in British Columbia for an extended spring break in March 2020. When schools reopened in April, remote learning was provided to the majority of students while in-school learning was available only to a small number of children of essential workers or to children with vulnerabilities on a very part time basis. In June 2020 all students had the option to return to in-school learning part-time (with staggered attendance to keep group sizes small) or continue with online learning. Attendance for teachers was mandatory and they continued to support both modes of learning. In September 2020 there was a full return for elementary and middle schools and a partial return to in-school learning for high school students. Some blended or distance education options, as well as opportunities for gradual reentry to in-school learning, were available to families depending on the district.

BC K–12 schools remained open for in-school learning during the 2020/21 school year, with the exception of temporary closures of particular schools due to high numbers of COVID-19 cases or staff shortages. The BC Ministry of Education (2020a) created a five stage plan with differing cohort sizes and varying in-school attendance to enable a rapid shift if required. Although the prevalence of COVID-19 within communities varied over the 2020/21 school year, as did the general protocols mandated by the Provincial Health Officer (PHO), including restrictions

regarding non-essential travel, indoor and outdoor socializing, sports and fitness activities, events and restaurant service, schools remained in stage two with no changes to cohorts or in-school attendance.

In Canada, public health including containment of infectious diseases and related education is shared among federal, provincial/territorial and local/municipal government. Here, we provide a summary of the governmental COVID-19 policies that became entangled with teaching. In BC, all schools were required to adhere to the standards, guidelines, and direction from the PHO and WorkSafeBC (BC Ministry of Education, 2020b). Educators were advised that "Ensuring implementation and adherence to health and safety plans is important to keep in-person learning available" (BC Centre for Disease Control and BC Ministry of Health, 2021, p. 4). The following guidelines were developed by the BC Centre for Disease Control and BC Ministry of Health (2021) to minimize the spread of the virus in schools.

- Spreading students out as much as possible and arranging desks to allow maximum space between students.
- Directing movement within the school to minimize close contact.
- Avoiding physical contact and minimizing face-to-face interactions (although it is acknowledged that this may be difficult for young children to do this consistently).
- Staggering recess and lunch whenever possible to avoid crowding.
- Ensuring that the school's ventilation system is serviced and operating to specifications, and opening windows when possible.
- Proving access to "hand cleaning" stations and reminding students and staff to clean hands frequently and practice good respiratory etiquette.
- Ensuring that surfaces were disinfected at least once a day and high touch surfaces twice daily, removing items that cannot be easily disinfected, and reducing the sharing of items.
- Organizing students and staff into cohorts that remain consistent throughout each school term (60 people maximum in elementary and middle schools and 120 people maximum in high schools).
- Reminding students and staff of their responsibilities to complete a daily personal health check and stay at home if sick.
- Utilizing virtual options for school gathering and events, such as assemblies.

Teachers were encouraged to take their classes outside more often (BC Ministry of Education, 2020b), to minimize the risk of viral transmission. Initially in September 2020, masks were not mandatory in schools and were believed to have little value outside of health care settings where physical distancing between adults could not be maintained for extended periods of time: "Wearing cloth or homemade masks, particularly for children, are not recommended" (BC Ministry of Education, 2020b, p. 9). By February 2021, staff and students in middle and high school were required to wear masks except when at their desk or behind a barrier, or when eating or drinking. By March 2021 masks were mandated for all staff and Grades 4 and up to prevent viral spread.

During this time the virus gained a virtual presence through online platforms, such as the BC COVID-19 dashboard, that reported the numbers of COVID-19 cases, patients in critical care, recovered patients and, sadly, the numbers of deaths in the province. News channels featured

information about COVID-19 variants, vaccination types, and their effectiveness. Health authorities and district websites listed COVID-19 cases by schools, keeping families and students apprised of exposures and closures. Parents and teachers were notified directly by the public health authorities if contract tracing indicated that they or their child had been exposed to someone who tested positive for COVID-19. Although effective communication was one of the four guiding principles of health and safety plans (BC Ministry of Education, 2020b), information about specific COVID-19 cases was limited due to privacy laws and often delayed, particularly in the beginning of the school year. A student with COVID-19 could be isolating for 12 days before the school community was notified through official channels. Teachers and administrators were restricted by privacy protection acts from explicitly identifying individuals who were selfmonitoring or had confirmed cases of COVID-19. Under the provisions of the Freedom of Information and Protection of Privacy Act and the Personal Information Protection Act, communication of the students' names is not permitted, making it difficult to stay updated with contact tracing. Even though the British Columbia Teaching Federation called for greater powers within each district to respond to local conditions, a province-wide universal approach to schoolbased measures continued until the end of the 2020/21 school year. To date the practice has been to find a balance between infringing on the student's rights to education (under our provincial legislation) and their right to privacy.

In the months following Spring Break 2021, the vaccine "roll out" was slow for teachers and record rates of COVID-19 cases were recorded in March 2021 marking the "third wave" of infection and spread. Vaccinations were first allocated to long-term care patients, the population hardest hit by COVID-19, and staff and visitors in these facilities, remote Indigenous communities, and care providers in hospitals. Along with the age-based distribution of vaccinates, protecting the oldest and most vulnerable members of communities, doses of AstraZeneca, were allocated to groups of essential workers from February to April 2021, including first responders, grocery store employees, teachers, and child-care workers. Most teachers who chose to be vaccinated received their first vaccination at the end of March 2021, and shortly after, AstraZeneca was suspended for use with those under 55.

More than one year after the World Health Organization declared COVID-19 a pandemic, the patience of citizens was visibly strained and acts of defiance were starting to emerge. Challenges faced by the Health Authority and ultimately school communities included defacing signs set up to restrict movement in parks, the refusal to wear masks as mandated, restaurants choosing to remain open for indoor dining against the public health orders, illegal house parties (breaching distancing rules), and anti-government protests.

Methods

This post-qualitative study (St. Pierre, 2021) is based on Zoom conversations² with eleven teachers and administrators from three school districts that are part of the Fraser Health region (east of the city of Vancouver), including six elementary schools (ranging from 200–500 students), a middle school (475), and two high schools (both enrolling approximately 1,500 students). Some schools were located within suburban areas, and some in urban locations. Although there was much student diversity within most school populations, some served communities that were considered predominantly White and middle class, or families with substantive wealth and included specialty programs, such as Montessori or French Immersion. Others were located within high density neighbourhoods where many families experienced

poverty and/or other forms of marginalization. These schools had an emphasis on serving community needs (for example providing family literacy and breakfast programs)^{3.} The educators taught in a variety of contexts, including some COVID-19 "hotspots" within the region. They included

- a primary teacher,
- three intermediate teachers (one teaching in a blended context),
- a music teacher,
- an elementary integration support teacher who worked across multiple schools,
- a middle school teacher,
- a high school special education teacher and department head,
- an elementary school Vice Principal who also taught blended classes,
- a Vice Principal who also worked as a resource teacher and supported a distributed learning program in her school, and
- a Director of Instruction.

Participants identified as South Asian, Asian, Korean-Canadian, White, or Indigenous and European, and all used she/her pronouns. Their years of teaching experience ranged from five to twenty-five, and participants included three early-career teachers, three mid-career teachers, and four advanced-career teachers.

Following approval by our university Research Ethics Board⁴ and after obtaining informed consent, we engaged in audio-taped conversations on Zoom with educators about district and school protocols and practices, and their stories of teaching during COVID. Our meaning making process focused on the diverse sociomaterial assemblages that produced particular experiences of schooling during the pandemic. Through this attention to the entanglements and intra-actions among bodies, both human and more-than-human (Barad, 2007; Braidotti, 2013), we mapped the distributed agency of virus within classrooms. Reading the transcripts over and over, we attended to the materiality of teaching and learning during the pandemic, the somatic realities, and affective flows within classrooms, and the pedagogical assemblages in which the virus was entangled.

We sat with the transcripts of our conversations with educators and allowed them to affect us, engaging our "bodyminds" and inviting our own interference (Lenz Tagulchi, 2012). We resisted working with a preestablished methodology (St. Pierre, 2021) and worked across disciplinary traditions. We invited ways of knowing that would help us understand language as a material force and attended to passages that jumped out and called us to attention (MacLure, 2013). We visualized the vivid descriptions that called out to us, such as the mobile teacher cart full of personalized pedagogical materials transported from class to class along with the teacher, exposure notices inciting multiple COVID-19 tests up the nose, and unmasked faces mouthing rather than singing in music class to avoiding transmitting invisible vapours. We then envisioned the material components that hung together in these descriptions as pedagogical assemblages that produced particular outcomes. We alternated between writing poetry based on our conversations with teachers and writing intersecting accounts about the materiality of teaching during COVID-19. This process of toggling back and forth between creative forms can produce ruptures, as well as novel renderings, that can complexify understandings (see Springgay et al., 2005). Although

we are mindful that words do not transfer unproblematically between subjects (St. Pierre, 2017), we share excerpts from our conversations with teachers, and invite readers to attend to the material and envision the co-constitution of teaching and learning when schooling returned to inperson learning during the pandemic.

Teaching With the Virus

COVID-19 was agential in schools far beyond high jacking host cells in human bodies. During the 2020/21 school year, the virus, and the sociomaterial practices surrounding it, intra-acted with other bodies in classrooms, transforming relationships, responsibilities, and practices in schools and produced indeterminant, diverse, and at times paradoxical outcomes. In the following section we share four storied accounts of how affective flows, teachers' responsibilities, pedagogical practices, and acts of care transformed as the virus became entangled within educative assemblages. These renderings should not be considered distinct, static, or stable, but rather intra-related and always in process of unfolding as they are read and retold.

Affective Flows

The presence of COVID-19 in schools was a powerful agent in classrooms. As viruses go, it was smart and highly successful. This highly infectious microscopic, speckled sphere with spikey crowns spread easily from person to person. Its hosts could be asymptomatic for more than a week before testing positive. Diverse symptoms resulted as it intra-acted with different bodies. It was good at hiding and could linger on surfaces for days. No one knew exactly where it was hiding in schools or when it might pop up next. COVID-19 also had capacity to shift and morph into new variants or strains that tested our own adaptive responses and kept the health authority and school districts on high alert.

Every sniffle everything that goes on—you notice it, and then you go straight to 'Oh my God, do I have COVID?' And your greatest fear is that you're that asymptomatic person, passing it around. I had to go get a COVID test last Friday, because we are currently a COVID School. The student who was [positive and] in contact with me was asymptomatic. I thought—I don't have COVID. I don't feel like I have COVID, but I need to go get tested because my mother lives in my house who is pacemaker life dependent. I thought—I need to show up on Monday without that fear that I might have it. So, I went and got it up my nose again. (Danielle⁵, teacher in a "hotspot" school, February 4th, 2021)

Regardless of any confirmation of the actual virus, COVID-19's presence was deeply felt through related sociomaterial practices, such as exposure notices, hotspot designations, and symptom checklists, which co-produced somatic realities for teachers and students. Many outcomes are possible when the virus intra-acts with a (potential) human host, along with the presence or absence of other non-human materials such as masks, vaccinations, and distancing polices ... illness, immunity, elusion, asymptomatic infection, hospitalization, contagion, even death ... or nothing at all. Other components, such as the ventilation of the space and temperature of the room also contribute and there are many potential unfoldings inherent within each assemblage. Although most of these potentialities are not actualized (this is what Deleuze and Guattari [1987] refer to as the "virtual") they are just as real and can affect bodies and impact the present. This potentiality manifested somatically as the "what if" of the virus and within the material practices associated with viral avoidance.

Within classroom assemblages during the 2020/21 school year, the presence of the virus and as indicated through exposure notices, hotspot designations, and the like, did things and propelled bodies. Affective flows of fear and anxiety moved through schools creating a palpable intensity that was not present prior to the pandemic. "In September [students] were sitting there and they were scared. They were scared of each other. They were scared of me. They were scared of being in the room" (Danielle, teacher in a "hotspot" school, February 4th, 2021). Emotions such as fear are dynamic, relational, and performative (Micciche, 2007), as bodies engage with one another. Within some assemblages the virus contributed to relations of "awayness" as "fear shapes the surfaces of bodies in relation to objects" (Ahmed, 2014, p. 8) and others. As Mia, a Vice Principal described, "We have students that won't go near anyone. They've got their mask on, and they don't want to run in the gym because they're afraid of getting COVID-19 so they sit on the bench" (January 8th, 2021).

Paradoxically, the virus also catalyzed opportunities for connection or "towardness" (Ahmed, 2014, p. 8) that wouldn't have happened otherwise. One music teacher began facilitating talking circles during time normally spent teaching music when children's need for emotional support was evident.

One of the students felt really sad that she couldn't see her dad because their parents are separated. She's sticking with one household. Just even opening up about that, I was able to understand why she had been so quiet lately and she had looked so down. So, I think it was necessary that we had those conversations and the opportunity to understand each other and how everybody is doing and to see that support that the students could give each other. (Hope, music teacher, January 6th, 2021)

COVID-19 did not act in isolation; however, as it instigated affective flows of awayness or towardness (Ahmed, 2014) amongst teachers and students. It is the intra-action of bodies, the assemblage, the relational space between multiple human and non-human bodies that is agential (Barad, 2007). As Arndt (2021) explained, "the vibrant materials of all sorts that form and operate beyond, alongside and entangled with the human part include all that affects, intra-relates, all that lives and throbs, including the virus" (p. 534). The unfolding of assemblages was indeterminant and resulted from the intra-action of policies, practices, and bodies that bundled together. School designations, exposure notices, workspace configurations, masking requirements, and communication protocols all congealed to produce intensify or reduce affective flows. In one example a teacher working in an urban school reported feeling relatively safe despite working in a community highly impacted by COVID-19. Her principal "went rouge" and required members of the school community to wear masks long before it was mandated by the Provincial Health Authority.

The thing about my school is that parents aren't going to come with their lawyers and fight against a lot there. So there's a power dynamic at play. ... I don't know if we'd be able to get away with it in a different school. (Katrianna, high school teacher, January 9th, 2021)

Within this context, the COVID-19 response took its shape based on the collective agency of the virus, the masks, the actions of the principal, and the dispositions of the largely immigrant parent community who were inclined to not interfere or voice their concerns. This example illustrates how power is not a coercive "top down" phenomenon in which school communities are at the mercy of institutional policies (see also Arndt, 2021), but rather that power and resistance

are "dual fluxes that permeate all assemblages" (Fox & Alldred, 2018, p. 324). Both are locally enacted and are contingent upon the intra-active nature of the assemblage, in this case as it bundles diverse entities across schools, communities, and governing bodies.

Management of the Student Body

When the coronavirus infected education, learning was governed not only by the Ministry of Education but also by the Ministry of Health and the work of teachers was complexified and modulated by a need to adhere to differing practices. During the 2020/21 school year educators were simultaneously entangled within assemblages that endeavoured to produce education (involving curriculum documents, Individual Education Plans, report cards), with and despite viral assemblages. They were also entangled within assemblages that aimed to ensure the physical and mental wellbeing of students (involving provincial health mandates, district COVID-19 directives, and school absentee and wellness protocols). As Allen (2011) described, "The openended nature of such formations means that the same actors and institutions may find themselves entangled in quite different ways in more than one economic or political assemblage" (p. 155). Teachers both were, and were not, identified as essential workers depending on the assemblage.

As public health policy became entangled within schooling, teachers and administrators played an increasing role in managing student bodies and preventing the spread of the virus within communities, along with their regular duties as educators.

I have gone profoundly structured [with] everything that I'm doing. I have my blocks time down to the minute at this point because I need to ... make sure that kids have enough time to wash their hands before and after eating, before and after touching things. ... So I think I have almost gone into like a high functioning anxiety mode and I'm just sort of hyper managing everything. One ... thing that I've done is really let go of the desire to cover everything in the curriculum because there just isn't time now [when] our day is eaten up by safety protocol and by explicit behavior teaching and social emotional learning. (Heidi, early career, middle school teacher, December 9th, 2020)

The co-existence of often competing or incompatible education and health policies within schools interfered with one another and pulled teachers in different directions, producing stress and anxiety. When vulnerable children or those with special needs were part of the assemblage, the clash between educative and public health policies, as well as professional ethics requiring that teachers act on the best interest of the child, were heightened.

I do struggle when people say there should be mandatory masks in the classroom because then I think ... are we going to spend all of our time trying to get this child to wear a mask or are we going to spend the time engaging with them teaching them communication skills? I am thinking of one student who's nonverbal, and that's what we're doing. We're not fighting with him to wear a mask that he doesn't want to wear. (Joan, advanced-career, integration support teacher, January 11th, 2021)

Continuously existing within a tangle of diverse local, district and provincial priorities and working in "high functioning anxiety mode," produced a flood of chemicals and hormones in teachers' bodies that physically manifested as they put on or lost weight, developed stress rashes, experienced hair loss, or felt "so fucking exhausted" during the 2020/21 school year.

Schools, of course, adapted to carry part of the load. Signage directed patterns of movement through hallways and floor tape to delineate boundaries helped to spread out bodies and reduce

face-to-face interactions. Signs outlining routines such as hand washing were posted, and sanitation stations were added. These buildings, designed to facilitate close connections amongst students and teachers and the sharing of learning resources, however, could only help so much, and teachers and administrators in the province of BC assumed much of the responsibly for mitigating the spread of COVID-19 in communities. In the 2020/21 school year they supervised hand washing, distancing, and later the face covering of over half a million students five days a week, as well as monitored the movement of potentially contaminated objects between students. If adequate provisions of space were made available in schools (such as the staggered attendance required in June of 2020, or more options for blended or online learning), sufficient sinks for the mandatory washing were installed, and effective ventilation systems were provided, teachers would be less entangled in surveillance of the student body and could focus primarily on educative practices. As Sikka (2021) found, COVID-19 protocols, such as distancing and mask wearing, served to shift responsibilities for managing health risks and preventing viral spread from the State onto individuals through mandating behavioral norms, rather than adequately funding sufficient institutional responses.

Pedagogical Restrictions and Ruptures

During the 2020/21 school year the coronavirus, along with the Provincial Health Orders, became active agents in classrooms transforming teaching and learning in indeterminant and sometimes paradoxical ways. Within many assemblages, teaching became traditional, sedentary, and isolated. Best practices, as dictated by the Health Authority, changed relational pedagogy. When teaching with the virus, pedagogies that were relational, embodied, or co-constructed in the usual ways became challenging. Classes could not gather or meet on the carpet for circle time, which disrupting emergent learning, collaboration, and community building. Teaching felt less spontaneous.

I feel like everything I do and how I teach has changed in small ways that I don't notice until I'm full on into the lesson. And then you realize you ... have to pivot. You want to put them in small groups and then you remember that you have dividers on the table, and they can't work together across [it] and they can't share the materials. (Roslyn, mid-career primary teacher, January 7th, 2021)

One teacher described teaching as becoming "old fashioned" again as students sat in their desks, stared straight ahead, and worked independently on their papers (Danielle, advanced-career teacher, February 4th, 2021). The virus also shaped how teachers moved through the classroom and how they worked with children.

I'm not allowed to wander like I normally do. I don't normally teach from the front of the room. I get most students working on something and then I go when I sit with them and we work together, or I go group to group, or we do things collaboratively. That's been a huge adjustment for me. I'm having to place myself in a chair and I can't move. It drives me crazy. (Hayley, teacher and vice-principal, January 11th, 2021)

Pedagogical approaches that centred around hands-on learning were particularly impacted by the COVID-19 protocols due to cleaning protocols. It was difficult to find collaborative materials that could be safely cleaned and touched by multiple people. Gathering, sharing, and moving through the classroom, were now entangled with the Public Health Authority, and Dr. Bonnie

Henry (the Provincial Health Officer of BC) and the virus were agential part of teaching and learning assemblages.

With COVID-19 as co-teacher, pedagogical routines also ruptured in ways that enabled something new to occur, and practice was re-invented in creative ways to be consistent with health authority protocols. Some of the teachers who were most impacted by the pandemic response included teachers who worked itinerantly in the discipline areas of drama, shop, technology, library, music, or home economics. This was a function of the restrictions placed on student movement where it was safer or easier to move the teacher to a dedicated space for instruction than the classes of students. To accommodate restrictions to whole class movement, the specialist teacher would load materials, instruments, or tools onto carts (some homemade) and travel to the students to facilitate lessons. Naturally, this was done to keep the cohort bubbles of students intact and to control movement throughout the school. Although this seemed like a pedagogical disadvantage, teachers were able to tailor their mobile curriculum to each grade and class and in that sense create stronger connection to the interests of the students in each grade. The task of itinerant work of specialists was challenging but also seen as an opportunity to personalize learning.

When teaching with the virus, a music teacher encouraged students to wear masks if they wanted to sing and required non-masked students to just mouth the words so they could still participate but in a safer way. An integration support teacher organized the school's occupational therapist to create videos for education assistants to use to assist students with exceptionalities who were no longer receiving in-home support. Online platforms were created for virtual assemblies, parent-teacher conferences, graduation ceremonies, professional development, and community building. One principal organized a "Minute to Win It" challenges in the gym where two classes competed (while socially distanced) to build relationships and have fun. It was broadcast on Zoom so all the kids in the school could watch it. In this example, the material assemblage that ensued involved COVID-19 protocols, along with technology, the internet, the well ventilated gym, as well as teachers and students.

During the 2020/21 school year, educative spaces were considered optimal when they were spacious and well ventilated. This contradicted traditional pedagogical configurations that favoured presence and connection. It forced teachers to think in new and creative ways about what is required in a lesson and what was no longer permitted. Complying with the message from the BC Health Authority that outdoor spaces are safer and hold less potential than indoor spaces for spreading the virus seemed to contribute positively and inspire more outdoor learning opportunities. Teaching contexts now included playgrounds and outdoor spaces much more often. Here students could spread out and "social distance." Jan, an intermediate teacher developed a regular land-based pedagogy, taking the students to the forest one day a week and occasionally for an entire week at a time. In these outdoor spaces pedagogy and curriculum shifted as the material contexts changed.

Curriculum and pedagogy also transformed as "grace," that is, compassion and the suspension of judgement, that became part of many classroom assemblages during the pandemic. When the virus arrived in schools, grace became a tangible thing that enabled teachers to focus on the immediate needs of their students and reduced the pressure to teach the full curriculum, in addition to maintaining COVID-19 protocols.

What they're saying is there's going to be a bit of a grace there for you because this is hard. So what we were really told was to focus on math and literacy, and then let the chips fall where they may for

everything else. ... With admin having my back saying the learning is going to happen and we trust what you're going to do, it sure takes the stress off. But also what it's done is it's kind of invigorated me to be able to show the children and the families just how much we really can do. (Jaida, blended learning teacher, January 22nd, 2021)

Grace was a material presence that like the virus, could not be seen but was deeply felt within some teaching assemblages. The practice of providing grace released teachers from many of their usual curricular and assessment responsibilities, and enabled them to be responsive to students' needs, and attend to relationships and the collective wellbeing.

The grace that was bestowed upon teachers during COVID also relaxed pressures of grading and assessment standards and enabled teachers to experiment with new pedagogies. One of the things that our staff talked about at the beginning of the year before the kids came was the fact that this year is the pandemic. So if you want to try something for the first time and you're not sure if it will work, you might [try it] as we're not reporting on everything right now in terms of the subject areas for report cards in our district. So like, "Hey we're not reporting on science. You want to try something? Go for it." (Heidi, early-career, middle school teacher, December 9th, 2020)

During the 2020/21 school year, pedagogy and curriculum unfolded rhizomatically (Deleuze & Guattari, 1987), shooting off in different and often unexpected directions. Connections were established across diverse bodies, as the Provincial Health Orders; heating, ventilation, and air conditioning systems; affective flows; and the presence of grace, assembled to produce different possibilities for teachers and students. These rhizomatic unfoldings served to both reterritorialize pedagogy—returning it to more traditional forms, as well as deterritorialize (Deleuze & Guattari, 1987) standardized models of teaching and learning, producing something new. Even though COVID-19 restrictions were extensive and all encompassing, new pedagogical practices "scrambled" the usual unfoldings and entangled diverse bodies in relationship with one another (Deleuze & Guattari, 1987).

Materializations of Care

As educators taught with the virus, relational acts of care between bodies materialized in new ways. Care was embodied as a physical practice, as well as a social-emotional practice during the first year of the pandemic, as handwashing and other COVID-19 protocols came to be understood as an act of care for others. Paradoxically, care was often found in bodily distancing for personal safety, rather than closeness, reconfiguring how care was enacted. Some school charters were modified to include COVID-19 safe practices, such as mask wearing and distancing, as ways the community could (and should) care for others.

The centrality of teacher's bodies within pedagogical assemblages (see Charteris et al., 2017), as well as the importance of the physical positioning of bodies in the development of caring relationships (see van Hout et al., 2015) has been well documented. Yet during the second wave of the pandemic, the body of the teacher was largely removed from education, as they worked behind plexiglass barriers or computer screens, and were distanced from the bodies of their students. While distancing as care was a forceful mantra during the 2020/21 school year, sociomaterial practices complexified as conflicting polices and commitments surrounding physical and emotional care came into contact with one another. Particularly when educational assemblages involved young or vulnerable learners, some teachers maintained physical contact

with students as an act of care, although it contradicted the public health guidelines for schools (BC Ministry of Education, 2020b). For example, when asked about how she was demonstrating care for her students given the COVID-19 protocols, a mid-career primary teacher said "You need a hug? I'm giving you a hug. You want to hug me? Go ahead and hug me. I'm fine with that. We'll be okay, we'll go wash right after" (January 7th, 2021). Another teacher working with children with special needs cited the doctrine of *in loco parentis*, which allocates some parental responsibilities to those caring for children, enabling her to act in the place of parents when needed. In this regard, the materialization of power and authority was not dogmatically imposed on teachers from above but rather was enacted within everyday practices stemming from the tangle of local policies, provincial regulations, and federal laws, as well as diverse commitments and rationales (see Allen, 2011).

Dr. Bonnie Henry called on all citizens to be kind during the pandemic, however, much of the care work COVID-19 demanded fell heavily on teachers as they comforted and advocated for children, supported families, made home visits, followed up with absent students,⁶ and liaised with counselors and social workers. As affective labour is a gendered practice that impacts some bodies more than others (Oksala, 2016) most care work was unevenly distributed in schools. One high school teacher and department head, who worked primarily with racialized children with exceptionalities, described how she and her colleagues routinely filled in gaps in COVID-19 protocols, such as translating healthcare information from English into Punjabi. This teacher, who identifies as Brown, was always in the last car to leave the staff parking lot. For us, this story highlights the importance of attending not only to what is present within assemblages of schooling, but also what is absent.

When COVID-19 came to school, care (like fear) flowed through hallways, radiating across the curriculum, throughout classrooms and into homes during the pandemic. The heightened nature of care during the 2020/21 school year, however, unfolded in multi-dimensional ways within classroom assemblages, sometimes producing uneasiness. As previously described, teachers were simultaneously entangled in assemblages that co-constituted them as educators and care workers, each involving distinct roles and responsibilities. The fact that elementary and middle schools opened in BC for full time in-person learning in September 2020, but high schools and universities did not, accentuated the care function of primary and intermediate schooling at this time, and entangled the work of teachers within larger networks, including the functioning of the economy.

I think it exacerbates the fact that teachers are really fundamental to the functioning of a capitalist society. I don't want to say that we are complicit, but we exist as part of this society that we've created, and it can't really go on. The whole reason that we're back at work is because we need to keep the economy going. That's how I see it at least. ... If you think about everything that people are protesting and fighting against and it's part of this big system and we're one very important cog in it. (Katrianna, high school teacher, January 9th, 2021)

The everyday work of teachers during COVID-19 was situated with complex assemblages of care, education, economics, and injustice, that reached far beyond the walls of classrooms. These heterogeneous elements resulted in an uneasy co-existence of diverse logics, as the care function of schooling intensified. These micropolitics that unfold within particular assemblages do not however, flow unidirectionally from higher up institutions (Allen, 2011) nor are they static. As Fox and Alldred (2018) explained, "at the level of an event the flux of forces in assemblages can often

shift the capacities of bodies or collections of bodies from moment to moment" (p. 325). Each assemblage holds the possibility for something new to occur.

Concluding Thoughts

When we looked closely at the ways in which COVID-19 transformed teaching and learning in our public schools we began to consider the sociomaterial assemblages that co-constituted these changes and the ways in which the virus and the Health Authority mandates were acting on teachers, administrators, and students in indeterminant and sometimes paradoxical ways. The virus did not define teaching during these times nor did the health authority, but both have affected teaching practices and ways of being with children that would not otherwise exist. This research has made visible the agential force of the COVID-19 virus, along with governmental policies and other entities, serving to both re-territorialized pedagogies (Deleuze & Guattari, 1987), as well as created openings for new practices in schools (see also Heikkilä & Mankki, 2021). As Fox and Alldred (2018) remind us, power, resistance, and agency do not reside in structures but rather are located in everyday assemblages as forces convergence and result in specific outcomes. With changes in lines of authority, lines of communication, lines of thought, and lines of practice, teaching and learning unfolded collectively and rhizomatically.

We have identified the practice of teaching "with the virus" as an emergent way that teachers demonstrated their adaptability and resilience even in the face of stress and fears. Our study, as well as other new materialist research (see Arndt, 2021; Heikkilä & Mankki, 2021), has illuminated how agency in classrooms is distributed across human and other-than-human assemblages, such as masks, parent populations, government mandates, and school protocols. In this regard, teaching with the virus requires the honing of various capacities to navigate the intra-dependent and co-constituted nature of change within schools, such as an openness to serendipitous possibilities (Rosehart, et al, 2022), an attunement within relational fields, and a responsiveness to emergent unfoldings (Heikkilä & Mankki, 2021; Ingold, 2012).

This research has also illuminated how the responsibility for the physical, emotional, and microbiological wellness of children was concentrated within student-teacher assemblages during the 2020/21 school year, contributing to much stress for educators. Ministry of Health policies responding to the virus organized teachers and administrators as regulators of COVID-19 in schools, intensifying their surveillance over the student body. Although some of that load was assumed by the building through signage directing the flow and spacing of bodies, government policies that encouraged learning outside, and school charters that established distancing and masking as practices of care, much of the enforcement of government policy was undertaken by teachers. This impact could have been reduced by distributing responsibility across larger assemblages, including improved ventilation systems, adequate hand-washing facilities, and the provisions of classrooms that allowed for "fewer faces and larger spaces," which the BC government encouraged for social gatherings (BC Gov News, 2020).

Teachers' roles became diffuse and leaked into other domains in the presence of the virus as they filled in the gaps to maintain standards of care for students. Some bodies carried the affective labour of COVID-19 more than others, particularly teachers working with vulnerable student populations. During the 2020/21 school year the care function of schooling intensified as governmental economic responses to the pandemic became increasingly entangled with the work of teachers. Schools were sites in which these forces unfolded, as well as were resisted. Within different assemblages, teachers both were, and were not, constituted as care givers and essential

workers, through distinct entanglements with governmental mandates, community protocols, labour market analyses, and the ordering of vaccine rollouts. The instability of the production of teachers as frontline workers and the inconsistency in which labour of teachers was constituted as essential was unsettling. Little regard has been paid to the role that teachers play in both assemblages of care and education in schools and how "essential workers" were constituted during the first year of the pandemic.

During the 2020/21 school year, grace, like the virus, was a material presence that could not be seen or touched but was deeply felt within schools. With a shared understanding of many pandemic challenges and uncertainties across districts, grace was invited into teaching and learning assemblages. It countered pressures of covering the curriculum and assessing and reporting student learning, enabling teachers to be responsive to students' needs, attend to the wellbeing of the community, be more autonomous in their decision making, and experiment with new pedagogies. The bestowing of grace was a powerful force that contributed to positive affective flows in schools and created openings for connection, understanding, and innovation. Encouraged by the impact of grace within this study, we wondered how such material practices including trust, compassion, and forgiveness, might continue to be invited into school assemblages post-COVID, with as much force as practices of accountability and standardization?

As teacher-educators, this study affirms for us the importance in understanding bodies in classrooms as open systems that are co-constituted within relational fields including viruses, and teaching as the ongoing act of participating in the formation of our worlds. As Frost reminded us, like all other living things, we are "biocultural creatures" (2016, p. 4). Our research makes visible how teaching is always a co-creative act of becoming, attuned with the affective, material, and relational landscapes of practice, rather than independent agential acts. As intra-actions between humans and viruses, as well as climates, in our worlds intensify (Bennett, 2010), there is a need to pay greater attention to the participation of the material world within pedagogical practices, as well as the ways in which nonhuman bodies can affect teaching and learning.

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Notes

1. We dedicate this paper to all the teachers who taught with the virus during the pandemic, navigating intensities, complexities, and tensions, and continued to serve our communities.

2. Due to COVID-19 restrictions, researchers were not permitted in schools during this time. In this way, the virus also became part of our practice as researchers.

3. It is important to note that these descriptions are not mutually exclusive. One school located in an urban neighbourhood, focused on meeting community needs but also included a French Immersion program, attracting students from out of catchment. Another school's catchment included neighbourhoods with mansions as well as government housing.

4. Approval #20200211.

5. Pseudonymous have been used to respect the privacy of the participants.

6. In one elementary school located within a middle class neighbourhood, the absentee rate for some students was over 50%.

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