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Contemporary society is characterized for being endemically in a crisis that conveys several aspects of the very process of worlding. More than two years have passed since one of the most affective force shifted the very concept of worlding itself, that was the SARS-CO-2 pandemic. This pandemic is defined in this special issue as:

A non-exceptional event indeed—the unfolding of entanglements—has been perceived as extraordinary—re-writing for instance, our routines, our productive system, our globalized capacity for mobility—only because we have never accounted for our entanglements and our “making-with” the alterities in the first place. (Daigle & Santoema, p. 91)

As previous issues from this journal have analyzed already, it primordially meant that we adapted ourselves to new “techno-lifeworlds” as Christine Horn identifies in this issue. According to her, these techno-lifeworlds are “entanglements with communications media, where different types of technology become embedded in social practices and embodied routines” (p.31). The task that feminist new materialisms have, therefore, is to analyze which are the technological modes that are presented and how are social practices are modified by these and modifying these very “modalities” (Colman, 2019).

Nevertheless, the varied articles that the reader will find in this issue approach this multifocal crisis from very different angles and even if the sanitary crisis has been one of the most prominent of our current society, it has not been the only one. The fires in Australia in 2019 or the ones that are currently produced in Spain and Portugal during the summer 2022 show more than ever that nature is agentic in itself and a strong revision of our human practices and their relation with ecology is at stake. For Oriol
Batalla (in this issue), we are facing the sixth extinction and its main problem is the ecological crisis connected with capitalism. One argument also followed by Christine Horn, we need to move beyond anthropocentrism in order to create respond-able (Haraway, 2016) practices to relate with the world in which we are living.

As it has often been described in this journal, feminist new materialisms are a toolbox in order to diagnose and interfere with contemporary society following differing causalities as well as the pursuit of non-binary approaches (as human - non-human; or male - female). The main objective of this issue is to bring different concepts as methods (Mazzei, 2017), methodology that is also followed by Danielle Heinrich and Dewi Adriani in order to be able to politically interfere through affirmation instead of negation (Braidotti, 2004). This issue brings into the toolbox reconceptualizations of concepts to enrich our methodologies in order to understand the complexity of the reality in which we currently live. These concepts are Christine Horns’ technologies of information and communication (ICTs), Oriol Batalla’s necrocene; Christine Daigle and Ilaria Santoemma’s posthuman subjectivity; Daniel Heinrichs and Dewi Andriani’s language; and last but not least, Alison Warren’s concept of care. Being this last one, we believe, essential in order to relate with each other in terms of affection and not through different hierarchies, as the articles, intra-views and affirmative reviews of this issue show.

Oriol Batalla’s article, titled “Extinction temporalities: Rethinking TimeSpaces, Knots of Life and the Sixth Extinction in the Necrocene” proposes alternatives narratives for the concepts of space, time and ecology through the connection between death, extinction and capitalism. In order to do this, he introduces the term “Necrocene”, as opposed to “Anthropocene”, defined as “the current global and multifocal crisis” (p. 4). Following Justin McBrien (2016), he argues that “Capitalism is a process of extinction through the reproduction of productivity” (p.4). Or, in other words, it is provoking “its own extinction through the reproduction of accumulation and the inequalities” upon which it is built (p. 5). Thinking through the affirmative politics of feminist new materialisms, Batalla is introducing the end of capitalism, albeit what the Necrocene also brings to the centre of the debate is that this end comes together with the extinction of human and non-human forms of life. This proposal analyses three case studies: plastic debris, the Great Barrier Reef and the Pacific Islands. With these
examples, the author tries to wake the readers up from the “trance-like state” (p. 20) in which capitalist practices have submerged us.

Christine Horn’s article titled “Remote communities, material entanglements and information and communication technologies as double agents” explains how new techno-lifeworlds are created in the entanglement between remote areas and ICTs. Her objective is understanding how these techno-lifeworlds are modifying the androcentric notion of “agency” using “a digital materialist way of thinking.” (p.32) This way of thinking entails unveiling what Felicity Colman (2019) has previously identified as “implicit societal networks of power” (Horn, p. 35) that materialize these technologies as “double agents” that intervene in the “transformative capacity of matter” (p. 35). In order to do this, the author focuses on remote areas in the state of Sarawak, in Malaysia. The fieldwork carried out by Horn details how technologies facilitate and/or restrict people living in rural areas of this country daily life individually as well as at the community level. In her own words, “new social practices and new material expressions emerged, new routines in people’s lives, and new embodied and affective experiences” (p. 48) appear within this entanglement. The article provides an insightful account of how to perform anthropological research based on diffraction instead of reflection.

The following authors draw our attention back to a particular field that has been very contested in feminist new materialisms, that is, the field of language. Danielle Heinrichs’ and Dewi Adriani’s article, titled “Moving beyond (critical) reflection: A composting guide for world language(s) education”, invites us to think about languages through Haraway’s metaphor of the compost. The authors focus on transemiotics, techno-science and non-linguistic data as a way to observe how language also comes to matter. Acknowledging how languaging practices have moved within (critical) reflection, the authors “bring together the multiple linguistic, semiotic, digital, material, relational, political, cultural and affective phenomena that entangle our languaging practices” (p. 62). As a case study, they use their own social media (Facebook Messenger chat and their own posts about languaging practices” through a very innovative methodology that is SMBIs method. It consists in “a form of longitudinal narrative research involving a combination of in-depth interview and scrolling back through the interviewee’s social media” (p. 70). As a result, Heinrichs
and Adriani invite us to consider the “affective ‘not-yet’ data to become” (p. 77) materialized in affects such as shame or wonder in order to produce differences that matter in the realm of world languages.

Christine Daigle and Ilaria Santoemma offer us a very timely analysis of the pandemic COVID-19. In their article “Pandemicity and subjectivity: The posthumanist vulnerability of the zoe/geo/techno framed subject”, they provide a thorough examination of the material entanglements that the pandemic has catalysed for the concept of subjectivity. According to them, this pandemic has taught us how “even a tiny being like the virus can occupy the position of ‘measure of all things’” (p. 91). Using Rosi Braidotti’s framework of the zoe/geo/techno assemblage, the authors show how this situation has provided new possibilities, but also has rendered us fundamentally vulnerable. In order to do this, they shift the analysis from “what a subject is” to “what a subject could be” (p. 90) that opens up multiple possibilities in thinking about the relationality of subjectivity. The current context is defined as a situatedness in which potentialities and limitations are magnified. They propose adding techno-, zoe-, and geo-entanglements together with intersectionality to understand vulnerability as both, “vulner” but also “able”, that is “affected”.

The last research article (but not the least) included in this issue is Alison’s Warren: “Crafting a new materialist care story: using wet wool felting to explore mattering and caring in early childhood settings.” She introduces the concept of care in early childhood education and care (ECEC) through crafting experiences of wet wool felting. Using Mazzei’s (2017) strategy of the “concept as-a-method”, she analyses “bodily knowledge through sensual awareness of texture, temperature, colours, sounds, and smells” (p. 117). To illustrate this, she uses research-creation, which in her own words “activates thinking-making-doing among materials and processes of felting and an excerpt of textual data, producing knowledge that is incompletely articulated in processes of new materialist storying” (p. 125). Through vignettes, the author guides the reader through matters of care demonstrating how stories are told in more than linguistic practices. She is encouraging artists, teachers, researchers to “attend-awaken-dance (Guyotte, 2017) with these multiplicities [relations of care in ECEC contexts] rather than describe-explain-interpret, a playful open-ended story of images and words (p. 131).
This issue presents yet a different format of intra-viewing from the ones that we have seen in prior issues. This time, there are not questions and answers but rather the entanglement of the many voices communicating with each other through the Mireia Rosell Pons’ voice. She proposes an intra-view with four cultural workers around affects and the creative process, very in line with our last research article. In this sense, the main objective of the intra-view is to assess how the creative process is modified by the affective turn. In order to do this, Rosell Pons identify the key elements of this process as affects, intra-actions, signals, obstacles, openings, connections, killers, confidence and distillation and organize the voices around these themes. She defines the creative process as a “rizomatic path where past-present-future is entangled” (p. 152). Focusing on imagination, these intra-views reinforce the importance of affects as intra-acting signals that also materialize ethics during the artistic process.

One concept that has permeated all the research articles of this issue has been the anthropocene, which is precisely one of the entries of our almanac section. After a brief introduction, following Batalla’s argumentation, Josef Barla and Franzisca von Verschuer criticize the notion and introduce another “by reconstructing how coloniality is materially inscribed into categories such as the human and the non/in/more-than/less-than human” (p. 139) that is the Plantationocene that “underlies the necessity for decolonizing Anthropocene thinking and doing” (p. 139) These researchers, Barla, von Verschuer and Batalla propose opening the concept of the anthropocene in order to materialize the multiplicity needed in light of the multiple layers of crisis that we (humans and more-than-humans) are inhabiting. The second entry of the almanac is connected with the ecosystems described in Batalla’s article through the concept of “limnology”. Sarah Stewart contributes with an explanation of the concept presented in the diffraction between academic and creative writing in order to echo the very threshold that the word already implies being homophonous with the word liminal. In her words, “limnology is the study of inland bodies of water and aquatic ecosystems, including biological, chemical, physical, and geological characteristics of fresh and saline, natural and man-made bodies of water” (p. 144). Stewart, indeed, provides an example of how feminist new materialisms put theory into practice.
As for our affirmative reviews, this issue comes with three different ones. The first one is provided by Dan Berjano on the book edited by Francis Bangou, Monica Watherhouse, and Douglas Fleming Deterritorializing Language, Teaching, Learning and Research. Deleuzo-Guattarian Perspectives in Second Language Education. According to the author of the review, this book “constitutes an innovative and interdisciplinary approach to teaching English as a second language (ESL) in the Canadian context” (p. 165), complementing the article presented by Danielle Heinrichs and Dewi Andriani. According to Dan, one of the things that brings together the different chapters in this book is precisely the conceptualization of the subject as a posthuman subject, which clearly speaks back to one of the concepts that also unite all the research articles, entry almanacs and intra-view offered in this special issue. The second affirmative review has been written by Prudence Bussey-Chamberley on the book of one of the editors, Helen Palmer. The title of the book is Queer Defamiliarisation: Writing, Mattering, Making Strange. According to Bussey-Chamberley, Palmer uses synthesis, rather than analysis as a methodology that allows the author the “dissolution of genre and gender conventions” (p. 161). Bussey-Chamberley focuses specifically on how Palmer demonstrates how “language comes to matter” (Barad, 2003), adding again to one core concept in the methodological toolbox that this issue is building. Last, but not least Anneke Smelik generously offers as what she calls a “Review essay: The Material Culture of Textiles: Towards Sustainability”, very in line with the articles dealing with ecology. She provides a review for three different books: Maxine Bédat’s Unraveled: The Life and Death of a Garment; Virginia Postrel’s The Fabric of Civilization. How Textiles Made the World; and Kassia St. Clair’s The Golden Thread. How Fabric Changed History. The objective of her review essay is, in her words, “stressing the environmental grounding of the fashion system and the material conditions that would allow a sustainable practice.” (p. 1).

If there is a core concept that is permeating the entire issue is agency itself as beyond human. This issue demonstrates that feminist new materialisms are profoundly political since they offer strategies to intervene in social inequalities. The angle to shift politics might be different, but the need to intervene in social oppressions remains intact, as all the contributions from this issue show. The genealogies (van der Tuin, 2016) that we engage with matter to intervene politically in our society. This issue
opens up the concepts that build our feminist new materialist methodologies in order to engage with decoloniality, necrocenes, relations of care, language, affective culturings and the anthropocene in a different way.

**Bibliography**


Extinction Temporalities: Rethinking TimeSpaces, Knots of Life and the Sixth Extinction in the Necrocene

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Abstract

By using the Necrocene nomenclature as opposed to the term Anthropocene as a concept to describe the extinctive and necrotic logic of capitalism, this essay analyses the multiplicity of non-linear, uneven multispecies knots of life in the Sixth Extinction. Namely, it focuses on the desynchronization of the relationships between elements and lifeforms in the current global paradigm. This is done scrutinizing three different events that intertwine non-human ecosystems, human ecosystems and beyond-life-and-death agents through a New Materialism, Multispecies Studies and Environmental Humanities lens grounded in theoretical reviews and analyses. Relying on the connection between death, extinction and capitalism, this article generates, through the different cases of analysis, an alternative narrative for the current epoch while challenging anthropocentric views of time, space and ecology and, thus, reconnecting New Materialism and Historical Materialism as disciplines that can be generative if intertwined.

Keywords

Necrocene; Extinction Studies; Sixth Extinction; Environmental Humanities; New Materialism; Multispecies Studies.
**Introduction: Extinction, Anthropocene**

I remember visiting the Amsterdam Micropia Museum in April 2019, coinciding with the start of longer days after a cold and grey winter. There, as a part of the Crucial Cleaners exhibition, visitors could observe a real-time decomposition of a giraffe calf that died at the Artis Zoo in 2014. The human eye is unable to perceive the necrotic activity that is going on inside the body of the mammal. It is only when a bone looms through a tear in the skin of the animal that the human eye can grasp little traces of the aftermath of the break-down of the cells by the thanatombiome. These thanatombiome are the dead animal’s own microbes which, after the heart stops beating, release enzymes that break down the surrounding cell membranes, feeding in its own tissues and disintegrating the visible body. While staring at the giraffe, a question came across my mind: If one understands death as the possibility of the impossibility of any existence at all (White, 2005), how can we analyze the biocultural processes of death if death is an operation full of microscopical life that happens within and is part of a dead entity? Can the idea of death help us understand the temporalities intertwined in the paradigm of extinction?

Here, death can be considered as “the putrefaction of life, the stench that is at once the source and the repulsive condition of life” (Mbembe, 2003, p.15). However, it is also a part of life and, thus, the evolutionary process. Hence, the processes of death, decomposition and putrefaction are generative and can be fruitful to illustrate and understand the reality of our times. Just like a whale fall, empty of life as a living agent yet able to create and provide whole ecosystems for decades in the abyssal ocean, these processes present us certain epistemologically rich opportunities to generate worlds that rely on multispecies realms, together with alternate ways of understanding what it means to be alive (Radin, 2014). However, death as a concept might fail to grasp what is at stake in an extinction process. That is, extinction, as opposed to death yet with death as an inherent category, stops the evolutionary process. Extinction is then a negative phenomenon since, even though it is framed as an event, extinction means the withdrawal from being as an inversion of existence (Audra Mitchell in Gelonesi, 2014). Extinction is a deathly process, a collective death and the negation of...
both life and death. It is the ending of an ongoing lineage cultivated over millions of years of evolutionary time, that is, “the abrupt termination of a whole way of life, a mode of being that will never again be born or hatched into our world” (Rose, van Dooren, & Chrulew, 2017, p.9).

In light of this, the Anthropocene age and the extinction embedded in it have brought at the centre of the discussion the temporalities, connections and synchronizations of both living agents and agents that “wield power over life and death” (Bastian & van Dooren, 2017). Here, human, geological, historical and ecological time start to unfold and host new uneven and multiple temporalities that might confront each other. As Michelle Bastian and Thom van Dooren (2017) illustrate,

In these and other fundamental ways, this is a period in which relationships between life and death, creation and decay, have become uncanny; no longer entailing what was once taken for granted. Toxic legacies, mass extinction, climate change: all simultaneously remake both temporal relations and possibilities for life and death. (2017, p.2)

Entangled in the eeriness of the knots between different living and non-living agents the concept of Anthropocene is at stake. It has become a core element in contemporary scholarship as an interdisciplinary endeavour to comprehend the geo-historical agency of humankind. However, this nomenclature can be approached as a narrative that, as Eileen Crist (2016) mentioned, “clings to the almighty power of that jaded abstraction “Man” and to the promised land his God-posturing might yet deliver him, namely, a planet managed for the production of resources and governed for the containment of risks” (p.23).

In this light, scholars such as Naomi Klein (2019) or Jason W. Moore (2016) have moved away from the conception that the current planetary crisis is a consequence of humankind as a whole. In turn, they stick to the idea that the ecocidal modification that the Earth has and is suffering has been a direct consequence of capitalist mass-accumulation, alongside the false belief that the Earth is an infinite fountain of resources. Therefore, Moore (2016) proposed the idea of Capitalocene, the age of Capitalism, an epoch dominated by the geological, political, ecological and cultural power of capitalist accumulation, which has separated Nature outside Humanity in
what he coins as The Law of Cheap Nature. In this duality, Nature not only entangles natural ecosystems, but also members of human societies “such as peoples of colour, most women, and most people with white skin living in semicolonial regions” (Moore, 2016, p.91). Namely, when we separate the way in which elements and lifeforms coexist in this duality, we can start to ground the foundations based on power differentials that have perpetuated the inconsistencies brought in a global sphere by capitalism while, at the same time, putting anthropocentric views at stake.

Nonetheless, in the midst of the sixth mass extinction, the Capitalocene theory fails to acknowledge the deathly nature of capitalism. As Jonathan Crary (2013) postulated, neoliberal late-capitalism is “inseparable from environmental catastrophe in its declaration of permanent expenditure, of endless wastefulness for its sustenance, in its terminal disruption of the cycles and seasons on which ecological integrity depends” (p.10). That is why this essay advocates for the idea of Necrocene proposed by Justin McBrien (2016) as a concept to understand the current global and multifocal crisis. The Necrocene narrative, then, “reframes the history of capitalism’s expansion through the process of becoming extinction” (p.116) connecting capitalism with the sixth extinction as the first mass extinction caused by a modus vivendi. For McBrien (2016), capitalism is “the reciprocal transmutation of life into death and death into capital” (p.117) as a programmed way of destruction. Capitalism is a process of extinction through the reproduction of productivity. What the Necrocene brings to the discussion is the extension of this idea to human and non-human beings alike and how this subjugation to capitalism leads to processes of death and, therefore, extinction through accumulation.

Then, the Necrocene binds our current age as an epoch in which, according to McBrien (2016), “capitalism leaves in its wake the disappearance of species, languages, cultures, and peoples. It seeks the planned obsolescence of all life. Extinction lies at the heart of capitalist accumulation” (p.116). Furthermore, McBrien (2016), relying on Achille Mbembe’s (2003) necropolitics, approaches capitalism as the reciprocal alteration of life into death and death into capital, being this necrosis capital’s operation through apoptosis, as a way of destruction programmed through its logic prompting towards direct extinction as a result of the reproduction of productivity. As
John P. Clark (2019) pointed out, the only thing that stays at the centre of such turmoil is “a sovereign lack, an imperious death drive, a destructive nothingness, surrounded by a field of objects of consumption and domination” (p.16).

However, capitalism does not seek death and extinction per se, but it creates deathly worlds through its logic. Capitalism survives and expands itself by adapting and absorbing everything at its reach, sucking out living labour and resources until these agents are no longer useful for its ends. Even the current ecological crisis has been absorbed by capitalism as it is seen in the green-washing attitude multinational companies are moving towards. Consequently, McBrien (2016) postulates that capitalism “did not ignore environmental risk; it made it the central problem of its survival” (p.119) and, at the same time, it made it a potential groove to be exploited through capitalist logic.

When approached through this lens, it becomes clear that the Necrocene refers to the fact that the illusion of a God-posturing ‘man’ derives its freedom from the commodification of non-human and human resources that generate the current lifestyle in which economically-rich regions are established (Stoekl, 2007). Nevertheless, what makes the Necrocene narrative original as opposed to other narratives is that it highlights that capitalism will cause its own extinction through the reproduction of accumulation and the inequalities that lie at its heart. Its accumulative drive in a finite and warming world is not only unsustainable for the objectified agents under its anvil, but also unsustainable for its own existence. Although it is easier to imagine the end of the world than the end of capitalism (Jameson, 2003), it is also true that capitalism will last as long as there is something to exploit for the benefit of the ones that make profit from this system. Yet, the ecological crisis and the sixth extinction put capitalism in a troubled position.

By using alternative nomenclatures such as the one presented in this article, we are forced to think about the existing relations between our ontology and the environment. The Necrocene puts extinction as an inherent cause of capitalism in a world in which humankind is alienated from its links to the non-human world. Then, the Necrocene brings, through its narrative, the fact that we are living in an age in which extinction as
a stop in the evolutionary process and the unmaking of being of both human and non-human beings is brought at the centre of the debate.

Therefore, this article aims to use the Necrocene narrative as opposed to the Anthropocene in order to analyse the multiplicity of non-linear and uneven multispecies knots of life that are being remade in the Sixth Extinction. In other words, this essay focuses on the desynchronization of the relationships that exist between elements and lifeforms in the current global paradigm as a consequence of accumulation and extraction. That is, by scrutinizing capitalism connected with ecology, and three case studies (plastic debris, the Great Barrier Reef and Pacific islands) that portray the intertwining of human ecosystems, non-human ecosystems and beyond-life-and-death agents, this article shows how an alternative theorization of the current epoch is needed so as to portray the inconsistencies that lie at the heart of the epoch itself and its discursivity. In addition, this necessarily challenges the anthropocentric views of time, space and ecology, trying to unify in a single narrative the two dimensions of Historical Materialism and New Materialism, in an ambitious task to find synergies between both.

To put it in a nutshell, the Necrocene narrative defines capitalist hegemony as an extinction-booster. Through the acknowledgement of the core logic of the Necrocene and its production of death and extinction, we can start to discern the shape of the Necrocene itself, becoming an interesting heuristic to come to terms with the contemporary world. In addition, and as a driver for this essay, the Necrocene allows us to grasp the fact that the multispecies ethnography of extinction reminds human beings of the fact that extinction “is never a generic event and is always a multi-contextual phenomenon requiring multi-disciplinary modes of encounter and understanding” (Wolfe 2017, p.x). Then, borrowing Donna Haraway’s (1988) term, thinking through the Necrocene and extinction allows us to conduct analysis of different situated extinction stories, generating a multiplicity of stories within the same one, immersing ourselves in the lives of non-humans and the entanglement humankind has with them, thus moving beyond anthropocentrism. Thinking through extinction then, asks for an intergenerational understanding of biodiversity, time, space and the way these stories are told and interconnected.
Time, Ecology and Extinction in the Necrocene

This uncanny epoch exemplifies the connections Bill McKibben (2003) postulated between time and nature. Namely, that modern civilization has failed to approach the threat of climate change in a successful way because human perception of nature has an internal confusion about time, thinking that the Earth works on another dimensional timescale compared to post-industrial high-speed lifestyle, lulling us, as McKibben (2003) pointed out, “into imagining that the physical world offers us an essentially stable background against which we can run our race” (p.7). Hence, this treatment of nature as a stable background where humanity and the practices of capitalism can perform at its will claims that the different modifications that occur within nature are not significant or have any relevance.

When thinking in extinction times, one must consider the way in which lifeforms call and respond since, as Deborah Bird Rose elicited (2012) “ethics are situated in bodies, in time, in place and necessarily, in encounter” (p.6), understanding how these intertwining of different forces creating such process connect with the current temporalities, spaces and relationalities of the living beings. Therefore, humans have failed to comprehend time as something subjective and different between species. When one considers factors such as the Planetary Boundaries\(^1\) temperature, humidity, gravitational effects and how materials and agents respond to them, clocks become biased, inaccurate and less reliable (Bastian, 2017).

To recognise nature’s own agency is to recognize that our perception of time when approaching nature needs to be shifted away from conventional temporal models. Humans have failed to approach this matter due to their linear, anthropocentric perception of nature as a whole. Therefore, there is the need to move away from the human rationality extrapolated to natural ecosystems from a Cartesian, Spinozian or Leibnizian tradition that leads us to understand the physical world through clocks. In turn, ecology needs to be approached through an ecological rationality that scrutinizes

\(1\) Planetary Boundaries are “human-determined values of the control variable set at a ‘safe’ distance from a dangerous level (for processes without known thresholds at the continental to global scales) or from its global threshold” (Rockström et al., 2009). Crossing one or more of these boundaries is likely to have catastrophic consequences due to the risk of crossing ecological thresholds. Four of them have already been transgressed.
the connection between the actions, effects and choices of an agent, together with
the desires, interests and objectives of said agent, since they need certain ecological
conditions to be fulfilled (Plumwood, 2002). Furthermore, within this rationality, it is
crucial to comprehend environmental ecology as an epistemological system based on
an understanding of nonlinear systems governed by feedback loops and nonlinear
causality (Guattari, 2000). With such an approach we can rethink time, agency and
ecosystems. That is, an agency that is understood beyond anthropocentrism and as
something inherent in all elements. Thus, one can include natural ecosystems and the
human beings associated with such at the centre of their agency, as a linear time
connection with such terms deprives them from the ability to exercise their agency
(Bastian, 2009).

In order to understand the different relationships and knots of life that play part in the
Necrocene as a concept and as a period of extreme extinction, and portray how the
desynchronization created by accumulative and extractivist praxes, it is necessary to
challenge the ideas of time and space as something already given that always
functions in an anthropocentric manner, since these concepts become very blurry
when we approach other lifeforms and elements beyond humankind. Therefore, it is
interesting to approach the temporalities of the Necrocene through what Jon May and
Nigel Thrift (2001) coined as TimeSpace. According to them, TimeSpace is not a linear
and even temporality that evenly elongates over space, but rather an assembly of
diverse and divergent networks of time that stretch in multiple and uneven directions
throughout an irregular social field. Then, this may be able to construct incompatible
and contradictory senses of time which do not stand alone as every sense of time is
the consequence of the dynamism and unevenness these TimeSpaces entail. Moreover, TimeSpace is mirrored through material practices yet not limited to the
physical, as an entity that is described to “both expand and to contract, time horizons
to both foreshorten but also to extend, time itself to both speed up but also slow down
and even to move in different directions” (May & Thrift, 2001, p.20).
Thus, if we think with Crary’s (2013) idea of 24/7 Capitalism, the Necroene as a process shows the multiplicity of TimeSpaces embedded within it. In other words, when focussing in an analysis through the Necroene narrative, we are again forced to understand that anthropocentrism as a way of understanding the dynamics of the world is no longer useful if we want to discern the extinctive injustices and desynchronizations that lay at the heart of the contemporary world.

With that said, capitalism and its modes of production, exploitation and permanence triumphed due to its encounter with different TimeSpaces. Namely, capitalism has benefitted from the modification and evolution of the perception and flow of the TimeSpaces, that is, the different assembly of different temporalities and spaces that play part in a system, under its anvil. Thus, as Massimiliano Tomba (2009) suggested, the capitalist modes of production require “the synchronization through extra-economic violence in order to produce differentials of surplus-values, and to be synchronized with the world-rhythm of socially-necessary labour” (p.56). By synchronizing such TimeSpaces through extra-economic violence and socially-necessary labour, capitalism holds at its core this violence based on the Law of Cheap Nature, extended through liberal democracy and fascism. The modification of time by the logic of 24/7 late-Capitalism has disrupted the temporalities of the agents under it, modifying the shifts of socially-necessary labour. With shifts that can fluctuate between day and night, the Necroene has absorbed and destroyed the natural circadian rhythms through its deathly logic.

Thus, the Necroene helps us theorize and portray the voracious agency of Capitalism as an extinctive, extractive, viscous and viral entity that affects everything at its reach, from ecosystems to individuals to the point of necrosis. It provides new ways of understanding reality and the current global crisis by acknowledging the infectious and lethal logic of Capitalism and the subsequent inequalities engraved on it through

For Crary (2013), the 24/7 late-Capitalism 24/7 "steadily undermines distinctions between day and night, between light and dark, and between action and repose" (p.17). It is through this sleeplessness, of the ontological realism of perceiving the planet as an unstoppable working site, and insensibility through it that it defeats the possibility of experience and of understanding of life, time, space and non-human agents from an ecological perspective.

Viscous in the sense that capitalism as a hegemonic structure attaches to everything at its reach, generating interconnections between its modus operandi and the different elements and lifeforms that coexist in the world; and viral in the sense that, through this viscosity, it manages to stretch itself to a global entity that infects everything at its reach, creating both an infection (entities helplessly fall into its paradigm) and an element of necrosis (it generates extinction at different levels).
its necropolitics\textsuperscript{4}, necroeconomics\textsuperscript{5} and necro-ontologies. The hegemonical category of the Necrocene does not allow humans to discern a coherent alternative to the current logic. In addition, it has at its core the valuation of dead objects (for instance, money, the generation of it and everything money can buy) over the right of life of human and non-human living agents as some sort of social necrophilia (Thorpe, 2016). Both social and ecological policies within capitalism exemplify this, as for real policy to be implemented nowadays, there needs to be a monetary quantification of the issue at hand and then put into balance\textsuperscript{6}. In addition, the differential effects of this logic extend anthropocentric and imperialist views as a logic that has doomed, directly or indirectly, through its extractivist and accumulative drivers, different non-human ecosystems and human cultures, usually those that have contributed and benefited the least from this system. Capitalism is, thus, a material, ontological, ideological, cultural, economic and ecological force that steers our decisions and understandings through its hegemonic logic of death and inevitable extinction as an inherent condition of its modus operandi in such way that it is almost impossible to fully get rid of it.

Since, as Timothy Morton (2016) suggested, we are “faced with the task of thinking at temporal and spatial scales that are unfamiliar, even monstrously gigantic” (p.25), to explore time in the Necrocene is to consider the sequence and synchrony of TimeSpaces as material achievements in human and non-human synchrony rather than mathematical accuracy. These sequences rely on “real embodied generations - ancestors and descendants- in rich but imperfect relationships of inheritance, nourishment and care” (van Dooren, 2014, p.27). That is, according to Michelle Bastian (2017) “neither do synchronies and sequences occur in isolation; rather, multitudes of

\textsuperscript{4} For Mbembe (2003), Necropolitics is “the generalized instrumentalization of human existence and the material destruction of human bodies and populations” (p. 14). This means that through Necropolitics he exposes that through the negation of nature, humankind creates a world around itself and, in this process, humankind becomes subject of the negativity of this dialectic: death. With the inclusion of human and non-human beings alike, it regroups the subjects into the process of becoming extinct.

\textsuperscript{5} Necroeconomics can be understood according to Chaka Unzondu (2013) as an economic system organized around the consumption of bodies through accumulation. These bodies are rendered as instrumentalised “matter” solely used for the accumulation and generation of capital, otherwise disposed of them. These bodies have no intrinsic value in the capitalist logic besides the commodified value.

\textsuperscript{6} See, for instance, how mainstream conservation has extended the usage of ecosystem valuation as an economic process that assigns an economic value to an ecosystem service. This has proven to be extremely effective to manage protected areas that generate direct assets or externalities to a capitalist market. Nonetheless, as it is only preoccupied with the economic area conservation entails, many ethical and political questions arise. For instance, the anthropocentric, colonial, imperialist dimension conservation entails, not to mention the reasons why conservation needs to be implemented in the first place.
them bring together food and fed, pollinator and pollinated, traveller and medium travelled” (p.151).

Then, the Necrocene is, borrowing from Michelle Bastian and Thom van Dooren (2017) about “foldings and pleatings, about simultaneous and contradictory temporalities, about the breakdown and (re) formation of new multitemporal relations” (p.7), where life, death and extinction are at stake as processes, possibilities and speculative imaginaries. Accumulation and extractivism have generated these different transformations, and it is only through the acknowledgement of these dynamics within a nomenclature that allows us to focus on a critique of capitalism, extinction and post-anthropocentric TimeSpaces that we are able to comprehend the different sections that need to be analysed through a biopsy and the discursivities that perpetuate these dynamics.

**Multispecies Knots of Life in the Necrocene: Plastic Debris**

As Bastian (2017) exemplifies in her study of Leatherback Turtles, the sequences and TimeSpaces that the multispecies knot of life has created year after year between the different species entangled in its tentacles have been disrupted and unbalanced as a direct consequence of the processes of the Sixth Extinction. Due to such extinction, Leatherback carcasses that appear in their nesting season are not provided to the people of Tortuguero in Costa Rica, who have relied on them for centuries, but to research and tourism. With closed beaches for the locals and open for researchers and tourists, the knot of life and TimeSpace synchronization between the Leatherbacks, the local people and their new predator due to the destruction of the forest and the decline of species living there, the jaguar, are completely disrupted and disconnected (Bastian, 2017). As Rose (2012) indicated, with the disruption of such relationships, TimeSpaces are being unmade, transformed and unbalanced.

Apart from the jellyfish blooms in the Atlantic Ocean and the lack of leatherbacks, another pivotal example, maybe a much straightforward one regarding how capitalism has boosted the sixth extinction through its hegemonical necroculture, is the way the Necrocene TimeSpaces have disrupted the knots of life between species due to plastic and microplastic pollution. Plastic is thought to degrade in a temporal span of
between 450 and +1000 years (LeBlanc, 2019) and although research is still not clear, it is believed that it will most likely never biodegrade (Harris, 2010). With a high chance of ending up floating in the ocean, plastics have been found worldwide in marine environments with analysis showing that more than 250,000 tons of debris are currently afloat at sea, most of them proceeding from anthropocentric accumulative practices such as tourism, fishing or industrial activities (Barboza et al., 2018). Ingestion of such materials is the main plastic and microplastic species exposure. As Luis Gabriel Barboza et al. (2018) highlighted, “after ingestion, microplastics absorption, distribution through the circulatory system, and entrance into different tissues and cells can occur, potentially resulting in several types of adverse effect” (p.341), spreading through the trophic chain and causing mortality, reduced energy, decreased predatory performance or intestinal damage (Barboza et al., 2018). Since 1968, leatherback autopsies have disclosed the necrotic reality of the relationship between plastic and them, revealing that over 35% of those autopsies exposed plastic debris in their intestines, reducing its digestive capability and being a significant cause of death for this species (Mrosovsky, Ryan & James, 2009).

Now entangled in the relationship with leatherbacks and their surroundings, the immortal agency of plastic is threatening the mortal synchronizations of mortal agents and, therefore, it has radically modified the leatherback’s knot of life. With decrease in their prey in some areas, their plastic ingestion increases, destroying their intestines. On the other hand, leatherbacks are also unable to cope with the jellyfish blooms in other areas because their intestines are damaged and cannot prey on them, modifying the synchronization they have with Atlantic jellyfish (Mrosovsky, Ryan & James, 2009). With such eerie synchronization of TimeSpaces, and perceptions of them and extinction in the Necrocene, not only have modified human lives through their necropolitics, necroeconomics and necro-ontologies, but also have unbalanced the way individual agents in massively distributed ecosystems understand their centuries-old rhythms, their relations and how they ecologically synchronize with each other. That is, the relationships and knots of coexistence between human and non-human elements are, thus, modified through accumulation, extraction and their subsequent pollution, triggering individual deaths and collective extinction processes in the process.
Objects, and their agency, tend to be ignored as long as they function properly. It is when they start malfunctioning that we start noticing them (Harman, 2012). Plastic has become a crucial part of the daily modern lives of most societies, transcending the economically rich to become a material found everywhere. It was only when this material started affecting the livelihoods of human and non-human ecosystems, or even creating its own ecosystems such as the *Plastisphere* or the Great Pacific Garbage Patch, that humankind started noticing its agency as an object intertwined in different knots of life.

Here, then, thinking through plastic allows us to come to terms with the fact that human culture is now inherently connected with the alien world of oceans, calling for new approaches so as to discern the constitution of these infinite flows (Alaimo, 2014). Thus, the ocean is no longer the *aqua nullius* realm⁷ that was thought to be. In the Necrocene, capitalist accumulation, extractivism and human interactions with the ocean have affected, in multiple ways, the oceans and seas and, thus, its knots of lives. When approaching plastic debris, the seas and the oceans must be understood in terms of its agency, its anthropogenic pollution and acidity, and its interobjective interactions and ontologies, opening space for new understandings of the current geological epoch and its cultural, social, political and ecological impacts (DeLoughrey, 2017, p.34). That is, plastic debris makes us come from anthropocentrism and the significance plastic has, to situate the thinking body in an oceanic milieu, observing the different materialities that take part and constitute the uncanny relations between oceans, plastic, the different multiobject and multispecies relationships that appear, and the Necrocene.

As hermeneutics philosopher Santiago Zabala (2017) illustrated, “we cannot simply observe, describe and understand emergencies without being part of them” (p.112). That is, attentively analyzing plastic debris and the different entanglements this phenomenon entails might be helpful in order to take the theory of the nature of being insofar as how beings are modified their TimeSpace, and how these changes can be understood in their own milieus in terms of a situated philosophy.

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⁷ Paraphrasing *Terra Nullius* as the land of none, concept appropriated during colonization processes, *Aqua Nullius* was the last stage of the oceans and seas before being absorbed by the omnipresence of humankind after the end of nature (DeLoughrey, 2017).
Multispecies Knots of Life in the Necrocene: The Great Barrier Reef

It is believed by scientists that the Earth climate system will need around 50,000 years to digest and assimilate the damage and impact of human activities only during the third millennium, driving the Earth towards an irreversible greenhouse effect climate (Gilkson & Groves, 2016). With transparently predicted catastrophic events if the Planetary Boundaries (Rockström et al., 2009), which attempt to frame the different big groupings of single planetary crisis that can lead to an irreversible planetary plight, are overstepped and surpassed, the current crisis is distorted in terms of TimeSpaces. In this light, another event that illustrates the desynchronization and unbalancing of the knots of life and TimeSpaces between agents and species is the decline and likely extinction of the Great Barrier Reef (GBR) in Northern Queensland, Australia, due to mass-bleaching events as the consequence of capitalist overproduction and accumulation.

Defined as “a stress response that results in the loss of intracellular symbiotic dinoflagellates (Symbiodinium) and/or their photosynthetic pigments; on a broad spatial scale, bleaching results from extended warm periods” (Ainsworth et al., 2016, p.338)\(^8\), these events, as a straightforward result of global warming and climate change\(^9\), are a direct implication of the dynamics of the Necrocene as a narrative, its logic and the necrotic nature of it on ecosystems. In the last five years, there have been three mass-bleaching events in the GBR. In 2016, the event radically affected the Far-North Queensland area from Townsville to Lizard Island and has been the most severe of the three. In 2017, the mass-bleaching catastrophe was very virulent with the central section of the GBR from Townsville to Cairns/Port Douglas area. The latest event, which happened in March of 2020 due to the incredibly high temperatures and SST rises in February 2020 (United Nations, 2020), radically affected the Cairns/Port Douglas area and also, for the first time, the Southern Barrier Reef zone from Bundaberg to the Whitsunday Islands (Readfearn, 2020). In addition, it is not only

\(^8\) Bleaching must not be mistaken by Ocean Acidification, which is a continuous “deterioration of the chemical conditions needed for physiological and biogeochemical performance of the reef ecosystem” (McLeod et al., 2012, p.21). Coral Bleaching can be triggered by Ocean Acidification, even though it is usually caused by short-term increases of the SST (McLeod et al., 2012).

\(^9\) See Ainsworth et al. (2016) for a detailed explanation that links coral bleaching, global warming and climate change.
global warming that is destroying the GBR. As Glenn De’ath et al. exemplify “mortality and reduced growth of the reef-building corals due to their high sensitivity to rising seawater temperatures, ocean acidification, water pollution from terrestrial runoff and dredging, destructive fishing, overfishing, and coastal development” (De’ath et al., 2012, p.17995) are the human-induced components that can cause a cataclysm of a coral reef affected by them in around a month (De’ath et al., 2012).

As a consequence of this destructive cocktail, the knots of life and TimeSpaces known for the agents that inhabit these areas have been distorted and stripped down. An experiment carried out by Timothy Gordon et al. (2018) instantiated that reef fish larval preferences and juvenile settlement conduct were affected by the degradation of the reefs. The results showed that predegradation landscapes were more appealing and biologically attractive to the subjects than postdegradation. Depending on the welfare of their ecosystem as they rely on acoustic cues and sound to determine and guide their habitat selection, fish are losing attraction towards the bleached reefs (Gordon et al., 2018). However, as Gordon et al. (2018) point out, coral reefs solely rely on young fix for the refilling of functional taxa, process that is in extreme danger due to the degradation of the reefs, the fact that fish rely on acoustic cues and the consequent decline of them in damaged coral reefs. According to the NOAA, “with growth rates of 0.3 to 2 centimetres per year for massive corals, and up to 10 centimetres per year for branching corals, it can take up to 10,000 years for a coral reef to form from a group of larvae” (NOAA, 2020), and barrier reefs ranging from 100,000 to 30,000,000 years to become a full formation (NOAA, 2020). These ancient ecosystems and its millennium-old rhythms, synchronized knots of life and TimeSpaces have been totally disrupted in less than 50 years as the GBR has decreased its coral density in a 50.7% between 1985 and 2012 (De’ath et al., 2012) due to the direct consequences of mass-accumulation and the deathly nature of the Necrocene, which exploits directly or indirectly everything at its reach. In other words, the dynamics and rhythms of coral reefs are “already dominated by complex interactions between multiple anthropogenic drivers, which is resulting in new assemblages of life” (Hughes et al., 2017, p.86) that have led scientists to confirm that “it is no longer possible to restore coral reefs to their past configurations” (p.86).
Another event that is happening within the desynchronization of the species and the ecosystems of the GBR are the invasion of ecosystems by the *Acanthaster planci*, popularly known as Crown-of-Thorns Starfish (COTS). These large starfish that prey upon coral polyps are one of the most urgent problems of the GBR. When COTS populations outbreak, due to the critical situation of some reefs on the GBR and the absence of predators due to the decline in the biota of affected reefs, these starfish devour living polyps faster than their reproductive cycle, affecting reef-building corals (Barrat, 2019). With the destruction of the reefs for a wide range of capitalocentric reasons, the ancient rhythms and TimeSpaces that once coexisted and sustained every agent in the knot of life and the sequences of generational time are now eerie and unfamiliar to the agents entangled in such knot in a process in which time itself seems to fray. The new relation that is pressing COTS and coral reefs together is, therefore, disrupting others. As Terry Hughes et al. (2017) noted, “current thinking on the responses of ecosystems to one or more drivers is too linear” (p.85), not conceiving and reframing that the “ecological response to even a single stressor is often curved owing to positive or reinforcing feedbacks” (p.85) and it usually “discounts the role of time lags between cause and effect in shaping the non-equilibrial trajectory of reefs” (p.85). That is, it is crucial to understand the value of such drivers to analyse them from a non-linear and uneven perspective in the knot of life.

The Necrocene epoch has also modified knots of life between human beings and the GBR ecosystems. Promoted as one of the main attractions in Queensland, the tourism industry related with the GBR is vital for areas such as Airlie Beach, the Whitsunday Islands or Cairns which solely depend on it. According to Bruce Prideaux, Julie Carmody & Anja Pabel (2018), in 2015-16 a total of 17.8 million people visited the GBR. As several studies have illustrated, “factors that reduce the positive image of a destination weaken its competitive position in the market place by reducing the strength of its pull factors” (p.9). Crisis and natural disasters such as coral bleaching have a huge impact on such areas as they seldom have another source of economical production. The same way some winter-holiday areas that have over-reliance and lock in a single dominating destination image such as ski resorts (Prideaux, Carmody & Pabel, 2018), the over-reliance on GBR associated tourism is hanging by a thread. As
Natalie Stoeckl et al. (2014) pointed out, “environmental non-use values such as healthy corals, reef fish and iconic marine species are of highest importance to the quality of life of local residents” (p.12), stating that the degradation of the GBR can have devastating effects for the communities that rely on them as the number of visitors will rapidly decline. In this light, the tourism industry in Central and Northern Queensland is starting to suffer the consequences of bleaching with a decline on visitors, both because the GBR biodiversity is suffering the Necrocene at its core and the industry is now competing with cheaper snorkelling and scuba-diving hotspots in Southeast Asia such as Indonesia or Malaysia, which offer similar experiences to the ones at the GBR (Prideaux, Carmody & Pabel, 2018).

That is, the Necrocene as a narrative is compromising the relationships within ecosystems and the relationships between non-human and human agents. The millennium long synchronizations in the knots of life between the species that inhabit the GBR are now in a state of disequilibrium as a straightforward consequence of the current instability and present and future transgression of the thresholds set by the Planetary Boundaries. What can be extracted from this is that the dangers of capital-induced climate change, sea surface temperature, biodiversity loss, ocean acidification and coral reefs are playing in different TimeSpaces, imbricating one another. With these thresholds evolving at an unprecedented historical speed, the decline of the capability of reefs to be resilient due to these same dangers and their slow development over TimeSpace, the ecology of these reefs is, for the first time in history, at stake. Furthermore, as stated before, it is not only the direct bleaching events that have been caused by a rise in sea temperature but the consequences of such events. With reef fish populations declining due to the bleaching events as they are more attracted by healthy reefs, the COTS outbreaks are becoming more common in the GBR, jeopardizing the resilience of the reefs, attacking healthy polyps and feeding on them faster than they can reproduce. In addition, the areas in Tropical Queensland that essentially rely on the tourism industry related to the GBR are imperilled as a consequence of the impoverishment of the biota there, predicting a major social and economic crisis in the areas if there is not resilience and adaptation to the new crisis. Thus, the TimeSpaces of the inhabitants of areas such as Cairns, Port Douglas or the Whitsundays, which have been three of the main doors to visit the...
GBR since the 1960s and which have an over-reliance on the GBR tourism have been shaken to its core as a consequence of the Necrocene.

Thus, while reading events through the narratology that the Necrocene theory proposes, TimeSpaces, ecology, extinction and coexistence are put at stake. The crisis that is upon coral reefs worldwide exemplifies these different problematics in a very clear way, shedding light upon the direct and indirect global causes of extraction and accumulation perpetuated by the economically-rich sections, dooming those who probably have generated the least in regards to said problematics, triggering a domino-effect extinction dynamism that will perpetuate capitalism at the expense of the annihilation of everything else besides capitalism as an extractive system.

**Multispecies Knots of Life in the Necrocene: Pacific Islands**

The Necrocene age is already laying on the line, amongst other agents, the peoples from islands and coastline areas. The sea-level rise rate estimates predict an unacquainted human catastrophe by the end of the 21\textsuperscript{st} Century which will change our understanding of the global reality and the TimeSpaces that intertwine all agents in the knot of life, devaluing any prediction of speculative futures previously conceived due to the exhaustion of certain resources, disappearance of big chunks of land and a consequent massive movement and flux of people (Pilkey, Pilkey-Jarvis & Pilkey., 2016), which will affect an estimate average between 25 million and 1.4 billion people by the year 2050 (Parenti, 2011; Geisler & Currens, 2017). With high chances of becoming climate refugees, defined as people who are “forced to leave their home or community due to changes to the local environment, such as rising sea levels, drought, famine, or other effects of climate change” (National Geographic Society, 2012; in Tetrick, 2018), the people from the Pacific Islands will be some of the most affected by the Necrocene, extinguishing their local cultures and smashing with iron fist the synchronized ancient temporalities of their livelihood.
As an assessment of the 22 Pacific Island Countries pointed out, the nations with large reef areas and coastal communities “had the highest relative vulnerability to climate change impacts on reefs because of high reef to land area, dependence of household incomes on coastal fisheries (for food and livelihoods), aquaculture (for jobs) and tourism (for jobs and contribution to GDP), and low education standards” (Dutra et al., 2018, p.145). This only exemplifies that “those that contribute the least to the human causes of sea-level rise will be hurt the most” (Pilkey, Pilkey-Jarvis & Pilkey, 2016, p.3). That is, together with the rise of population in these islands which is estimated to reach around a 50% rise by 2030 (Mahnke, 2013), coral degradation is a direct threat for the livelihoods of the Pacific Islanders as one of their main sources of income and food supply is fishing. With the decline of these practices and the subsequent increase of food and income insecurity due to their local reefs’ degradation, “current projections anticipate declines in reef fisheries productivity of as much as 10-20% in the western Pacific under climate change” (Pratchett et al., 2011 and Bell et al., 2016; in Dutra et al., 2018, p.145). Consequently, fishermen that have no access to an alternative modus vivendi tend to push beyond the limits of their local habitats in search for stock, which can cause hysteresis and hasten a cataclysmic collapse (Hughes et al., 2017). If several weak feedbacks start acting simultaneously, as Hughes et al. (2017) illustrated, “they can collectively promote an unexpected regime shift as the effects of multiple drivers gradually increase” (p.86). Without being radically affected by mass-accumulation practices, the Pacific Islands seem to be better off than other areas because the development of fisheries took place later on and their practices are more local-based. Nonetheless, with the development of the tuna fisheries and exportation of goods due to the worldwide extinction of marine life and industries experiencing a noteworthy decline on their production, “there is a strong risk that the status of stocks will deteriorate in the near future if the governance of fisheries is not improved” (David, 2018).

The synchronies between Pacific Islanders and their surrounding ecosystems are being affected by the Necrocene. They are bound to be some of the first humans to become climate refugees due to the predicted calamity and the consequent transgression of the Planetary Boundaries. If the relationships between the different synchronized TimeSpaces that have been nourished, perfected through imperfection
and inherited throughout generations are disrupted at such fast and catastrophic speed by capitalism and its logic, whether it is indirectly or directly, the knots of life start to make no sense. The Necrocene and its extinctive force are disentangling these TimeSpaces that were intertwined before, making them visible as they get unattached. That is, when the sixth extinction is thought from an analytical gaze, time is being frayed, making sense of the eco-biopolitics trapped in the Necrocene paradigm and the different multispecies knots of life creating such a mesh.

To put it in a nutshell, the crisis in the Pacific Islands, together with plastic debris and coral bleaching, become snippets of the (de)synchronization of different elements that belong to multiple TimeSpaces that can only be understood through a post-anthropocentric gaze that puts the problematics of these elements front and centre. The Necrocene, hence, complicates the narrative of the new epoch while giving an alternative response in order to understand the dynamics of capitalism and extinction from a perspective that allows us to perceive the world as a net of different connections that have been created through evolution and that are being eliminated or modified towards extinction.

**Living in the Necrocene: Stories of Death and Ecology in an Infected World**

In light of this, humankind has modified the knots of life between species in such a short timespan that it is almost impossible for us to perceive it. As their magnitudes are so diverse and eerie, yet entangling and viscous, humans have difficulties to understand them. The current socio-political and ecological crisis seems to be outside of humankind because there has been a dispossession and objectification of our surroundings as the environment, something that can be exploited at the will of capitalism. This crisis has clearly illustrated that, using Bruno Latour’s (2013) famous quote, “it is only once humans see pollution coming back at them, that they begin to really feel that the Earth is indeed round” (p.94). That is why thinking through and with extinction and its multiple TimeSpaces and knots of life is pivotal in the midst of the crisis of late-capitalism and the Sixth Extinction. The cultural and political somnambulism that the Necrocene as a theory and 24/7 late-Capitalism have inflicted in our perception of our surroundings through the trance-like behaviour that it forces
humans to undergo has deprived humans of the capability of experiencing and understanding such surroundings (Crary, 2013). By analysing TimeSpaces and multispecies knots of life with the help of the Necrocene, one can start to see through the veil, waking up from the trance-like state through a cultural, political and ecological awakening. Then, anthropocentric perceptions of time, spaces, the non-human other and ecology enter a new realm of understanding that unsettles the human condition in a capitalist society while, at the same time, provides material to generate a philosophy and policy of equity and care through the catastrophism it entails. Therefore, the Necrocene presents itself as a tool to stay with the trouble that the nomenclature of this new age proposes and help us generate a critique of the current ecological, political and cultural condition in the contemporary world.

In a world in which certain events might leave us hanging without knowing what to do in a disorientation state, ecological awareness provides observers with a world in which everything has relevance insofar as the rest of beings are concerned, yet providing us with very distinct and vivid differences at the same time (Morton, 2018). That is, ecological awareness is realizing that living and non-living beings are interconnected in some way. It is a “detailed and increasing sense, in science and outside of it, of the innumerable relationships among lifeforms and between life and non-life (Morton, 2018).

Bearing that in mind, achieving a caring, egalitarian and just sustainability by only considering scientific facts remains ineffective if disconnected from its political, cultural and social realms and, as a matter of fact, seems to be no longer useful in the current turmoil (Heise, 2017). The current crisis must then be approached from a critical, analytical and scientific position that scrutinizes the unsettling narratives of our time. Thus, the task of the Environmental Humanities from a Historical (New) Materialist perspective is not to acknowledge this statement, but to figure out what interconnectedness means and which stories and lessons can we extract from this multispecies and beyond-life-and-death knots of life. In other words, recasting the given, immersing theory and praxis in unknown surroundings in which different agents play part in the uneven knots of life said agents constitute in the Necrocene, reconfiguring both material and ontological ecologies.
To be is to become with others, inhabit and remake existence. Extinction is the annihilation of existence itself. In light of this, extinction processes call for a response that is attentive to what matters to another entity rather than considering an anthropocentric positioning on them. Thus, considering the different ways in which others exist and experience their worlds from a post-anthropocentric perspective, trying to become part of the emergencies they entail in order to experience them and reformulate them. Thus, thinking through extinction, gets rid of the realization that nature, as Haraway (1991) put it, is a discursive construction. Namely, it allows us to identify nature as an entity that has lost its pristine untouched condition, and the crises that accumulation poses on it. That is, although conceptions of nature, or even extinction, might be culturally depictable, it does not mean that, in this case, extinction is a cultural phenomenon. It aligns with the fact that nature is understood, according to Kate Soper (1995) as “those material structures and processes that are independent of human activity (in the sense that they are not a humanly created product), and whose forces and causal powers are the necessary conditions of every human practice, and determine the possible forms it can take” (p. 132-133).

Nevertheless, what these stories of extinction portray is that human culture, non-human entities and the current ecological plight intertwine in different non-linear ways, most of them unconceivable at first glance for biological human perception. In other words, the subject of extinction and the TimeSpaces at hand, together with scientific mediation so humankind can perceive these massive phenomena, carry new challenges for the narrative, visual and theoretical representations of the ecological and, thus, sociopolitical and cultural planetary crises. Hence, the same way colonial settlers did not produce nature when entering the tropical areas in Queensland back in 1770, thinking through the Necrocene appears useful not to discover nature (as it is already there), but to encounter nature, capitalism and extinction in the same narrative, and the weird realism in which the current paradigm is immersed.

As the different stories that develop from disrupted TimeSpaces and knots of life suggest, “learning to tell time differently is both a collective risk and a collective task” (Bastian, 2017, p.170), which can help us unfold the different realities, from viruses to whole ecosystems, of the current crisis. Furthermore, they put our anthropocentric and
comfortable existence into perspective. In this light, the new uncanny epoch is leading the planet as a holistic entity towards “a destruction of biodiversity, cultural diversity and the singularity of both psychic individuations and collective individuations” (Stiegler, 2018, p.41). In global 24/7 capitalism, the Necrocene is both a compelling nomenclature and a useful heuristic to analyse current cataclysm. It helps us glide above the different TimeSpaces and knots of life with a critical and ecological lens, fluctuating between life and death, creation and decay, infinity and mortality, eco and ego. Furthermore, it also puts the deathly nature of capitalism at the centre of the debate. By paying attention to these questions, acknowledging that non-human entities and processes are central in many political processes, and that capitalism has triggered most of such processes, anthropocentrism and capitalocentrism can be challenged. Hence, with a turmoil that has disrupted and will disrupt most of the TimeSpaces and knots of life that have been synchronized for decades, centuries or millennium, it is compelling for the Environmental Humanities to explore such desynchronizations from a critical perspective to offer rich interdisciplinary narratives, imaginaries, materialities and ontologies in the Sixth Extinction.

Finally, even though this is an issue that will go beyond the scope of this text which could be explored in further theoretical research, the Necrocene narrative allows us to reconnect two fields of research that seem to be far away from each other within the Environmental Humanities: the Anthropocene Studies with a tight connection with Historical Materialism and Posthumanist/Multispecies Theory as trends in New Materialism. Consequently, it challenges anthropocentrism as a historical and cultural process by troubling it through the realization of a worldly construction in connection with the non-human entities that inhabit and interact in this world. That is, through its narrative and the way it travels through the different case studies, the Necrocene as the age of extinction acknowledges the historical materialism embedded in the current epoch while, at the same time, providing attentiveness and voice to the different multispecies and more-than-human stories that unfold from the processes of extinction that unfold from it. Therefore, it questions human exceptionality by, on the one hand, singling out humankind and the extractive practices and the inequalities inherent in accumulation processes, while, on the other hand, putting at stake the logics of colonialism, sexism, speciesism and racism as issues that are foregrounded.
in not seeing the other as a being with the same legitimacy to have its needs, rights, necessities and condition of being alive that the beings wielding said power.

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Remote communities, material entanglements and information and communications technologies as double agents

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Abstract

Digital devices and Information and Communications Technology or ICT play a prominent role in most people's everyday lives, as the often unconscious, mostly unacknowledged entanglements between people, devices and infrastructure shape contemporary lives and co-determine activities and their outcomes. Communications technologies are particularly agentic for people who live in rural and remote parts of the world because they often lack easy access to goods and services that are ubiquitous in more urbanized areas. At the same time, access to ICTs in these areas is often tenuous because the maintenance of ICT infrastructure is not always economically viable.

This paper examines emerging techno-lifeworlds in remote villages in Malaysia and their social, economic and political context through a new materialist lens. I argue that the entanglements with digital technologies and the resulting diffractions can result in increased agency for those involved. At the same time as this new materialist focus emphasizes the agentic role of devices and infrastructure, it allows for thinking through the power relationships that are implicated in the regional techno-politics and the economic and political interests that determine the material access to communications infrastructure.

Keywords

Media technologies; New materialism; Agential realism; Entanglement; Sarawak.
Introduction

Access to digital devices and Information and Communications Technology or ICTs is integral to many people’s everyday lives, and it is particularly important for people who live in remote areas because their relative geographical isolation often means that other communicative options are limited. In this paper I use a new materialist lens to examine the ‘entanglements’ (Barad, 2007) between people and devices in remote Indigenous communities in Sarawak, a state of Malaysia on the island of Borneo. I apply a ‘diffractive’ reading (Barad, 2007) to the changes in people’s emerging technolifeworlds that come about as a result of their engagements with communications media, where different types of technology become embedded in social practices and embodied routines. This involves foregrounding the notion of agency in processes in which human and non-human actors including people, devices, buildings, plants and landscapes are involved, where technologies are not framed as human’s ‘other’ but as agents that interact with other agents, both human and otherwise. This new materialist framing enables a nuanced discussion that focuses on the localized diffractions that arise where technologies are taken up. At the same time, I aim to operationalize new materialist theories to interrogate the political and economic structures and power dynamics implicated in the distribution of technologies in the region and the way this affects technology’s agentic potential. In many remote areas of the world, where the provision of infrastructure is unprofitable for private companies, the existence of communications infrastructure and its continued maintenance are contingent on government objectives and programs. In this context, ICTs can become implicated in political and economic power dynamics, to the detriment of those who depend on these systems for their social and economic inclusion. Communications technology and digital devices are thus not only agents in their own right but agents active on behalf of the government which can be deployed or withheld, as communications infrastructure and its material artifacts become poignant reminders of state power and of government largesse or neglect. This discussion raises important questions about material agency and its limits that complicate a developmental view of ICT uptake.
At the same time, however, the process of becoming that results from people’s engagements with technologies enable new and diffractive practices and distinct forms such as digital kinds of Indigenous culture and sociality, modes of device use, opportunities for entrepreneurship and methods of leveraging online identities for civic and political participation. As a result of these processes, I argue that technologies emerge not just as government agents but as double agents that facilitate civic and political participation at the same time as they are subject to funding and approval of government institutions.

The paper aims to contribute to a growing field in which the materiality of technologies is front and centre; a materialist informatics (Colman, 2014; Nakamura, 2003), but also a digital materialist (Casemajor, 2015; Reichert & Richterich, 2015) way of thinking about the technologies that have become a crucial part of most people’s everyday lives.

Map 1: Fieldwork area
**New materialism and the entanglements of the human and nonhuman**

New materialism provides a rich theoretical toolbox for studying the relationship between people and technologies. Above all, it suggests a focus away from a human-centric view of agency and towards a more holistic and relational understanding of the world (Coole, 2013; Gamble et al., 2019). Here, technologies are not neutral mechanisms that enable all users to engage in the same practices and achieve the same outcomes (Nakamura, 2003). As Stephens pointed out, “[t]he notion of computer mediated communication figures computers as passive media of transmission, a conceptualization that becomes inadequate when machines are active agents and producers of content” (Stephens, 2014, p. 2030). Digital communications technologies are context-dependent, socially embedded, involved in wider socio-economic, political, technical and environmental processes and bound up in social practices (Adams & Thompson, 2016; Casemajor, 2015; Fuller, 2005). The agentic nature of communications technologies is reflected in a new materialist critique of the established human-centric worldview (Braidotti, 2016a, 2016b), that unsettles the distinction between the human and the non-human as well as the persistent culture and nature binary (D. J. Haraway, 2003), and points to the futility of disentangling the one concept from the other (Latimer & Miele, 2013; Puig de la Bellacasa, 2010; Robinson & Remis, 2014). Increasingly, technologies and bodies exist symbiotically or become indistinguishable from one another; technologies are at times only superficially distinct from the body (Shildrick, 2015), are inscribed on the body (Sullivan, 2012) and become part of the body (Verhoeff & van der Tuin, 2020), prompting a ‘somatechnics’ (Sullivan, 2012) approach to address the complicated questions that arise when technologies and bodies merge (Bruining, 2013; Pugliese & Stryker, 2009).

Increasingly, new materialist scholars such as Braidotti, Bennet and Barad are invested in exploring the interactions between humans, non-human animals, objects, ideas and processes in ways that are particularly useful for thinking about communications technologies and their agentic potential, not only as a material object produced by and for people but also as agents in their own right. From a posthumanist perspective agency is not exclusive to humans or even living things; instead, “thing-power arises from bodies inorganic as well as organic” (Bennett, 2010, p. 6). Bennett
in particular focuses on the intrinsic vitality of things that becomes evident in their expressive capacity and their ability to exert agency and become actants beyond their significance in human discourse (Bennett, 2010, p. 10); the “efficacy of objects in excess of the human meanings, designs, or purposes they express or serve” (Bennett, 2010, p. 20). This excess can be seen most clearly when the functionality of a device ceases; Bennett brings the example of a bottle cap, a dead rat, but one might also look at a broken cell tower or a mobile phone with a cracked screen or a dead battery. These material objects take on new meanings that may be contrary to those they had held, and while their embodied materiality persists their interactions with other bodies changes; a broken cell tower is overgrown by weeds (see image 3), birds nest in it, it merges with the environment but never quite becomes a part of it.

Another useful way of thinking of the materiality of digital technologies is Karen Barad’s concept of entanglement and agential realism (Geerts & Van der Tuin, 2021). Barad uses the term ‘intra-actions’ to describe “the mutual constitution of entangled agencies” (Barad, 2007, p. 33) of matter. Through their intra-actions all things are constantly changing and becoming something different than what they were before. Distinct agencies do not pre-exist but emerge through intra-actions and entanglements (Barad, 2007). New materialist concepts such as these are particularly useful for thinking about the effects or outcomes of people’s engagements with digital technologies because they point to the dynamic processes by which new ways of being and doing emerge through the use of technologies. Another important concept for Barad is the metaphor of diffraction, a term that refers to the ‘interference pattern’ created when a wave meets an object or another wave (Barad, 2007; Haraway, 1992), for thinking about how people and things are affected by each other and by their entanglements and intra-actions. This focuses our attention on subtle changes as people walk different paths, use new words and think differently about themselves and the world in which they live. Different people use communications technologies for different reasons and purposes and achieve different outcomes as a result of their activities (Nakamura, 2003). From a new materialist perspective, these differentiated processes can be seen as “diffractions” (Barad, 2007), as people’s entanglements with devices and technologies lead to new ways of becoming, new identities and new material and social engagements. Over time and in aggregate, these processes can
give rise to different kinds of agency where people make use of digital technologies in new ways.

Technologies as double agents

New materialist ideas have much to add to the research of media technologies not only in the context of individual practice but also with regards to entrenched and often implicit societal networks of power through which they operate (Colman, 2014). One of the aims of this paper is to operationalize new materialist theories in a way that draws attention to the potential for empowerment inherent in the use of ICTs but also to question the power dynamics that enable engagements with communications technologies. In particular, I focus on the provision of infrastructure as an example where local people are dependent on state intervention for engaging with the new kinds of agency that technologies seem to promise. I highlight this ambivalence by framing technologies as agents that can be deployed strategically, where entanglements are either facilitated or restricted, and the way this affects the potential for agency. Access to communications technologies is controlled by political and market forces that act as the ultimate gatekeepers to digital access; hence, these are the forces that limit the agentic capacity of digital communications technologies.

And yet, technology’s agentic potential cannot be fully controlled; within the parameters set out by the gatekeepers people’s entanglements with media technologies create new possibilities and the potential for agency for people in my study to realise the “transformative capacity” (Hickey-Moody & Page, 2015, p. 1) of matter. Processes of intra-action are fluid and open-ended (Coole, 2013), as people use technologies for many reasons; to participate in useful or enjoyable activities, to maintain social relationships, or because the idea corresponds with a specific notion of themselves, to name only a few. The diffractions that result from these processes emerge as new ways of formulating local identities, as new social and economic aspirations and as embodied, spatial and temporal knowledges capable of subverting other, more structured or formalized kinds of knowledge (Kenway & Hickey-Moody, 2011). The question of agency and of who controls digital media is timely and continues to emerge across different global regions in the way that governments
block access to mobile phone coverage in times of crisis or conflict, implement nationwide firewalls, and support or limit online participation in crucial ways. My focus on the distribution of digital infrastructure is thus only one of the many ways of probing the agentic potential of technologies.

I will now explore the area in which the research took place to provide some context to participant’s contributions and ideas and discuss my conceptual approach to this work.
Background

Fieldwork communities

The fieldwork for this research took place in northern Sarawak, a state of Malaysia on the island of Borneo. The main city in this region is Miri, Sarawak’s second most populous city. The area is home to several small and ethnically and linguistically diverse Indigenous groups. My research focused on remote villages in the heavily forested region of the Baram River and its tributaries (see map 1). Most villages were located about four to eight hour’s drive from Miri through a network of unpaved logging roads. The region was also accessible by air through two small rural airports, one in Long San and the other in Long Banga. Some of the villages had a small clinic, staffed by medical assistants, and a primary school. Most people in this region have traditionally practised shifting agriculture with rice as the main crop along with fruit and vegetables and cash crops such as rubber (Imang et al., 2008; Lian, 1987). Communal longhouses with a shared verandah for people to work and socialise are typical for this region, although more recently people often prefer individual homes (see image 1). Local ethnic groups each have their distinct language or dialect, traditions and customs (Smith, 2015).

Indigenous ways of knowing and being are often seen as relational and holistic and attentive to material and embodied practices and experiential knowledge (Botha, 2011; Rosiek et al., 2020; Young, 2019). Increasingly these ways of knowing and being also include digital technologies and methods for communication (Carlson, 2013; Srinivasan, 2006). Many Indigenous communities and in particular those who live in remote areas still struggle to engage, however, and often because of a lack of access; during my fieldwork only six out of 20 villages had functional ICT infrastructure, with another five where connectivity was available only intermittently. Even so, most people owned mobile or smartphones to connect whenever they were in a location with access, or used their devices to take pictures, listen to music or play games. This desire to engage and participate was one of the strong themes that emerged during my research, hinting at the purposeful entanglements that result when people engage with new practices, experiences, objects and environments. However, an understanding of the political context of the region is also important to understand.
how technologies become agentic in this region in multiple ways. I will provide this context in the next section.

The region where the fieldwork for this study took place was relatively remote, and most of the villages lacked infrastructure such as electricity, treated water or access to a landline telephone or the Internet. These issues contributed to the relative social and economic isolation of the region. The scarcity of different kinds of infrastructure pointed to the relative neglect of the region by the local and federal government, which was not only due to the low population density and subsequent cost and limited political or economic returns of providing infrastructure but it was also related to the socio-political friction in the region resulting from the decades-long unsustainable and inequitable extraction of resources. In particular, the large-scale timber extraction and plantation agriculture in the region enriched local politicians and companies but not local people, and frequently infringed on local people’s traditional rights (E. L. Bennett & Gumal, 2001; Brosius, 1997; Cooke, 1997; Leigh, 1998). Proposals to build a range of hydroelectric dams which would have flooded several communities and their traditional lands, further added to the conflict around Indigenous rights and livelihoods (Sovacool & Bulan, 2011) and led to blockades and protests. This context shapes local engagements with existing communications technologies, in particular because the
region is dependent on government provision of infrastructure including communications technologies. Most ICT infrastructure in this region was implemented by the Malaysian Communication and Multimedia Commission (MCMC, 2016) under Malaysia’s Universal Service Provision (USP) that funds programs and interventions including netbooks for students, village WiFi systems and rural and regional Internet centres (GSMA, 2013). Signage identifying programs as government funded accompanied most infrastructure (see figure 5). Many local people were aware of this dependency on outside intervention for ICT access and the provision of access in some ways became a token of government goodwill or lack thereof. A range of participants suggested how political considerations might have been implicated in the provision of infrastructure, suggesting how technologies had become enmeshed in the political and economic power relationships.

In 2017, the Sarawak state government launched the Sarawak Multimedia Authority to increase the pace of development of digital infrastructure. More recently, the region has been supplied with satellite access via a service called CONNECTmeNOW, where local agents buy bandwidth and local people access satellite WiFi hotspots via prepaid accounts. This new method for digital inclusion promises to expand access for local people in the region, perhaps leading to more equitable provision of ICT access.

Image 3a and b: Small cell tower, Long San, and detail
Methods

The data for this paper derives from a larger project focused on the uptake of Information and Communications Technologies in the region and their role in socio-economic participation (Horn et al, 2018; Horn & Rennie, 2018). Data was collected through in-depth interviews and focus group discussions during extended site visits between 2015 and 2017. The research team consisted of six researchers, three of them from Australia and three from Malaysia and based in the state’s capital, Kuching. Research in remote areas can be immersive and even at times confronting, as researchers spend extended time in the communities they want to get to know, sleeping in local people’s homes, sharing their food, participating in communal activities and becoming entangled in affective and embodied relationships. This inherent ‘messiness’ of qualitative research (Lenette, 2020) emerges as a strength within a new materialist framework, reinforcing the relational nature of the world. As Hickey-Moody has suggested, “[n]ew materialism calls for research inquiry via practice, via materiality – it calls for embodied, affective, relational understandings of the research process” (Hickey-Moody, 2015, p. 169). The relational nature of the research was underpinned through the implementation of community-based participatory methods (Koster et al., 2012; Pontes Ferreira & Gendron, 2011). Local researchers, research assistants and other collaborators were instrumental in shaping the research agenda, in planning the research and the data collection. Participants were selected in consultation with community elders and collaborators from the region as well as through a snowballing methodology, as participants referred friends and relatives and other knowledge holders in the community. Interviewers discussed the project and registered consent before each interview, as well as consent for photographs and video and voice recordings. Interviews were transcribed and, where they were held in Bahasa Malaysia or in one of the Kenyah dialects, translated, and analysed according to a range of thematic codes using NVIVO. The study also included a short quantitative survey (Horn et al, 2018) and an investigation of informal transport systems (Horn et al, 2021).

My own engagement with the region started in 2010 during the work for my doctoral dissertation, for which I visited Long San and several of the villages along the Tinjar river (see map 3). During this time I became aware of the embodied and material
media practices particular to the local media environment; the way that drivers stopped at certain points along the road to turn on their phones and make calls because they knew that mobile phone connection was available from a nearby logging camp; people’s preference for phones with dual SIM-slots because some places were only connected via one provider; the way that telecommunications infrastructure was located prominently in the centre of the village rather than hidden away on a rooftop, with its functioning frequently the topic of casual conversation (see image 3a,b and image 4). The subsequent research about the role of ICTs in the socio-economic development of the region, in which I was involved as a postdoctoral researcher, provided the opportunity to discuss these practices extensively with research participants and collaborators. In these conversations technologies took on a life of their own in the way that their arrival was highly anticipated, their functioning and often malfunctioning was frequently opaque, while the end of their lifecycle, often premature due to unfavourable weather and other conditions, left people feeling isolated and excluded. Technologies became agentic in particular ways as local people used their devices to share locally relevant information and knowledge and to document local culture and traditions, for social, political and economic participation but also to take part in mainstream media practices such as taking and sharing photographs, listening to music, watching videos or reading the news (Horn, Philip, and Sabang 2018).
While these practices were evocative of the agential nature of digital technologies, it also became evident that other forces co-determined the availability of access and the kinds of technologies present in each village. Traces of this could be seen in abandoned infrastructure or wherever signage indicated that the installation of communications technology had taken place under a Universal Service Provision program such as Kampung Tanpa Wayar (Wireless village, see image 5). All this suggested that the entanglements between people and technologies were complex and involved a range of agents, including local community leaders but also the government in the form of local members of the state assembly and the staff of the Malaysian Communications and Multimedia Commission. Technologies thus emerged as agents of the government where the presence of ICT infrastructure became a stand-in for government benevolence or neglect where infrastructure was absent or had not been maintained. This resulted in positive affect and attitudes where access was available, and negative affect and feelings of marginalisation where it was not. All this pointed to complex questions about the role of ICTs in rural and remote communities beyond the simple presence, or absence, of a digital divide (Nair et al., 2010; Pusso & Ahmad, 2016).
Ongoing entanglements with technologies

It is hard to overstate the extent to which some remote communities can be isolated in a seemingly interconnected world. In the fieldwork area for this research many small villages had no mobile phone connection and few other ways of communicating with the outside world. The only way for someone outside a village to contact anyone in a village was to call the local radio station in Miri, Radio Television Malaysia (RTM), to broadcast messages during the daily Kenyah language service. This meant that people in the village needed to stay beside their radio and listen closely to the program so as not to miss a crucial piece of information. Where this was the only way of receiving news from the city, people scheduled their daily activities such as tending to their fields and gardens around this one-hour time slot of the daily program. Broadcasting messages on the radio was not a convenient or practical way of sending messages, as one participant explained:

[When people want to get hold of someone in the village] they normally contact RTM (Radio Television Malaysia). That’s the only way. [...] If they are in Miri, they get in touch with RTM, what you call Siaran Kenyah [Kenyah language radio program]. Siaran Kenyah is only one hour per day. If you’re lucky enough, you can be on air. You can speak directly from RTM, to the people in kampung [village]. But not only one village can hear it, everybody can hear it. That’s one of the disadvantages... [And to get through to RTM is] very difficult. Because so many people want to get in touch. And the time is also very limited, 15 to 20 minutes only. So many people want to send messages, they cannot get [through]. Also, if those people in the village did not turn on the radio, they’ll miss the broadcast, or if the radio reception isn’t good...

The agentic nature of communications technologies emerged in this narrative in the way that technologies were implicated in people’s ability to maintain a sense of social connectedness and inclusion but also affected their daily routines. The radio offered a way of connecting with others, new entanglements, new diffractive outcomes, but these connections were tenuous and easily disrupted since bad weather could limit radio reception in the village or where people could not make it back in time to turn on the radio. Above all, these narratives suggested how the radio timetable came to co-determine people’s daily activities and thus their livelihoods. Also implicit in these
narratives was the fact that the national broadcaster, RTM, held the key to people’s ability to communicate and thus the capacity to enable these communications or change or limit them. The state thus emerged as an invisible but powerful actor upon which all other agency were contingent.

This enmeshing of lives, practices, embodied experiences around the availability of communications technologies was also apparent where different kinds of communications technologies became available. For example, some participants recalled how the government had installed a video phone facility in their village:

Previously we have, back in the day, in the 90’s [or late] 80’s, we have this video call [device]. The government gave it to us. We used that, the video call. Can also connect straight to the phone back then. But when it broke down, we sent it to the office [of the organisation that had installed it], then never to return back again. It was good back then, no payments needed.

The installation of the video phone meant that for the first time people in the village could call out to have individual and private conversations. When the service was not maintained, however, their potential for participation was again diminished.

This conditional kind of agency was a recurrent underlying theme where media technologies empowered local people and contributed to their sense of belonging and social inclusion, but always contingent on external powers which local people could not control. This loss of agency is a key point for my attempt at operationalizing new materialist theories in the context of rural access to communications technologies. The entanglements and intra-actions that occur where people engage with technologies are part of an ongoing and fluid process of becoming in which the outcomes cannot be determined in advance; in Barad’s words,

[according to agential realism, causality is neither a matter of strict determinism nor one of free will. Intra-actions always entail particular exclusions, and exclusions foreclose the possibility of determinism, providing the condition of an open future. But neither are anything and everything possible at any given moment (Barad, 2007, p. 234-235)].

Where intra-actions and new diffractive outcomes are disrupted, as where a new method for communication breaks down, the question of power starts to play a role.
This is where the agency of technologies is contingent, in this case on the government agencies that determine the funding of projects, but also enmeshed in yet other relationships, for instance those between local leaders and their political representatives, the governing party or parties, and so on. My use of the metaphor of the double agent points to those limitations and contingencies because they were evident throughout my fieldwork.

People’s experience with public payphones, which had been installed in some villages, followed a similar narrative arc (see image 6a and b). Not all villages had payphones but in those villages where they were installed they quickly became embedded in the sociality of the village, as participants in one focus group explained:

We used to have two public phones but now they are no longer working. [This was] in the 2000s, maybe 2008 [but] nobody came to repair it. At that time when we still had that service, it was easier for us to contact those in Miri. We can hear it ringing from the longhouse. We would see people line up in the evening to wait for their turn to use the phone. It was like a night picnic, as they would group and smoke together while waiting in line.

This underlines the agentic capacity of media and communications technologies and point to the sensory and embodied engagements that emerged as a result of shared access to the payphones. The narratives, of people smoking local tobacco rolled in dried banana leaves to keep away mosquitoes while waiting in the darkness for their turn, evokes the embodied and affective experience of being in place, the smell of tobacco, the hot and humid darkness, the sounds of the village and the forest surrounding it. These sensory experiences are further evidence of the entanglement between people, technologies, the night, the cicadas, as well as the affective experience of listening to the ringing of the telephone, hearing people talk quietly as they wait in line. They are also suggestive of the diffractions that result from these entanglements, in the way that they enabled new relationships, new conversations and new experiences. These new diffractive practices also became evident in people’s use of digital devices such as mobile and smartphones.
Mobile matter

If radio and payphones were important resources that provided people in the region with the ability to communicate, the use of mobile phones and in particular smartphones opened up additional possibilities of being socially and economically included. Mobile devices have seen rapid uptake in the region and in developing countries in general (Avgerou, Hayes, and La Rovere 2016). In Sarawak, cheap devices were readily available and people mostly used prepaid services that allowed them to...
charge even small amounts. Even older residents in the fieldwork area, including some with very limited education or no schooling at all, owned and used mobile phones wherever they could access mobile phone services. Most felt that being connected via mobile phone and the Internet were important ways of being included in the social lives of their friends and families, in wider society and even in regional and global affairs, to have access to the news, to apps and services that provided information and entertainment, to post photographs to Facebook and send messages via WhatsApp. As one participant pointed out:

I think it is very important, because nowadays, [many of the villagers], they have telephones...they need to make some calls and messaging to relatives or family members... My opinion is, all the people in the village need the telephone.

These responses suggested that entanglements with technologies contributed to local identities and self-perception, strengthening people’s sense of social inclusion at the same time as they also enabled people to share details about their lives with others outside the village. It pointed to a conceptualisation of new materialist theories of agency where entanglements and diffractions occur as an ongoing process, but one in which people’s hopes and aspirations play a meaningful role. As Barad (2007) has pointed out,

intra-actions iteratively reconfigure what is possible and what is impossible—possibilities do not sit still... The notion of intra-actions reformulates the traditional notions of causality and agency in an ongoing reconfiguring of both the real and the possible (2007, p. 234-235).

The reconfiguration of people’s lived realities, both their emotional and embodied experience of living in remote communities and their understanding of themselves as being a part of the world and connected with others changed as a result of their technology use. This emerged in the way that participants foregrounded their need to communicate with friends and families, but many also used their mobile devices for professional or economic purposes. For instance, they used their mobile devices to order supplies from shops in the city or to organise transport by contacting one of the local car-owners who provided transport services as part of the local informal transport strategies (Horn et al, 2021). Some used their mobile devices to market
products, often employing their social networks to sell fish caught in the local river or wild meat from the forest. These practices created new economic opportunities for local people and additional incomes for several of our participants.

However, mobile phone connectivity was neither ubiquitous nor reliable in most villages. It was common to see cars stopped by the roadside on an elevation where mobile phone reception was available from a nearby village or logging camp, their drivers and passengers on their phones making calls or sending messages. If the place where mobile phone access was available outside a village was close by, people often built small huts to shelter from the sun and rain while accessing the Internet or making calls. Often, though, they were located many kilometres away from anywhere, and one of my memories of working in the region is standing on a logging road atop a small hill, with vast views of the surrounding rainforest and the mountains in the distance, with the sun burning down and the dust on the road only just settling, to turn on my mobile phone and see if I had any calls or new emails (see image 7).

Engagements with mobile devices also facilitated new social relationships. Most people charged devices at night, when families ran their generators to light their houses or watch television, but some people who were friendly with the school staff could charge their devices at the school or clinic, which ran generators throughout the day to power the facilities. In some villages without mobile phone access, the school and clinic, which had their own WiFi system, were the only places in the village where a connection with the outside world was possible. Those friendly with the staff at the clinic or the school could ask them to send out messages for them, as one participant, a medical assistant in a rural clinic, explained:

A lot of [people from the village] come for my help, like messaging....Sometimes they come for my help, so I’ll help. Like, to send [messages] to their relatives, so I’ll help with my handphone.

As these examples suggest, people’s engagements with technologies led to other, more wide-ranging entanglements, with other people, the road, the sun and the rain and the mountains. As was the case for other kinds of technologies like the radio and the payphones, new social practices and new material expressions emerged, new routines in people’s lives, and new embodied and affective experiences.
Entangling and becoming

Throughout my fieldwork, communications technologies emerged as agentic in the way they changed social practices, led to new embodied experiences and routines, and affected people’s sense of inclusion and belonging. At the same time, the material nature of digital infrastructure, its internal workings and individual life cycles also came to the fore. Digital infrastructure in the form of cell towers with solar panels and satellite dishes, WiFi installations and others featured prominently in the local environment. In villages with mobile phone access the cell tower was often built in a central location in the village to provide maximum coverage (see image 2a and b). As was the case for the payphones, however, outages were frequent and infrastructure was not always maintained. In one village, the tower was meant to draw electricity from a small hydroelectric dam, but this project had never been completed and so electricity to run the system was unavailable throughout the day. The tower only worked in the evening when it was connected to a private generator in the longhouse. In another village, the tower often stopped working during bad weather. In several other villages, the cell towers or village WiFi systems had stopped working at some point due to lightning strike, flooding, and sometimes for no obvious reason, and were never fixed. Participants often tried to notify the responsible agency but either did not
know who to contact or had no response to their requests for maintenance. It was often unclear whether local or federal agencies or the mobile phone providers needed to be notified. Whether these structures were purposely obscured or whether maintenance had simply not been considered in the planning process, these problems contributed to people’s sense of helplessness and loss whenever their communications infrastructure failed.

This was exacerbated by people’s awareness of their own isolated position, as one participant put it, being located “in the middle of nowhere,” with their devices the only link to others outside the village. Many people expressed this in terms of their fear of being unable to access support networks in case someone fell ill or keeping track of the wellbeing of their family members. As one participant pointed out:

If something happens here, it’s difficult for us, say for instance if someone falls sick. If we need to contact the helicopter to come, that’s one problem. Or, if I want to contact my son at school, on the coast in Miri...

This led to feelings of isolation and social exclusion and to substantial anxieties for local people. The unreliability of the mobile phone service, the limited distribution of infrastructure and the frequent outages and interruptions pointed to the wider power structures governing the provision of service, and thus to the limits of agency that engagements with digital technologies were able to provide.

In spite of the limited digital access, local engagements with communications media were various and rapidly growing, reflecting local social, professional, economic and cultural aspirations, and including the exchange of information and content for social and cultural reasons as well as the emergence of new socio-economic practices. For example, a number of village homestays ran their own Facebook pages to promote tourism in the area, posting pictures of local attractions and offering tours and accommodation. According to one local homestay owner, the ability to access mobile phone service enabled him to promote his business and arrange transport and supplies:

Most of the time, every two weeks I have to go down, but now we have telephone here, so it makes it a little bit easier even though it is difficult to get
through sometimes, but it’s just good rather than going down [to the city in order] to make a call to somebody.

Other people used Facebook and other social media and messaging apps to promote local products, to order supplies for small local shops or other businesses. These practices were motivated by personal economic interests but they were also grassroots-driven, self-organised and sustainable, and offered local entrepreneurs new professional opportunities.

Many local people also documented the culture and history of the area through digital media technologies, for example by posting images of local events online and sharing them with others (Horn et al, 2018). This included local music and dances, traditional costumes, details from life in the longhouse or from the agricultural cycle. As one participant explained, local cultural traditions provided a strong sense of identity for local people:

Our cultural [traditions] like dancing, singing, all this we have to keep it up, like when you get married you have to perform our cultural [rites], how we bless the couple [for example]... That kind of thing we cannot leave, we cannot omit from our culture. That’s the best thing, that’s how we keep our culture, also our dances, how we play the sape [local string instrument], we have to keep it up.

Access to communications media also facilitated political participation. Popular blogs run by local people provided political and social commentary. People exchanged information via WhatsApp groups, much of it relevant to local issues and concerns, and accessed news, often through social media and personal networks. Digital technologies were also instrumental in the political contestation of traditional rights and for highlighting regional injustices. They helped local people to successfully contest unpopular development projects including the construction of a hydroelectric dam in the area (Sovacool & Bulan, 2012), and enabled grassroots groups to highlight crimes such as the mistreatment and rape of local people through logging workers (Ogilvy, 2018; Pak Bui, 2009).

In this way, entanglements with technologies, and in particular with digital technologies, opened up new possibilities for local people to contest their rights, including their right to belong to contemporary society as well as realise their traditional ethnic identities and to achieve access to the same opportunities as other
people in more urbanized environments. These entanglements were not coincidental or random but purposeful, an active, ongoing process of becoming in which people's affective desire to belong played an important role. I suggest that these are diffractions; evidence of the instances where people and technologies interact and where difference emerges as a result, which may be subtle but nevertheless meaningful and in aggregate has the potential to bring about more wide-ranging changes to people's lives and livelihoods, including greater social, economic, political inclusion.

Coda

As I have argued in this paper, technologies are agentic in the way they shape people's daily lives, their routines and livelihoods, in the diffractions that are the outcome of the entanglements and intra-actions between people, devices, infrastructure and other agents. I have used new materialist discourses to explore the different actors that are involved in this process; as Barad points out, diffraction experiments can reveal much about the nature of matter but also of the diffraction grating, the obstacle or object that causes the diffraction (Barad, 2007, p. 83). My use of new materialist theories to explore the agential capacity of ICTs for people in rural and remote areas highlights the emerging techno life-worlds that are the result of increasing ICT use, but also points to the fragility of these processes and the political and economic obstacles that limit agentic potential and thus the scope of entanglements that can occur. This discussion touches on an important point, namely the question of power and control over technologies. Conceptually, entanglements and intra-actions can be seen as fluid and open-ended, but the question of who has access and under what conditions continued to emerge throughout my fieldwork. This points to a directionality in processes of diffraction, an intentionality that can drive entanglements and, while it may not determine the outcomes, emerges as a determinant that enables some processes but not others.
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of Sarawak, Malaysia (UNIMAS) and a BA in Design Studies from London Metropolitan University in the UK.
Moving beyond (critical) reflection towards diffraction: A composting guide for world language(s) education

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Abstract

Professional and personal obligations have required us to engage in (critical) reflection as world language educators of Spanish, German, English and Indonesia. While we have sought to engage in nuanced and insightful examples of this, we cannot help but feel that our reliance on conventional strategies for (critical) reflection do not move beyond mirroring sameness and a corrective logic. As a result, we have turned towards Donna Haraway’s compost metaphor to highlight the transemiotic, technoscience and non-linguistic data that we may previously have missed. In addition, we attempt Donna Haraway and Karen Barad’s diffractive methodology for exploring the potential differences in our language practices and considering why these matter as a way to move beyond conventional (critical) reflection. Drawing on social media scroll-back interviews, we explore a range of alternative data (hesitation, affect, wonder, avoidance and shame-interest) that we sensed with(in) the entangled personal-professional conversations between ourselves and our Facebook timelines. Rather than suggesting a prescriptive method(ology) moving beyond critical reflection in world language education research, we instead offer our own intra-disciplinary example as a possible, experimental guide for others working in this space.

Keywords

Compost; Haraway; Languaging; Diffractive; Social media.
Getting started: From (Critical) Reflection towards Diffracting

As world language educators (WLEs), learners and researchers, we are continually made aware of the importance of (critical) reflection/reflexivity in relation to our own language uses, ideologies and pedagogies by professional bodies, ourselves, and colleagues as well as the literature we engage with. In fact, our respective WLE training education programs ingrained in us the need for critically reflective world language educators who have the ability to introspect, collaborate and engage in lifelong learning (Wright, 2010, p. 803). We wonder if we can move beyond (critical) reflection/reflexivity toward (critical) diffraction instead.

Recent developments in critical reflection for WLEs have attempted to operationalise the process (Farrell, 2018), and account for educator’s own positionings/subjectivities (Clark et al., 2014) using collaborative methods such as mediated reflective practice (Cerecero Medina, 2018) and dialogic reflection (Swanson et al., 2019). We have found inspiration from Walsh and Mann (2015) who suggest that WLEs reflective practice begins with a specific focus, and we have found this inspiration helpful for guiding us towards an exploration of our own (in)formal languaging practices on social media. While we continue to be inspired by the increasing complexity and creativity of such approaches, we cannot help but wonder if our continued reliance on these types of (critical) reflection practices might limit our possibilities for thinking differently and beyond any current positions that underpin our roles as WLEs, entangled with our other roles as students and researchers.

We also heed the warnings about current approaches to (critical) reflection for their tendency to mirror sameness from Barad (2007) and Haraway (1997); they suggest that reflection focus on reproducing the same from a fixed position which can lead to

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1 The term world languages has been used throughout this paper to refer to what have also been termed foreign languages, languages other than English (LOTE), or second languages. World languages is more commonly used in the United States and is not unproblematic itself. For some, it may evoke Anglo-centric connotation as does world music. The Australian National Curriculum uses the term languages, but this may cause confusion whereas foreign languages, languages other than English (LOTE), or second languages have negative connotations that associate languages such as Spanish and Indonesian as outside the community and alien to Australia while also ignoring the plurilingualism of speakers. Although world languages is not a perfect choice as it may evoke Westernised sentiments as does world music, at the very least it recognises the spatial and cultural diversity of languages.

2 We recognise that the terms reflection, critical reflection, and reflexivity are associated with their own distinct definitions. However, we also note that these terms are often used interchangeably to describe the process which is used to look back at what has been done in order to draw meaning from it (Dewey, 1938). Here, we use critical reflection given this is what has most often been used in our experiences as WLEs.
“a reductionist way of thinking” (Bozalek & Zembylas, 2017, p. 111). Such a way of thinking is of particular concern for us as WLE who are interested in multilingual words, grammar, and syntax but cautious of the ways in which these can be presumed to represent thought or correspond with an identity (St. Pierre, 2000). Barad and Gandorfer (2021) also argue that language (along with time and space) is limited in its expressibility. We have certainly felt this concern when repetitiously asked to produce written reflections about our teaching practice that end up recounting what happened (often in regards to the grammar mistakes of ourselves and our students) and attempted to represent our inner thoughts in words from our own singular viewpoints; we have felt limited by our own confining capacities to open up questions beyond ourselves and our grammar-informed notion of language that did not account for affect and more-than-human entanglements. In other words, we find it difficult to think differently within the current confines of reflexive practice/(critical) reflection. Hence, in this paper, we make an attempt to move beyond (critical) reflection when exploring our languaging practices as WLEs in Australia in the hope of generating ways of reflecting and languaging differently.

Additionally, we are wary of the representational motivations that may underpin (critical) reflection by focusing on “individual existence, independently and prior to relationality with other humans and the more-than-human” where emotions and affect are static and grounded in human subjectivity to step back from one’s experiences and use words to signify this and one’s inner thoughts (Murris & Zhao, 2022, p. 122). Instead, we prefer many of the tenets of a nonrepresentational ontology which highlights the “be(com)ing” that already exists in relation with one another “on the ‘edge’ of awareness” and acknowledges the affective capacities generated through remembering in-between human and more-than-human phenomena (Murris & Zhao, 2022, p. 122).

In doing so, we have turned towards diffracting (Barad, 2007; Haraway, 1988, 2016) as an alternative for bringing together the multiple linguistic, semiotic, digital, material, relational, political, cultural, and affective phenomena that entangle our languaging practices. In Haraway’s (2020, p. 466) words:
Diffraction does not produce ‘the same’ displaced, as reflection and refraction do. Diffraction is a mapping of interference, not of replication, reflection, or reproduction. A diffraction pattern does not map where differences appear but rather maps where the effects of differences appear.

Importantly, we consider there to be several distinctions between (critical) reflection and diffraction (see Table 1). Namely, we see (critical) reflection as tied to the identification of one’s flaws, normally via processes such as writing, which draws on language to represent thought and identify avenues for self-improvement (Bozalek & Zembylas, 2017). The teleological aims of critical reflection also trouble us, and, as such, we prefer the antiteleological aims of diffraction that are open to uneasy questions and incomplete answers.

Table 1. (Critical) reflection and diffraction/diffracting

<table>
<thead>
<tr>
<th>Knowledge production encompasses</th>
<th>Methodologies</th>
<th>Aims</th>
</tr>
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<tbody>
<tr>
<td>(Critical) reflection</td>
<td>Developing self-awareness of own flaws; Considering how issues of (power) constrain action (Bozalek &amp; Zembylas, 2017); Intentionally identifying and checking own assumptions (Brookfield, 2017)</td>
<td>“Objective” representations of one’s inner thoughts, often, using words; intervention; personal involvement in events (Ryan &amp; Webster, 2019).</td>
</tr>
<tr>
<td>Diffraction/ diffracting</td>
<td>Mapping intersectional, critical issues from a relational and multifaceted perspective (theoretically, ontologically, methodologically) (Murris &amp; Zhao, 2022).</td>
<td>Storying as one example although no set methodological preference; free of methodology (St. Pierre, 2019b); meaning-making with more-than-human and affective phenomena; re-turning to data; co-construction (Murris &amp; Zhao, 2022).</td>
</tr>
</tbody>
</table>
As such, we see diffracting in this way as a strategy for moving beyond critical reflection. Whereas reflection often requires reporting, recounting, and repeating what occurred, diffracting focuses on troubling dichotomies and binaries to reconfigure and reimagine what might be or have been with a focus on relational and multifaceted perspectives (Barad, 2014). Additionally, we have turned towards diffracting in an attempt to move beyond the “representational trap of trying to figure out what a subject really means” (Bozalek & Zembylas, 2011, p. 116).

Thus, we began wondering how we might do a diffractive analysis and if a concept/metaphor might aid us in doing so as suggested by Lenz Taguchi & St. Pierre (2017). This questioning led us towards Donna Haraway’s (2016, p. 4) com-posting where we saw the potential for “making oddkin”4; we require each other in unexpected collaborations and combinations, in hot com-posting piles. We become-with each other or not at all which has led us to ask further questions such as “How, with whom and with what can we add to our com-posting so that they diffract, rather than reflect and reproduce the same?” and “If this is an active, ongoing, and intra-actional process, are we perhaps com-posting?”. We see the potential for com-posting as a diffractive methodology given its capacity to “dissolves (sic) even our most stubborn dichotomies” like those of human/nonhuman, representational/non-representational and mind/reason (Bozalek et al., 2021, p. 115). Com-posting could also be considered a particular way of diffracting and mapping the interference of difference through the embodied processes of turning and (re)turning data, methodologies, and concepts.

Simultaneously, we are cognizant of the many complexities for com-posting with given the potential for so many oddkin; limitations, such as ingrained ontological and epistemological hierarchies preferring conventional humanist methodologies, simmer beneath our exploration of diffractive phenomena/oddkin (St. Pierre, 2019b). These limitations are extended further into unfamiliar terrain given the social distancing restrictions and school closures currently surrounding us due to COVID-19 in Australia. This clearly presents added layers of complexity for doing research in this way but rather than succumb to these troubles, we have chosen to engage with our

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4 Haraway (2016, p.3) describes oddkin as “situated technical project and their people” which we consider to include social media and one another in this project. She further argues that “making oddkin” requires trust, (re)imagination and a commitment to “stay with the trouble” of unclear, uncomfortable and impatient calls that the “game is over” and instead come together in unexpected collaboration and combinations (p.4).
response-abilities: our capacity to respond to those oddkin we are able to work with during this time and in this space. We consider those oddkin to include each other as WLEs of different languages (Spanish and Indonesian), social media and new materialist theories that incorporate a vast array of alternative data attempting composting as a conceptually guided method (Lenz Taguchi & St. Pierre, 2017). We combine social media posts and post-paradigm inspired diffractive analysis as a way to (re)imagine the doing of educational and linguistic research.

**Layering a diffractive com-posting pile: Suggested matter for WLEs**

The unfinished Chthulucene must collect up the trash of the Anthropocene, the exterminism of the Capitalocene, and chipping and shredding and layering like a mad gardener, make a much hotter composting pile for still possible pasts, presents, and futures (Haraway, 2016, p.57).

**Critical theory: New materialism**

In this paper, we consider an essential layer of a diffractive composting inquiry to be a possible approach for “adding affirmatively to what is always already there because texts are porous and without boundaries” (Bozalek & Murris, 2022, p. 55). Although a number of approaches could be applied, a new materialist approach inspired by scholars who have chipped away at the humanist tradition that dominates conventional research practice has resonated with us. New materialist scholars assert that humanist conventional paradigms in qualitative research continue to promote essentialism and binaries, and, thus, are not adequate for interrogating the world (Lather & St. Pierre, 2013; St. Pierre, 2013). Instead, they argue in favour of a new relational ontology that “rejects representational and power-producing binaries such as language/world, symbolic/reality, culture/nature” grounded in relations and the in-between (Murris, 2021, p. 7); this relational ontology also troubles the idea that “pre-existing, separately determinate entities of one kind or another that exist prior to the relations they are part of” (Murris, 2021, p. 8).
Our preferred blend of new materialism has relational roots/routes stemming from the feminist philosophy of Donna Haraway (2016) and her *com-posting* theory. Extending on Karen Barad’s (2007) conception of ethiconto-epistemology, Haraway (2016) advocates response-ability, which she defines response-ability as “rendering capable” through becoming-with in multispecies collaborations (Haraway, 2016, p.16). She urges us to also seek out cyborg littermates with which/whom to make oddkin, which we interpret as a call to incorporate alternative non-human, more-than-human and digital phenomena into our research as a challenge to the humanist tradition problematised by new materialist scholars.

The concept of new materialism inspires us, as WLEs, to start to think differently in an attempt to disrupt the hierarchisation of language and languaging practices, including those forming part of our personal/professional response-ability for critical reflection. Thus, we have also sought to move beyond (critical) reflection and have been inspired by recent work turning towards diffraction (e.g. Bozalek & Zembylas, 2017; Gurney & Demuro, 2019; Lenz Taguchi, 2012; Mackinlay, 2016; Mitchell, 2017; Murris & Bozalek, 2019).

**Tech-tacular ones**

Making a diffractive com-post pile for exploring “possible pasts, presents and futures” (Haraway, 2016, p.57) of our languaging practices requires tentacularity: entanglements with beings, or tentacular ones, be they human, or non-human: animal, technological, digital. However, the availability and accessibility to such tentacular ones for our project were bound by social distancing protocols during the COVID-19 pandemic. Much of this project occurred during discussions from our respective homes where we sat using Facebook Messenger chat. Thus, it soon became clear that now more than ever, technological entanglements through social media play a significant role in our globalised world becoming entangled with our everyday and professional lives (Chugh & Ruhi, 2018; Mercieca & Kelly, 2018). As such, our notion of *com-posting* includes past/present/future social media posts as examples of the more-than-human whilst also seeking to entangle different colleagues – in our case teachers of languages other than those we teach – in a cycle of collaboration, diffraction and becoming-with.
We noted the relevance of social media given the ways in which it blurs the boundary between personal and professional (Chugh & Ruhi, 2018). The rise in legislation and professional codes of conduct regulating teachers’ use of social media has contributed to the perception of teachers’ social media use and education as something unprofessional and morally objectionable (O’Connor & Schmidt, 2015) - positioning social media in educational research as exactly the type of taboo-oddkin new materialist approaches turn towards. Moreover, the conceptualisation of language use on social media as “informal” (Godwin-Jones, 2018) has further marginalised online languaging practices, thus, playing into the notion that WLEs’ social media languaging practices are invalid and inappropriate for school and research. We, therefore, hope to blur the lines between personal and professional languaging practices of WLEs through our attempts to explore our own Facebook timelines and underexplored personal, private lives (Krutka and Carano, 2017).

We also recognise the need to pay attention to motivations for exploring WLEs social media driven by personal and public policy. For example, the National Curricula for Languages in Australia encourages students and educators to understand, analyse, correspond, present, and compose texts using social media (Australian Curriculum and Assessment Reporting Authority, 2020a, 2020b) meaning we have a professional response-ability to understand our own personal social media languaging practices. I, Danielle Heinrichs, as a third-generation German/Spanish heritage speaker, have come to realise the importance of social media for enacting languaging practices when geographically isolated from Spanish and German-speaking friends and family. I, Dewi Andriani, am a transnational Minangkabau/ Indonesian speaker, who migrated to Australia about 15 years ago. For me, social media is one avenue to interact with friends in the same space and to reach out to relatives/friends in other times/spaces to maintain an attachment with my homeland using multiple languages. Accessing our social media account also affords us a diffracted temporal experience: we wrote the posts in past moments unaware of their potential use in our research, and they also extend back further and deeper than our own memories including details of time, date, and location we have long forgotten.

We were also interested in social media as languaging is done differently in this virtual space (García, 2018; Seargeant & Tagg, 2014). By different, we mean beyond modes,
modalities and actors encompassed in conventional humanist research produced by human subjects, conveyed using named languages and limited to speaking and writing. As WLEs, languaging practices not commonly taught, nor held in high esteem, in the Australian National Curriculum for languages, textbooks or by international regulatory bodies are also those that we consider beyond conventional research. The inclusion of our own social media is also driven by the vast amount of time we spend there using multiple languaging practices in ways we do not in other areas of our lives e.g. offline, in the workplace or monolingual settings. We also both admit to being heavy users of social media and self-conscious about the ways we have used language there. Thus, we consider digging into our social media posts an opportunity for becoming-with the type of material semiotics that is “always situated, someplace and not noplace, entangled and world. Alone, in our separate kinds of expertise and experience (Haraway, 2016, p.4).

Alternative data / Compostable droppings

Continuing the layer of our diffractive composting pile as WLEs also requires us to rethink the types of data, or what Haraway (2016, p.28) may refer to as “compostable droppings”, we entangle ourselves with(in). We advocate for researchers to entangle themselves with(in) these alternative data from their sources as part of a diffractive composting inquiry in order to question “what counts as ‘data’” (Benozzo & Gherardi, 2019, p. 45) and focus less on “what is and more on...what might be and what is coming into being” (St. Pierre, 2019b, p. 4). We take the view that data are not out there, waiting to be discovered during research, but instead generated through/with/in research and relationality, such messiness becomes data (Benozzo & Gherardi, 2019).

Although it is impossible to name and list the specific types of alternative data, we might be sensitive to through a diffractive composting analysis, we have found it helpful to refer to the prior research for inspiration and examples. Some of the earliest work in this regard relates to what St. Pierre (1997) to as “transgressive data”; she identifies these as: emotional data, dream data, sensual data and response data and explains how they are out-of-category in that they move beyond words and/or language. More recently, scholars have added further suggestions to the pool of potential alternative data with similarly, more-than-language compostable qualities.
Benozzo and Gherardi (2019) conceptualise “not-yet” data as those which appear in the shadows of research and may be described as illegible, wonderous, disorienting, hesitant and worn out.

These are but a few examples of potential “compostable droppings” available that we propose for diffracting rather than only (critically) reflecting by attempting to map the effects of interferences between language, technology, WLEs and their affective responses. Hence, we suggest that dropping ‘not-yet’, shadow, affective, and troubling data is vital for layering a diffractive composting pile for WLEs that takes stock of multiple, entangled data.

Intra-disciplinary colleague(s)

As we layered our diffractive composting pile together, we were struck by the generative effects/affects of working with each other as intra-disciplinary colleagues. What we mean is that we have come together/apart as world language educators who teach/learn different named languages. This is opposed to the trend in (critical) reflection for WLE to group teachers by named language or to pair them with colleagues from completely different disciplines such as biology, physical education, or food technology. Given that, I, Danielle have spent 13 years studying Spanish and German and grew up speaking English whereas, I, Dewi have spent years learning English since high school, grew up speaking Minangkabau and teaching Indonesian in Australia, we consider our working together an intra-disciplinary pairing. Moreover, the feedback, insights and (re)turning of the ideas and concepts here have been further diffracted through the review process; therefore, we also suggest that anonymous colleagues (re)turning each other’s work might offer an additional layer of nuance to a composting approach. In doing so, we also argue that there is further potential for diffractive composting due to (mis)understandings, (dis)comfort and troubling affects when accompanied by a genuine intrigue to map the effects of the differences between our languaging practices and ask why these matter.
An experimental guide for diffracting the com-posting pile for WLEs

Making a diffractive composting pile with our suggested matter also warrants consideration of how to do so. We began with curiosity, seeking a method that would invite alternative data/compostable droppings whilst also allowing us to consider the effects of differences between our languaging practices and the past/present/future phenomena entangled with them. As a result, we turned towards social media scroll-back interviews (SMBIs) based on a novel method developed by Robards and Lincoln (2019). They describe SMSBIs method as a form of longitudinal narrative research involving a combination of in-depth interview and scrolling back through the interviewee’s social media. Through the combination of interview and the scroll-back, we hoped to bring to life the digital traces and context of our languaging practices (Robards & Lincoln, 2019). We chose to use our Facebook timelines and asked each other to highlight examples of what we considered to be response-able languaging practices by drawing. Hence, we used scroll-back method in combination with an interview whereby we each took turns scrolling back through our Facebook timelines and pausing on examples of posts we considered illustrative of response-able languaging practices. At times we prompted one another for further details in the form of questions, and verbal and non-verbal reactions, but importantly, the interviewee maintained control of the scrolling. To avoid issues tied to institutional ethics such as privacy and consent, we opted to record audio-only rather than video record the screens due to the plethora of names and details of others that would have been difficult to remove/redact. Post-interview, we returned to our separate desks on levels 5 and 6 of our building to transcribe our conversations. After doing so, we sat with the transcripts, letting them sink in, turn, and break down before recompiling our initial scroll-back interviews through additional face-to-face and online conversations in which we explored the phenomena generated from this process focusing on the alternative data/compostable dropping, and asked why these matter for languaging and for WLE in Australia.
Turning (in)to a diffractive com-posting analysis

Drops of wonder

Dewi and I began scrolling through our Facebook posts looking for examples of what we considered response-able languaging. I stopped scrolling on a post containing a video I had shared from a popular Facebook page named We are mitú which is a community that describes itself as “100% American and 100% Latino...committed to creating authentic, culturally relevant stories” (We are mitú, 2020). I began by describing the video “Um...so this [post] is talking about Taíno culture which is one of the Indigenous cultures from Latin America yep...I think it´s in Spanish from memory and it´s talking about some of the words that come from Taíno that we still use today in Spanish” hoping to play the video and perhaps analyse the words we saw and heard as examples of cross-cultural linguistics and the concept of Spanish(es). Yet Dewi uprooted us from my planned path of conversation for this post by wondering aloud “What is Taíno?”. MacLure (2013) suggests that wonder presents an untapped potential in qualitative research data for disorienting the entanglement of data-researcher; we further suggested that viewing wonder as an act of affirmative engagement that transcends individuals might also constitute diffraction as opposed to the focus of critical reflection of affect as individuals' emotions and feelings to be neutralised. This was the case as our conversation continued in another direction with a discussion of which languages were used in South America – Dewi wondered more out loud about the linguistic genealogy of Latin America “The national language is Spanish?”, “Some dialects?” which I responded to with post, relaying titbits about Quechua, Mapuche and English in the Latin American context. All the while we both glanced back at the now still video showing a Taíno woman in traditional dress and holding a traditional instrument. I too felt Dewi’s curiosity about this post having devoted many years to Latin American studies and being the one to initially share it. At this point, I am reminded again by MacLure (2013) of the way in which wonder is relational and can be thought of as mutual affection brought about by virtual and actual “intra-action” (Barad, 2007). Yet we never know where this wonder originates from nor to whom it belongs (Maclure, 2013). Thus, we consider this affective intra-action brought about while wondering about language histories shared through Facebook posts as an example of com-posting. Dewi’s wonder (re)oriented our
conversation, or in other words, turned the com-posting by wondering about the social media post I had shared; this affected the pace and rhythm of our conversation as I responded with post and generated the possibility of a conversation about language without talking about linguistics. Upon (re)reading this part of our scroll-back conversation, we are struck by our response-ability to engage in wonder and curiosity to tell the stories of our social media posts including more-than linguistic features of languaging, or in Haraway’s (2016, p.39) words “multimodal semiotics”. Through such affective storytelling, Haraway (2016, p.150) argues that com-postists are able to think-with one another – human and nonhuman – as a powerful practice for “comforting, inspiring, remembering, warning, nurturing, compassion, mourning and becoming-with”; we see affective storytelling in stark contrast to the ethics underpinning critical reflection whereby one must control their emotions in order to accurately represent the world (Murris & Zhao, 2022). This inspires us to move beyond stereotypical conversations with intra-disciplinary colleagues about the linguistic features of one language or another and to instead wonder (or invite others to wonder) “Where did/do our languaging practices come from?”, “Why do they matter?” and “What stories do they/we tell?” We also suggest that the practice of wonder and affective storytelling might offer WLEs a strategy for diffraction as an alternative to reflection by (be)coming into conversation with one another and social media data through wonder, and curiosity.

#first drops of shame-interest

Scrolling through my Facebook timeline, the first post that appeared showed photos of a fundraising dinner in which I had been tagged by an Indonesian friend who had written the post in English as she has lived in Australia for quite a while. It was not a surprise reading my Indonesian friends’ posts in English, especially posts from those who had lived outside the country or were majoring in English at university. However, while scrolling through some of their posts, I sensed a feeling of shame from inside of me after I spotted errors and subsequently found myself interested in mentioning these to Danielle. But before doing so, I paused, wondering why I felt this shame-interest (Mayes & Wolfe, 2018) all at once, unsure of whether to delve into this example or not. I reconciled that such a feeling may have been triggered by my perception of
an imbalance in power relations between English native speakers and non-native speakers (Holliday, 2006), and also between the researched and the researcher. Entangled (in)between these roles, I remained stuck for a moment with this shame-interest, conscious of the ethical issues associated with exploring shameful topics such as error-making for several reasons. How might acknowledgement of my own shame in taking interest in the errors of a non-native speaker affect Danielle, our readers, and students? Would my shame-interest, in its contagiousness (Wolfe & Mayes, 2018), reinforce language hierarchies and binaries even though I simultaneously hoped to dismantle these in my own classroom and praxis? Eventually, my interest won, and I described this post, the errors, and my own shame in doing so with Danielle. She responded with sympathy and an anecdote of having been in a similar position herself a non-native speaker of Spanish/German leading us to point out how problematic the sustained practice of error correction can be. As such, our conversations about these posts allowed us to take stock of the ways in which colonial linguistics mandating a corrective logic and perfectionism (Makoni, 2013) pervaded our innermost thoughts and everyday languaging practices despite our personal/professional advocacy of more open and creative practices such as translanguaging (Garcia & Wei, 2013) and transemioticizing (Lin, 2015). Was this messy shame something that would forever stick, or could it be then, as Mayes and Wolfe (2018, p.3) contend that, our performativity of shame is “not fundamental to identity, but relational and contextual”? I came to see how our collective interest in shame may not generate only negative emotions but productive encounters to question language hierarchies whilst also disrupting traditional research practices which exclude affect; here we draw on the understanding of affect as “the capacity to affect and be affected” (Mayes & Wolfe, 2018, p.2). In this sense, I consider it a response-ability as a world language educator to invite shame-interest into conversation as part of the material-semiotic composting Danielle and I hope to evoke. Further, we see this example of relationality that generates messy, sticky affects that we explore through speculative questioning as aligned with our diffractive com-posting and different from critical reflection which aims to offer certainty and accuracy through clearly defined next steps and solutions.
(Re)turning to my timeline, I continued scrolling past the error-filled, fundraising post though. Yet, once again, I felt my shame (re)merge although in a different form as I tried to maintain the newfound agency I was afforded as I controlled the mouse, something less commonly afforded to those classed as the participant/research. As I scrolled back, I found myself actively avoiding particular posts I considered shameful, feeling content with this avoidance supporting my sense of agency. On the one hand, the potential for me to do this speaks to the traditional notion of agency associated with human intentionality (Barad, 2007). On the other hand, the social media and position of the researcher also hinted at their own nuanced forms of agency in response to mine. Danielle, who was positioned as a researcher as I scrolled, had more power to chase the matter that she wanted to know as she too could see the languaging practices on my timeline. Initially, I attempted to avoid some of Danielle’s questions about posts I would have preferred to avoid. Avoidance was a strategy to avoid being humiliated over posts where I’d seen errors in using the language myself. Yet she unassumingly asked me to go back, and that was when my face began to burn, and I sensed my discomfort. As I could not escape being caught in the matter on my timeline that Danielle was interested in, I eventually confronted my errors. I explained to Danielle, “I am a language teacher, I tend to find the errors in the writing... That’s why I am afraid to post something because I am worried people would judge me from the language I used”. I admitted that I was afraid to post in English as it is not my first language. Danielle might not have focused on the errors, but I did. I further explained that even though they are considered informal non-academic texts, I carefully checked the spelling, expressions, and grammar, especially when communicating in a language, again, because I was writing in a language that was not my native language. I would make sure there were no mistakes in terms of spelling and grammar. I sometimes spotted errors after I posted something, and I would edit them away. I found myself wondering why I made these corrections as I scrolled back through my timeline. I asked myself whether this was a good thing or a bad thing, and why it might matter either way. For me, making a mistake in a language that is not my native language incites feelings of shame when I am interrupted from avoiding them, but I consider this to be in ways that are relational, generative, performative, ethical
and contextual (Mayes & Wolfe, 2018) as, during the interview, they were visible for Danielle to question. Thus, Danielle and the cyborgian, digital medium of social media interrupted my agency of avoidance. This has led us to understand avoidance as a form of agency but to reconceptualise agency in line with Barad’s (2007) understanding of agency not as foreclosed, but rather as the ongoing (re)configuring in material-discursive intra-actions that extend beyond human to the nonhuman as well. I further wonder if this fear of making errors and the agency of avoidance that is affected by this becomes a source of alternative data/ compostable droppings.

When (re)considering my avoidance and shame around my languaging in my social media posts, I become less concerned with whether or not this is a good or bad thing and instead begin thinking about what the avoidance and shame might do. Like Ahmed (2014), Mayes and Wolfe (2018) further point out that shame is not only a negative affect but that it also produces action. I noted this as during the scroll-back interview, things that I initially tried to avoid, became matters we talked about intensely. In addition, the relationships between researcher and researched, between native speaker and non-native speaker were entangled in the matters of avoidance and shame-interest disrupting traditional notions of agency as an individual property. In other words, avoidance and shame-interest (re)generative of agency that is active rather than inactive in that shame is relational by generating the feelings of discomfort in others as well as avoidance as it did when I attempted to sidestep Danielle’s question in our scroll-back interview. Perhaps in seeking strategies to avoid being humiliated, we may afford all phenomena agentic intra-action and diverge from the representational ethics of critical reflection that sees only humans having the capability to “choose to avoid harm and be virtuous” (Murris & Zhao, 2022, p. 93).

Drop #round2 into shame-interest

Reading over Dewi’s first example I am rather embarrassed to admit my intrigue in the shame she describes as I can sense in myself a shameful tinge of Schadenfreude as it is for once not me making mistakes in another language nor attempting to challenge monolanguaging norms that prevail even within our own language classrooms. Yet it is this type of interest in shame (shame-interest) that Mayes and Wolf (2018) describe as an ethical response-ability in educational research. They consider shame-interest
essential for moving beyond (critical) reflection for the ways in which it invites relationality, vulnerability, and attunement to faltering power relations. So rather than filling in the deep hole of my shame-interest, I am sticking with the troubling possibility for Dewi’s shame and the affirmative possibilities my shame-interest in it might evoke (Mayes & Wolfe, 2018). Thus, I have been left wondering if I too have performed shame in our social media scroll-back interview about response-able languaging practice, and if so how and why does this matter. Digging through the interview transcript once again I was taken by a shame-interest-generating example as I recalled stopping on a post with a music video of a German-Colombian-Polish band named Culcha Candela whose music is a blend of Berlin-house and reggaeton. “There’s this band here -they were um…Culcha Candela, They’re...I think they are Latin American, but they live in Germany, and they sing in German, and they put a bit of Spanish into their music”. I had selected this post for the ways in which the band used translanguaging strategies in their songs, and for the ways in which I identified with them as members of youth culture, non-native speakers of various languages and lovers of reggaeton. Later in our interview, we stopped on another post with a photo I had taken of Paula Rivera-Rideau’s (2015) book Remixing Reggaetón and commented “And then I’ve got this book that was so hard to track down. Remixing reggaetón”. “Reggaeton gets a pretty bad name” I clarified. At the time, I hadn’t noticed the entanglements of these two posts and my subsequent comments as they were spatially separated by pages of transcripts and temporally separated by years of other Facebook posts. As I sit in the shadow of shame-interest, slowly mulling over the meaning of this temporally/spatially in-between, I am finding it hard to resist the urge to turn this into some kind of data albeit I am not sure what. Whilst Sehnsucht (German for a yearning for ideal, alternative experiences) seems an apt description of the affective response generated by my shame-interest in reggaeton, it doesn’t quite capture the complexities and nuance of heritage language speaker identity politics I know lay beneath this (Little, 2020). Benozzo & Gherardi (2019, p.149) describe this affective response as part of the “zone of indeterminacy before the ‘data’ get formed, i.e. in that area of not-yet-data”. Drawing on Manning (2016), they emphasise the possibility for affective not-yet-data to produce “different conditions in which subjectivity can be revealed and knowledge can be produced” through the process of slowing down both acting and interpretation (Benozzo & Gherardi, 2019, p. 149). Discussing this example in
conversation with Dewi whilst scrolling back through my Facebook timeline, I had the opportunity to slow down and wait for the affective ‘not-yet’ data to become. It has now been 7 months since our initial conversation, and we have yet to determine exactly what this data may be. “Perhaps it is precisely in the realm of play, outside the dictates of teleology, settled categories, and function, that serious worldliness and recuperation become possible” (Haraway, 2016, p.23). Thus, we suggest that staying with the trouble of this unknowing is another phenomenon generated by our scroll-back interviews conducive to a diffractive composting pile by virtue of its anti-teleological intra-actions.

Food for thought

In conversation with one another through our social media timelines, we have sought to move beyond the sameness mirrored in past (critical) reflective practices for WLEs through our experimental composting methodology that is continually be(com)ing. Throughout the com-posting process, we visited and revisited posts on our timelines to ask ourselves what constitutes response-able language practices in an attempt to diffract our ways of thinking with/of/about this. Rather than seek out themes, we instead chose to focus on those differences that mattered, particularly the alternative data/compostable droppings we saw as fruitful seeds germinating affective, embodied responses. We acknowledge then, that our example is only that, an example. Rather than leave WLEs with a prescriptive guide for doing/thinking up their own diffractive composting piles, we hope our example plants the seeds of future work in this space through the following questions: What other concepts as method might generate diffractive practice beyond (critical) reflection for WLEs? How might we (re)imagine data and language outside the constraints of teleological categorisations for diffractive composting? Who/what else might we invite into conversation for more fruitful WLE diffractive composting? We suggest that turning towards increasingly popular yet disregarded social media platforms such as TikTok might be a starting point here especially given the recent work showing its relevance for language learning (Lee, 2022). We also suggest that “unthinkable” methodologies that draw on different “worlds, people, data, analytical tools, interpretations, practices, and settings...in new, unpredictable and constantly changing ways in senses,
experiences, discourses, images, and texts” might provide fruitful sources for further diffractive composting (Savin-Baden & Wimpenny, 2014, p. 68). We also encourage future research to (re)imagine, generate, and play with alternative affects that are perhaps yet unfelt/unknown/unnamed but move beyond the commonly noted psychologised affects noted in current language education research such as foreign language anxiety.

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Pandemicity and Subjectivity: the posthumanist vulnerability of the zoe/geo/techno framed subject

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Abstract

The COVID-19 pandemic has caused unprecedented global disruptions, including a fundamental alteration to how humans exist. In this paper, we argue that the disruptions brought forth by the pandemic have provided us with a new perspective that allows us to better understand the various entanglements that are constitutive of the beings we are, but that also render us fundamentally vulnerable. Grounded in a posthumanist material feminist position, we adopt a view of matter as entangled and embrace the notion of agentic capacity while elaborating a definition of posthumanist subjectivity and its peculiar vulnerability. Building our analysis on Rosi Braidotti’s formulation of the zoe/geo/techno assemblage, we further develop this frame navigating through the different entanglements that constitute the posthumanist subjectivity we scrutinize, considering each type from the perspective of the pandemic. As we argue, the increase in one type of entanglement at the expense of others may be generative of new possibilities but can also limit our thriving. What defines us as humans is the fact that we are constituted via the threefold entanglement of zoe, geo, and techno, radically boosting one and diminishing the others—purposefully or not—is bound to have significant impacts. Further, we claim that we cannot in fact isolate one type of entanglement from the others: each impacts the other as they themselves are also entangled.
Keywords

Vulnerability; Material Feminism; Posthumanism; Subjectivity; Pandemic.

Introduction

The COVID-19 pandemic has caused unprecedented global disruption. Humans have been relegated to their homes through various isolation and quarantine orders and have seen their interactions with other humans and the world altered in very significant ways. So-called “normal” daily life stopped, and every outing needed to be taken with care. A lot of people either lost their jobs or were relegated to the private space of the home, further jeopardizing the already precarious work/life balance. We have had to “re-invent” ourselves and the pressures have been experienced in very different ways depending on one’s gender, ability, race, class, etc. Across these differences, however, most have experienced a fundamental alteration to the human mode of existing. While this may have been experienced in a painful way, the sudden and extensive disruptions brought forth by the pandemic have also provided a new lens through which we can understand ourselves, magnifying and bringing to light the various entanglements that are constitutive of the beings we are.

To be clear: the pandemic did not generate these entanglements nor is the intention of this paper to provide yet another reading of the pandemic through the lens of posthumanist ontology. Rather, we wish to highlight that an event of this scope allows us to see more clearly what entanglements constitute us and how, especially when they are reduced or significantly altered. The zone of discomfort brought about by a crisis allows us to understand ourselves and the extent of our entanglements and related vulnerability better.

We adopt a posthumanist material feminist view of beings informed by the philosophies of Stacy Alaimo, Karen Barad, and Samantha Frost, among others, and discuss the concept of posthumanist subjectivity. We use feminist neomaterialist theory to develop Rosi Braidotti’s notion of the zoe/geo/techno framed subject presented in her 2019 book, Posthuman Knowledge. We therefore adopt a view of matter as entangled and embrace the notion of agentic capacity that posits agency well beyond the willful agency exercised by human consciousness. The world is an
entanglement of beings and their agentic capacity, which creates a vibrant and dynamic network of relations that is always shifting. This perspective entails understanding events such as the pandemic in terms of an intensified dynamic shift in this entangled world. As such, the agentic capacity of a tiny being, the virus, is extensive and causes the whole entangled network to be affected and to change and the entangled individual beings within it to readjust and reconfigure their entanglements. This causes disorientation and distress since beings thrive on the entanglements they are familiar with—albeit unconsciously—to go through life. For humans, this means some balance between interpersonal, material, and technological entanglements—a balance each and everyone has learned to negotiate for themselves. It also means that we must conceive of beings as fundamentally vulnerable: their openness and connectivity with other beings and the world makes them what and who they are. Vulnerability is a double-sided concept: we must exist as vulnerable and yet this vulnerability also potentially endangers us.

Building our argument on a posthumanist concept of subjectivity and vulnerability, we consider the pandemic—with its sometimes severe limitations placed on “real life”—as a fertile setting through which we can better understand the multifaceted entanglements we aim to explore. In response to the situation created by the pandemic and the, sometimes severe, limitations placed on “real life” we read subjectivity as constituted via this threefold entanglement of zoe, geo, and techno and posit that radically boosting one and diminishing the others—purposefully or not—is bound to have significant impacts. Further, we will claim that we cannot in fact isolate one type of entanglement from the others: each impacts the other as they themselves are also entangled.

**Posthumanist Subjectivity and the spectre of the pandemic**

The disruptions brought forth by the pandemic have affected the ways in which different subjectivities experience the various entanglements that constitute them. For multi-entangled subjectivity to thrive a serious redefinition of the boundaries of the subject is required. This is not an easy task for a posthumanist: the posthumanities themselves arise in clear opposition to the roots of exclusion, marginalization, and hierarchy posed by the human(ist) subject. Further, one must be
wary of providing a definitive answer to the question "what is the posthumanist subject?" for fear of providing yet another narrow notion. Posthumanist material feminism provides tools for dismantling the solid boundaries of the subject erected by the hegemonic strand of humanist, ethno-centric, specieist thinking of modernity. It proposes a critique of the autarkic monolithic individual of knowledge along with a re-evaluation of materialism starting from the agentivity of matter and life itself. Nonetheless, the move to bring the *Earthbound*¹ to the fore through a posthumanist focus-shifting exercise could lead to a flattened ontology, exposing a material posthumanist subjectivity to the risk of losing the ethical and political potentiality that may have been the strength of the humanist subject.

Material feminism and critical posthumanism focus on the immanence of relational exchanges within materiality and their performative potentialities (Dolphijn & van der Tuin, 2012; Barad, 2003), the vibrancy of matter (Bennett, 2010), the power of the natureculture hybrids (Haraway, 1991), and the intra-active agentivity and energy shaping organic and non-organic entities (Barad, 2007; Frost, 2016). These are fundamental to a wider recognition of the assemblages obscured by the Eurocentric notion of "the subject." A more complex and heterogeneous web of agencies and agentic capacities constitutes living and non-living creatures. As posthumanists, we remain concerned with the complicated task of thinking subjectivity and, using the framework of feminist materialism, we construe it as embodied, exercising actual agentic capacity, able to enact and perform changes and to be affected at the same time. A posthumanist subjectivity keeps together the many entanglements of bodies and the earth, the partiality of situated perspectives, and the non-human/more-than-human otherness, the new techno-hybrid forms of life, and the need to preserve some aspects of the givenness of zoe.²

Among critical posthumanist feminists, Rosi Braidotti stands out as one who keeps the focus on the situated political vocation of subjects. We are embedded and embodied (Braidotti, 2019) and, as such, have ethical and political responsibilities. Following Braidotti we propose a specific understanding of the concept of subjectivity

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¹ This term is the English translation coined by Donna Haraway (2016) of Bruno Latour’s concept of "Terriens" which he opposed to human beings as subjectivities bounded and reliant on Earth’s (Gaia) agency. See Bruno Latour 2014 and 2015.

² The concept of zoe will be further analyzed below. The expression "the givenness of zoe" points indeed to the materially inherent feature this concept preserves and that exists ("is given") regardless of how human knowledge considers it.
that is not merely considered as the pure inscription surface\(^3\) of power relations, nor the autarkic “One” which refers to the human being of the mainstream version of Enlightenment thinking. Moving away from the self-referential game of identity recognition that excludes all kinds of “othernesses”, we propose to focus on understanding what a subject could be in opposition to the normative-descriptive philosophical habit of analyzing what a subject is. In this way, we aim to foster the ongoing consideration of both the dis-identified human subjectivities and the non-human, organic, techno-framed and even non-organic beings as protagonists of the posthumanist assemblages.

This broader notion of subjectivity is non-definitive and non-normative—all the while being held accountable for its agentic impact. A posthumanist subjectivity truly is a becoming, a making-with—a sort of relationality—and intra-active materialization of connections\(^4\), able to escape reductionist dualisms. By refusing the Kantian notion of the subject as the center of knowledge and criticizing the Western affirmation of the human subject craving identity recognition, the posthumanist perspective gradually weakens this privileged position. As a becoming-subjectivity, the posthumanist subject seeks affect laden, unexpected alliances (Lykke 2018). As a flourishing of multiple agentic capacities that resist the stance of a singular identity, this posthumanist subjectivity, as we explore it, is a zoe-geo-techno assemblage (Braidotti, 2019). Instead of being a fixed identity, it shares the exceeding vitality of zoe, a partial and situated perspective of the geo, and the techno-poiesis transformation of the contemporary era. The twofold movement of the epistemological shift and the account of more-than-human agency is what constitutes our critical posthumanist re-evaluation of the subject and a paradigm shift from the modern anthropocentric conceptualizations.

Our experience of pandemicity has generated conditions—shifting significantly our zoe/geo/techno entanglements—through which we can gain insights about the posthumanist subjectivity we have always been. The major disruptions “initiated” by

\(^3\) Braidotti’s work is definitely influenced by the political philosophy of Michel Foucault. Knowledge production, cartographies of practices, the centrality of bodies and power relations are concepts that are always taken into account in her thought. It is thanks to this approach that a dismissal of subjectivity is impossible. Nonetheless, the critical posthumanist perspective developed by Braidotti needs to consider the powerful agentic capacity of bodies and the potenti\(^a\) that springs from them. Posthumanist embodied subjectivities participate in prismatic entanglements: power relations do not shape them and affect them as rough matter or as pure “inscription surface”. See Foucault 1978.

\(^4\) In this sense a posthumanist materialist subjectivity follows the theory of agential realism given by Barad.
the action of a being—Sars-CoV-2—traditionally conceived as not exercising a clear-cut agency, are still ongoing in human and non-human animal lives, thereby demonstrating this being’s great agentic capacity. The globalized and interconnected nature of human society has facilitated the massive circulation of Covid-19, but more: the pandemic tells us something about the assemblages we inhabit and we are. So far, several posthumanist thinkers have provocatively re-drawn da Vinci’s perfect and performing figure of the Vitruvian man, replacing its supposed ideal body with that of historically marginalized subjectivities. Women, animals, cyborgs, and even transpecies could figure in these redrawings⁵. Once we fully recognize the intra-active relationality of different agentivities affecting and composing the multi-entangled reality we inhabit, not only can we account for different agentic impacts—and therefore for a different understanding of ethical and political response-ability—but even a tiny being like the virus can occupy the position of “measure of all things.” With respect to the pandemic, this is exactly what happened: a non-exceptional event indeed—the unfolding of entanglements—has been perceived as extraordinary—rewriting for instance, our routines, our productive system, our globalized capacity for mobility—only because we have never accounted for our entanglements and our “making-with” the alterities in the first place.

One of the founding philosophers of the posthumanist turn, N. Katherine Hayles, has recently taken into consideration the suffering generated by the proliferation of the virus. Doing so, she reads the impetuous force of matter’s agency into the dynamics of the pandemic, focusing on evolutionary potentiality. The virus has caused a crisis for the dominant species: “[I]t reminds us with horrific force that although humans are dominant within our ecological niche, many other niches exist that may overlap with ours and that operate by entirely different rules” (Hayles, 2020). Following Hayles, we reiterate that the COVID-19 pandemic should not surprise us: other agentic capacities, such as that of a tiny viral RNA, are showing humans how misleading it has always been to consider ourselves the most influential life form on the planet with our supposed mastery over nature. Sometimes, other subjectivities appear to be stronger, more powerful and pervasive than the best, most refined hyper-technologies humans

⁵ See Tsing 2017.
can design\textsuperscript{6}. We are only starting to account for the many entanglements we are embedded into because our very lives and supposed uniqueness are threatened. Once more, we end up reproducing the negative dualism of us against the other, reproducing the exclusionary dualism and the immediate dynamic of inside and outside and pitching the virus as the alien other insofar as it threatens our existence—instead of conceiving it as having always had an agential capability and a constant relationality with other subjectivities (whether destructive or not)\textsuperscript{7}.

Let us consider some models of contemporary posthumanist subjectivities such as Dolly the Sheep, the first cloned mammal\textsuperscript{8}, and Nadine, the female humanoid robot working as a customer service agent, and the Matsutake mushroom at the core of Tsing’s work.\textsuperscript{9} They are non-human others, creatures inhabiting our posthuman times, animal, fungi, or gynoid existing and employed in the socio-cultural territories of scientific research and human histories. Nadine and Dolly are human-made, non-born of a woman (Haraway, 1997), techno-embodied entities: in their beings, the \textit{techno} feature of the assemblage, that is discussed further below, is the most prominent. Matsutake fungi’s existence in the apocalyptic ruins of industrial capitalism, by contrast, resists due to the \textit{zoe-geo} potentiality of their assemblage. Nonetheless, it is not their enhanced techno or \textit{zoe} entanglement that makes them “posthumanist" hayles would not use “subjectivities” in this way. Some of her argument here is based on her 2017 book, Unthought. The Power of the Cognitive Nonconscious. In it, she argues that there are nonconscious cognitive processes, both biological and technological, that perform important functions for life to unfold. She claims, that while “technical systems cannot be fully alive, they can be fully cognitive. … Cognition is a process that interprets information within contexts that connect it with meaning.” (2017, 22) These nonconscious processes are the conditions of possibility for consciousness and reason to develop. Importantly, for Hayles, it is impossible to disentangle beings or processes. She says “The better formulation, in my view, is not a binary at all but interpenetration, continual and pervasive interactions that flow through, within, and beyond the humans, nonhumans, cognizers, noncognizers, and material processes that make up our world.” (2017, 32-3) Agencies are to be found across these relations but "the capacities and potentials of those agencies are not all the same and should not be treated as if they were interchangeable and equivalent." (2017, 67) Hayles’ position also informs our analysis here.

\textsuperscript{6} The agentic capacity of the virus is of course always ambivalent. While it is true that there are positive affects of the pandemic, such as the global reduction in CO2 emissions (see Le Quéré et al. 2020) these have only been temporary, so much so that once life and the production chain was readjusted after the early days of hard confinement, emissions bounced back (Tollefson 2021). Not to mention the millions of deaths and individuals left with lifelong disabilities associated to long-Covid. It appears the negative effects outweigh the positive ones, making it challenging to “inhabit the trouble” (Haraway 2016). Still, we believe, on this point, that an ethical reflection on the agency of the virus should not go in a direction that highlights its negative and positive aspects on the basis of a value judgement. Considering the agential relationality of what we call posthumanist subjectivities – that are always entangled and not unrelated - means being able to account for them as part of dynamics that hold human and non-human together. This perspective should enable us humans to stop ignoring the fact that we only inhabit this planet, and therefore perhaps avoid disruptive suffering such as the one generated by the Covid-19 pandemic.

\textsuperscript{7} Dolly’s case has been discussed by different posthumanist thinkers (e.g. Braidotti 2009 and 2013) as an example of the contemporary embodied Other allied with the marginalized subjectivities, sometimes as a cyborg and sometimes as posthuman alterity.

\textsuperscript{8} Nadine was created by Swiss-Canadian scientist Nadia Magnenat Thalmann, an eminent computer-graphic scientist who crafted and programmed the gynoid, making her look like her. Nadine “has” a personality and can express moods. She is capable of anger or happiness (maybe also vulnerability?) according to how she is programmed. For a closer look at Nadine see Baka et al., 2019. As for Matsutake mushrooms, see Tsing (2017).
subjectivities”. Rather it is the fact that they are not entirely “standard” creatures still enacting changes as material agencies interconnected with other worlds. The unease they represent widens the concept of subjectivity itself by going beyond anthropocentric perfectible models. Their partiality, due to the historical marginalization produced by the humanist anthropocentric view, is what we consider as the hallmark of posthumanist subjectivity. Ultimately this posthumanist shift allows a revision of the epistemological and heuristic function of what is to be considered “subjectivity,” emphasizing the perspective of many non-human others as valuable and dismantling the epistemological privileges posited by human exceptionalism.

Creatures like Dolly, Nadine, or the Matsutake raise the questions: is the subject queer? The cyborg? The migrant? The CRISPR edited animal and/or plant? Is it maybe the lab creature or the high-risk extinction species? The posthumanist subjectivity we advocate for here does not seek the mere rehabilitation of minorities: no one needs to be adapted to, or oppressed by, a unique model any longer. The ambiguous traits which escape from the identitarian recognition of “the subject” make us evaluate positively their vulnerability and, therefore, their ethical and political potentiality.

Existing as a posthumanist subjectivity entails embracing the prismatic world of the entanglements composing us. The posthumanist framework, together with intersectionality and decolonial studies, reframe the concept itself and what it means to be vulnerable in an affirmative way.

Posthumanist Vulnerabilities

As entangled beings—subjectively and materially—we are necessarily vulnerable. What does this mean? Turning to physics (Barad 2007) and biochemistry (Frost 2016) allows us to understand that the matter constituting our bodies and our selves is dynamic, vibrant, and itself a field of relations. Particles interrelate and interconnect to constitute atoms, molecules, cells, organs, etc. Our bodies are permeable bundles through which multiple traffic occurs. The many permeable membranes of our

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10 Capasso and Santoemma 2020.
11 To capture this, one may want to use the Deleuzian term “assemblage” or the term “mangle,” as Susan Hekman does, borrowing it from Andrew Pickering (2014). Whether one uses “bundle,” “assemblage,” or “mangle,” one must always keep in mind that this is never fixed, always dynamic, in the making.
bodies allow for the traffic of molecules necessary for our life to exist, the most obvious example being the air exchange occurring in the lungs. As Frost puts it, no traffic through membranes, no life (58). Our bodies are permeated in many different ways by external substances and particles, ones we willingly ingest for our pleasure or sustenance and others we are unaware of and which, at times, make us into toxic bodies. Our transcorporeal beings are open to the world and less than autarkic (Alaimo 2010; 2016).

We are also entangled subjectively, and the subjective intertwines with the material in ways that render them inseparable. Existentialists and phenomenologists—such as Beauvoir, Sartre, and Merleau-Ponty—along with structuralist thinkers—Foucault most prominently—have recognized the constitutive role that intersubjectivity plays in making a subject but also the importance of situation and institutions of power that permeate our existences. In the case of the human, therefore, its being is constituted materially and subjectively via these manifold relations, exposing the individual to various modes of self-constitution including its own relation to itself and to its situation.

Our openness to the world and to others—the fact that we are permeated by them just as much as we permeate them through our agentic capacity—renders us vulnerable. But this ontological fact is not to be understood merely negatively. We want to distinguish the posthumanist notion of vulnerability from the notion of precarity as discussed by Judith Butler (2004; 2009). Butler’s analyses of grievable lives and precarity are essential and certainly provide a clear understanding of various social structures of power and how they lead to the dismissal of entire groups of humans, those whose lives are not grievable because they are not recognized as valuable or even human. These analyses can support social and political movements toward inclusion and equality and should not be dismissed. As Susan Hekman puts it, “[a]ddressing the exclusion of some subjects from the realm of being must become our foremost political priority. Our politics must be oriented around broadening the norms that define human life, who counts as grievable and who doesn’t” (2014, 182-183). Butler’s more recent work (2020) has pursued this as well. As important as her analyses are, however, we need to supplement them to include considerations on materiality and nonhumans as well. Rosalyn Diprose (2013) has rightly pointed out
that the role played by non-human elements is often disregarded in discussions on precarity and by Butler in particular.

How do we define posthumanist vulnerability? Deconstructing the word and examining its etymological root is a good way to start. As Diprose points out, the Latin “vulner” means “to wound” and the usual meaning we attach to “vulnerability” is “to be susceptible to physical or emotional injury. [This understanding of vulnerability] assumes that the body is normally well-bounded and should remain so” (188). But this cannot apply to the entangled subject. We need to take vulner—ability in a different sense. The entangled subject is vulner—able since it is a body that does and undoes what it interacts with. It has the ability to wound, yes, but mostly to affect.14 The Latin “afficere” would be more appropriate and “affect—ability” a better way to describe what actually goes on. Being entangled in that affective fabric, our being is not only on the giving end of “wounding” but on its receiving end as well. To wound is to affect; to be harmed is also to harm. We are not self-contained entities interacting with one another. It should also be understood that “ability” here does not point to any kind of strong willful autonomous agency. Instead, we are dealing with agentic capacity which is often expressed via intentless action.15 This makes us, through and through vulner—able as affect—able.

Most often we seek to guard ourselves against vulner—ability and attempt to render ourselves invulnerable.16 It can be argued, however, that in doing so, we cause damage to ourselves and render us “inhuman” (Drichel 22). This amounts to a dehumanization process which impedes our thriving. Instead, we ought to embrace our vulner—ability, first by understanding what it is, and then by actively seeking a multitude of experiences so as to maximize our opportunities for growth. This understanding entails accepting that various positive and negative entanglements will ensue, some

12 However, as pointed out by Moya Lloyd, vulnerability ought not to be equated with injurability (see Lloyd 2015, 172). We thank the anonymous reviewer who directed us to this work.
13 We use a strong hyphen here to emphasize the two action verbs and their impact that are conjoined in the term.
14 There is an expanding number of works exploring the notion of vulnerability. One can only surmise that the heightened global state of crisis in which we exist—a manifold of ecological, political, social, economic, health crises, all intertwined to various degrees—has led scholars to reflect on our vulnerability. Our article inserts itself in this discussion as we acknowledge that we cannot do justice to the richness of the debates. Daigle is finalizing a monograph that explores these in further details (Daigle forthcoming).
15 When Frost analyses biochemical processes that occur in the body she uses the phrase “intentless direction” to capture how many of these proceed without any conscious intent. See Frost 2016. These would count as cognitive nonconscious processes as per Hayles. See note 4 above.
16 Through their pursuit of human enhancement and immortality, transhumanists unveil this desire as their driving motivation.
of which we will welcome and others which we will seek to protect ourselves from as in the simple gesture of putting on a coat to protect our bodies from cold weather. Protecting oneself in this way is a mode of affirmative embrace: one recognizes one’s entanglement and vulner—ability and recognizes that, for oneself to thrive, a level of protection that adapts to the entanglement and modifies it is preferable. One may say that this posthumanist vulnerability is an ambiguous potentiality, one we need to understand but keep ambiguous. The focus on materiality and its radical entanglement allows us to understand how our vulner—ability is constitutive of ourselves and other beings—it is the very foundation of life and what allows for life to persist. As such, it needs to be embraced, cherished, and fostered.

Further, posthumanist vulner—ability needs to be read with the diffractive lenses of the multiple entanglements that we, posthumanist subjects, are embedded into and constantly perform. The powerful diverse agentivities composing the assemblages we are intersect to such a degree that we should more accurately talk about a sympoiesis of affections at work in posthumanist vulner—ability, a “making with” (Haraway, 2016). We read vulner—ability along the lines offered by the zoe/geo/techno framed and produced subject.

Zoe/Geo/Techno Vulner—abilities

First, what counts as zoe? Of the three elements of the assemblages composing the material-semiotic figuration of posthumanist subjectivity, zoe is foundational and transversal to the others. From a Spinozist-Deleuzian perspective, Braidotti refers to zoe as the “materialist concept of nonhuman life” (2018, 3), an immanent vitality unfolding both alongside and within the human-animal embodied life. This vitality

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17 Our thanks go to the anonymous reviewer who offered this great example. They were weary of a tendency to generate a new dichotomy between good and bad entanglements, embracing/rejecting those. We think that it is always a matter of degree and that what matters most is how we respond.

18 In her latest book Staying with the Trouble: Making Kin in the Chtulucene (2016), Donna Haraway recalls the concept of symbiogenesis used by biologist Lynn Margulis in the development of the endosymbiotic theory of eukaryotic cells (Margulis 1981). Playing with this concept, Haraway wants to describe how different agentivities unfold and the way cells, tissues, and living organisms live, evolve, and affect one another in an open and incessant exchange—what Margulis called the “intimacy of strangers.” Lynn Margulis further sustained and supported the symbiogenesis theory against the idea of autopoiesis, known in biology thanks to the work of Maturana and Varela (1974) that coined the term “autopoiesis” in order to study and define the self-creating and self-organizing aspects of the living system as a closed environment. Following Margulis instead, Haraway puts the concept of sympoiesis to work, informing the “tentacular thinking” and re-elaborating the concepts of poiesis and agencies of matter and beings through a more open and intersected web of connections and constant influences in a wider ecological framework. To us, a posthumanist vulnerability is more connected to the web of sympoietic affections than to a poietic self-referential affection.
exceeds the notion of a living being as a rational and conscious being as proposed by modern Western philosophy. The current generic term “life” is rooted in the concepts of *bios* and *zoé*. In the classical tradition, \[^{19}\] *bios* is the concept of life related to the duration of existence which includes the *kind of livings*: the political, the theoretical, and even the life lived in pleasure. \[^{20}\] For the human being, *bios* is the discursive life as opposed to the biological one; it is the ethical-political existence, being in the world as a participant of certain cultural, social, and perhaps anthropological and religious habits. When life coincides with *bios*, it is because it has been understood as an involvement in the *polis*, or more generically in ongoing human affairs, as discursive-rational existence. By contrast, *zoé*, which refers to the non-specific life, ever floating between living beings—human and non-human others—is a sort of life that does not stop nor end, but becomes.

Braidotti’s reflections on zoe-vitality is grounded in a critique of Giorgio Agamben’s political philosophy which rests upon the dualism just described. This critique allows to better grasp the idea of zoe/geo/techno subjectivity and its vulnerability and should be read in her notion of the *becoming-posthuman* of subjectivity (2013). Agamben adopts and problematizes the distinction between zoe and bios\[^{21}\] and its reception in Western philosophy to focus on contemporary political devices and events. He sets the bios/zoe dualism within the framework of an evaluation of the sovereign form of government, differently understood as a totalitarian regime or the current political form of democracy. The preliminary statement from which Agamben’s reflections originate is the acknowledgement of zoe—which he calls “the biological life”—entering the *polis* or, to use his term, “bare life” (*nuda vita*), the vulnerable aspect of life being made political as an event of Western modernity. \[^{22}\] Agamben makes this recognition explicit through his reading of Michel Foucault’s analytics of power—above all through the famous concept of biopolitics. \[^{23}\] Life has been the main acting and playing field of politics; still, for Agamben the manifold production of practices, subjectivities, and

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19. We are mainly referring to Aristotle and Plato’s philosophies whose distinction between bios and zoé and what counts as life and the living, have mostly influenced the history of Western philosophy and political philosophy.
20. This is the three-sided conceptualization of bios presented in Plato’s *Philebus* and quoted in Agamben’s famous introduction to *Homo Sacer*.
21. From now on, we will use the terms in their common and current semantic usage within contemporary philosophy debate—zoe and bios—and not with the Greek transliteration *zoé*/*bios*.
23. See Salzani 2021 for a better account of Agamben and Foucault’s political philosophies and the theoretical differences between them.
power relations that are inscribed onto the zoe-bios forms of human life do not merely pertain to the development of biopolitics. The whole political power structure of Western thought has unfolded via the inclusion/exclusion of zoe and bios, that is, by means of political operations based alternately on these categories of life. By adopting this reading, Agamben plays with the concept of zoe, putting it mainly in the field of human relations and the cultural-political realm, even if it is conceived as biological life.

Against Agamben’s conceptualization of zoe, Braidotti reformulates the political and material agency of zoe and does not juxtapose it to the bios pertaining only to human beings. In other words, Braidotti argues against a flattened concept of zoe that would be made into a function of bios, the human world, and the political arena: “the materialist concept of nonhuman life (zoe) has emerged as central not only as vulnerable ‘bare life’ [...] but also as a productive and vital force” (2018, 3). Our feminist posthumanist frame of thinking claims zoe as closer to a trans-species life than to the biological side of bios, as if it were part of a two-sided coin. Since it is shared among living beings (or even among the non-conventional living beings such as Dolly and Nadine as discussed above), zoe exists beyond the practical-rational substratum of the subject. If Agamben ties “bare life” with a vulnerable and limited aspect of zoe, the same concept revised by Braidotti in feminist materialist terms differs “from the habit that favours the deployment of the problem of zoe on the horizon of death, or of liminal state of non-life” (2013, 121). A post-anthropocentric shift provides a renewed vision of life and opens up the understanding of zoe as a force that directs the most disparate subjectivity to act and perform its vulner-ability in a double move that affects and is affected upon. Such vulner-ability appears therefore to be distinct from the pure “bare life” which, instead, is vulnerable because it is an inscription surface upon which human power relations will be inscribed.

This reprise of zoe posits a widespread, affirmative vitality, which springs from matter and the multiplicity of ways of being alive and exercising agency, as proposed by Jane Bennett’s concept of vibrant matter for example. Since we have realized that there is more than bios and that the agency of life exists as zoe in non-human and even non-organic subjects, it would be misleading to understand vulnerability as mere individual human fragility. Zoe never stops, never dies; it is a life-force shared among material
subjectivities in all their different embodiments and shapes. Even in death, the immanent liveliness of the holobionts and the re-meshing of everything composing life (Haraway 2016) still arises and rearranges itself. This is what the concept of posthumanist zoe-vulnerability embraces: a "scandal, this wonder, this zoe, that is to say an idea of Life that is more than bios and supremely indifferent to logos, this piece of flesh called my 'body', this aching meat called my 'self' expresses the abject/divine potency of a Life which consciousness lives in fear of" (Braidotti 2002, 14).

The ouverture of the zoe-vulnerability cannot be prescriptive, since it highlights how the vulnus, the harm produced by the “wound,” complicates human affairs and is never the only one. Rather, being zoe-vulnerable is what makes the posthumanist subject concomitantly perform an affection—affecting another—and be the subject of affection—be affected by the multiple, constantly moving entanglements that zoe permeates. We reconceptualize vulnerability as a polymorphic intersection of agencies and an exposition to the world, “able” to be open to the “other” material forms of life. Being zoe-vulnerable is a collective capability—not just an ability—that could certainly cause harm but also affection, and that defines in any case our openness to the assemblages of the world.

Following this argument, each zoe-vulnerable being can be affected in its specific and peculiar roots, history, gender, and capability. What occurs, however, is that in a culture pervaded by the paradigm of human exceptionalism, zoe is a field of appropriation. Indeed, from this perspective zoe’s vulner-ability has become a battleground and an occasion for exploitative and extractive human actions on different levels: from terraforming and intensive monocultures (Shiva 1993) to unrecognized, embodied bio-labor (Cooper and Walby 2014). Similarly, as non-rational existence, zoe has been re-signified when associated with the idea of a second-rate form of life: a sort of non-standard human existence, like that of Indigenous, black people, women, working class, migrants, and so on.

With this double aspect of zoe in mind—as disregarded by anthropocentric models—we can affirm that the unavoidable openness produced by zoe offers us two perspectives through which we can think the pandemic. First and most immediately apparent, the failure to recognize non-discursive vitality, which materialized in the agentive capacity of Sars-CoV-2 as destructive virality, has generated an enormous
cost in terms of loss of lives and pain. Second, the policies of the various states for managing and/or containing the spread of the virus, which were at times too rigid and at times too lax, have generated a sort of discrimination by considering some existences as hierarchically inferior precisely because they participate less in bios, that rational life that characterizes the dominant type of human being Western rationalities are devoted to. We can think in these terms in relation to some states where the management of the circulation of the virus has failed due to an obsession with preserving economic growth. Mild containment policies de facto fostered high rate of life losses especially in marginalized forms of existences in terms of class or ethnicity. Likewise, rigid containment measures operated a similar discrimination as it took the form of rejection of human lives at some countries’ borders. This is a phenomenon that persists even as the epidemiological curve improves.

Some of these phenomena are explicit in the context of geo-vulnerability, to which we now turn. It is peculiar, however, that while some bodies are separated by social distancing measures, personal protection equipment, or at the borders when prevented entry or put in detention centers (or quite literally cages), at the same time lives continue to be increasingly and pervasively permeated by the multiple digital platforms that further jeopardize the work/life balance. The connections between the geo- and techno-entanglements and the extraction or rejection of life itself, zoe, is due to zoe’s presence at the crossroads of all the entanglements we experience, something we learned during the pandemic. Even when the whole world was put in lockdown, the multiple relations we are entangled with have continued, albeit in new forms, generating the dis-equilibrium that was brought about and with which we continue to struggle and that has the generative power of zoe at its very root.

As creatures living on earth and sharing ecosystems—be they wild, rural, or urban—we are also geo-entangled. As such, the nature of the environments in which we live constitute our beings. This goes well beyond the phenomenologico-existential notion of situation because the very materiality of these surroundings enters the bodies and

24 Of course, this improvement tendency is only temporary, as the overall curve going up and down over the last two years has shown us. As the World Health Organization (WHO) has repeatedly claimed, our lack of global approach to the pandemic is contributing to prolonging it, allowing for new variants to emerge with ensuing rise in cases and mortality. Unfortunately, too many countries’ leadership do not recognize our deep geo-entanglements. This leads them to engage in nationalistic vaccine hoarding that is highly detrimental to the Global South. Our failure to treat the world is a failure to treat our privileged selves.
those bodies, through their agentic capacity, shape their surroundings and seep into them. There is mutual material co-constitution of beings. Pollutants are found within bodies, just as much as the oxygen we need to live. Whether one lives in a concrete high-rise apartment building in the urban sprawl of a megalopolis or in a century home in the countryside, surrounded by vegetation, wild or tamed, the impact on and constitution of one’s being will be different. Exposure to pesticides, for example, is magnified for field workers or folks living in rural areas where they are in use, leading in some cases to increased rates of cancers. Likewise, the large city or suburban division dweller who drives into a city center for work every day is exposed to a different kind of air pollution generated by all the engines powering the vehicles that move people around, in, and out of the city. The connection to and interactions with nature are also radically different whether one lives in one type of environment or another. However, the contrast need not be so extreme between a rural and a megalopolis setting. Even smaller cities contrast with less rural settings. There are all kinds of gradations from the wild to the hyper-urban. We are not trying to describe every type but pointing to the different material settings and surroundings in which beings exist and are constituted. These matter as they shape our way to exist in the world and how we value nonhuman beings and nature as a whole which in turn impacts the policies we put in place that have local, national, and global impact.

But these are not separated in the global world in which we live. The being of the farmer ploughing the land and growing produce is perhaps more closely entangled with the land than the urban consumer of that produce, but the connection and entanglement is always there. It is a matter of degrees. What occurs environmentally at a far distance inflects the geo-entanglement one experiences. The melting of ice caps, the exacerbation of climate change and related increased extreme weather events such as the Australian monster bushfires of 2019 and devastating hurricanes, the decrease in biodiversity, as well as the overall increase in CO2 production, this all contributes to constituting our beings. Humans and nonhuman animals, plants, minerals, ecosystems, and the Earth system as a whole all do things and they also all suffer things. Their agentic capacities are intertwined, impacting one another. As Timothy Morton puts it, “the more you know, the more entangled you realize you are, and the more open and ambiguous everything becomes” (2010, 17). As our
understanding of the nature of agentic capacity becomes clearer, we can better grasp our geo-entanglements, and thereby our geo-vulnerability. But again, it is not a matter of either embracing or guarding ourselves from the exposure. We must “perform the exposure”\textsuperscript{25} (Alaimo 2016) with all the ambiguity it may entail\textsuperscript{26}.

In recent years, the agentic capacity of one species has been recognized as the most impactful as a new geological epoch has been named: the Anthropocene. There is not one place on Earth where we cannot find a trace of human action. The nuclear fallout from the 1950s has reached the remotest locations and there is therefore no such thing as a pristine spot on the planet. The concept of the Anthropocene captures the imagination. Indeed, humans ask themselves: How could we have had such a large-scale impact? How can one individual action, compounded with that of a collective, be of such magnitude? This is the outcome of the geo-entanglement which renders us geo-vulnerable.

Another aspect of this is the global nature of the world we live in. Not too long ago in human history, people lived in relative isolation. It was not unusual for someone to spend their entire life in a town and not travel anywhere or, if travelling, to take days to do so. Crossing oceans was a perilous and complicated journey and most often done only once to resettle for life.\textsuperscript{27} Foreigners were few and other countries were “strange,” as per the French term to designate them: “l’étranger.” To travel beyond one’s national borders was to go to “l’étranger,” the strange world. Foreigners are still referred to as “étrangers.” With the rise in travel, immigration, and enhanced technology fostering instant communication from one corner of the globe to the other, there is not much strangeness left to the world. The world is a familiar place and it is easier to understand how what happens across the globe can have an impact on oneself. The

\textsuperscript{25} This notion of performing the exposure is reminiscent of Judith Butler’s suggestion that a more generative dealing with vulnerability is to mobilize it. This, of course, is in the context of her reflections on the political and social forms of resistance that have been the focus of her work in the last few years. She does not want to understand vulnerability as opposed to agency and instead argues that “…vulnerability, understood as a deliberate exposure to power, is part of the very meaning of political resistance as an embodied enactment.” (2016, 22) Vulnerability and how we perform or mobilize it can be extremely generative.

\textsuperscript{26} Referencing Morton’s \textit{The Ecological Thought}, James Smith points out that just as Morton “advocated the embracing of ecology, even the ugly, the abject and the dangerous, so too must we embrace this danger. We are surrounded by strange strangers, as Morton puts it, eternally strangers and eternally strange by virtue of their strangeness” (131).

\textsuperscript{27} It is important to acknowledge that for all too many individuals over the past centuries of colonization, resettling across the ocean was forced on them as they were brought to the so-called “new world” as slaves. A traumatic experience as bad as that of the inhabitants of what was in fact just as old a world as Europe. The Indigenous peoples’ lands were taken away and they too were displaced when not outright eliminated. Likewise, the many circumstances leading to contemporary migration—such as poverty, war, environmental crises—force individuals to seek to resettle in what they perceive to be more hospitable countries. Global movement is as traumatic and violent as it can be happy when one goes abroad for a vacation, a research stay, or to conduct some business.
globalized world we have created renders us vulnerable in new ways, as shown currently by the global health crisis created by the virus. While this is not the first instance of a pandemic, the extent of its reach and the global mediatic reaction to it is unprecedented. One could follow its progression in real time through various digital tools and media. Reports of Amazon forest Indigenous people being carriers of a virus most likely originating in China are one of the best illustrations of how geo-entangled and vulnerable we are.

These considerations take us to the last form of entanglement we want to examine: techno-entanglement. In his Homo Sapiens Technologicus (2016), Michel Puech argues that the human’s way of being in the world is via technique and technology. We are homo technologicus insofar as technology is our mode of inhabiting the world (61). We exist as integrated bundles of body/technique/technology (Puech 30). We have always used technè to go about the world and live our lives. But there is a great difference between a stick that helps us pick an apple, a steam engine that propels us on rails, and a smart phone. We now live in a world of accelerated technological and scientific advancements that impact the way in which we exist as subjects. Likewise, medical knowledge is ancient and surgeries have helped prolong or enhance human existence for thousands of years (the earliest evidence of surgery is that of trepanation in 6,500 BCE). But that is at a far distance from the genetic engineering rendered possible nowadays. This may lead us to wonder at which point a scientific or technological advance may be considered frivolous (do we “need” 5G or an even more sophisticated iPhone?) or dangerous (what counts as legitimate enhancement and what as illegitimate?).

We have always experienced techno-entanglement. We have always used tools but they have become more and more sophisticated and more intimate. We sleep with our phones, Siri or Alexa wakes us up (and listens as we sleep), pacemakers make our hearts beat, smart watches monitor our biometrics (and save and sell this data to corporations), cochlear implants allow one to hear, implanted chips allow us to ride public transit by simply waving one’s wrist rather than carrying and showing a pass, etc. Technology has become very intimate, entering our bodies in ways that were

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28 Puech does speak about our existence as grounded in the ecological but does not include it in this bundle. Had he done so, he would have offered a “formula” similar to Braidotti’s.
inconceivable not too long ago in human history. Even if we have been cyborgs for a long time (using spectacles, dentures, and other prostheses), the level of sophistication the cyborg has reached is unprecedented but what’s more is that we can, with every bit of confidence, expect that today’s cyborg will be passé in a short period of time. Indeed, the pace of technological innovation has accelerated greatly. The rotary phone was with us for decades until it was replaced by portable phones, and then smart phones with models becoming nearly obsolete in a matter of a few months. One can easily think of many different examples in this highly advanced society we live in.

While some may question the necessity of continued innovation and think of it as frivolous, it is true that some technologies stand in need of improvement. An example we would like to consider is that of webcams. As they are currently designed, webcams do not allow for eye contact between interlocutors. One either looks at the eyes displayed on their screen leading the interlocutor to look at someone speaking to them but not looking at them, or one looks at the camera leading oneself to experience disconnection as one is not looking in the eye of the person they are speaking to. It seems that a technological innovation that would allow for eye contact while videochatting would be a fantastic advancement. Eye contact is important for communication. But is this what we are missing when we are forced to resort to videochats and meetings due to a situation like the one brought about by the pandemic?

A great number of us have had to retreat to our private spaces. But these private spaces are already and always public because of how they are technologized. Private spaces are zoe/geo/techno-entangled just as much as their inhabitants with whom they are also entangled. At the beginning of the worldwide shutdown, a tweet by @roseannecash circulated, generating a great number of variations in meme form, saying that: "Just a reminder that when Shakespeare was quarantined because of the plague, he wrote King Lear." This generated many responses. First, it is hard to imagine what quarantining at that time might have meant. The media technologies a good number of humans have access to in the 21st century were completely absent then. Being quarantined meant to be literally cut off from the world, except for whatever news the town crier would spread. The tweet generated many reactions and
criticisms because of the pressure it seemed to be putting on individuals to use the lockdown time to be more productive. If Shakespeare could create a chef d’oeuvre, why couldn’t you? Aside from the fact that not everyone is a Shakespeare, one can easily see how being quarantined today is not the same as isolation, thanks to our highly technologized private spaces and what they afford in terms of contact.

The phrase “social distancing” has been gradually replaced by “physical distancing” to emphasize that one can still remain socially connected while being physically distanced, which is allowed by all the technologies we use. In privileged settings where wi-fi is available and reliable and computers, tablets, and phones are owned, this social connection is possible. Even a now primitive technology like a landline phone allows for some level of social connection that was not available to someone during the time of a Shakespeare. However, and after months of making a lot of use of these technologies, there still remains that as zoe/geo/techno assemblages we are deeply affected and destabilized. One chunk of our regular “normal” experience is missing: being in the presence of others. Sharing the same space, smellscapes, soundscapes, perceiving the movement of bodies, feeling the other’s gaze on oneself as one speaks, etc.: this vibrant fabric of our existence is not rendered possible by currently available technologies. No Zoom party can be the equivalent of an embodied experience of being with others and sharing an experience with them. Maria Puig de la Bellacasa explains that “these new forms of connection produce as much copresence as they increase absence. They do not really reduce distance; they redistribute it” (2017, 109).

The attempt to replace “social” with “physical” while referring to the distancing necessary during a time of pandemic is meant to remind individuals that they can still be connected. But the reason this fails to a certain extent is that this surrogate technologized social connection is simply not the same as a real-life connection. The entanglements have been significantly shifted.

What the situation generated by the coronavirus is teaching us is that we have a need to experience ourselves as the interconnected beings we are. If there is a disruption to the normal “balance,” we may even experience physiological responses. The

29 By using the term ‘balance’ we do not mean to indicate that there is some state of equilibrium that is right or good for beings. Each individual strikes for themselves moments of consolidation and stasis in the midst of all the relations and entanglements they are. Major changes bring more important adjustments but adjustments to shifts occurring in the dynamic unfolding of our entanglements are always occurring.
stress generated by the disruption to our normal everyday experience as zoe/geo/techno assemblages expresses itself in various ways. Some people feel exhausted even when they have a proper eight hours of sleep a night. The explanations given—disruption of habits, increase in number of decisions to make, overload of information and negative news, or even the amount of cognitive energy required in the effort to ignore the flow—all revolve around the mind and the increase in activity an unprecedented situation like the pandemic has generated. The mind works more therefore we are more tired. But this is ignoring the largely affective way in which our existences are thrown off. Our chests feel compressed even if we know, rationally, that we are safe. Our guts are twisted in knots, even if we just filled the pantry with essential (and non-essential) goods to consume. Our bodies are fatigued despite the plentiful amount of sleep and lesser physical activity related to staying at home. These are all embodied reactions to having an essential chunk of ourselves suddenly diminished, another one substantially increased, and the balance we have negotiated for ourselves, for our zoe/geo/techno-entangled being thrown off.

What this discussion reveals is that our entwinement with technology is necessary. It shapes our way of being in the world and our way of relating to ourselves and to others. Technology’s many affordances—in all the spheres in which we use technological and scientific advances, which arguably is all spheres of life given the nature of zoe/geo/techno entanglements—comes with an assortment of vulnerabilities which are sometimes increased, the more advanced the technological development is. To reiterate, we are vulnerable precisely insofar as we are permeable and entangled. We are entangled in multiple ways and thereby constituted in multiple ways and vulnerable in as many ways.

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Examining posthumanist subjectivity with feminist materialist tools and highlighting the various entanglements that constitute us helps understand the unbalance experienced during the pandemic just as much as this unbalance has provided us a

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30 Many researchers have explained this phenomenon. See https://www.insider.com/why-youre-sleeping-more-during-the-coronavirus-pandemic-2020-4
magnifying lens to understand these entanglements. We have discussed each type of entanglement and vulnerability one after the other to more clearly delineate what each type entails. However, they cannot be taken separately since they are always experienced together. We may think of that as another iteration of intersectionality: in addition to the intersectionality of gender, race, class, age, ability, and neurotypicality, our selves are constituted at the intersection of the operations of the three types of entanglements we discussed—and the intersectionality we are more commonly familiar with operates within and across each. What the pandemic crisis has shown us is that enhancing one form of entanglement—in this case the techno-entanglement at the expense of the zoe- and geo-entanglements—alters our beings in significant ways. A sudden lack of direct contact with the “outside” material world and with various forms of otherness has greatly impacted the encounter between entanglements. We have continued to experience the external world via the virtual and digital spaces to which we are techno-entangled. However, this has changed our ability to be affected and affect and at the same time it has set limits to the collective potential that a posthumanist subjectivity puts into action through these encounters. Any disruption to the ongoing balancing of the various entanglements that constitute us shifts our vulnerabilities and potentialities and creates new ones. The way in which we respond and adapt to the potentialities opened up, grabbing them or rejecting them, also shapes our being and contributes to creating new balances that remain dynamic. Our individual and collective beings are altered through these disruptions and potentialities. This is because we are beings always susceptible to change and material agentivity unfolds through all the entanglements we are bound to, in a permanent exchange, be they with the human, the nonhuman, artificial, organic or inorganic. Our vulnerability and openness allow for us to change, for life to unfold, in damaging and/or generative ways. We have always been like this. The crisis has been the magnifying lens through which we have come to understand how interconnected we are and how, indeed, the fluttering of the butterfly’s wings can have tremendous impact or, in our case now in 2022, the transmission of a virus can put the world on hold and cause the disruption it has.
Bibliography


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Crafting a new materialist care story: Using wet wool felting to explore mattering and caring in early childhood settings

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Abstract

This article presents a methodological account of a postqualitative approach to research investigating entanglements among crafting experiences of wet wool felting and a story of caring in an early childhood education and care (ECEC) setting. The concept of care is understood as central to relationships in ECEC settings. Multiple theorisations shape contours of a conceptual landscape of care. Caring relationships may be envisaged as close, dyadic bonds of nurturing, or as networks of reciprocal relationships among humans, or entangled relations where care happens among humans, non-humans, and materials. From a posthumanist perspective, care stories in early childhood teaching and learning involve much more than human individuals. Early childhood practitioners, children in early childhood settings, their families, teacher educators, and policymakers can benefit from understanding how multiple, diverse components of early childhood settings continually produce care and caring relationships. New materialist theories reconceptualise care where humans, other-than-humans and materialities are constantly produced in intra-actions as temporary outcomes of entangled relations. Bringing materials into view as producing and being produced alongside humans raises possibilities for considering how care matters and how matter cares in early childhood education environments. Playfully, with curiosity, I engage with wet wool felting physically, intellectually, and emotionally. Entangled in crafting processes, I am produced as researcher, as carer and cared-for with materials. Concepts of caring and felting are multifaceted, providing rich contours of meaning. I am enmeshed in sensual experiences of thinking-making-doing, alongside some text from a research study into emotions in early childhood teaching in Aotearoa New Zealand. Contours of concepts of caring and felting are explored through crafting
experiences interwoven with writing about care and caring relationships in ECEC settings.

**Keywords**
Felting; Care; Early childhood; Posthumanist; New materialism; Postqualitative.

**Introduction**
Early childhood practitioners, children in early childhood settings, their families, teacher educators, and policymakers can benefit from understanding how multiple, diverse components of early childhood settings continually produce care and caring relationships. In this methodological account of researching using posthumanist and new materialist theories, thinking-making-doing (Springgay, 2019) of crafting with wet wool felting is entangled with thinking-feeling-writing about care and caring relationships in early childhood education environments. Contours of concepts of caring and felting are explored through crafting experiences interwoven with writing about care and caring relationships in ECEC settings.

A postqualitative methodological approach entails openness to multiple opportunities to think and do research differently, to loosen some constraints of traditional qualitative methods that limit how data is understood and how data is accessed and analysed (St. Pierre, 2019). A postqualitative researcher responds within the research situation with methodological strategies, thinking and doing with theory (Jackson & Mazzei, 2012) with creativity and experimentation. Postqualitative research approaches are unpacked in more depth in the methodology section of this article. In this research, I use a concept-as-method strategy, playing with contours of concepts (Mazzei, 2017) of caring and felting, curious about what thinking-making-doing-feeling-writing could do. For Deleuze and Guattari (1991/1994), concepts are acts of thought that do rather than neat categorisations of meaning. I take a postqualitative approach to weave threads of writing about care in early childhood education, research processes, textual data, and crafting experiences, layered with and through posthumanist and new materialist theories and concepts.
Caring and felting are both concepts that are understood in many ways, as conceptual landscapes shaped by multiple contours. In ECEC settings, caring may be dyadic relationships between caregiver and cared-for; networks of bonds of reciprocal obligation among humans and non-humans; interactions governed by ethics, within power relations where some are privileged and others are marginalised; concerned with physical and emotional wellbeing; or concerned about accountabilities for social, emotional, and intellectual education. Contours of the concept of felting are intriguing and generative for explorations of care using new materialist theories. Felting may be the process of entangling wool fibres using a needle or agitating wool fibres with soap and warm water; felt can be understood as feeling, as textural experience, or as physical or emotional closeness. In this thinking-making-doing-feeling-writing about caring in ECEC settings, working with materials through felting while thinking about contours of caring brings materialities of caring relationships into awareness alongside human dimensions.

This article presents a new materialist story of care entangled in relationships among humans, other-than-humans, and materials in an ECEC setting. A vignette was developed from multiple data sources that tells a story of a situation in an ECEC setting where caring and not-caring produced feelings of unease. As researcher, I experimented with wet wool felting to make some fabrics and then cut and stitched to experiment with what next and what else could be produced. I used the concepts of caring and felting with a postqualitative concept-as-method approach, bringing multiple contours of these concepts into encounter with the vignette and the felted creation. A new materialist story of care was produced as a videoclip incorporating images and spoken and written words (https://youtu.be/SeJ6fWN0yj4). This story is seen not as an endpoint but an opening up to further thinking about how care matters and matter cares in ECEC settings.

**Context and theoretical underpinnings**

I am continuously becoming as a researcher, teacher educator, and crafter in Aotearoa New Zealand. I work with early childhood student teachers and within networks of early childhood settings and practitioners. Aotearoa New Zealand has an early childhood curriculum *Te Whāriki* (Ministry of Education, 2017) that is grounded in...
sociocultural and Indigenous Māori theories that value reciprocity and relationalities.

The methodology reported in this article is underpinned by two related but separate theoretical frameworks: posthumanist and new materialist theories. From a posthumanist perspective, dynamic, complex, and messy care came into view as a central aspect of what happens in an ECEC setting. New materialist theories were helpful in bringing attention to materialities of care. As an embodied researcher, I experienced being embedded in human and material relations (Braidotti, 2019) in an early childhood setting. I watched and listened to what was happening, recorded observations, and talked with teacher participants (Warren, 2019a).

According to Rosi Braidotti (2013), posthumanism has two aspects: an anti-humanist aspect challenging humanist views that position normative versions of White Man as central, while ‘othering’ humans who deviate from the norm; and a challenge to anthropocentrism which positions the human species as central and ‘others’ non-human species and materials. A posthumanist perspective moves the focus away from human individuals as sole components of caring relationships in early childhood settings, and critiques hierarchies of caring in society and ECEC and how those who care and those who are cared-for are positioned. Teachers, children, and their families can be understood as posthumanist subjectivities that are continually negotiated in webs of connections, “embedded, embodied and yet flowing in a web of relations with human and non-human others” (Braidotti, 2019, p. 47). Much qualitative research is underpinned by humanist perspectives with methods that focus on investigating experiences, language, thoughts, and actions that are understood to be produced by human individuals. However, posthumanist theories recognise that other-than-human “forms/things/objects/beings/phenomena” (Ulmer, 2017, p. 834) also produce knowledge.

New materialist theories reconceptualise existence as constantly produced in intra-actions (Barad, 2007) as temporary outcomes of entangled relations, where relations are ontologically prior to what is produced. Karen Barad situates her thinking within agential realism, expanding a view of agency beyond human individuals exerting their will, to encompass entangled agencies that produce “possibilities for worldly re-configurings” (Barad, in Dolphijn & Van Der Tuin, 2012, p.55). Bringing materials into view as producing and being produced alongside humans raises possibilities for
considering how care matters and how matter cares in early childhood education environments. However, everyday humanist thinking and language tend to reinforce perceptions of care as human experience, shaped in early childhood teaching by pervasive values and beliefs about gender and maternalism. For humans, care is experienced and expressed in language, physically in bodies, and through emotions (bodily and through language). As researcher into care in ECEC, I could sense how other-than-human and material components contribute to care, but human players stayed in the centre of my awareness. The research reported here was an attempt to shift my awareness towards other-than-human and material components of care relationships in ECEC through engagement with crafting materials and processes.

I started to think about and experiment with the craft of wet wool felting as a means to bring my bodymind’s attention to matter and to think about aspects of care that are not expressed in language. In previous research into emotions in early childhood teaching in Aotearoa New Zealand, I have written and thought about care relationships by analysing textual data (Warren, 2019a, 2019b). I have articulated understandings through language and described entanglements of humans with other-than-humans and matter in care relationships. In this article, I explore embodied experiences and expressions of care through work with craft materials. My physical experiences of felting processes provided bodily knowledge through sensual awareness of texture, temperature, colours, sounds, and smells. Braidotti (2013) suggests that thinking as a posthuman subject involves affecting and being affected in modes of relations among humans, other-than-humans, and materials. This requires a qualitative shift in how thinking and sensing are understood as entwined, and it is this sort of thinking that this research enables.

As I knew very little about felting, I explored YouTube videos and craft shop shelves, watching, thinking, feeling, and imagining. I spent a wonderful morning being taught how to wet felt, being nurtured and guided by a caring tutor. I remember following instructions with careful unhurried concentration, the pleasure of sitting outside in the sun with coffee, watching the tui (birds) ducking and diving through the harakeke (flax plants), and the satisfaction of holding my first felted creation in my hands. I spent several quiet sunny weekend days in my kitchen with felting materials on the bench, following YouTube video instructions. My mind worked with my body, working out
what to do, how long, and how much while my muscles warmed and ached. Once I learned some rules of felting, I experimented and explored what next and what else. I started to think about how felting experiences and products could encounter textual data and bodily memories from my research, to bring material aspects to my bodymind. In this article, I express these entangled bodymind experiences in writing, as theories, materials, humans, physical memories, thoughts, and emotions jumble and weave together.

The context of the research is an early childhood centre in provincial Aotearoa New Zealand where children from infants to school age attend. A feature of the centre is its large grassed outdoor play area, with trees, sandpit, and other play equipment. The children have space and time to learn and play at their own pace, supported by thoughtful and responsive teachers. The teachers have pride in a centre culture of respect. I visited the centre several times over six months, observing teachers and children, recording anecdotal observations and videorecordings, and engaging in research conversations with four teacher participants. Participating teachers and families who agreed their children could be observed gave informed consent. Children were provided with consent forms to indicate whether they agreed to be observed, and children could withdraw their consent at any time verbally or non-verbally. This article uses a vignette from this research that draws on multiple data sources. These sources include a narrative recounted by participant Mila (pseudonym) and discussed with me in research conversations, as well as recollections of physical encounters, language, and gestures when Mila and I revisited the setting to talk through and re-enact what happened.

In the next sections, contours of care in ECEC and contours of felting are mapped, setting the scene for description of a postqualitative methodological approach to encounters between textual data and felting experiences. Networks of interconnections among human, other-than-human, and material components of caring relationships in early childhood environments are explored. Early childhood practitioners, children in ECEC, their families, teacher educators, and policymakers can benefit from understanding how multiple, diverse components of early childhood settings continually produce care and caring relationships. Material components must
be in view when considering the many ways in which care matters and matter cares in early childhood education environments.

**Care in early childhood settings: Contours of a concept**

The concept of care in early childhood settings is complex with shifting contours (Ailwood, 2017), and this thinking/making/doing exploration of care through felting engages with experiences within networks of care where humans, other-than-humans and materials produce and are produced together. Care is widely agreed among practitioners and scholars to be central to early childhood human experiences and wellbeing (for example, Noddings, 2003; Page, 2018). However, care is described as “a very slippery word” (Ailwood, 2020, p. 340), “a tinkering, a constant shuffle and dance” (p. 344). Contours of the concept of care in early childhood settings shape a complex landscape encompassing caring that attends to children’s physical, social, and emotional well-being in responsive and sensitive ways, as well as caring about and providing for environments, resources, and experiences that enhance children’s learning. In Westernised societies, traditional maternalist perceptions of dyadic caring relationships that reflect the mother-child pairing persist, positioning early childhood practitioners as caregivers to children who receive care. Beyond the view of care as dyadic, care can be conceptualised as dialogic, reciprocal, networked, and extending beyond human relationships (Ailwood, 2017; Aslanian, 2017; Tronto, 2010). Such a view is expressed by the description of care as a “species activity that includes everything we do to maintain, continue and repair our ‘world’ so that we can live in it as well as possible” (Tronto, 1993, as cited in Tronto, 2010, p. 160).

Feminist ethics of care approaches bring the political nature of reciprocal networks of care within power relationships to attention. Critique of how those who provide care and those who receive care in ECEC are positioned combines with advocacy for capacities of care as enrichment and repair (Barnes, 2019). Early childhood practitioners are devalued as professionals when their skills in emotional, caring, and nurturing relationships are positioned as instinctive, feminine, and natural attributes that are separate from and lesser than professionalism (Ailwood, 2007; Osgood, 2012). Thoughts, language, and actions of caring practitioners are shaped within powerful expectations. Power circulating in early childhood settings can be mapped,
to advocate for and articulate the place of care as central to teaching and learning (Ailwood, 2020). Feminist care ethics can be used to address micropolitics of everyday concerns and macropolitics of policymaking (Barnes, 2019). Advocating for care entails practitioners taking responsibility for care interactions as ethical concerns, respecting children’s needs which encompass “interrelated social, intellectual, emotional, aesthetic, physical, and spiritual domains” (Langford & White, 2019, p. 65).

Care can be mapped as a cartography of power and politics (Ailwood, 2020) to explore how present perceptions of care in early childhood have come to be and some possible ways that care might become in the future. Threads of care can sustain and nourish or oppress and deprive. Ailwood (2020) maps three threads: care as power, care as commodity, and care as judgement. She suggests that privilege is associated with power that determines who receives care and who is expected to provide it. Care, together with those who care and those who are cared-for, can become commodified and regarded as a resource. Within the thread of care as judgement, dominant discourses of ‘good care’ may be used to benefit some and harm others.

Posthumanist perspectives on care expand understandings of care among networks of humans in early childhood education to entangled relations among humans, and things and beings that are other-than-human. This article explores such expanded, uncertain, and complex understandings of care and caring, including how not-caring might play a part. For Maria Puig de la Bellacasa (2017), care is an interest of humans but not a human-only concern. Neither does matter take a passive role while humans are active in caring relationships. Rather, care is networked and “distributed across a multiplicity of agencies and materials and supports our worlds as a thick mesh of relational obligation” (p. 20). In te ao Māori, the worldview of Indigenous Māori people of Aotearoa New Zealand, such entanglements are assumed as “necessarily mutually constituting relationship[s] between all things, including human beings” (Jones & Hoskins, 2016, p. 80). An ethics of care framed by a posthumanist view on caring relationships in ECEC brings attention to interdependencies not only “between and among humans, but also with and between the materialities and forces” (Arndt & Tesar, 2019). Investigating these interdependencies is a practical project, as this
article will demonstrate through thinking-making-doing-feeling-writing encounters between a vignette of care in ECEC and experiences of wet wool felting.

Within a new materialist perspective, Sonja Arndt (2020) expands understandings of care in early childhood settings to encompass humans and other-than-humans in complex relations, an approach that is taken in this article. She takes a starting point of understanding care in terms of everything we do to maintain, continue, and repair our world, and interrogates what we and our can mean in new materialist terms. She draws on Karen Barad’s (2007) agential realist concept of intra-action that proposes that material and social bodies, whether human or other-than-human, are continually produced in relations in-between. New materialist theories and concepts open up spaces to wonder who and what intra-acts in relations of caring, and how concepts such as attentiveness, responsiveness, and responsibility might be enacted.

This mapping of some contours on the conceptual landscape of caring indicates some complexities of this everyday term. The next section explores some contours of the concept of felting.

Felt and felting: Contours of a concept

The concept of felting is an “act of thought” (Deleuze & Guattari, 1991/1994, p. 21) that is activated in this postqualitative inquiry into caring in ECEC in Aotearoa New Zealand. Like care, felting is a relational, affective concept with shifting contours (Mazzei, 2017): “a process and a material of chaotic inventiveness” (Springgay, 2019, p. 61). Felt is a fabric produced by entangled materialities of wool, water, and soap agitated with human bodyminds. Perceptions of colours and patterns, sensations of warmth and wet, smells, and textures emerge from thinking-making-doing processes.

Samira Jamouchi (2020) takes a performative approach to felting and writing experiences as she explores intra-actions among humans, space, time, and materials that produce “concepts as philosophical doorways and reminiscences as my poetical reverberations, students’ reflective notes, material-discursive reflections of felting phenomena, and spaces in-between those lines” (p. 53). I explore concepts of felting and caring as being produced among intra-acting bodily and mindful experiences of felting and thinking with data about caring.
Deleuze and Guattari (1980/1987) use descriptions of felt and woven fabrics to compare smooth space where affect flows unimpeded through assemblages with striated space where myriad forces constrain and enable flows of affect. Innovation and experimentation may happen in smooth space, and striated space may be institutionalised and criss-crossed with rules and expectations (Springgay, 2019). Deleuze and Guattari (1980/1987) describe felt as an ‘anti-fabric’, characterised by entangled fibres that do not follow regular patterns. Felt is not homogenous or smooth in the sense of being featureless, but “it is in principle infinite, open and unlimited in every direction” (p. 525).

Touching and being touched, feeling and being felt, moving and being moved are contours of the concept of felting that invoke meshing and mingling intimacies across human and other-than human bodies with indistinct boundaries (Springgay, 2019, 2021). Multiple aspects of the concept of felt are used by Stephanie Springgay (2019) to think-make-do writing practices, including felt as force and movement, felt as affect, and felt’s engagement with touching. Although she does not call researchers to practice felting, Springgay’s theorising is entangled with her bodily/mindful engagement with wool, soap, water, and stones, “moving my fingers and thumb in rapid spirals along the surface of the rock, kneading and pressing” (p. 57, emphasis in original). Springgay (2021) links felt with postqualitative research through ‘feltness’, a practice of intimacy that incorporates “reciprocity, relationality, stewardship, and an ethics of care” (p. 212). The bodily affective experience of touch when felting invokes an intimacy of entangling with difference that cannot always be articulated in language, and which is partially expressed through the new materialist story of care shared in this article.

For me as researcher/crafter/writer, intimate touching bodymind encounters of felting with textual data intra-acted with theorising of care in early childhood education and with writing a new materialist story and this article by “writing-with felt … an engagement with textile processes, where woolly fibres seep, cut and fold into academic writing” (Springgay, 2019, p. 60). Describing how this work of research is understood and enacted is the work of the next section of this article.
Methodology

Multifaceted concepts of care and felt provide the foundations for this methodological account of postqualitative research using a concept-as-method approach to investigate entanglements among crafting experiences of wet wool felting and a story of caring in an ECEC setting. This section will outline some understandings of postqualitative research and explain the concept-as-method approach taken with reference to research strategies that engage with art and craft experiences.

Postqualitative methodologies respond to posthumanist theories with interest in what is coming into being, in creation and experimentation (St. Pierre, 2019). They require openness to doing, thinking, and becoming differently, engagement with diverse bodies of knowledge, and courage to embark on research strategies tentatively and adventurously. As a process methodology, postqualitative research can be understood as improvisational practice of thinking with theory, noticing what happens when data and concepts encounter each other (Mazzei, 2021). Linnea Bodén and Karin Gunnarsson (2021) provide postqualitative researchers with hopeful encouragement that while methods are not prescribed, versatile and contingent tools are available for researchers to navigate, “creating an imaginative and fluid practice” (p. 194). Pauliina Rautio (2021) suggests that postqualitative researchers build on existing understandings of systematic and planned research, rather than discarding these. Postqualitative strategies that are responsive to the situation may be similar to familiar qualitative research methods. Rautio stresses that postqualitative research needs to articulate a generative and relevant argument while making room for “the not-yet-known, the emerging, the wild, the uncategorisable” (p. 229).

Each postqualitative inquiry is different and not replicable, responding to its own unique events without/outside the ‘proceduralism’ (Springgay & Truman, 2018) of prescribed methods or models. Researchers are entangled in uncomfortable and uncertain experiences of “thinking-making-doing” within research events (Springgay & Truman, 2018, p. 206). Stephanie Springgay and Sarah Truman describe a ‘speculative middle’ of research characterised by agitations and affective forces, “concerns and gnawings” (p. 207). They highlight (in)tensions as necessary aspects of postqualitative research where researchers attend to “the immersion, tension, friction,
anxiety, strain, and quivering unease” (p. 204) of encountering problems from within and generating new thinking.

Such (in)tensions are present in this research study, as I embark on a crafting exercise of felting guided by a hunch or intuition (or hope) that this will become relevant to the data I have about caring in ECEC. These (in)tensions persist as I continue to tentatively engage in the research process, painfully aware of my lack of familiarity and skill with art and crafts. Springgay (2021) emphasises that transdisciplinary work is difficult, and “requires an ethical commitment and accountability to many different disciplines, practices, and ways of being in the world” (p. 212). I hope that by making my lack of experience clear, as well as my respect for the skills and knowledge of artists and craftspeople, I can tentatively engage with postqualitative research that involves crafting.

Previous sections of this article have outlined the key concepts of care and felt that shape the concept-as-method approach of this research study. A concept-as-method approach to postqualitative inquiry is based in Deleuze and Guattari’s (1991/1994) ‘concept of the concept’. Rather than providing a means to categorise according to characteristics, concepts respond to particular situations: “new concepts must relate to our problems, to our history, and above all, to our becomings” (Deleuze & Guattari, 1991/1994, p. 27). Concepts of care and felt provide conditions for designing contingent research strategies such as wool felting and composing a videoclip of a new materialist story of care comprising images and words, both written and spoken.

Arts-based research literature provides a useful starting point to think about what felt-making processes can produce in relation with networks of materialities, concepts, theories, texts, and humans. Interconnections are often highlighted, whether between components of assemblages or between aspects of practice or roles of practitioners. Cartographic approaches to arts-based inquiries might map complex interconnections among intensities of bodies, materials, texts, and memories of “textures and vibrancies, evocative glowings of encounters and events” (Flint, 2018, p. 17). Relations and encounters in artful doing are not between autonomous artist bodies and passive materials but more about leaking, merging, pulsing vitalities: “To consider the bodies of self, milieu, others as entwined and always already dancing together” (Guyotte, 2017, p. 58).
Roles or practices are linked through arts-based research in the concept of a/r/tography, “an interwoven “living practice of art making, researching, and teaching” (Springgay et al., 2005, p. 902). The slashes in a/r/tography suggest active, reverberating relationships among the roles of artist, researcher, and teacher. The concept of research-creation works the hyphen between research and creation as an ecology of practices of thinking and making (Manning, 2016). Research-creation was devised as a category for research funding in Canada, and has been developed by postqualitative researchers despite its original neoliberal framing (Springgay, 2021). Both research and creation are understood in ways that encompass many ways that ‘thinking’ and ‘making’ can become, with “the active hyphen that brings making to thinking and thinking to making” (p. 13).

In literature about research-creation inquiries, writing intra-acts with a wide range of artmaking processes, including visual arts (Flint, 2018; Guyotte, 2017), dance (Manning, 2016), a workshop where participants intra-acted with bags (Taylor et al., 2019), and walking and thinking with landscapes (Springgay & Truman, 2019). In this article, the hyphen in research-creation activates thinking-making-doing among materials and processes of felting and an excerpt of textual data, producing knowledge that is incompletely articulated in processes of new materialist storying.

This section has outlined the methodology as postqualitative, responding to a particular research situation with strategies that are contingent and relevant. A concept-as-method approach based on multifaceted concepts of care and felt is described as engaging with crafting processes of felting in encounter with textual data about caring in ECEC. The methodology is influenced by theories of arts-based research that propose mapping interconnections among components of research situations and activating interconnections among practices and roles such as art or craft practitioner, researcher, and teacher. The next section will bring together the aspects discussed so far to give an account of the research process and how a new materialist story of care was produced.
Felting Care: A new materialist story

There is never a starting point of any account of how and why something happens, like this exploration of care in ECEC through a new materialist care story. There was a data excerpt from a doctoral research study that kept returning to my attention, asking for more thought, demanding exploration of potentialities. I was concerned about a disconnect in my work between drawing on theories that prioritised processes and relationalities among humans and other-than-human, and production of writing and thinking that focused on language expressed by humans about human experiences. I have always enjoyed crafting without having any particular expertise, and this sort of tentative, touching manipulation of materials seemed to offer my bodymind opportunities to bring matter into my perceptions of care in ECEC. I experimented with felting, trying needle felting but finding the needle unfriendly. I moved to the warm slipperiness of wet wool felting and enjoyed the sensual experience. The entangling of fibres and colours, the feeling of warmth and softness, and the pliability and openendedness of working with felt appealed to me, relating in a bodily way to warmth, nurturing, and undemanding acceptance of care experiences. The concepts of care and felt encompass contours of affecting and being affected, touching and being touched, moving and being moved, and feeling and being felt.

Care, as I earlier outlined, is a big, complex, many-contoured concept. I chose to frame care in ECEC within understandings of meshing, twisting, dynamic networks, “thick mesh[es] of relational obligation” (Puig de la Bellacasa, 2017, p. 20). Care is interwoven through the early childhood curriculum of Aotearoa New Zealand Te Whāriki (Ministry of Education, 2017), most obviously in the strands of learning concerning wellbeing and belonging, but also clearly present in the other strands of contribution, communication, and exploration. Teachers’ caring roles are described in terms of attentiveness, responsiveness, and responsibility (Arndt, 2020).

A new materialist story of care in ECEC was built through images, words, and memories, to tell a story of how care matters and matter cares. A vignette was composed from textual data from a research study into posthumanist perspectives on emotions in early childhood teaching (Warren, 2019a). A cartographic account follows the encounter of this vignette with crafting processes of felting and the
production of a new materialist story of care, with attention to theory-praxis that communicates about care in ECEC using posthumanist and new materialist theories.

Caring and not-caring: Vignette

The vignette is set in the large playground of an early childhood centre in provincial Aotearoa New Zealand. Humans (teachers and children) and other-than-human playground materials (including play equipment and materials, trees, grass, and concrete) continually become in dynamic intra-actions. Material and discursive entanglements produce relations of caring and not-caring:

Trees, sandpit, play equipment, children and teachers are scattered around the large grassy playground. Wood bark cushions the ground as a soft fall surface and provides material for creating mixtures at the nearby water trough, where rice has been added to the cold water. A large wooden box has two sides with small holes and two sides with larger openings. The box hides two children inside watching people pass by, and also hides bowls containing bark pieces mixed with water and rice from the water trough. A whisper reaches Mila, “She is coming, let’s get her, let’s get her in the eyes!” A bowlful of bark, rice, and water flies through the air, splatting on a child’s passing body, on her skin, on her face and in her mouth. Emotions of shock and distress reverberate among the children and Mila. Concerned for the upset, crying child, Mila asks the children in the box, “Hey, what are you doing? What is happening?” The children blame each other, saying, “It was her, it was her”. Mila speaks sternly to the children: “I don’t care, but it was either one of you. That is not a behaviour I like, and I do not want to see it again. Can you tip that water out and take that container back to the trough?” The remaining bowls of bark, rice, and water are returned to the trough and the children follow Mila inside to help care for the hurt and upset child: “Come and make sure your friend is ok”.

And ... in the quiet of early evening after a busy working day, Mila and I sit at a table with my iPod recording our conversation. Our roles of participant and researcher are entangled with roles as student teacher and teacher educator at other times and places, and within discourses of professionalism. For Mila, early childhood teachers saying, ‘I don’t care’ to children is not professional: “I don’t feel like I should have said
that, and I don’t feel like I should have expressed it like that”. But she feels conflicted: “I think that’s the exact response that those girls needed at that time to show that I wasn’t messing around, and I didn’t think it was semi-okay. I thought it was absolutely not okay and I didn’t really care who it was, whose idea it was because [they] both did it”. I seek to reassure Mila: “But you meant you don’t, it doesn’t matter which one it was. It’s not that you don’t care”. Mila concludes: “There are some things, you know, that you feel like you should ... feel but not ... express”. Relations of caring and not-caring here are materially and discursively entangled and this article seeks to explore what else new materialist theories can do through a postqualitative concept-as-method methodology.

Felting a story: Responsive and contingent strategies

Considering research encounters with materialities through craft processes of wet wool felting led me to investigate writing new materialist stories: stories of affecting and being affected, of touching and being touched, of moving and being moved, of feeling and being felt, of felting and being felted. New materialist stories are produced within networks of relations among humans and other-than-humans, and so they are stories communicated by means that go beyond language. My efforts to compose a new materialist story of caring in ECEC in Aotearoa New Zealand are produced in intra-actions with readings of literature. I read stories of responding in the moment of hearing of a death (Flint, 2018); videorecordings of artmaking using “coloured pencils, watercolour pencils, matte medium, oil pastels, ink pens, eraser, drawing pencils, scissors, brushes” (Guyotte, 2017, pp. 59-60) accompanied by text; stories of encounters among children and the liveliness of a creek (Somerville, 2016); and stories of what is produced when bags, bodies, and environments encounter each other (Taylor et al., 2019). New materialist stories attend to assembled relations, the expressivity of matter, and ways of communicating beyond language. Affectively moved by these stories, I responded through thinking-making-doing with felting, textual data, and writing. I sought to attend to “the unfolding forces, ebbs, and flows between humans, nonhumans and more-than-humans” (Lemieux, 2021, p. 494).

Mila’s story had affected me, and kept on returning, seeking my attention. I imagined the children’s anticipation of hiding, the large wooden box enclosing, the bark
cushioning the ground, bark activating as a play material, bark, rice, and cold water flying and splatting on skin. I felt Mila’s shock, a child’s distress, and children’s dismay at crossing a boundary of expectations. I wondered about what caring and not-caring do. Who and what cares here in networks of ‘relational obligation’? What parts do the trees, the box, the bark, and the water play in the caring that happens here? I have previously written about relationalities and affective flows of this vignette (Warren, 2019b), but I wanted to work with materials in a bodily way and communicate matter’s involvement in this story of caring and not-caring. Serenella Iovino (2015) proposes that matter has narrative agency as ‘storied matter’. For Iovino, matter can be understood as expressive, with “an eloquent and signifying agency” (p. 72) that is articulated in how it changes in relations with other bodies and environments. Although it may be difficult for humans to ‘read’ the stories matter tells, we can grapple with understanding that the stories ‘we’ tell are produced through intra-actions that include narrative agencies of matter. Caring and not-caring, in this vignette told by humans, are shaped and formed by entangled agencies, including agencies of materials. Writing new materialist stories offers opportunities to cultivate an openness to matter’s expressions as “an ongoing performance of the world” (Somerville, 2016, p. 1166) or “choreographies of mattering” (Taylor et al., 2019, p. 18). The sensual experience of working with the feltmaking process, and the texture, patterns, and colours of the resulting creation leaves space for an awareness that felt and felting, as well as the materials present in the vignette, have narrative agency in combination with the ‘reader’ who encounters the new materialist story.

In composing this new materialist story, I made two pieces of felt fabric. One was made in two layers that enclosed several handfuls of bark and rice splattered onto the wool early in the process. The second piece was larger, with the wool spread unevenly, producing a thin fabric with holes. The piece enclosing the bark and rice was sewn on top of a piece cut out of the other fabric. Phrases from the vignette were written onto ribbon and sewn on to the fabric. Some strips of felt from the second fabric were entangled and embellished with embroidery thread. The resulting creation is sturdy enough to pick up and handle, pull and squeeze, to experience weight, textures, and colours, and the ribbons can be read at any pace in any order. New materialist stories flow through entangled artmaking and writing that “narrativises snippets of the creation process and theorises the doing” (Guyotte, 2017, p. 55). The researcher needs
to explore ways to not be the storyteller, but to somehow allow space for other means of expression to emerge. Rather than analysing, interpreting, and explaining, researchers writing new materialist stories are “attending-awakening-dancing” (Guyotte, 2017, p. 58). Through felting, writing on ribbon, and stitching processes, words, materials, physical, emotional, and intellectual experiences have been brought together in an entangled and open-ended way.

The words in this new materialist story of care include the phrases on the ribbon from the vignette, a selection of words associated with care and with some ideas and theories discussed in this article. In the wellbeing strand of the early childhood curriculum, Te Whāriki (Ministry of Education, 2017) states that “safe, stable, and responsive environments support the development of self-worth, identity, confidence and enjoyment, together with emotional regulation and self-control” (p. 26). This statement can be understood in posthumanist terms as the ways that materials are involved with care but does not encompass the reciprocity of caring and being cared-for. However, a ‘thick mesh of relational obligation’ in an early childhood setting incorporates trees, grass, play materials including boxes to hide in, and bark that cushions falls, is mixed with rice and water, and is thrown at a child’s body.

The next step in composing this new materialist story of care in ECEC was to produce a slide show of images with written and spoken words (https://youtu.be/SeJ6fWN0yj4). I would not claim that this is the final iteration of the story as it seems to keep on evolving. It should not be surprising that the materials seem to have narrative agency in combination with the writing and images. Writing new materialist stories involves decentring humans and becoming open to other expressions and articulations. Ulmer (2018) recommends a creative, playful approach to postqualitative writing practice, with an openness to uncertainty and surprises. Practices that involve not-writing, such as choreographies and cartographies, keeps knowledge production in motion and off well-worn tracks. There seems to be so much potential for new ways of thinking-making-doing-feeling-writing for researchers working this way.

In this research-creation experience, intra-actions produce felt fabric embellished with ribbons with text and embroidery, and a slide show telling a new materialist story of care in ECEC. I am continually becoming as crafter/researcher/writer through
immersion in these unpredictable and uncertain processes. The work is slow, faltering, and difficult. Slowing down and working with bodymind engagements brings sensations of intra-action, of becoming different materially, physically, intellectually, and emotionally. Memories of pulling, layering, rubbing, rolling, and squeezing wool, memories of Mila telling her story and of us re-enacting it, writing text on ribbons, working with felted fabrics, ribbons, and embroidery thread were eventually and tentatively composed into images and words of a new materialist story of care. Many ‘what next and what else’ choices were made. Much of what was experienced is beyond easy articulation. Reverberations will come from memories and imaginings of each reader as they intra-act with the story. The story still feels unfinished.

Conclusion

This postqualitative new materialist story of care in ECEC opens up spaces for innovative thought, words, and actions in early childhood environments that complexify care beyond involvements of just human individuals. By seeking to attend-awaken-dance (Guyotte, 2017) with these multiplicities rather than describe-explain-interpret, a playful open-ended story of images and words allows space for the reader to entangle the story with their own insights, memories, and imaginings. Teachers, parents, scholars, and policymakers can benefit from considering all the human, other-than-human, and material components of care relationships in ECEC settings. Children are no doubt already aware of these material agencies and how they continually become with them in meshes of reciprocal caring. New materialist thinking can enhance the stories we tell about care and encourage us to sustain caring networks as by attending to and curating the materials present. It makes a difference to the caring that happens in the centre in this research that the playground is spacious, grassed, shaded by trees, and provided with a variety of resources for open-ended play.

This new materialist story opens opportunities to go beyond narrow conceptions of care as a human-only concern, as simply warm, kind, and positive. An invitation is present to explore expanded views of power relations and consider what happens when not-caring and indifference are viewed as integral parts of stories of caring in ECEC. I have intense interest in what these entangled caring/not-caring agencies do
and produce in particular localised enactments of care in ECEC. Stories that go beyond language depart from humanist understandings of stories and storytelling, a challenging move in light of the dominance of writing and talking to communicate among humans. Artmaking is one means of “providing a different language to both communicate with and connect to the world” (Guyotte, 2017, p. 58). This new materialist story of care offers opportunities to sit with complexities and think about what might become. Now that I have experienced thinking-making-doing with the concept of felt, a humanist view of care has been defamiliarised. Contours of concepts of felting and caring have been entwined to attend to how they shape relationships of affecting and being affected, of touching and being touched, of moving and being moved, of feeling and being felt, of felting and being felted.

Bibliography


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A spectre is haunting the world—the spectre of the Anthropocene. Denominating a fundamental shift of the relationship between humanity and nature, the Anthropocene marks a new geological era in the history of the planet. The eponymous Anthropos, that is, humans as a collective, is said to have become a geophysical force on a planetary scale, crossing multiple boundaries and in doing so affecting the functioning of the Earth system as a whole. Coined by freshwater biologist Eugene Stoermer in the early 1980s in order to signal anthropogenic processes that are acidifying the waters and changing the conditions of life on Earth, it was not until the early 21st century that the term was picked up and popularised by the atmospheric chemist Paul Crutzen (2002). According to Crutzen, the use of fossilised energy—particularly of coal, oil, and gas—beginning in the late 18th century not only fundamentally changed the shape of societal organisation in the most part of the world but has also altered the atmospheric composition of the planet. Over the last two decades, the Anthropocene has become a buzzword in science, politics, and art likewise. An endless and cross-disciplinary stream of framings, definitions, and critical assessments of the Anthropocene has emerged, discussing its usefulness as a geological, geohistorical, and/or geopolitical category.

Despite its ambiguity and manifold contestations, the Anthropocene has become a core signifier of the current historical moment. Nonetheless, it remains controversial who or what is the collective subject that the figure and discourse of the Anthropocene interpellates and subsequently treats as both the causal force and the primary subject.
of concern. With its universal gesture, the trope of the Anthropocene invokes a majority that represents no one and speaks for no one. Unsurprisingly, therefore, ‘the Anthropos’—the being that according to the ancient Greek meaning of the word ἄνθρωπος looks up at what ‘he’ sees, that is, looks up to the sky—is not and never was a neutral figure. ‘The human’ was never a mere descriptive category or an ahistoric fact. On the contrary, the universalised Western notion of ‘the human’ has always been a racialised, sexualised, and modernist construction naturalising certain privileges embodied by those who gathered under and invented this concept [white men]—thus bringing with it its own constitutional exclusions (see Jackson 2020; Mignolo 2018).

To put it bluntly: there is no proper human without the nonhuman and the inhuman. It is for the very same reason that the notion of the posthuman, too, is neither innocent nor necessarily a more inclusive concept (see, for example, Colebrook 2014; Ellis 2018; Haraway 2016).

Two prominent reconfigurings of the Anthropocene can be found in Jason Moore’s (2015) concept of the Capitalocene and in the Plantationocene, first introduced by Anna Tsing and Donna Haraway (2019). In both accounts, it is not ‘the human’ as an abstract collective subject that is responsible for today’s ecological devastations but a specific way of organising human life in and with nature. For Moore, the culprit is capital whereas for Haraway and Tsing it is the plantation economy. Reframing capitalism as a global relation and system of putting human and nonhuman nature to work at a very low economic cost, the concept of the Capitalocene refers to a “world-ecology of capital, power, and nature” (Moore 2016: 6). The Plantationocene, on the other hand, highlights the how of putting human and nonhuman nature to work by centring on the plantation as a place of “radical simplification; substitution of peoples, crops, microbes, and life forms; forced labor; and, crucially, the disordering of times of generation across species, including human beings” (Haraway and Tsing 2019: 6).

BIPoC scholars have problematised the concept of the Plantationocene for running the risk of diminishing the complexity of Black plantation life and “the deep history of Black struggles and the ways that attention to slave life can provide guidance for
cultivating worlds that support multispecies well-being” (Davis et al. 2019: 5). Indigenous scholars similarly criticise the dystopian and often apocalyptic narration of the Anthropocene—which also informs the discussion around many of its reformulations—for disregarding the continuities between the past five centuries of colonial violence and contemporary climate injustice (see, for example, Whyte 2018). Notwithstanding such criticism, the notion of the Plantationocene signifies a useful conceptual shift insofar as it serves to develop an understanding of how ‘the human’ could only be formed through the dehumanising exclusion of the gendered and racialised Other (see Jackson 2020; Weheliye 2014) as well as the naturalised construction of the nonhuman world as another Other of ‘the human’ (see Braidotti 2017). By reconstructing how coloniality is materially inscribed into categories such as the human and the non/in/more-than-/less-than-human, the Plantationocene underlines the necessity for decolonising Anthropocene thinking and doing. Thus, decolonising the Anthropocene, as Kathryn Yusoff (2018) reminds us, not only requires cutting the ties to colonial geology and origin stories in favour of multiple origin stories that are structured along shared vulnerabilities and hopes. It also means coming to a different understanding of the relationship between “geological forces and social practices” (Yusoff 2017), namely one that allows us to consider how agency is both made possible and constrained “by the forces of the earth itself” (Clark and Yusoff 2017; for a similar argument see also Lorenz-Meyer et al. 2015).

In an important sense, it is precisely the idea that humanity has become a geophysical force just like Nature that might turn out to be part and parcel of the problem rather than its solution. Against this backdrop, a heterogeneous body of work has emerged in recent years that stresses the urgency to shatter the imagined univocality and homogeneity of the Anthropocene by hacking it in order to create “a thousand tiny Anthropocenes” (Colebrook, 2016, p. 449). Engaging in different ways with the origins, temporalities, and the implications of the Anthropocene, these scholars bring to the fore the many ways through which the so-called ‘Age of Man’ is enacted not only differently but also with different earthly consequences across times, places, and bodies (see, for example, Alaimo 2016; Colebrook 2016; Neimanis, Åsberg, and Hedrén 2015; Parikka 2015; Saldanha and Stark 2016; Swyngedouw & Ernstson 2018;
Whyte 2017; Yusoff 2018). Next to these, other scholars argue for abandoning the focus on naming a culprit, focusing, instead, on opening and unfolding spaces to cultivate livable more-than-human futures (see, for example, Haraway 2016; Myers 2017; Tsing 2015). Most noted among these is Donna Haraway’s figure of the Chthulucene, which tries to find a position beyond catastrophism on one side, and a naïve faith in technologically fixing the wounds that have been inflicted to the Earth and its inhabitants on the other. The Chthulucene is meant to be “an elsewhere and elsewhen”, neither a sacred nor a secular place, but a “thoroughly terran, muddled, and mortal” site where multispecies becomings in the present and future are at stake (Haraway 2016: 55). In light of the multiple and aggravating contemporary social-ecological devastations, such gestures of opening up rather than closing in what the ‘Anthropocene’ is and might become offer vital impulses for thinking and cultivating a multiplicity of scenes that decentre and decolonise ‘the human’, in and through which livable futures in more-than-human spaces and temporalities may come to matter.

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Almanac: Limnology

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For my entry to the almanac I contribute two short prose poem works that seek to articulate the concept of limnology through descriptions of two distinct, but similar places: water bodies impacted by industry. Limnology is the study of inland bodies of water and aquatic ecosystems, including biological, chemical, physical, and geological characteristics of fresh and saline, natural and man-made bodies of water. By extension, the aquatic ecosystems include the impact of human activity, both material and manifested through culture, such as dance. The word ‘limnology’ is also homophonous with ‘liminal’, denoting a threshold or in-between state: between water and land, solid and liquid, man-made or arising through natural processes.

The concept of limnology (and the liminal) in both scientific and artistic expression are particularly useful and resonant as a means of thinking about, documenting and experiencing the material qualities of place, creating a material map incorporating histories and ecologies and the entanglement of human and non-human materialities.

Hamilton (Ontario, Canada)

Grey expanse of Lake Ontario in winter – clouded by drifts of windblown snow, merging with land. Ice and crystalline cirrus drift as if there is no delineation. Water and land are one and whole.

Through the marshlands of Coote’s Paradise where herons stalk and snapping turtles burrow, now hibernating deep under the mud and ice.

This corner of the Lake, this apex of the Golden Horseshoe.

Where the bright copper scales of Mishipizheu once flashed and coiled in the depths, bringing storm.
Cracked slabs of surface ice jut in the winter-slow flow – laden with memories of glaciers and Deep Time. Which deposited once-living crinoids, corals and brachiopods whose traces filigree the gray delineated geologic layers of the mountain that was once an ocean.

Ordovician.

Silurian.

Devonian.


But the People here have changed –
the water no longer receives the strokes of wooden paddles, the wake of the canoe drawing lines across the surface. No harvest of wild rice and cattail roots. Mishipizheu waits, stilled, now as petroglyph, as stone, to be remembered in song and story.

Now, the beds of most water bodies are Crown land.

But on side of the Lakeshore – Industry boils.

Slag heaps of mutated geological forms stripped of ores.

A barren landscape of twisted metal and poisoned soils. The alien extrusion of slag heaps, melted waste.

Smelter and blast furnace shaping the lives of the city’s people, always refining.

Multi-coloured flame rises from flare stacks, illuminating the night with eerie glow.

Our Strength is Steel.

Only the water remembers, and the other side of the Lake – where forests grow, leaves flash and turn in the winds, Chickadee sings, flitting between the branches of Sassafras, red-winged blackbird will return in spring to call among the cattails, and Mishipizheu laps the shores, calm for now, with copper whiskers and scales glinting in the depths.

Wuppertal, Germany

Flying down the River Wupper on a backbone of steel, the Schwebebahn, suspended monorail, flows above the flowing water below.

Forged from industry and the fruit of labour in the mines of the Ruhr.
A giant centipede of steel straddling the riverbed. Flying past former industrial complexes forming a historical panorama of the city's own evolution, from the 1800s to these current times.

Water has shaped industry here – the mechanical mills for weaving and dyeworks. Water has also shaped place – the literal eroding of the valley, the many towns that have since coagulated here, in this valley forged by water through the mountains, coalescing into the linear conformation of the city of Wuppertal, following the very line of the riverbed.

Industry and human life coalescing, villages merging like droplets of water. Water has had such an impact, both on the physical and psyche of the city. Walking along the river, a green belt flowing through the heart of the city, nature's resilience is revealed. Time slows, and the sense of being in a city alters substantially. The sounds of the water flowing, occasional birdsong are all. The noisy passing of the Schwebebahn overhead brings the city back to the river.

Wuppertal is the home of famed choreographer Pina Bausch and the Tanztheater Wuppertal, whose works frequently involve interactions and interventions with water – from gentle mist and droplets, to water being poured, hurled, or violently sloshed over dancers' bodies, or as a medium through which they must move – whether sliding like fish, wading through pools or spinning under cascading rain. The works often feature water dwellers – the upraised fluke of a whale, a walrus, a hippopotamus, a boat; or else suggest coastal regions with rocky or sandy shores, or lush, verdant woodlands, dripping with moisture. In these works, water is seen as something intrinsically alive – whether as an elemental force or life, or latent joy or even sexuality. Water is clearly a creative medium, and one which evokes joy and celebration.

The inspiration for these works has I would like to speculate arisen from the very environment of Wuppertal itself – the river Wupper flowing through the valley of the several historic town centres now comprising the modern city. Of course, it should be noted life everywhere across the earth dances with water in one way or another. Wuppertal's dance has long been defined by its character as an industrial region.
Industry as riverine choreography of matter and technics, driven by the power of the Wupper river and its tributaries, and elsewhere conglomerations.

Bibliography


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Affects and the creative process: intra-views with cultural workers

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Abstract

Delving deeper into the creative process becomes quite a challenge, which goes beyond following some guidelines and at the end of these creating something. The creative process is a complex process resulting from the dialogue that occurs with everything that surrounds us and the connection with human, non-human and more than human forces, the affects, can allow us to access even the most intangible but often of great relevance in this process. Therefore, the creative affective process aims to awaken the importance of connection with the forces that cross us, as well as sharing attitudes and skills that facilitate our connection with what moves us.

Keywords

Creative process; Affects; Cultural workers; New Materialisms.

Introducing affects and the creative process

Social sciences and humanities are increasingly focusing on affects, emotions and feelings (Gregg and Seigworth, 2010; Massumi, 2002; Moraña, 2012). In this sense, the named affective turn is providing new ways to understand the relation between subjectivities, the social and the material world (Moraña, 2012) so it can also contribute to reconceptualise the creative process.

Spinozian affects highlight the importance of bodies and give insights into the ways bodies increase and decrease their capacity to act. Gilles Deleuze and Felix Guattari (2010) retrieve this notion to refer to those forces that, in different intensities,
potentiate action to human and more than human bodies. These affects are not always instantaneous. They appear as a sort of an echo that is not stable but breaks the present, past and future linearity (Massumi, 2002). The echo implies that there has been a movement, so it provides meaningful information about the relation of one-self with the world.

How to use this information for the creative process? It is necessary to be open to the intensities arising within the becoming (Deleuze and Guattari, 1980/2010) of the world. This means to challenge the killers of motivation (Hennessey, 2000) that the neoliberal trend is expanding through the noise, needs and distractions that negatively condition and promote a lack of presence towards the forces that run through us.

For instance, literature about the creative process tends to look for pre-established methods. It is the case of the “Creative Problem Solving” (Osborn, 1953) created by the Buffalo State College and the Creative Education Foundation. It provides a model for promoting creative capacities through 4 steps designs. Alternatives such as “Theory U” (Schamer, 2007) seem more productive to be open to the becoming:

“U Process” pulls us into an emerging possibility and allows us to operate from that altered state rather than simply reflecting on and reacting to past experiences. But in order to do that, we have to become aware of a profound blind spot in leadership and in everyday life. [...] The blind spot is the place from which our attention and intention originates. It’s the place from which we operate when we do something. We are blind to it because it is an invisible dimension of our habitual social field, of our everyday experience in social interactions. (Scharmer, 2007, p.5)

Otto Scharmer (2007) talks about the importance of presencing, which can help to collect the intensities that affect us to propel the creative process:

All real creativity, all profound innovation, and all deep civilization renewal are based on the same source: the capacity for sustained attention – the capacity to immerse ourselves in something, stay with it, and then finally, when we are lucky, catch the spark of inspiration and move with it, in order to “bring the new into reality as it requires” (Buber, 2000 in Scharmer, 2007, p.27).
On this matter, affects enable to see the creative process as an intra-action (Barad, 2007) where agencies are produced through the connection with these intensities and the material world. This intra-action allows us to make decisions to learn “from the future as it emerges” (Scharmer, 2007, p.7) and create something significant that can subvert the limitation of the past patterns. However, the intra-action of the creative process drives us to be aware of “the ethical obligation to act responsibly in the future of the world, to answer and rework what materializes and matters and what is excluded from such processes” (Barad, 2007, p.235). Creation, whether material or immaterial, needs to become coherent from an onto-epistemological and ethical point of view. That is, from how one understands reality, how one relates to it, and the actions that one carries out.

In order to explore how the creative process can be reconfigured through the affective turn gaze, 4 intra-views have been conducted with cultural workers:

- Maria Assumpta (Tuti) Cirera Bergadà (T): Art Historian working on museums and the University of Vic (Spain). The intra-view has been carried out the 31st of March 2022.
- Toni Casassas i Bover (C): Transdisciplinary artist focused on experimental cinema and photography (Spain). The intra-view has been carried out the 5th of April 2022.
- Mireia Barrera (B): Director of El Coro Nacional de España and La Capella de Música de Santa María del Mar. Founder of Coro de la Orquesta Ciudad de Granada (Spain). The intra-view has been carried out the 28th of April 2022.
- Joan Carles Sánchez Rico (JC): Industrial design engineer. The intra-view has been carried out the 30th of April 2022.

In all 4 intra-views, the author (M) is part of the entanglement. The dialogue emerges without a fixed pattern to follow but with the desire to answer the main questions: "how do we relate to the affects in the creative process?” and “what can emerge from them in the creative process?”. These intra-views are analysed through sub-themes that can help to give insights about the introduced questions.
Discussing the intra-views

Affects

The concept of affects is new for all the participants. In explaining its meaning, all of them feel familiar with these intensities. JC is the only one that does not relate affects to the creative process at first, but while the intra-view moves forward he can identify them. On the contrary, T connects with affects immediately:

(T) Affects have been a major driver of my life.
(M) Can you notice them?
(T) Sure, on the stomach and then they go up to the head\(^1\).

Here it can be seen that affects are an embodied intensity. This force is not only constituting the body by the relation with other humans, but also with more than human bodies (Barad, 2007). In this sense, body appears as an experiential territory where connections, movements and relations happen (Grosz, 1994). In C words, affects are generating this experience which moves one to action: “I identify affects as a force that helps you to visualize a movement, a force that says to you that you have to act”.

Intra-actions

Intra-actions are key elements of the creative process. These intra-actions can be created voluntarily by the cultural worker to establish a dialogue between the different elements participating in the creative process. However, unconscious intra-actions are also part of it. In this sense, JC says:

You enable the soul of the designs and you wait for answers to what you are creating, and you say to them: now I put a click to you. And the design would say: here you do not put a click. You must see it.

This statement highlights the dialogue established as a result of conscious intra-actions with human, non-human and more than human forces in the decision-making of the creative process. This exercise of generating conscious intra-actions can be

\(^{1}\)All the translations are made by the autor.
considerably enriched by transdisciplinary. As JC shows: “you have to know how to mix different universes that seem antagonistic sometimes […] when I collide things that don't make sense a priori, new stories are generated there”.

Creating multidisciplinary intra-actions generate new affects, new experiences and opportunities to value and contemplate. This is the way the creative process can be considered a rhizomatic path where past-present-future is entangled (Barad, 2007). The intensities emerge within the living and changing intra-actions. In the creative process, this leads to do and undo many times, but it is worth it. As JC shows: “The design is not linear [...] in a creative process you do not know which turns you will make, when you think you will end up going back”.

Connections

During the creative process, it is relevant to connect with affects. This is an ability that can be learned. As JC says: “there are inputs that are coming into you, there is something intangible that as you grow in this sector, life, you can be awake for receiving these inputs”. These inputs are the affects, here is when presencing (Scharmer, 2007) becomes essential. In this sense, T points out that:

The best way to connect [with affects] is to pay close attention. One key is to be attentive. When you are attentive you can see things differently because affects are often received in a physical way. Everything that happens affects us, everything external is something internal, we are connected to it. [...] when you pay attention the relation between inside and outside it is possible to generate something new.

Opening

Affects generate new affects (Camps, 2011). As one move through the creative process, affects appear and it is possible to open channels that facilitate the connection with new affects. The intra-view with B helps to identify that this opening allows one to improvise and generate artistic ideas:

I have observed [...] that at home I rehearse, and the fact of preparing and being
present in that moment of my preparation makes the rehearsal improvise a lot, I get ideas that I had not thought [...] it’s like that seed I cultivated about the nature of a song [...] connects me with those kids and adults with whom we will play, and makes me flourish.

This is the labour of the echo of affects which allows one to generate new ideas. It is learning from the future as it emerges, as Otto Scharmer (2007) would say. In this sense, it is important the contributions of JC: “you should imagine the result of what you want to do before you do it. Having an imaginary path makes it possible to open connection channels”. This means to give oneself the permission for going to somewhere new, and this may require:

T: Flexibility [...] when you question everything is a lot of fun because internal schemas are destroyed but at the same time it makes it easier to open up and see a lot of things about yourself and others [...] many people live with very narrow realities, very small because they are the ones we create.

Hence, for the purpose of being ready for the new, one should work to be open to affects. It is the way that JC points out the importance of being attentive to the “uncontrolled inputs [because] you get information in a different way and when you have the ability to master this information you can also use it” in the creative process.

Signals

During the creative process, there are signals which enable movement. These are affects that emerge from conscious and unconscious intra-actions. In JC words: “there is a squiggle [...] I go, I come back, I go, I come back and at the end you say it is ready, you see a light”. Seeing the light is what affects enable. It is the moment “when you feel a click. But I can’t tell you how it happens and why it happens. But it happens” (JC). These signals are uncontrollable and unpredictable. They are invisible but felt through the body in the very present of the experience (O’Sullivan, 2001) of the creative process. Similarly, C recognizes that:

Affects give you a clue, I think they create awareness. It’s like a connector where
all the points have to be connected for it to explode, for that to happen. It’s not in a programmed way, you’re doing things you don’t understand why you do them and all of a sudden everything makes sense.

Obstacles

Obstacles appear in the creative process so it is important to develop the capacity for persistence in order to subvert the challenges. B explains it:

In a creative process, there has to be a lot of persistence, you don’t get away with it, you don’t find it. For many years, I was not sure this was the case [...] In the process a lot of insecurity is created [...] you have to constantly make decisions [...] you have to find your way trying to be as honest as possible [...] this is a very long way.

A flexible attitude enables to flow and capture better the opportunities that are emerging in the process. Once the creative tension has been overcome one can realise that obstacles are experiences that affects us and encourages the desire to keep moving forward. In B words: “there is something very curious that I do feel energetically [...] there is like an energy that I feel that yes, it will be difficult, but I will get out of it”. This energy can be the result of the confidence one acquires over time as a result of overcoming obstacles. It is also how affects function increasing or decreasing one’s capacity to act.

Killers

As mentioned before, the neoliberal trend is providing killers of motivation (Hennessey, 2000). These killers can also be killers of affects: intensities made up with the will to distort us with superfluous and limiting information. To deal with these killers and to dialogue with them consciously, it is necessary to awaken the critical spirit, the reflection and later to reactivate the capacity of connection with those affects that makes you move or block. In this sense, JC thinks that: “taboos are killers. Social codes are limits and family experiences can be it as well”. Educational institutions can also be killers of affects due to learning experiences are not often catalysing affects or awakening the critical spirit, but rather reproducing patterns that
disconnect us from our ability to create and to question:

T: I think there is something very important that is the process of culturization, which drives us to be uniform. Also, in school in general it is very difficult to contemplate one’s own identity, I think life is a process of discovering who you are [...] but on the other hand it is very difficult to distinguish the role of culture, places, environments

Closely, B thinks that:

B: Every artist has to do their own creative process. [...] there is a part that can be taught in schools [...] You see young people who are very good [at arts] but they don’t say: As an artist I want to contribute to... even if it takes me years to find it, even if you can’t put words to it, it is important to look for your truth as you feel that, as you approach that.

M: As a society we all follow the same academic pattern...

B: We are all caught up in the same threads, where is the creativity? If we are all anchored in the same thing, we are all the same.

In the face of this reality, imagination is needed to let go of some tendencies or to create new things (Garcés, 2020). Greene (2005) quoting Camus (1955) emphasizes the importance of awakening the “why?”:

It arises and it all begins in that weariness tinged with astonishment. It starts and that’s important. Boredom reaches the end of the acts of a mechanical life, but at the same time, it inaugurates the impulse of consciousness (p.18).

Confidence

The creative process pushes oneself towards the need of “Daring, losing the fear” (C) in order to learn to flow and trust. In relation to self-confidence, even connecting with what moves you, it can be complex to empower to walk in that direction. In this sense T and C comment:

T: There is something important here. Being convinced that you want to do it, then it doesn’t matter, if you have the strength and conviction the others also
end up convinced. [...] and confidence in life, there is nothing that is true but we want to live life with great certainty.

C: These killers are sometimes from people around you who appreciate you and are repressive, if you don’t have the security that you have accumulated over the years you could be a failure. You go like a tightrope walker, you go down the line without a net, you don’t have the insurance that the system gives you and if someone tells you something you can fall because you are trembling there, there is a shield but when you have it very clear you pass from them.

With the aim of being able to generate this security, intense transformation work is needed.

C: When you have a serious conversation with yourself or the environment there is a transformation. [...] if there is no transformation it is purely intellectual ... [...] if there is no personal transformation I think it is not a real conversation or a real listening and therefore it is very difficult to break with your areas of comfort, your fears, because a transformation is very scary and you may prefer not to listen.

The intellect is very present in our neoliberal society and the intuitive part that allows us to reach the most intangible is often neglected. Fortunately, affections do not only pass through the filter of the mind, but blur the dualism between mind and body (Camps, 2011). The statement of C is substantial: “if there is no transformation it is purely intellectual”. This reflects on the importance of being able to connect with such significant forces in the creative process.

Distillation

In neoliberal society, opening up a channel of conscious distillation is relevant to subvert the killers of affects. In this regard, JC comments that:

A lot of information causes us to lose the essence. What is being done a lot now is listening to the ancestral theme, going back to the essence of the Inuit world. Inuit have developed a system of generating solutions to problems to
survive and when you go to the base of everything is when you generate that ability.

I understand by essence what emerges once you have distilled a product, when you have removed all the layers that were not necessary. In creating it, in order to be coherent and ethical, it is necessary to do this process of distillation, of eliminating information. On the other hand, it is important the intra-action of different elements with the aim of creating what is necessary, which will make that one projects something with that intention.

With this desire to see the essence of things C shares a few words from Walter Benjamin: "I would like to say about things, what wine says about grapes" and he adds:

Referring to the creative process, you can make great buildings, great works of art, or works that seem to surprise you, but are of a learned product, of a methodology, of a copy, of a fashion, there are people very skilled at doing things, the reality is something else.

The essence in the creative process emerges after distillation. This gaze of the creative process is what makes genuine creations but, what is more important, it is what enables the desire to find a connection with something different and enjoy the state of Flow (Csikszentmihalyi, 1996).

**Thinking the affective creative process**

Affects are opening new paths toward understanding and living in the world. The intra-views with cultural workers presented in this text provide evidence of the insights that affects bring forth the creative process. Rather than being a stable procedure that can be catalysed from steps to follow, the creative process from an affective gaze surrenders the complexity of the creation to be open to the unexpected.

In this sense, the cultural workers have shown that this process is affected by the embodied intensities that create movements. These forces, which are human and more than human, that connect the invisible with the material, generate an intra-action
in which agencies are produced. Affects circulate through them opening new possibilities. The connection with these forces is essential. It is what enables cultural workers to make decisions and move forward during the creative process in a way that is coherent with what is meaningful and what moves bodies to act. Signals, as echoes of affects, help to make these decisions while embracing the unpredictable of the creative experience. In this sense, obstacles can appear but embodying a flexible attitude will provide that affects can become motors for action and opportunities for moving forward. Killers of affects also should be challenged to subvert superfluous information. Imagination here appears as a key element of the creative process as it can be a force for creating the new. Confidence in affects and in one-self would help to connect with the intensities arising and to make possible the needed distillation for the creation.

The 4 intra-views demonstrate the complexity of the creative process, as well as the difficulty of establishing universal guidelines that become tools to follow to be more creative. The concept of affects and the onto-epistemology and ethics that it entails, push cultural workers to live more fluid creative paths and shed light on something one cannot have seen before.

Bibliography


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Mireia Rosell i Pons is an architect currently working on efficient and sustainable architecture. She has been interested in the creative process since many years ago which has taken her to assist in different international conferences related with that topic and to observe and analyse different creative processes. She holds a MA degree in architecture (2005) from the Ramon Llull University of Barcelona, a postgraduate degree in Emotional Intelligence (2020) from the Girona University and a Master degree in "Visual Arts and Education: A constructionist approach" from the Barcelona
University (2022) where her work focused on the “Affects and the creative process from the Posthumanism and the Newmaterialism”.
In her penultimate chapter, ‘Sensorium,’ Helen Palmer writes ‘you tell me to analyse I’d rather synthesise,’ which seems like an apt methodology for the *Queer Defamiliarisation: Writing, Mattering, Making Strange*. The author argues that defamiliarisation can be queering can be mattering, which is explored both through analysis of the wider field of Russian Formalist ‘defamiliarisation’ and then a creative praxis of the critical areas of investigation. The hierarchies that might be attributed to defamiliarisation, queerness, and materiality, depending on different theoretical investments, are decimated through Palmer’s deft movement through the three, creating surfaces and relationships that expose the potentiality of her terms collapsing into one another. Whilst the book is thorough in its references to new materialist feminisms, the book’s most exciting contribution is in the enactment of theory, where ‘generic boundaries are troubled and the language is made strange through a foregrounding of materiality.’ Indeed, the dissolution of genre and gender conventions, as well as the sprawling nature of the text’s focus, allows for Palmer to explore multiple and simultaneous conceptual paths that are held together through unlikely narratives.

*Queer Defamiliarisation* draws the work of of Russian formalists, who Palmer turns to with the aim of reframing and refolding in dialogue with queerness. Thinkers such as Roman Jacobson, then Gilles Deleuze and Felix Guatarri, are placed in dialogue with queer and feminist academics such as Sara Ahmed, which allows for different kinds of orientation in relation to ‘making-strange’. Palmer defines queerness as a
'deliberate unstraightening and defamiliarisation of bodies, desires and orientations' (Palmer, 2020, p. 2), which leans heavily on her formulations of both materialism and defamiliarisation, further demonstrating the interrelation of the three. Queerness serves as a form of derailing for the work, which allows for defamiliarisation to be approached as ‘a making strange; a shift in perception’ (ibid., p. 1) that ultimately informs materialism, ‘how language is matter; how language matters’ (ibid.).

The matter of language is entwined with the way in which language can matter, and how shifts in perception might allow for a better understanding of literature, society, and identity categories. Palmer is compelling when she addresses how language proliferates to make capacity for new identifications, ones that might turn away from normativity, at the same time that language is necessary for challenging the very constraints of the categories it produces. This is enhanced through a very productive reading of the possibilities for trans* as flux and movement, as opposed to the much wider demands for trans to become or symbolise a form of fixed destination. This mode of reading is further explored through literature and myth, which brings into bearing a methodology that builds on the concept of ‘defamiliarising can be queering can be mattering’ (Palmer, 2020, p. 168): ‘rewriting can be refolding can be refleshing’ (ibid.).

‘A Field of Heteronyms and Homonyms: New Materialism, Speculative Fabulation and Wor(l)d’ opens with a discussion between the academic and IT professionals in a restaurant in Sydney. The female academic, who we assume is Palmer, defines herself as working in a field that ‘was probably several interconnecting fields, and that her own background was both literary and philosophical, and that words mattered, and that language in its material strangeness had the power to advance feminist, queer and intersectional politics’ (Palmer, 2020, p. 91). What unspools is a series of hypothetical questions from an IT consultant about the size of the field, who might inhabit it, whether he would be able to camp there. The academic answers these questions earnestly, until the two are enmeshed in a form of world-building, in which the hypothetical field takes on material dimensions, queering the boundary of abstraction and concretion. When home, the academic reflects on fields as ‘unstable
concepts’ (ibid.) and that her unexpected conversation has articulated the ability of ‘new materialism and speculative fabulation to enact worlds; to verb nouns; to story stories; to make matters matter; or to world wor(l)ds’ (ibid.). This anecdotal approach to fields works throughout *Queer Defamiliarisation*, in which Palmer brings together incredibly rich literary references to trouble categories, explore repetition, and think through the role of the trickster. Nat Raha and Travis Alabanza facilitate the discussion of trans* as not-destination; Stein’s roses – and Tender Buttons – leads to a reflection on the sameness and difference inherent to repetition; Audre Lorde’s Afrekete introduces the figure of the trickster, reimagined as female and feminist; and Isabel Waidner’s Gaudy Bauble challenges the problematic of language in the creation and destruction of identity categories. This expansion of the field also facilitates the emergence of unexpected ways of reading. Stein is a catalyst for thinking on doilies, where the exploration of the lace ‘kitchen frippery’ is also an interrogation of the poetic function. Similarly, a garden in Tooting is read against a postcard from Thanet to approach the interdependence and interpenetration of signs. Palmer acknowledges in her conclusion that the writing style of each chapter is intended to have ‘proposed, expressed, deformed and defamiliarised itself’ in an attempt to ‘show through doing’ (Palmer, 2020, p. 168).

Palmer could do more to ground the central idea of refleshing. The analysis of personae through rewritings of mythical figures moved with great rapidity, offering an overview of the effects of multiple refoldings. However, whilst embodiment and the body within the rewritten texts were apparent, the concept of refleshing was not as fully or clearly developed. There were also some fleeting references to the brain and its passages, which did not have the same thoroughness or nuance as the other conceptual pathways of the book. Otherwise, *Queer Defamiliarisation* is a truly radical intervention into the field (one where you could set up camp and happily stay) and an example of stylistic brilliance where the form and structure allow for a dynamic reimagining of the ways defamiliarisation, queerness and matter can relate. More academic texts need to be ‘made strange’ in order to matter, their content unstraightened into flux and movement, making the very language of criticism seem distinct and unfamiliar. In so doing, it would be possible to create a field in which
language itself takes on dimension; a place in which categories are simultaneously establishing and ebbing; and where the affective nature of movement becomes a form of freedom.

Bibliography


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The present volume, edited by Francis Bangou, Monica Waterhouse and Douglas Fleming constitutes an innovative and inter-disciplinary approach to teaching English as a second language (ESL) in the Canadian context. It is conformed by nine chapters divided within four thematic areas, an introduction and closing chapter (“Intermezzo”) written by the three editors and a foreword written by professor Brian Morgan. Each of the nine contributors not only develops novel concepts which are intimately linked to the practice of second language education (SLE), they engage in explaining Deleuze-Guattarian philosophy as well as dialoguing with a myriad of current academic works on SLE.

The first chapter also corresponds to the first part, “Deterritorializing the Language Curriculum”. In “Rhizocurriculum in ESL: Instances of a Nomad-Education”, Waterhouse reflects on Deleuzian-informed educational concepts in order to explain the neologism “rhizocurriculum”, first developed in Waterhouse’s doctoral dissertation in 2011. In the context of Language Instruction for Newcomers to Canada (LINC) classrooms at Ottawa, rhizocurriculum aims at shifting the focus of curriculum theory from producing model syllabus to reflecting on what actually happens within any second language classrooms, whose unpredictability and multiplicity no pre-given guidelines can fully incorporate. Waterhouse kicks off Deleuze and Guattari’s thoughts on nomadism and rhizome-thinking as a means to frame any attempt to create new ideas aiming at transforming hierarchical social relations. Introduced as an alternative
framework, rizhomatic configurations (i.e. present in tubers, some weeds and plants) are a suitable model to approach and comprehend the complexity of reality beyond models featured by the essence of substances, analogies and resemblances, as well as binary, linear and arborescent thinking and its “tracings of the same” (Bangou, Waterhouse & Fleming, 2020, p. 24). In a Deleuzian-Guattarian framework, deterritorialization within long-standing areas of knowledge occurs throughout lines of flight which point out the rhizomatic nature of ideas (Deleuze & Guattari, 1987).

Rhizocurriculum is partly motivated by Eugene W. Holland thoughts on nomad-education, which “refers to innovative thinking in language education broadly” (Bangou, Waterhouse & Fleming, 2020, p. 22). However, Waterhouse rather refers with rhizocurriculum “to how that innovative thinking actualizes uniquely in each moment of classroom practice” (Bangou, Waterhouse & Fleming, 2020, p. 22). Discussing her ethnographic case studies at LINC classrooms and interviews with six students and two teachers, Waterhouse comments three situations of “deterritorializing problems that prompt unexpected questions” (Bangou, Waterhouse & Fleming, 2020, p. 26). Throughout her fieldwork review, Waterhouse argues how rhizocurriculum makes visible the potential transformation of the people involved in LINC classrooms, whose heterogeneity cannot be neutralized by institutional and hierarchical frameworks and which must be taken into account in ESL education. In fact, Waterhouse concludes that “a rhizocurriculum places particular demands on the teacher by dismantling conventional distinctions between teacher and student roles” (Bangou, Waterhouse & Fleming, 2020, p. 37).

“Rethinking the Genders and Becoming in Second Language Education” by Douglas Fleming is the first out of four chapters under the category of “Deterritorializing Language Learner’s Identity”. This chapter reviews Fleming’s previous research (which focused on the participants’ thoughts on citizenship) in light of Deleuze and Guattari’s concept of becoming woman. In a Deleuzo-Guattarian framework, becoming woman is an aspect of the potential transformation of any multiplicity throughout a metamorphosis by which it mutates in form and degree (Deleuze & Guattari, 1987). Fleming is interested in how such a concept might help to understand processes of
subjectivity and identity in the context of SLE, including the contextual influence of family and community, as well as “the interrelationship between genders” (Bangou, Waterhouse & Fleming, 2020, p. 49). According to Fleming, the latter aspect has not been sufficiently explored in SLE research. Using an experimental interpretation of the Deleuzo-Guattaririan concept on becoming woman which draws on Elizabeth Adam St. Pierre’s *intensive reading* on Deleuzian concepts in education sciences, Fleming revisits 25 semi-structured interviews with Punjabi-speaking participants of a government-funded English course for immigrants in Canada which he led in 2010. According to Fleming, most of the 18 women and 7 men interviewed agreed that moving to Canada had been a liberating experience for the former, which also had positive effects for the latter. As Fleming describes, female interviewees highlighted some meaningful changes after moving from India to Canada linked to issues such as labour, reproductive rights, clothing and access to public space. Fleming interprets the consensus about the access of “more freedom” (Bangou, Waterhouse & Fleming, 2020, p. 54) as a two-fold process involving the deterritorialization of molar forces linked to male domination in their home country and the reterritorialization of their experiences, which makes Fleming conclude that “women lead the men in qualitative changes in family roles and relations” (Bangou, Waterhouse & Fleming, 2020, p. 54).

In “Rethinking Plurality in Our Liquid Societies”, Enrica Piccardo undertakes a complex reformulation of the concept of “plurilinguism”. Piccardo applies a transdisciplinary theoretical framework combining complexity theories, Zygmunt Bauman’s concept of fluidity and Deleuze’s insights on difference to linguistics and language education in order to uphold the paradigm shift that her vision of plurilinguism entails. Piccardo argues how changes in society that are related to globalization (i.e. the increase of migratory flows) require new perspectives on language education. The primary paradigm in language education, particularly in Canada and the US, has been centered on monolingualism, which implies both a process to achieve the status of an “ideal native speaker” (Bangou, Waterhouse & Fleming, 2020, p. 72) and cultural notions of purity, while encompassing multilinguism as bilinguism as subordinate elements. Piccardo’s trans-disciplinary framework is “in line with the idea that we need to overcome borders to make sense of processes of change” (Bangou, Waterhouse &
Flemming, 2020, p. 61). On the one hand, complexity theory provides a scientific model for dynamic and adaptative systems conditioned by time. Piccardo applies this conceptualization to language and language education, since both imply inter-related systems (such as individuals, communities and societies) in which slight changes can alter the whole, which tends to equilibrium despite its regularly switching nature. On the other hand, Bauman’s conceptualization of liquid modernity point out the meaningful sociological transformations in relation to space and time. According to Piccardo, Bauman’s thesis favoring plurality and diversity as alternatives to ethnic nationalism is particularly relevant within the reformulation of plurilinguism. Last, Deleuze’s concept of difference distances from questions of similarity and identity (difference from something similar) and posit the importance on differential stages or degrees (difference in itself). Hence the Spinozan notion of affect (power or puissance a body might inflict or be inflicted by) is relevant, as it provides an approach to language within complex systems belonging to liquid societies which upholds Piccardo’s conceptualization of plurilinguism and her own innovative contributions, such as plurilinguaging, which Piccardo has previously defined as “a dynamic, never ending process to make meaning using different linguistic and semiotic resources” (80). Piccardo highlights the relevancy of such a concept by its “principle of relationship” (Bangou, Waterhouse & Fleming, 2020, p. 73), which is the ground of issues such as “code switching, code-mixing and translanguaging”, “the use of paralinguistic features or a simplified code”, and an extension to “this flexible and creative use of the language to the social domain” (Bangou, Waterhouse & Fleming, 2020, p. 74). Piccardo believes that the paradigm of plurilingualism in language education is intrinsically related to the need of embracing pluriculturalism and valuing its positive effects on modern societies.

In “Deleuze and Globish: Imperial Tongues, Faceless Coins, War Machines”, Joff P. N. Bradley presents a genealogical analysis of Globish through Deleuzo-Guattarian frameworks and other post-structuralist perspectives. According to Bradley, some scholars and artists understand Globish (a neologism which mixes global and English) as a symbol of the craving for a universal language apt to contribute to alliances which could dismantle the Anglo American-centered global domination. Nevertheless,
Bradley maps the concept as well as analyses it as a war machine, which mainly (but not only) establishes Globish as a tool for effective and reductive business endeavor detached from any trace of the complexity of the English language and its dialects.

Drawing on Deleuze, Bradley understands desire as an expression of affect within a larger assemblage or network which necessarily involves one’s own culture and others’. As a consequence, the desire for learning a foreign language implies an existential aspect: “there is the desire to become-other through foreign language learning, a desire for a second self” (Bangou, Waterhouse & Fleming, 2020, p. 91). Bradley discusses the work of ex-IBM businessman Jean-Paul Nerrière, who coined the term Globish in 2005 as a means to supposedly preserve other languages which are threatened by the omnipresence of English as well as facilitate business. According to Bradley, Nerrière’s sense of Globish implies a drastic simplification since it lacks linguistic particularities from local dialects, which are significantly relevant in human communication. Globish entails a desire “for a form of language devoid of culture” (Bangou, Waterhouse & Fleming, 2020, p. 93). At this point, Bradley applies Deleuze and Guattari’s concept of the war machine to this phenomenon. For Deleuze and Guattari (1987), the war machine is historically an assemblage related to nomad societies which has the potential to deeply disturb nation-states and state-like configurations till the point of ruination and invasion. However, as much as war machines deterritorialize power structures, they have also been used to reterritorialize domination as soon as once-upon-a-time nomad societies have become part of the nation-states via invasion or contagion. That is why Bradley thinks that Globish is “a becoming-minor of the majority code” (Bangou, Waterhouse & Fleming, 2020, p. 96-97), since it attempts to disturb English hegemony precisely from within, while aiming at becoming even more hegemonic than Standard English. As a means to exemplify it, Bradley relates Globish to computer coding, in which redundancy (a typical feature of human languages) is exterminated in favor of efficiency. Drawing on philosopher Alphonso Lingis, Bradley argues that Nerrière’s project of Globish entails a “complete reduction of language to the circulation of information: a language addressed to everybody in general and no one in particular” (Bangou, Waterhouse & Flemming, 2020, p. 99). Among other issues, Bradley also argues how Globish entail
detrimentalizing powers that are far from Nerrière’s pretenses: the political slogans around the world which use a simplified version of English in order to communicate protests’ motives and injustices more effectively, especially on the Internet.

Aisha Ravindran and Roumiana Ilieva close section 2 with an article which delves into the diversity of experiences of international students who have graduated from a Teaching English as an Additional Language Master’s program. In “Affective Affordances, Desires, and Assamblages: A Study of International Students in a TESOL Program in Canada”, Ravindran and Ilieva start questioning general assumptions both from institutional literature and academia which tend to portray international students of English as a homogeneous group. By Deleuzo-Guattarian and new materialist perspectives, the authors investigate three semi-structured interviews with TESOL ex-students by paying attention to the lines of flight of three participants throughout their unique narratives about their complex experiences.

Whereas Canadian institutions approach TESOL (Teaching English to Speakers of Other Languages) students for the economic interest, critical scholarship usually portray TESOL students’ desire to learn English as featured by a previous lack or deficiency which TESOL is supposed to fix. Drawing on Karen Barad, Ravindran and Ilieva aim at challenging these leading paradigms by focusing on the intra-action of such phenomena, which means “the concurrent entanglement of multiple elements from which entities emerge” (Bangou, Waterhouse & Flemming, 2020, p. 113). Instead of drawing from general postulates about TESOL students based on “the homogeneous molar institutionalized coding of subjectivity” (Bangou, Waterhouse & Fleming, 2020, p. 112), Ravindran and Ilieva explore TESOL students’ agency by sharing an assemblage of their molecular memories. The authors explain in detail basic Deleuzo-Guattarian notions which uphold their divergent application of Davies and Gannon’s term “molecular memories”. Whereas Davies and Gannon studies collective biography, Ravindran and Ilieva focus on the concept’s potential to refer to significantly affective knots: “non-linear narratives, rhizomatic becomings, and deterritorialization of stable subjectivities through time, as they are being reconfigured and retold in different contexts” (Bangou, Waterhouse & Flemming, 2020, p. 119). The
first molecular memory ("possibilities") is focused on Dawn, a Chinese TESOL ex-
student whose main goal in pursuing such a career is both to become a teacher and
become critical and self-reflective. Secondly, Muriel’s molecular memory ("relations")
is about Muriel, a Chinese English-teacher who struggles with the rigid and test-
oriented pedagogy of the private institution her and most of her colleagues have found
employment, which nevertheless does not prevent her from projecting better
alternatives. Last, Kris’ molecular memory ("processes") remits to the feeling of
deficiency she experienced as a South Korean English-teacher in one of her
classrooms, as a Korean student would always avoid her.

In “Affect and the Second Language Writer’s Assemblage: Virtual Connections
between Digitally-Mediated Source-Based Writing and Plagiarism”, Gene Vasilopoulus
introduces her innovative research on digital plagiarism and SLE. According to
Vasilopoulus, current studies on plagiarism related to source-based writing in the
context of SLE are mostly focused on tracing plagiarism in text, which has become
the only “visible evidence of learning” (Bangou, Waterhouse & Fleming, 2020, p. 139).
According to Vasilopoulus, Deleuzian frameworks allow to pay attention to the various
elements which contribute to any learning process and might be involved in digital
plagiarism. These assemblages of human and non human forces are approached by
affects, which help to envision the virtual possibilities that learners have in hand and
their very actualization in terms of the actual choices within their writing.

In order to sustain her approach, Vasilopoulus provides an empirical study of
plagiarism through a rhizoanalysis of the writing process of a Korean student in an
EAP (English for Academic Purposes) program in Canada. Drawing on Diana Masny’s
methodology for qualitative analysis, Vasilopoulus defines rhizoanalysis as a mapping
of affective connections which she applies to her multiple field materials, which
involve in-depth interviews, screen capture recordings and her own diary notes.
Vasilopoulus argues how the study of plagiarism and the didactic efforts made to
avoid it should not be limited to rules and categorizations. Her Deleuzian and digital
research shows how looking at the process of writing and how it turns into plagiarism
provides key aspects which bring insights regarding the students’ contexts, such as
“[w]hat might be produced when the affective force of plagiarism collides with the academic pressure to pass a course?” (Bangou, Waterhouse & Fleming, 2020, p. 147). Furthermore, the student’s screen capture recordings show her struggles writing her ideas down, which could help EAP professors to further improve their methods.

Maria Bastien-Valenca’s chapter is titled “Experimenting with Multiple Literacies in Family Literacy Intervention Programs: From Rhizocurriculum, Rhizo-Teaching to Language Education” and conforms, along with Vasilopoulos’ chapter, part 3 focused on “Deterritorializing Literacies”. Based on her doctoral research, Bastien-Valenca presents a rhizoanalysis of fieldwork focused on home visitors within the HIPPY (Home Instruction for the Parents of Preschool Youngsters) program in the province of Ontario. HIPPY is an international project launched by the Hebrew University of Jerusalem in 1969 aimed at providing pedagogical tools to newcomer parents in order to help their children’s literacies. Bastien-Valenca’s research is centered on home visitors, HIPPY workers who used to be participants of the program and hence have an inside experience which goes beyond the specificities of the HIPPY curriculum. Drawing on Deleuze and Guattari’s sense of rhizome, Waterhouse’s rhizocurriculum and Masny’s Multiple Literacies Theory, Bastien-Valenca’s research shows how home visitors make use of diverse pedagogical tools depending on the needs of the parents, particularly in regards of English education. Bastien-Valenca’s examples of fieldwork are taken from interviews and filmed observations of three home visitors and some of their thoughts about the importance of English acquisition, as many parents feel isolated due to their lack of proficiency in English, which is crucial in order to understand the role-play games HIPPY is based on. That is why home visitors, who have also been newcomers in the past, often engage in practical strategies of English teaching throughout their weekly visits which include spontaneous lessons on English vocabulary and grammar, the reliance on a shared mother tongue (such as Mandarin) and the usage of pictures to give definition of words. Rhizomatic configurations provide Bastien-Valenca with a suitable framework to map HIPPY’s home visitors processes of re- and deterritorializations not solely in relation to HIPPY curriculum but connected to the labour of SLE undertaken by home visitors, which Bastien-Valenca names “rhizo-teaching” and “rhizo-home-visiting”.

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Francis Bangou opens the fourth and last section, titled “Deterritorializing Language Teaching Education”. In “How Might Teacher Education in CALL Exist? Becoming and Experimentations”, Bangou studies his experience as an instructor within a CALL (Computer Assisted Language Learning) course focused on providing students with didactic tools in order to integrate technologies into SLE. Applying Deleuze and Guattari’s philosophy helps Bangou to combine traditional methodologies of design-based research with nobel perspectives which aim at “open up a space to think differently about teacher education in CALL” (Bangou, Waterhouse & Fleming, 2020, p. 176). It is what Bangou has previously called –along with Vasilopoulus– “teacher becoming in CALL” (TBIC).

Bangou provides in-depth explanations of Deleuzo-Guattarian concepts, specifically the agencement among the various elements conforming the experience of CAS, involving humans, technologies, duration, forces of intensities, materials, etc. Agencement is also translated to English as assemblage, which is the most commonly used term in this volume but nonetheless “does not fully communicate the unpredictability and consistent reinvention” (Bangou, Waterhouse & Fleming, 2020, p. 196) associated to it, Bangou clarifies. Bangou also pays especial attention to the dimensions of the virtual, the actual and the very intensities which allow a mapping of interconnections between the first two. Following Deleuze and Guattari, Bangou argues that the virtual as the plane of consistency holds an infinite potential of becoming which is constantly actualized in reality through unique modalities of intensities (i.e. strength and duration). Bangou applies such a framework into TBIC, which Bangou illustrates through his research on CALL. Bangou follows Masny’s Deleuzo-Guattarian open qualitative methodology which creates vignettes to connect with instead of data to merely analyze. Drawing on the blog notes of one of his ex-students and research participant, as well as his own log recordings of thoughts reading his former student’s blog, Bangou reflects on the fact that unpredictability, instability and creative potential are assets generally ignored from conventional SLE theories and practices as well as CALL.
Martina Emke provides the last contribution to the volume, titled “Always In-between: Of Rhizomes and Assemblages in Language Teacher Education Research”. Emke draws on her doctoral research experience in Twitter-based investigations of language teaching and learning in order to approach Twitter as a Deleuzo-Guattarian machine. Emke follows J. Macgregor Wise’s dual description of approaches to technology, who differentiates between a dominant or received view and a contextual or embedded one. While the former understands technologies as tools and accessories for the human, Wise draws on Deleuze in order to build up the latter as it points out the contextual particularities of any technological scenario. Nevertheless, Emke departs from Wise since both views keep a centrality on the human which, as Emke argues, might not reveal the complexity of technological processes. Emke posits a relational view exemplified by instances of vignettes of Emke’s interactions with other researchers on Twitter. According to Emke, Twitter’s activity resonates with the Deleuzo-Guattarian’s concept of assemblage since every user contribution can be differently linked to other users as well as their tweets by direct referencing, retweeting and hashtags, which show certain messages on the users’ timelines and allow other users of the internet to see. Following Emke, “[t]hese changes produce new openings to other assemblages of writing and speaking, which transcend Twitter, moving to other forms of media (e.g., blogs or other networking sites) across time and space.” (Bangou, Waterhouse & Fleming, 2020, p. 207). Approaching Twitter as a Deleuzo-Guattarian machine allows Emke to provide meaningful insights on part-time doctoral education and SLE, promoting a relational view on technology which might encourage participants to further interact with each other, apart from engaging “with Deleuzo-Guattarian concepts . . . to bring more diverse perspectives and approaches to research and to produce new and different knowledge.” (Bangou, Waterhouse & Fleming, 2020, p. 216).

This volume puts together serious and interconnected engagements with Deleuzo-Guattarian ideas and SLE. One common feature of these nine essays lies on a very specific posthuman interpretation of Deleuzo-Guattarian concepts which succeeds in decentering the human subject as the preferred object of study. Deleuze and Guattari aimed at decentering the human subject because subjectivity, as a Western enterprise
of modernity, implies white, capitalist, ableist and male-dominated embodiments. This volume not only considers the complexity of interrelated elements involved in second language education (particularly technology) but the relational and processual nature of each phenomenon. Nonetheless, I would like to finish this review with Morgan’s words in the foreword, which prevent from the potential danger both of reterritorializing Deleuzo-Guattarian ideas and positing “foundational differences” between “philosophical/conceptual digressiveness” and “pedagogical coherence” (Bangou, Waterhouse & Fleming, 2020, p. X).

Bibliography


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Review Essay: *The Material Culture of Textiles: Towards Sustainability*

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The last few years saw three strikingly similar books about the textile industry, unravelling the material conditions of the clothing we wear. It may seem some kind of serendipity, but I venture the hypothesis that the interest for textiles has more to do with the belated realization that the fashion industry is cracking at the seams, because it is socially and environmentally unsustainable. My specific new materialist perspective in this review essay consists in stressing the environmental grounding of the fashion system and the material conditions that would allow a sustainable practice.

For St. Clair, Postrel, and Bédat the urgency to take into serious consideration the very material conditions of fabric, emerge from the awareness that we live surrounded by cloth, from being wrapped in a blanket at birth, to being dressed in garments day and night, to the covers of our chairs and beds, the seat belts in our cars, the sails of our boats, and even the suits for travelling in outer space. Textiles are everywhere. Yet we – the daily users – seem to know very little about the raw materials or the processes of making fabrics, nor about the people making them. The authors aim to fill that gap
in our knowledge and curiosity, starting from the assumption that “textiles of all kinds are intrinsic to our lives and cultures” (St Clair, 291). All three authors point out that textiles have been fundamental to our culture, history, and industry. In fact, yarn and fabric have been so central that they are woven into language. As Barthes and many of the other poststructuralist cultural critics (like Kristeva and Derrida) already pointed out: text and textile derive from the same ancestor, Latin ‘texere’, to weave—Barthes wrote, “etymologically, the text is a tissue, a woven fabric” (1977, 159). Language and cloth have become interwoven; consider expressions like the warp and weft of civilization, or being part of the social fabric, or with sadder connotations, being torn apart from family or a life hanging by a thread. These and many other metaphors indicate that fabric is indeed the very stuff of human life.

On the materialist side, St. Clair, Postrel, and Bédat share their surprise and even dismay that people seem hardly aware of the enormous efforts that have gone into the inventions of making yarn and textiles out of plants, animal fleece or insects. As they show, the story of textiles is the story of human ingenuity. Just think how the invention of making yarn out of plant or wood pulp helped develop agriculture, how the binary code lies at the root of the technique of weaving and weaving machines, while the origin of chemistry lies in the colouring and finishing of cloth (Postrel, 3). Postrel even claims that for trade in textiles to happen, the technology of literacy (150) and the mastery of Hindu-Arabic numerals was necessary (158), as were the invention of double bookkeeping and a banking system based on cheques and credit in the fifteenth century (161).

To know the history as well as the technology of fabrics is all the more important because we now live in a time where ‘fast fashion’ has made clothes a throwaway item: “For the first time in human history, the vast majority of fabric being made has become disposable, something to be consumed and thrown away within weeks or months of being made”, writes St. Clair (221). Not knowing the effort of what goes into making, or discarding, a garment, makes the owner careless. Such a flippant attitude is a far cry from the high esteem that our ancestors, or even our own grandparents or parents, held for cloth, which was highly valuable until the mid of the twentieth century.
As Postrel puts it: “We suffer textile amnesia because we enjoy textile abundance” (248). That amnesia comes at a cost, not only because it conceals essential components of our human heritage, as both St Clair and Postrel argue, but also because the overproduction and undervaluing of garments has led to a highly unsustainable industry as Bédat argues. Time to understand how textiles changed history and made the world, and follow a garment in its life and death, to quote the subtitles of the three books.

The very beginning of fibres is explored by St. Clair, who forcefully argues that if only textiles had survived the weathering of time we may have spoken of The Textile Age rather than a Bronze or Iron Age. But because fabric tends to decay and disappear over time, archaeologists have to do with literally scraps of fibre or even just some pollen. Radiocarbon dating shows, however, that already in neolithic times threads were made from bast. Both St. Clair and Postrel take ample time to delve into the worldwide (pre)history of the incredibly complex process of making yarn out of fibres from flax (to make linen) and fleece (to make wool). Natural fibres can be divided in two categories: fibres from animal fleece, which have their base in protein: wool and silk. And fibres from plants, which have their base in cellulose: flax, bamboo, hemp, cotton, etc. They both stress the physical pain and hardship to extract fibres that are soft and flexible enough to spin it into yarn. Fibres are raw materials that can be converted into textile yarns. But a yarn is not yet a fabric, so people had to learn how to spin it into a filament that is strong and smooth enough to be further processed into fabric by weaving; a technique that goes back 24,000 years ago. Even the most simple weaving machine “challenges the mind”, writes Postrel (72), because it is “profoundly mathematical”. Like knitting, but that was a much more recent invention only a thousand years ago.

Linen and wool remained the predominant raw materials for a long time. China invented the sericulture, the production of silk, around 2600 B.C., maintaining a monopoly for more than 5,000 years (although fibres have been found in tombs over 8,500 years old; St. Clair, 63). St. Clair and Postrel both trace how textiles literally made civilizations powerful and wealthy. For example, St. Clair dedicates a full chapter to
the strong woollen sails that the Vikings were able to make, allowing them to sail the seas and conquer other countries. One sail took the women of a village over two years to make. The silk trade, and the famous silk roads, created the wealth of Chinese culture and cities: “silk was power” (73). All three authors stress the gendered nature of the technique of spinning, and Postrel emphasizes the time effort that went into producing yarn for fabrics: “cloth requires a huge amount of thread” (48). In an interesting table, she estimates just how long it would have taken to produce yarn for a garment, sheet, or sail in different era’s. For example it may have taken 114 days to make a Roman toga, and 82 days to make a queen sheet by using a spinning wheel. It just shows why women were continually at their spinning wheels to produce thread for fabric.

We may not know much today about the material conditions of producing yarn and weaving or knitting fabrics, much less do we know about the process of dyeing. Postrel dismisses any romantic idea that “preindustrial life was environmentally benign” (143). The process of dyeing was a mess, involving stinky ingredients; it smelled like urine, vomit, or rotting flesh. Today, this has become a chemical industry, from pesticides in growing cotton to bleaching, homogenizing, and dyeing the fabric: “Behind just one T-shirt made with conventional [ie. not organic, AS] cotton, there’s one third of a pound of chemicals; there’s three quarters of a pound in one pair of jeans.” (Bédat, 15). Making clothes from textiles has a “carbon-intensive energy grid” (35), while the pollution of both freshwater and air is quite a serious matter. It results for example in biologically dead rivers in Bangladesh (Bédat, 61) or toxic gases emitted by illegal waste fires in landfills in Kpone, Ghana (225).

Material conditions were – and continue to be – harsh and often heart-wrenching, for the poor people who were working in the fields or at the machines. All three authors expand on the link between the cotton industry and the exploitation of people, especially in the USA: “… slavery and cotton formed the warp and weft of America’s success.” (St. Clair, 173). But St. Clair also shows the age-old exploitation of the lower classes in the production of silk in China, whereas Bédat meticulously traces the contemporary exploitation of the, mostly female, garment industry workers in Asian countries, or for that matter of the workers in the packaging industry for Amazon in
the USA: forced labour, low pay, overwork, lack of regulations, and foreclosure on unionization are still with us today.

Cotton is connected to colonialism, the period in which it became the preferred fabric for Western Europe and the USA. The voracious consumption of cotton instigated the industrialization of production, as Bédat writes: “Cotton drove modern industrialization and inequality...” (xix). The invention of the spinning jenny formed the heart of the industrial revolution. It is actually quite upsetting to compare pictures of women and children working those machines in the nineteenth century in Europe and today in many Asian countries: the process of making fabrics and of CMT (cut, make, trim) has hardly changed in the last few centuries. It may have been scaled up by bigger machines, but it is still much the same procedure.

The Golden Thread and The Fabric of Civilization both dedicate chapters to new developments in technology, starting with the invention of regenerated fibres like rayon and viscose in the beginning of the twentieth century. These are semi-synthetic fibres derived from plants, falling into two categories: cellulose and protein fibres (Fashionary Team, 2021, 16-17). Synthetic fibres are derived from chemicals, mostly from petroleum, of which the best known are nylon (invented in the 1930s) and polyester (invented in the 1950s). All three authors mention the incredible success of nylon stockings just before and after the second World War replacing expensive silk. Nylon was very profitable from the start, but other synthetics, like acrylic (known by its name Orlon), polyester (Dacron), and spandex (Lycra) “had to work harder initially to win over consumers.” (St. Clair, 209). Synthetic fibres “were first accepted for their utilitarian virtues” (208). It was marketing that convinced the consumers. Synthetic fabrics were cheap and convenient; housewives were targeted in advertising for the easy care—freeing them from the drudgery of ironing. All three authors agree that polyester coincided with the post-war boom in spending. Especially in the USA polyester became a sign of mass consumerism and the desire for modernity. It was followed by a downturn in the 1980s when polyester became a synonym for cheapness and unfashionability, followed by a recent revamping. Today, polyester is by far the most common fibre, far outselling cotton. Generally, synthetic fabrics command sixty per cent of the global fibre market.
While The Golden Thread and The Fabric of Civilization dedicate their last few chapters to new technological developments, such as space suits, sportswear, wearable technology, and new sustainable fibres, Unraveled focuses in its last chapters on issues of sustainability by following the end of a garment’s life cycle. Fast fashion would not exist were it not for synthetic fabrics. But, as we hopefully all know by now, fast fashion system is socially and environmentally a disaster. Bédat is scathing: "The current system is destroying the planet, ignoring the losers, and creating precarious jobs with precarious futures." (116). She convincingly shows how hard it is to find reliable data; she recounts how time and again she came to a dead end in looking for data (46). The industry is so complicated with its many middlemen and subcontractors, that brands and business themselves do not have access to the data. This actually allows them to get away with a lot of greenwashing. The lack of transparency is one of the biggest problems in the fashion industry. Yet, her stories of the plight of workers in the factories of Bangladesh or Sri Lanka, or in the largest second-hand clothing market Kantamanto in Accra (Ghana) get the point of the exploitation of people and planet across. The fashion industry has taken, as she repeats throughout the book, the lead for a “race to the bottom”.

Fashion is capitalism’s child, Elizabeth Wilson famously wrote (1985: 13). These three books show how the textile and fashion industry have gained from neoliberalism, by creating a fast fashion system of extreme capitalism that does not care for people nor the planet but only for profit. All three authors are convinced that change lies in the hands of the consumers. They are critical of so-called ‘sustainable fashion’, aware as they are how much chemicals, and exploitation of people, go into producing yarn, fabric, and garments. Consumers should change their behaviour by stopping the throwaway mentality. This can only happen if consumers come to value their clothes. Unraveled ends with a hands-on, if not activist, chapter how to effectuate that change. If re-pair, re-wear, and re-cycle is the mantra, the ultimate change that consumers – we – can achieve is: not to buy new clothes.

The Golden Thread, The Fabric of Civilization and Unraveled are semi-academic books, well-researched and with footnotes, interlacing facts and figures with interviews, travels, and stories. The style is engaging, at times a bit anecdotal, but it
makes for an easy read. Although all three books have a global outlook, they remain embedded in North-American culture, for example with their focus on deregulation in neoliberal times, the lack of unionization for US workers, relentless consumerism, the waste disposal in landfills, and local examples of recent technological innovation. The strength and attraction of the books lies in the insight that fabric is foundational of our very society. Understanding the material conditions and production of textiles means not only to value our common history but also to change for a better world in the future: “Change textiles and you change the world”, writes Postrell (218). If the fashion industry is to “draw down their carbon use, manage their chemicals, pay their workers a decent wage, and be representative and inclusive” (Bédat, 240), we as consumers need to learn to value and cherish our clothes. As St. Clair puts it: “The fabrics we choose and where we get them from still have butterfly-effect consequences on the lives of the people who make them and on the world around us.” (2929). The strong message of these three books is to take the material culture of textiles seriously if we want to achieve a sustainable future for fashion.

Bibliography


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