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2016

# Pedagogical Matters: New Materialisms and Curriculum Studies

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### Recommended Citation

*Pedagogical Matters: New Materialisms and Curriculum Studies*, Edited by Nathan Snaza, Debbie Sonu, Sarah E. Truman, Zofia Zaliwska. New York: Peter Lang Publishing, Inc., 2016.

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# Pedagogical Matters

## New Materialisms and Curriculum Studies

Edited by Nathan Snaza, Debbie Sonu,  
Sarah E. Truman, and Zofia Zaliwska

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# Introduction

## Re-attuning to the Materiality of Education

NATHAN SNAZA, DEBBIE SONU, SARAH E. TRUMAN,  
AND ZOFIA ZALIWSKA

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*Pedagogical Matters: New Materialisms and Curriculum Studies* grows out of an urgency to think about what *matters* in education, in the dual sense of tracking the significance of various elements of pedagogical encounter and of rethinking precisely how matter figures into education in ways that most of us forget, disavow, or simply ignore.<sup>1</sup> This impulse is inspired by what has come to be called the new materialisms, an intellectual current traversing the humanities and social sciences over the last decade that is only making its presence felt now in educational studies (Hickey-Moody & Page, 2015; Niccolini & Pindyck, 2015; Sonu & Snaza, 2015; Springgay, 2011; St. Pierre, 2014; Youngblood Jackson & Mazzei, 2012) and educational fields such as childhood studies (Bone & Blaise, 2015; Taguchi, 2014). While each chapter that follows experiments with new materialisms, a brief overview of new materialist concepts, and some preliminary sketches of how it can problematize our thinking in and around education will help to orient the more unfamiliar reader.<sup>2</sup>

### **NEW MATERIALISMS: ONTOLOGY, EPISTEMOLOGY, AND POLITICS**

It may be easiest to think about new materialisms as both a particular thread within feminist and queer theory (Alaimo & Hekman, 2008; Hekman, 2010; Todd,

Jones, & O'Donnell, 2016) and a subset of thought following what is called the posthumanist, or inhumanist, or more-than-human or nonhuman turn (Braidotti, 2013; Chen, 2012; Grusin, 2015; Hayles, 1999; Luciano & Chen, 2015). New materialist thought challenges longstanding (Western) humanist presumptions about what a human being is and how it relates to the world.<sup>3</sup> It shares Donna Haraway's (1991) critique of the binary oppositions—human/machine; human/animal; nature/culture—that serve to prop up overly simplified conceptions of the human as a discrete, bounded, stable entity. We might think of new materialist thought as generally committed to four basic principles.

First, all matter has some form of agency. Unlike the classical Western-Eurocentric view, which sees humans (and some other animals) as having capacities to act and most nonhumans as being inert and passive, new materialist thought asserts the power of *all matter* to act. Jane Bennett's *Vibrant Matter* (2010) aims "to theorize a vitality intrinsic to materiality as such, and to detach materiality from the figures of passive, mechanistic, or divinely infused substance" (p. xiii). This "sea change" in how we conceive of ontology (Hekman, 2010, p. 3) necessitates much more complex ways of thinking about causality, change, and the boundedness of entities. As Diana Coole and Samantha Frost write in their introduction to *New Materialisms*:

Materiality is always more than "mere" matter: an excess, force, vitality, relationality, or difference that renders matter active, self-creative, productive, unpredictable. In sum, new materialists are rediscovering a materiality that materializes, evincing immanent modes of self-transformation that compel us to think of causation in far more complex terms; to recognize that phenomena are caught in a multitude of interlocking systems and forces and to consider anew the location and nature of capacities for agency. (2010, p. 9)

Second, new materialisms require social thought to engage more carefully with developments in the physical and life sciences. Most social and political thought assumes classical Cartesian and Newtonian ideas about space and causality (Barad 2007; Coole & Frost 2010; Grosz, 2004), ideas that have long since ceased to have purchase in the natural sciences. Such classical ideas include understanding objects as passive and inert, requiring an external agency to *do* anything. Such objects can be observed, measured, and predicted, yet they are presumed to exert no counterforce on the agential "subjects" (namely humans) who believe they can master the passive world around them by studying purportedly law-like causal relations in order to intervene in them. This causal understanding of relations keeps us from opening up to unpredictable and indeterminate materializations, to the growing uncertainties of our physical, biological, geopolitical, and socioeconomic structures.

For this ethical reason, new materialisms require us to "challenge ourselves to become sufficiently literate in the natural sciences" (Hird, 2004, p. 9). While we don't believe that it is possible to simply reject Newtonian causality or the ways

classical physics have become part of common sense, we do believe we need to attend to “the material details of everyday life” in order to see forces and movements as inseparable from matter itself rather than something external to matter (Coole & Frost, 2010, p. 7). Indeed, much new materialist work is inspired by the theories of Karen Barad, a feminist particle physicist whose *Meeting the Universe Halfway* (2007) offers the most sustained and influential account available linking the quantum ontologies to feminist and trans\* practice (her concepts appear in many chapters in this volume). Barad’s avowedly posthumanist account of nonhuman agency and the “entanglement” of human and nonhuman actors is grounded in rigorous accounts of the experimental practice of physics. Some new materialisms, accordingly, are intimately related to feminist science studies (Haraway, 2008; Hekman, 2010; Hird, 2004; Stengers, 2011).

Other new materialist thinkers turn toward neuroscience or the psychology of “affect” (Ahmed, 2004; Berlant, 2011; Connolly, 2013; Gregg & Seigworth, 2010; Massumi, 2002; Sedgwick, 2003) to think about the materiality of relations among bodies or parts of bodies that exceed (or precede!) conscious awareness on the part of an organism, or that take place among entities that are not conscious. Agency, in other words, comes to be rethought in terms that are no longer based upon the human being as a model. There is no longer a knowing (human) subject who acts and a passive (nonhuman) object that is acted upon: everything is “entangled.” This will be familiar to readers interested in the philosophies of Henri Bergson, Alfred North Whitehead, Friedrich Nietzsche, Charles Darwin, Gilles Deleuze, and Gilles Deleuze and Félix Guattari especially, as they have been taken up in contemporary theory.

Third, new materialisms privilege the blurring of boundaries between inside and outside. Barad’s (2007, 2012) account of physics hinges on what she calls “entanglements,” the ways that all entities do not precede their relations but rather emerge from them. She proposes that we consider entities as “intra-active” as opposed to interactive, since (and this is a lesson she draws from experiments in physics in the early twentieth century) entities are not actually separate things that then enter into relation: all entities emerge *from* relation in a given phenomenon. This foregrounding of the relationality of all things is given many names—interactionism or viscous porosity (Tuana, 2010), trans-corporeality (Alaimo, 2010), the mesh (Morton, 2012), the mangle (Pickering, 1995), the web of interrelations (Braidotti, 2013), and draw heavily on Deleuze and Guattari’s concepts of assemblage and schizoanalysis—but all these approaches share in common a turn toward scientifically rigorous accounts<sup>4</sup> of a shifting, complex ontology in which entities do not exist as stable, bounded things.

Fourth, new materialisms can be seen as a desire to excavate the so-called linguistic or cultural turn in order to affirm various materialities that were lost in a decades-long fetishization of texts and discourses (Coole & Frost, 2010; Hekman,

2010; Kirby, 2008). For years, language has dominated epistemic constructs, insisting that there can be no unmediated access to “nature” or “the real” so we may as well abandon concern with an extra-linguistic reality. New materialist accounts of this turn tend to demonstrate both that the major thinkers associated with the linguistic turn (Derrida, Foucault, Butler, etc.) were far more attentive to matter than their readers and that the entire linguistic turn was based on an unhelpful and often unacknowledged reliance on the very binaries it claimed to deconstruct (nature/culture; linguistic/material). Moreover, new materialisms push us to attend more precisely to materialities and agencies that exceed representationalist discourses (Breu, 2014; Thrift, 2008; Vannini, 2015). This is not to say that we can do without theories and critiques of representation, but it attunes us to a whole *material* world of emergence, possibility, potential, and danger that underlies and makes possible those representations.

These four general topoi give a schematic overview of new materialisms’ ontological and epistemological investments, but as Luciano and Chen (2015) argue, new materialisms can often problematically eradicate the subject masking its entanglements with settler colonialism and normative whiteness. While new materialisms engender the potential to think the more-than-human question, it is crucial to be attentive to the precarity of such potentiality.

Thus, we are interested in exploring new materialisms’ impact on curriculum studies—because they attend to ontology (and epistemology)—in order to shift our senses of politics and political action. New materialisms demand not merely a move “beyond” the human but charges curriculum studies with particular ethical, aesthetic, and political tasks. Coole and Frost write that “the dominant constructivist orientation to social analysis is inadequate for thinking about matter, materiality, and politics in ways that do justice to the contemporary context of biopolitics and global political economy” (2010, p. 6). Indeed, if agency cannot be restricted to the humans but must be seen as an attribute of *all matter*, then “politics” undergoes a dramatic, even vertiginous expansion. Humans are, in this way of thinking, an *effect* of a broader, largely disavowed, play of nonhuman agencies, and these other agencies must be thought of as political.

As new materialist thought propels us toward the imagination of new vocabularies that might be adequate to this more-than-human politics (Massumi, 2011; Wolfe, 2012), in its most compelling forms it does so while keeping firmly in touch with the materiality of intra-human political struggles around race, gender, class, sexuality, and ability. For new materialists, these categories are not merely social constructions to be critiqued in classrooms, they are the results of processes of *mattering*, specific material assemblages (Puar, 2007; Weheliye, 2014) that produce race, gender, sexuality, and ability as “natural” or naturalized attributes of a human person (Butler, 1993; Ferguson, 2012). Writing about toxins as material agents, as well as participants in global circuits of racialized cultural exchange,

Mel Y. Chen writes, “Toxins participate vividly in the racial mattering of locations, human and nonhuman bodies, living and inert entities, and events such as disease threats” (2012, p. 10). Chen offers ways of “mapping and diagnosing the mutual imbrications of race, sexuality, ability, environment, and sovereign concern” (p. 10). We could say that for Chen intra-human identity categories forged in political struggle are entangled with a whole range of institutions, forces, and material processes that don’t really determine or get determined by such categories but actually emerge with them.

Elizabeth Grosz’s recent (2004, 2005, 2011) work has sought to explore a materialist, aleatory ontology to ground feminist, antiracist, and queer politics. She discovers such an ontology, and a corresponding sense of temporality, in the materialist theories of Darwin, Nietzsche, and Bergson. She notes, “Political and cultural struggles are all, in some sense, directed to bringing into existence futures that dislocate themselves from the dominant tendencies and forces of the present” before arguing that

political activism has addressed itself primarily to a reconfiguring of the past and a form of justice in the present that redresses or rectifies the harms of the past. It needs to be augmented with those dreams of the future that make its projects endless, unattainable, ongoing experiments rather than solutions. (2004, p. 14)

We could also put this in the words that Jack Halberstam uses to introduce Stefano Harney and Fred Moten’s *Undercommons*: “Our goal ... is not to end the troubles but to end the world that created those particular troubles as the ones that must be opposed” (2013, p. 9). Since racism, heterosexism, and ableism are not immaterial ideologies and concerns of individual psychology but economic, institutional, “biological,” and medical *matters*, our politics has to intervene directly in the material processes and assemblages that allow them to emerge and support their endurance.

It should be highlighted that schools and other nonschool sites of education are crucial material assemblages for racializing, engendering, and identifying human subjects (something impossible without a host of nonhuman agencies). These are the spaces in which we learn what it is to be human and what we have to accept without attention in order to secure our identities as human. It is, therefore, where a majority of the world’s students would find themselves subjected to various tactics of dehumanization, objectification, “thingification” (Césaire, 2001; Chen, 2012). The new materialist response here is to try to pull the rug out from under such tactics, learning to see objects, things, and in-, non-, and a-humans (Luciano & Chen, 2015) as entities toward which we must be ethically and politically oriented. This reorientation can happen, will happen, and perhaps even is happening in educational encounters.

In editing this volume and reviewing new materialist literature, we feel that feminist, queer, and antiracist politics of the new materialisms haven’t been taken

up enough in curriculum and pedagogy scholarship. In this volume, two chapters explicitly tie new materialism to intra-human politics (Gershon's and Snaza and Sonu's), but our hope is that as new materialisms make more inroads into curricular and pedagogical studies, those politics will become more explicit and robust. We are also highly aware of the caution that Helena Pedersen and Barbara Pini offer in their introduction to "Educational Epistemologies and Methods in a More-than-Human World," a special issue of *Educational Philosophy and Theory*, that while "we may seek to rid ourselves of humanism and its epistemic orthodoxies but we do so too considerably and too quickly, and in an intensive search for 'new' posthumanist or post-anthropocentric paradigms, force these into our old familiar categories, thereby ending up reproducing the very same thought systems and illusion of control over our research processes" (forthcoming), including the longstanding presumption that research can address education without attending to the politics of gender, sexuality, race, class, and ability. We then see this book not as a definitive statement or exhaustive overview but a kind of gathering of what has been done so that we can assess where we are and begin to move in different directions. We will now sketch the work that has so far been done by thinking about four topoi that are, of course, materially interconnected: our parsing of them here is not meant to suggest boundaries but to clarify the range of ways in which new materialisms can renew our research and teaching with respect to curriculum, pedagogy, educational spaces, and research practices.

## CURRICULUM

Although Reconceptualist and post-Reconceptualist curriculum studies already operates from a diffuse and expansive understanding of what "curriculum" means (Malewski, 2009; Pinar, Reynolds, Slattery, & Taubman, 2001), new materialisms require us to reckon with how existing theories of curriculum tend to presume both the humanness of education—that is, that education concerns humans learning with other humans what it means to be human—and the prevailing disciplinary or subject divisions that have been constructed entirely around a particular conception of the human being (Snaza, 2014).

Accounting for more-than-human agencies means that we have to begin to consider how nonhuman actors directly participate in educational encounters. Such "objects" as chairs, textbooks, classroom spaces, chalk, iPads, pencils, worksheets, security cameras, and science laboratory equipment all *participate* in education: they are not merely inert stuff that forms the background for a more important "human" learning experience. Following Sara Ahmed's "queer phenomenology" (2006), we can imagine that all of these objects that are caught up in education *with* us can be given direct attention. We might begin to ask of the objects that



surround and shape us how they have come to be here and what material and economic processes were required for their arrival. We can ask what they *do* to us, and even what they might do that has *nothing* to do with us. We can take off from the concepts of hidden and null curriculum and ask about how traditional humanist education teaches us anthropocentrism precisely by *not* attending to these nonhuman materialities and their agencies.

The challenge to prevailing disciplinary boundaries may prove the most lasting import of new materialisms in terms of curriculum. The distinction between the humanities and human sciences on the one hand and the “natural” sciences on the other makes no sense without a presumption of human exceptionalism; that is, it presumes that humans cannot be studied with the methods of the natural sciences precisely because of a difference in their capacities for agency. Although calling these divisions into question will also involve substantial shifts in how we conceive of research methodologies, it will necessarily require us to rethink disciplinary divisions in universities and subject divisions in P–12 schools. What new materialisms challenge us to do is nothing less than reconceive of schooling around what Bruno Latour (2004) calls “matters of concern” instead of around institutionalized divisions of (academic) labor. A materially engaged curriculum opens onto diverse ways of analyzing, thinking, and imagining that cannot be restricted within customary disciplinary boundaries.

## PEDAGOGY

Curriculum and pedagogy were typically regarded as separate but interrelated dimensions of education. While curriculum was considered the content or knowledge, pedagogy was understood as the processes and procedures teachers or administrators employ to teach this knowledge. As the reconceptualization moved the field of curriculum studies from development to questions about and perspectives on what curriculum is or ought to be, the borders between curriculum and pedagogy began to disintegrate and blur. Pedagogy could no longer be thought of disconnected from human life and the material world, and yet new materialisms allow us to see how limited this sense of connection was. In a review of research, Walter Doyle (1992) found pedagogy to historically mean “the human interaction” or “the how to” in schooling. Once the content was decided upon, the control and management of its delivery could then be determined. From its very conceptual beginnings, pedagogy was ruled by an anthropocentric positivism that aimed to communicate, discipline, and assess the learning of the human other. That is, building on philosophies of education like those of Plato, Rousseau, Kant, and Dewey, most pedagogies have taken it for granted that *only human beings* can learn or can teach (Snaza, 2013).

Certainly, education is never decontextualized or ahistorical in this way, and decades of scholarship, including those in the area of critical pedagogy, public pedagogy, pedagogy of solidarity, and peace pedagogy have contributed much to politicizing education as a site of struggle over material realities and, therefore, a site of possibility. However, it may be this founding anthropocentrism in the hegemonic concept of pedagogy that makes the new materialisms so difficult to conceive of in the classroom. What will it mean for pedagogy to take up the agency of things and the blurriness of the boundaries between nature and culture, human and non-human? We might begin to conceptualize this as a new politics of attention, one that moves beyond a simple anthropocentrism in order to dwell with the non-humans that are entangled with humans in educational encounters. We can use Chen's (2012) concept of the "animacy scale"—where agency or being animate is not an all or nothing phenomenon but a question of degree—to reckon with how nonhumans are always participating in and shaping "human" learning. We have to learn to attune to the world in ways that go far beyond the humanist restriction and cease pretending that while humans are engaged in learning and teaching, all other things are mere background.

As disciplinary boundaries become porous and trans\*, different academic spaces have begun to tease out what it might mean to teach with new materialism. In a recent publication, *Teaching with Feminist Materialisms*, the editors ask, "How are relations of knowing, being, and responsibility enacted in the classroom?" (Hinton & Treusch, 2015, p. 1). Moreover, they probe the *what* of participation, not merely the *who* of knowledge-making practices. While this edited text opens up new materialist thinking to feminist teaching practices and the politicality of classroom spaces, it is bereft of the breadth and depth of curriculum and pedagogy scholarship. Consequently, it continues to align discussions of teaching with a new materialist analysis of case studies of class assignments. Our edited collection demands attention to similar questions while recognizing the robust history of curriculum and pedagogical scholarship and more theoretical and expanded understandings of curriculum and pedagogy.

A new materialist pedagogy also dramatically shifts the ways we conceive of the ends or aims of education. Humanist education always begins with the end and works backward, justifying the means, both curricular and pedagogical. And that end is almost always a version of Western Man. As the chapters in this volume demonstrate in different ways, new materialist pedagogy is open ended, processual, and attentive to the aleatory nature of encounter. It is striking how every chapter in the collection focuses on movement, on errancy, on distribution and dispersal, on blurring, on crossing. The essays explore the manifold and shifting boundaries and borders that limn and limit educational encounters, but they simultaneously track how those borders are *materially* far more porous than dominant ideologies and institutions would have us believe.

## EDUCATIONAL SPACES

For more than a century, educational theorists have written about space, place, and bodied encounters in educational environments (Kitchens, 2009; Miller, 2000; Steiner, 1999). Dewey contends that the interaction between concrete surroundings and internal responses in a person gives rise to what he calls a situation of educative experience (1998, p. 39). For Dewey, living in the world means living in a “series of situations” that are constantly changing as a person and his/her environment interact (p. 41). Ellsworth (2005) states that affective pedagogy “involves us in experiences of the corporeality of the body’s time and space. Bodies have affective somatic responses as they inhabit a pedagogy’s time and space” (p. 4). New materialist discourse extends these long-standing notions of the importance of affect and space in pedagogical encounters by conceptualizing space and place not as predefined containers but “the product of interrelations” and “always under construction” (Massey 2005, p. 9). As Massey elaborates,

What is special about place ... is precisely that thrown togetherness, the unavoidable challenge of negotiating a here-and-now ... a negotiation which must take place within and between both human and nonhuman. (p. 140)

Along with emphasizing how space and place are co-composed, new materialists discuss how the *relations* between things also have material influence and also matter (Manning, 2013). This hints toward what William James would call a “radical empiricism” in that it “begins in the midst, in a mess of relations” (Manning, 2015, pp. 54–55). This co-compositional relational mattering, or what Haraway (2008) would call a “spatial and temporal web of ... dependencies” (p. 11) does not mean that all relations exert influence equally. As Sara Ahmed draws from Teresa Brennan’s *Transmission of Affect* (2004) and says, “So we may walk into a room and ‘feel the atmosphere’ but what we may feel depends on the angle of our arrival ... the pedagogic encounter is full of angles” (2010, p. 37). When considering the makeup and power differentials of a classroom assemblage, Elizabeth de Freitas’s (2012) research proposes that “even inanimate objects are seen as active mediators in a social material network” (p. 593). Although such a statement tends toward a more radicalized view of object-agency in social encounters, no new materialists flatten the ontology between objects/humans and relations to suppose that all entities have the same force in all instances.<sup>5</sup> As highlighted by all of these scholars, a host of relations are at work in every encounter and produce different ongoing affects as a result of both a legacy of events and through each new affective moment. Those affects-effects matter to the individuals involved, but they may matter in different ways.

Affect and affective responses form a large component of new materialist theory wherein the human form is also in process through movement and intra-action. For Massumi (2002) a body moves and feels simultaneously so that movement and sensation “have a way of folding into each other, resonating together, interfering with each other, mutually intensifying, all in unquantifiable ways apt to unfold again in action, often unpredictably” (Massumi, 2002, p. 1). Accordingly, as Truman and Springgay (2015) state, “The moving-sensing body is indeterminate, open to an elsewhere and an otherwise. It is conjunctive and co-composing, and as such is concerned with issues of collectivity or relationality—a swarming of sorts” (p. 155). In new materialist thought, bodies, spaces, places are all teeming with activity and becoming and “always in excess of a transpersonal capacity” (Thrift, 2004, as cited in Beyes & Steyaert, 2011, p. 52). Many chapters in this book hint at how the body’s movement creates new relational fields and explore the effects of such encounters in pedagogical spaces where bodies come into relation with other bodies (human, nonhuman, inanimate).

## RESEARCH PRACTICES

One of the ways that new materialisms have already begun to impact the field of education has been through recent developments in social science research that have put into question research, data, and knowledge production. These developments emerge from complex and labor-intensive attempts to push back through neopositivist articulations of “gold standards” and obsessions with data collection and measurement, especially in the field of education. These developments are exemplified with recent debates around what is being termed *postqualitative research* (Lather, 2013; Lather & St. Pierre, 2013; St. Pierre, 2011), an attention to methodology that returns to the question of what it would mean to use the uncertainty of qualitative research practices as a platform to explore the philosophical and political value of not being sure. This rethinking requires an ethical imperative, a *ceasing* to privilege knowing over being, *refusing* positivist assumptions, and *giving up* representational logic (Lather & St. Pierre, 2013). It is also a matter of accepting the call and moving forward against the categories that the humanist tradition has invented, categories that threaten to return the indeterminable to “the trap of representational coherence” (de Lauretis, 1984, p. 35). A methodology that performs a “post” ontology is perhaps then a matter of questioning while being in the midst, a matter of producing research questions out of entanglements, questions that are affirmative, experimental, ethical, and insistent: “Are we willing to take on this question that is so hard to think but that might enable different lives?” (Lather & St. Pierre, 2013, p. 631).

New materialisms are enabling educational researchers to ask such questions as: “Can we think language and materiality outside representational logic?” (St. Pierre, 2013, p. 651); “What is to become of interviewing, or voice, or data, in posthumanist research?” (Mazzei, 2013, p. 738); “If we understand ourselves as emerging from our co-existence with the world, what implications does this bring to methodology?” (Hultman & Taguchi, 2010, p. 534); “Is it fanciful to think that data, despite (or because) of its impossible status within ‘postqualitative’ research, is perversely necessary to the continuation of the field?” (Koro-Ljungberg & MacLure, 2013, p. 221). Consequently, such methodological questions inspired by a new materialist ontology are provoking and setting up the ethical imperatives to engage in further problematizing the field of educational studies. In decentering conventional humanist methodology, researchers are forced to account for a politics of location, a spatiality of feeling (Thrift, 2008) that occurs when entering into unfamiliar territory. A new materialist methodology is thus performative (Alaimo, 2010), requiring researchers to challenge taken-for-granted assumptions by becoming entangled with the research process. In becoming part of the research-assemblage (Renold & Ringrose, 2008), a materialist analysis is necessary in order to trace the affective economy of the assemblage (Clough, 2004), to map out the flows of affect between researcher-data in order to reveal the micropolitics of methodology and the kinds of knowledge they produce (Jackson & Mazzei, 2013), and to produce lines of flight that carry us into new possibilities of being-thinking, forcing us toward a politics-to-come (Rotas & Springgay, 2013).

## OVERVIEW OF THE VOLUME

Most of the chapters gathered here were first presented as papers on panels at the 2014 Bergamo Conference on Curriculum Theory and Classroom Practice and the 2015 annual meeting of the American Educational Research Association (in Division B and the Critical Issues in Curriculum and Cultural Studies Special Interest Group). Even before that, this project began in conversations at the 2013 Bergamo Conference, both during panels and around the grounds of the conference center, conversations that prompted a diffuse collective reading project. These particular institutional and, thus, very material imbrications have significantly shaped this text. One particularly noteworthy effect of this is the fact that half the contributors to this volume (and two of its editors) are currently graduate students. The field of curriculum studies seems to be drifting toward materialist theories after decades of cultural or linguistic constructivism, and emerging scholars, not yet so indoctrinated in the theories that governed the educations of those of us who are (slightly) more senior, seem to be able to move in new materialist discourses with a little less baggage, a little more flexibility.

Addressing these questions of how the field's institutions shape the thought of new scholars, Elizabeth St. Pierre's chapter calls for a moratorium on teaching research methods courses, which are currently the main focus of most PhD programs. Instead, she believes that we need to prioritize a rigorous and robust engagement with theories, especially new materialist theories, in order to ask the philosophical—that is, ontological and epistemological—questions that are usually sidelined or ignored in methods courses. If prevailing social scientific methods are constructed around an axiomatic assumption that only humans are researchers and only humans are studied in education, then attending to the more-than-human world and its agencies requires us to read, study, and talk differently in our graduate programs. We will have to slow down on our rush to produce as much research as quickly as we can and learn to tarry with nonhuman agencies, experimenting with ways of bringing them into our research practices.

Linda Knight's new materialist reading of playgrounds complicates the simplicity of traditional approaches to thinking about playground sites and traditional approaches to pathologizing children's movement in space. Knight considers the sensorial, atmospheric, corporeal, and temporal assemblage of what makes a playground, including a choreography of objects, space, time, human, and nonhuman bodies through "schizocartographic," affective gestural drawings of the "less mapable things of the playground".

Nathan Snaza and Debbie Sonu's chapter in this volume explores how "power or privilege adheres in how spaces seem more or less habitable to *certain* bodies and how objects seem more or less within or out of reach for those same bodies" (p. 34). They engage Sara Ahmed's (2006) spatial politics and its direct link to matters of race through examining Ahmed Mohammad's clock incident in Texas in 2015. They use new materialist theories in order to track how borders between spaces are both porous and policed and how race "sticks" to bodies as they navigate their movements.

Elizabeth de Freitas and Francesca Ferrarra engage Henri Bergson's theory of *élan vital* (vital impetus, or intuition) to support a move toward a relational ontology that recognizes the mutual entanglement of matter and thought. They discuss how such an approach points toward a materialist philosophy of mathematics education that challenges representational approaches to thinking and use an in-class case study to explore how Bergson's intuitive method informs how children use mathematics.

Stephanie Springgay's exploration of weather and the pedagogics of Diane Borsato's art, co-created by humans and bees, uses post-Deleuzian philosophies and feminist materialisms to think about how pedagogics develop capacities for movement and action that cannot be conceived within the language of "learning outcomes."

Walter Gershon's chapter attends to the material and theoretical conceptualizations of the sonic. In so doing, he calls attention to the ways in which the social sciences, humanities, and arts code sound, literally silencing what he calls vibrational affect. Through his critique of new materialisms, Gershon calls attention to the issues of representation and dissemination in academic work, urging a consideration of marginalized theories, histories, and ways of being and knowing that continue to be silenced. He asks us to consider whether new materialisms are needed at all.

Sarah E. Truman's chapter on the public pedagogy of marginalia takes up how notes, doodles, dancing, and poetry can function both as interpretations of written texts and as pedagogical propositions toward new ways of thinking, acting, and relating to the (more-than-human) world. Rather than viewing pedagogy as an intentional engagement based on a preexisting set of known agents, Truman's chapter highlights how the ethical imperatives that guide pedagogy arise during intra-actions that coalesce around continually emergent publics or, in this case, "texts."

Gabriel Huddleston's chapter considers how popular culture circulates in ways that affect us by actually becoming part of our natural-cultural systems, shaping how we think and feel about the world around us. Popular culture is not then a simple reserve of curricular content that might enter classrooms as background for official lessons, but it also has to be reconceived as a properly agential force that shapes our bodies, minds, desires, and feelings. Huddleston's intervention into cultural studies of education takes off from how students and teachers talk about neoliberal school "reform" in terms of zombie fiction, signaling how a materialist theory of the concept can be put to work in one of the most pressing political struggles in education today.

Zofia Zaliwska creates the concept of "moving-back-through" in order to consider how the materialities always at stake in educational research are connected to particular modern conceptions of temporality. By moving back through both her own empirical research involving a mangle of human, animal, and machinic agencies and the work of the Fluxus art collective, Zaliwska proposes that research practices can function as a form of "anticipatory ethics," a conception that moves beyond the anthropocentrism of qualitative research toward ways of thinking about how power/knowledge operates in ways that far exceed the merely human.

Mark Helmsing explores how new materialisms can allow us to affirm differently the variety of curricular objects that circulate in and around social studies classrooms, an affirmation that radically challenges the dominant understanding of the social as something exclusively human, instead pushing us to grapple with what Vicky Kirby calls "life at large."

Kirsten Robbins's chapter explores what happens when a class, without conscious teacher-controlled direction, self-organizes around a material object—a sweater—in ways that reconfigure power dynamics among students and teacher. Robbins turns to new materialisms in order to analyze how students generated spontaneous ways of negotiating power without the direct and explicit intervention of the teacher, and she suggests that the kinds of attention made possible within new materialist thought can enable teachers to find spaces of possibility in increasingly corporatized and homogenized schools.

Paul Eaton engages with the concept of “multiple materiality” to problematize the essentialist assumptions regarding identity-subjectification within digital social media environments. Eaton engages with a new materialist and posthumanist theoretical lens in order to decenter human agency and to open up an analysis that considers the ways in which social media spaces are agentic and the ways in which these spaces become through intra-action and how they entangle with inquiry. Eaton shares with us his entanglement with the analysis of his research project, and in doing so he offers the reader a glimpse at what it means to respond to an ethics of mattering.

Nikki Rotas uses a new materialist conception of ecology (Bradotti, 2013) to examine learning as situated and contextual. She discusses an in-school project based around a school garden that rather than emphasizing learning about principles of ecology enacts ecologies of practice. She argues that ecology is “a matter of practices that attend to processes of learning, social relationships, embodied experiences, immanent ethics, and a complex politics of engagement that does not separate nature and culture” (p. 180).

These efforts to reimagine notions of relationality, where time and space are reconfigured, position the field of curriculum and pedagogy studies at the forefront of the new materialist current. Curriculum and pedagogy's unique concern for pedagogical encounters and matters of ethics forces a critical engagement with postontological propositions, demanding that we think about our contradictory positions as scholars who work within and contribute to discursive practices.

It is our hope that this edited collection will prompt us to rethink the role of matter in curriculum and pedagogy and “matters of concern” in the wider disciplinary networks in educational institutions today. We might end by noting that at least for some readers, much of what is called new materialism is not particularly new. As Donna Haraway (2008) reminds us:

Looking back in this way takes us to seeing again, to *respecere*, to the act of respect. To hold in regard, to respond, to look back reciprocally, to notice, to pay attention, to have courteous regard for, to esteem: all of that is tied to polite greeting, to constituting the polis, where and when species meet ... to enter the world of becoming with, where *who and what are* is precisely what is at stake. (p. 19)



Indeed, new materialisms gather together a range of ideas that have been taken up before, both in and outside of curriculum studies, but we think this gathering offers us a crucial chance to look at our practices as educators again, differently, more closely perhaps, as a gesture toward the emergence of new political action.

## NOTES

1. This erasure is often violent and imperialist. See Paraskeva's (2011) analysis of epistemicides, focused on curriculum studies.
2. We would like to thank Stephanie Springgay for her feedback on an earlier draft of this introduction. Nathan would also like to thank the members of the feminist new materialist reading group at the University of Richmond: Ladelle McWhorter, Mariela Méndez de Coudriet, Dorothy Holland, Lucretia McCulley, Patricia Herrera, Jannette Amaral-Rodriguez, Holly Blake, and Julietta Singh.
3. As we use the word throughout the introduction, humanism always refers to a particular version of what it means to perform the human—Western (Enlightenment) man—and to a set of practices for the spread and enforcement of this particular version (colonialism, racial slavery, “globalization”).
4. For those of us trained in the social sciences and the humanities, this often means having to grapple with research that lies far outside of our fields. This is one of the major reasons why new materialism spurs us to critique disciplinary practices and find ways of cross- and even antidisciplinary collaboration.
5. This is a crucial point at which new materialism diverges from the field of object-oriented ontology (OOO), which privileges a “flat ontology” that makes no distinctions (even ethically or politically) among entities. For more on OOO, see Bogost (2011), Morton (2013), and Harman (2002). For critiques of OOO from a new materialist standpoint, see Bennett (2015) and Sheldon (2015), as well as Shaviro (2014).

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