

TEACHING ELSEWHERE:
CURATING↔CALIBRATING POSTHUMANIST POSSIBILITIES

by

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ABSTRACT

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Following the material and ontological turns and working within the recent conversation applying posthumanist theory to education and educational research, this dissertation argues that professors can materialize immediate, critical differences for our students—open up *different* possibilities for their knowing-in-being than the ones imposed on us by a humanist education system—by “teaching elsewhere” even while staying within the college classroom spaces (designed to be “anywhere”) we’re assigned. Such a posthumanist praxis or pedagogy relies on Karen Barad’s agential realism to see “the classroom” as the entire *spacetime mattering* of a particular phenomenon brought together through a mixture of choices and impositions into interaction. Diffracting Barad’s use of Niels Bohr’s light paradox through Donna Haraway’s concept of “elsewhere” as a speculative “absent, but perhaps possible, other present” (“Promises” 295), and through the humanist narratives (the fall, return, recuperation) that “back-to-basics” educational policies depend on, *elsewhere* becomes the classrooms (phenomena) we can create here and now, even among such policies (nowheres) and physical classrooms (anywheres).

Developed by diffracting theory and fiction (particularly Margaret Atwood's *MaddAddam* trilogy) through the teaching of two sophomore level English literature courses, curation↔calibration is a way of creating the possibilities for *and* of observing such elsewheres. Through curating—texts, objects, people, places, concepts, experiences, activities, artifacts etc.—*with* the classroom (from the whole phenomenon) instead of pre-planning everything *ourselves*, we can calibrate for more posthumanist possibilities. This requires, however, intentional and sustained observation (similar to teacher inquiry but through a posthumanist framework) to *notice* the dynamic flows of agency throughout all actants in the classroom-as-phenomenon—human and nonhuman alike. Such teaching↔as↔inquiry—in this project through pedagogical documentation and diffraction—drives curation↔calibration as a continual *doing* (and a continual *undoing* of humanist habits and assumptions) that holds us responsible for and accountable to each unique, unrepeatable classroom we teach-with.

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DEDICATION

This dissertation is dedicated to my family who, in a million ways that *mattered*, made this document possible. I can't begin to thank them or to fully explain what their love and support meant and did for me on this journey.

For:

Mom and Dad

Kate and Codi

Eleanor and Shepard

Neville and Theadora

I wouldn't have "got 'er done" without y'all.

K&L

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“Like everything at Martha Graham it had utilitarian aims. *Our Students Graduate with Employable Skills*, ran the motto underneath the original Latin motto, which was *Ars Longa Vita Brevis*.”

—Margaret Atwood
Oryx and Crake (220)

“Imagine a cacophony of ideas swirling as we think about our topics with all we can muster—with words from theorists, participants, conference audiences, friends and lovers, ghosts who haunt our studies, characters in fiction and film and dreams—and with our bodies and all the other bodies and the earth and all the things and objects in our lives—the entire assemblage that is *a life thinking and, and, and*. . . All those data are set to work in our thinking, and we think, and we work our way somewhere in thinking. My advice is to read, and analysis, whatever it is, will follow [. . .] In the end, it is impossible to disentangle *data, data collection, and data analysis*. Those individuations no longer make sense. We could just give them up [. . .] I believe inquiry should be provocative, risky, stunning, astounding. It should take our breath away with its daring. It should challenge our foundational assumptions and transform the world. We must, even so, be vigilant in analyzing the consequences of human invention and the structures it endlessly creates. Humanism’s projects created spectacular failures that the ‘turns’ identified half a century ago. Why not try something different?”

—Elizabeth Adams St. Pierre
“Post Qualitative Research” (622-633)(emphasis original)

“We know this story well, it’s written into our bones, in many ways we inhabit it and it inhabits us.”

—Karen Barad
Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning
(233)

“To situate inquiry as a ruin/rune is to foreground the limits and necessary misfirings of a project, problematizing the researcher as ‘the one who knows.’ Placed outside of mastery and victory narratives, inquiry becomes a kind of self-wounding laboratory for discovering the rules by which truth is produced. Attempting to be accountable to complexity, thinking the limit becomes our task, and much opens in terms of ways to proceed for those who know both too much and too little.”

—Patti Lather
Getting Lost: Feminist Efforts Toward a Double(d) Science (10-11)

“...this diffracted narrative, this story based on little differences.”

—Donna Haraway
“The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others” (309)

Introduction

In this dissertation, I follow a recent wave of teachers, theorists, and researchers working from posthumanism to “reconfigure” education, “the whole thing: not just pedagogy, not just curricular design, not just educational research, and not just disciplines or even institutions such as schools at different levels” (Snaza and Weaver, “Introduction” 1). In the case of both posthumanism as a theory/field and of its application to education and educational research, the definitions of and approaches to posthumanism vary considerably (the agential realist approach used in this project being only one). But despite common misunderstandings about the depth and breadth of the posthumanist conversation (and as we’ll discuss more in Chapters I and II), its application to education and educational research is not about turning our students into cyborgs, or moving all our classes to MOOCS, or giving equal rights to the desks in the room, or making English professors study and practice the sciences, or doing away with the human altogether. Following the genealogical strains of posthumanism that diverge from transhumanist theories and instead follow the material turn and work from the different onto-epistemological paradigms poststructuralism, feminism, material feminisms, indigenous, post qualitative inquiry (and others) have brought forward, the posthumanism this project calibrates for “works the ruins” (Pillow and St. Pierre) of humanism’s grand narratives of the discrete, autonomous-I observing a separate and static world. *Starting* from the deconstruction of the human/nonhuman binary, it assumes the entanglement of the material with the discursive (material↔discursive¹) and of ontology with epistemology (onto-epistemology). And it rethinks subjectivity as a continually

¹ I borrow—throughout this project—this use of a double arrow instead of a hyphen from Jackson and Mazzei who also use it in the term material ↔ discursive. In their chapter on Barad in *Thinking with Theory*, they give the following explanation for the arrows: “We are using the double arrows to indicate the intra-action, or that which is simultaneously materially and discursively produced, reflective of a key shift in material feminist thought. We do so as a gesture toward a removal of the hyphen or slash used to indicate the relationship between the material and discursive without privileging one over the other” (110, footnote 1).

emerging *becoming-with*² the world and, therefore, sees “making meaning,” for us and/with our students, as what Karen Barad calls *knowing-in-being*.

In their application to education in particular, such posthumanisms asks the questions, what happens to how we teach and what we do in the classroom when we don’t work from the hierarchy of human essentialism that assumes a stable knowledge can be transferred between humans no matter what room we’re assigned or time we’re scheduled to meet? What happens if we work from a flattened ontology³ that sees agency as a dynamic flow between all phenomena in the room—human and nonhuman alike—and that, entangled with epistemology, sees space, time, and matter (including ourselves) not as preexisting, but as the particular and differential congealing of such agency when these particular phenomena intra-act with each other, in other words when they *create* (agential) reality together?

I argue in this dissertation that it means we can materialize immediate, critical differences for our students—open up *different* possibilities for their knowing-in-being than the ones imposed on us by a humanist education system—by “teaching elsewhere” or engaging in a form

² *Becoming-with* as used throughout this project is calibrated to Donna Haraway’s use of it as she moved into her theory of companion species in *When Species Meet* and then elaborated on as *sympoiesis* (making-with as opposed to an autopoietic self-making) in *Staying with the Trouble*. In *When Species Meet*, she cites Vinciane Despret as who *she* is adapting the term from (308, n19) and, in *Staying with the Trouble*, specifically delineates her becoming-with as different from what both Kant and Heidegger theorized, arguing that her version (named Terrapolis in *Staying with the Trouble*) is “finished once and for all with Kantian globalizing cosmopolitics and grumpy human-exceptionalist Heideggerian worlding” (*Staying* 11). It’s important to stress, especially in a project looking specifically at posthumanist education/pedagogy, that Haraway’s more recent works are adamant that her becoming-with and *sympoiesis* allow her to “refuse human exceptionalism without invoking posthumanism” (*Staying* 13) which, she points out, she “never wanted to be...any more than [she] wanted to be postfeminist” (*When Species* 17). Nevertheless, many posthumanists who work in material feminisms (or new materialism), particularly those informed by Karen Barad, still use the term as it still encompasses an agential realist understanding of a relational and emergent ontology: “Becoming-with, not becoming, is the name of the game; becoming-with is how...ontologically heterogeneous partners become who and what they are in relational material-semiotic worlding. Natures, cultures, subjects, and objects do not preexist their intertwined worldings” (Haraway, *Staying* 12-13). Though this project pulls from Haraway extensively, it is with some calibration considering her objection to the term posthumanism. For instance, “elsewhere”—a term integral to this project—evolved in Haraway’s work to the Terrapolis mentioned above which is a place, she makes clear, not for the posthuman but for “compost”—a new term in *Staying with the Trouble*. I stick with *elsewhere* as college classrooms lack the “critters” Haraway works to build relationships with in Terrapolis.

³ As I’ll outline in Chapter 1, I follow Hillevi Lenz Taguchi’s use of this term, not Ian Bogost’s use of it in *Object Oriented Ontology*.

of teaching↔as↔inquiry that uses curation↔calibration as an apparatus that both proliferates (diffracts) the posthumanist possibilities in a classroom and also holds us responsible for and accountable to each unique, unrepeatable classroom we teach-with.

Such a pedagogy relies on Karen Barad's agential realism, then, to see "the classroom" as the entire *spacetime mattering* of a particular phenomenon brought together through a mixture of choices and impositions into intra-action. When we talk about the classroom in this project, we talk about the room, the curriculum, the actual books and DVDs and worksheets (things) and activities and other supplies (glue sticks, pens) that deliver such a curriculum, students, teacher, furniture, time of day, shared online spaces, apparatuses like gender and class and race, spaces like home and library, technology like laptops and projectors and smart phones, university policies, grades, the color of the walls, the random painting left in the room from some class project presented in the same room the last semester, etc. The list goes on and is incalculable, which makes intentional and responsible observation all the more important (a matter of ethics) as, agential realism argues, what is and isn't a part of the intra-action of a phenomenon—what gets included, what gets left out, what gets noticed, what gets ignored—all *matters*. This is not just, Barad argues, because it's important, but also because it constitutes (*materializes*) the world—*spacetime matter*—in its dynamic, differential becoming (*Meeting*).

Though agential realism depends on quantum physics, I'm an English professor and work best with and through "stories." Teaching elsewhere, then, is also (as posthumanism in general is) about telling *different* stories, in this case about where and who and how we teach. Cartesian and Newtonian humanist assumptions allow humanist education to perpetuate the story that any student can learn anything anytime—*anywhere*—without it affecting the knowledge passed from one discrete mind to another. Classic (Snaza "Toward") and Judeo-Christian (Haraway *Primate*

Visions; Spanos *End*) origin narratives of caves and falls assume that there are realities or Edens we can get back to and so use nostalgia and fear to drown out calls for progress and change, to standardize and test in an attempt to return to perfect classrooms that never existed—*nowheres*. Diffracting Barad’s use of Niels Bohr’s light paradox (explained in Chapter I) through Donna Haraway’s concept of “elsewhere” as a speculative “absent, but perhaps possible, other present” (“Promises” 295), and through the humanist narratives (the fall, return, recuperation) that “back-to-basics” educational policies depend on, *elsewhere* becomes the classrooms (phenomena) we can “build here” (Haraway, “Promises” 295) and now, even among such policies (nowheres) and physical classrooms (anywheres).

Curation↔calibration (curating↔calibrating or curate↔calibrate) becomes a way of building *and* of observing such elsewheres. Through curating—texts, objects, people, places, concepts, experiences, activities, etc.—*with* the classroom (from the whole phenomenon, including students) instead of pre-planning everything *ourselves* with the assumption the room itself is inert, we can calibrate the phenomenon for the possibilities—*elsewhere*—that such sedimented, *not* inert *anywheres* otherwise close down. This requires, however, intentional and sustained observation (in the tradition of teacher inquiry but through a posthumanist framework) to *notice* the dynamic flows of agency throughout all actants in the phenomenon—human and nonhuman alike. This kind of teaching↔as↔inquiry—in my case through pedagogical documentation and diffraction as discussed and demonstrated in Chapter IV—drives curation↔calibration as a continual *doing* (curate to calibrate, calibrate through curating) that holds us accountable to the classroom and responsible for the decisions we make as *teacher*, especially considering the unique and disproportionate contribution (as opposed to other actants) that role makes to the phenomenon’s overall flow of agency.

Teaching elsewhere and curation↔calibration came from teaching two classes while trying to figure out (reading theory, fiction, etc. and applying ideas) what a posthumanist classroom might look like. I went into the project (teaching a sophomore level literature course called Reuse. Remix. Rewrite.) thinking I would “*make* the classroom posthumanist” by planning, the summer before, it and its “subversive” curriculum and use of spaces outside what we were assigned down to the daily assignments. I came out of that class recalibrated, realizing it’s not *just* curriculum or spaces or teachers or furniture or students or any one thing that “makes” a posthumanist pedagogy. Instead, it is this continual curation↔calibration, teaching↔as↔inquiry, this movement between building and observing, reconfiguring and being reconfigured by “an imagined elsewhere that we may yet learn to see” (Haraway, “Promises” 295) and that is unique and unrepeatable for each classroom we’re entrusted with. Through the second course, American Literature, discussed in this dissertation, I curated↔calibrated my praxis even more and developed the arguments above through writing about both classes here.

As part of the larger posthumanist education conversation, this argument assumes several things: a) that our current educational system is humanist and that relationship is oppressive and needs to be interrupted, b) that it is a relationship that depends on positivist, classic science that, though the quantum has disrupted it, still sets the gold standard for educational policy decisions, c) that posthumanism is a productive framework that, in not working from the human/nonhuman binary offers us options to disrupt both the system and the science that other frameworks in the past haven’t, d) that non-traditional methods of inquiry (which posthumanism generally uses and that the post qualitative theorists throughout this project use) are “legitimate,” and e) that such inquiry—whether literary theory, social sciences, or quantum physics—is always already entangled in all aspects of our lives and *is*, in fact, as St. Pierre says in the epigraph above, “*a life*

thinking *and, and, and...*” (“Post Qualitative Research” 622). In other words, this document is just as likely to use a day at the pool as an activity in the classroom to argue these points and sees both as essential to the work produced.

As such, it works through multiple realms and mediums to address those assumptions and make its argument. Chapter I works with theory to outline and develop the theoretical framework of agential realism, the methodology of diffraction, and the terminology I use throughout while calibrating us for the posthumanism used in this project. Chapter II focuses on the vast cacophony of voices in both progressive and posthumanist educational conversations, using popular and academic voices to map humanism’s relationship with education in a dehumanizing project and to argue for the necessity of using posthumanism to deconstruct the human/nonhuman binary that (still) drives that project. In diffracting two (founding) examples of posthumanist theories of education through each other, I demonstrate the importance of calibration—as a continual practice and undoing of habits—in such a vast and paradoxical conversation where we’re just as likely to be pulled back in by a supple humanism. What posthumanisms we work with from that large and complex conversation matter and determine the sort of possibilities we see for posthumanist education. Chapter III argues that posthumanism’s strong and long relationship with the speculative and fiction offers us conceptual territories in which we can better understand and calibrate our own praxis. I use Margaret Atwood’s *MaddAddam* trilogy and the character of Toby to think back through how to approach posthumanist concepts like emergent subjectivity in my “real life” classrooms. And Chapter IV offers what I feel is missing from current posthumanist education conversations: more every day teachers sharing stories of how all of the above diffracts through their own classrooms so that we might diffract, as many indigenous communities do, such examples

through each other and send out more complex and amplified interference patterns to disrupt the larger system. In the meantime, Chapter IV walks through my recalibration of pedagogical documentation (as used by Hillevi Lenz Taguchi in *Early Childhood Education*) for the college classroom and my use of diffraction to work with the archive built through such teaching↔as↔inquiry. It offers, in other words, the story of how I developed curation↔calibration as my current posthumanist praxis and is followed by two diffraction exercises that demonstrate such work.

As Haraway repeats like a mantra in her more recent works (*Staying with the Trouble* in particular):

It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what ties tie ties. It matters what stories make worlds, what worlds make stories. (“SF”)

What follows is an agential cut, an artifact of my writing-through (as I have my students do) my attempt at *something different* and the myriad other texts, theories, moments, students, places, etc. that attempt diffracts through. It’s my attempt to tell a different story about “*staying with*” (Haraway *Staying*) the classrooms we’re given and building our *elsewheres* here and now, a story that makes a difference and that ruins those grand narratives we know so well, the ones that inhabit our classrooms and are written in their furniture and walls.

Chapter I

Working the Ruins

“My diminutive theory’s optical features are set to produce not effects of distance, but effects of connection, of embodiment, and of responsibility for an imagined elsewhere that we may yet learn to see and build here.”

—Donna Haraway

“The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others” (295)

“As I will explain, diffraction is a quantum phenomenon that makes the downfall of classical metaphysics explicit ... So while it is true that diffraction apparatuses measure the effects of difference, even more profoundly, they highlight, exhibit, and make evident the entangled structure of the changing and contingent ontology of the world, including the ontology of knowing.”

—Karen Barad

Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning (73)

This chapter outlines the major apparatuses this project works from and in as it developed and now argues for curating↔calibrating a posthumanist praxis⁴ that can create the possibilities for “teaching elsewhere.” Working mainly from Karen Barad’s agential realism (as entangled with material feminisms), I also pull from posthumanism, feminist and poststructural, and post

⁴ Like the reentanglement of material and discursive or ontology and epistemology, my use of “praxis” follows the post qualitative, posthumanist, feminist voices used in this project to move “beyond the theory/practice divide” (Lenz Taguchi *Going Beyond*) in education to see the two as inseparable as well as both material-discursive. It is also calibrated to Lather’s use of it in her theorizations of “research as praxis” (*Getting Smart*). While starting from “the self-creative activity through which we make the world, the central concept of a Marxist philosophy that did not want to remain a philosophy, philosophy becoming practical,” she “sought that intersection of material transformation through theory’s practice and practice’s theory” and over the years has tried to develop a “praxis that attends to poststructural suspicions of rationality, philosophies, of presence, and universalizing projects, a praxis that moves away from the Marxist dream of ‘cure, salvation and redemption.’” She argues that “learning to see the imperialism of our continued investments in teleology, ‘persuasion,’ consensus, and ideology critique premised on some ‘real’ outside of discursive renderings, the task becomes not so much to invent or incite as to use praxis as a material force to identify and amplify what is already begun toward a practice of living” (*Getting Lost* 15-16).

qualitative inquiry conversations in general. In this chapter I introduce the concept of “working the ruins” of humanism, define posthumanism as used here, explain agential realism and the use of diffraction, specify what this project means by “classroom” and curate↔calibrate, and clarify what I mean by “elsewhere.” This chapter is, essentially, the diffraction grating for—the apparatus I used to make meaning with—my work with theory (Chapter II), fiction (Chapter III), and experience (Chapter IV) as I tried to figure out what a posthumanist classroom might look like.

Working the Ruins

In 2000, in their introduction to *Working the Ruins: Feminist Poststructural Theory and Methods in Education*, Wanda Pillow and Elizabeth Adams St. Pierre declared that the educators and researchers using feminism and⁵ poststructuralism (beside and entangled with each other if not always in alignment) were working the ruins of humanism, education, and methodology:

... knowledge, truth, reality, reason, science, progress, the subject, and so forth.

During the last half of the twentieth century, poststructuralism in all its manifestations, along with other ‘posts’⁶ that describe continuing skepticism about regimes of truth that have failed us, has worked the ruins of humanism’s vision of these concepts. Rather than finding despair, paralysis, nihilism, apoliticism, irresponsibility, or immortality in the decay and devastation of the

⁵ They emphasize the and: “feminist *and* poststructuralist, a relationship that gestures toward fluid and multiple dislocations and alliances” (Pillow and St. Pierre 3)(emphasis original).

⁶ Following St. Pierre, I also use “posts” throughout this project to stand for the proliferation of post theories and methodologies in the postmodern: “e.g. postmodern, poststructural, post-Fordist, posthuman, post-emancipatory, postfoundational, postcolonial, postsubjective, and so on” (“The Posts Continue” 646). This isn’t a conflation but a shorthand nod to the very proliferation of such varying approaches. When I use the word posts instead of a *specific* post, I’m referencing this proliferation and its general work together and apart deconstructing modernist, structuralist, and Enlightenment humanist structures and ontological and epistemological assumptions.

ruins ... these feminists have found possibilities for different worlds that might, perhaps, not be so cruel to so many people. (1)

After decades of theoretical work in dismantling humanist grand narratives, of scientific work (particularly in quantum physics) that indicated the “failure of positivism” (Lather *Getting Smart* 2), and of social/cultural work in movements like the Civil Rights, feminism, and the student-led Vietnam protests (Spanos *End*), the writers in this collection were excited by the proliferation of possibilities for thinking and doing *differently* through questioning research practices based in a positivist science rooted in the “dangerous fictions” of those deconstructed truths. They were heartened, in other words, by starting off this new century working outside “the grounding rules of humanism that burden educational inquiry and practice” (Pillow and St. Pierre 16).

Two years after *Working the Ruins*’ publication, less than one after 9/11 and the beginning of the War on Terror, President Bush signed into law Congress’ reauthorization of the Elementary and Secondary Education Act through the No Child Left Behind Act (NCLBA) and its increased focus on standardization and accountability through testing. In the accompanying Scientific Research in Education (SRE) report in 2002 by the National Research Council (NRC), St. Pierre saw the manifestation of the neoconservative pushback to the movements and progress, to the “ruins,” that had so excited feminist and poststructuralist (and other) researchers:

By establishing experimental research and, preferably, randomized controlled trials as the gold standard for high-quality research, those two documents—one a federal law that mandated research methodology—exemplified the positivist and conservative restoration in the larger audit and accountability culture that privileges an instrumental, engineering model of social science that feeds on metrics to establish ‘what works.’ Notwithstanding claims of inclusiveness and in

the fervor of a new scientism, qualitative research was rejected as not rigorous enough to count as a high-quality science. (St. Pierre “Post Qualitative Research” 611)

St. Pierre makes this assessment in 2011 in her chapter on *post* qualitative research⁷ in *The Sage Handbook for Qualitative Research*. After almost a decade of fighting back against the beating qualitative research took after the NCLBA, St. Pierre admits being “weary ... of the always already failed romance of trying to ‘talk across the differences,’” and attributes the success (as seen in the NCLBA’s passing) of such conservative and restoration movements to a failure among some scientists, policy-makers, and other government agents (and the public at large) to “read and/or engage with the linguistic turn, the cultural turn, the interpretive turn, the narrative turn, the historical turn, the critical turn, the reflexive turn, the rhetorical turn, the postmodern turn, and others” (“Post Qualitative Research” 611). In fact, in her reading of the SRE and other documents related to NCLBA, St. Pierre found that the term “postmodernism” had in fact become a “whipping boy, a *codeword* for critiques of positivist tendencies offered by all those ‘turns’ and for critiques, more specifically by feminist, race, Marxist, queer, postcolonial, and other theories” (“Post Qualitative Research” 611-613)(emphasis original).

As we’ll see in Chapter II, this dismissal of the turns and the move “back to basics” in the face of challenges (as seen in St. Pierre’s list) to humanism (“a grand theory with a long and varied history that has described the truth of things for centuries”) demonstrates that it is, even

⁷ Though that chapter is cut from the most recent 5th edition (2018) and Laurel Richardson and St. Pierre instead co-author a chapter on writing-as-inquiry, the concept of “post qualitative inquiry” is not gone from the handbook but more diffuse, running throughout in conversations and mappings of the posts past, present, and future work in the qualitative field. This makes sense as St. Pierre and others argue that, in fact, post qualitative doesn’t fit the traditional, mixed-methods, or even deconstructed ideas of “research.” Instead post qualitative *inquiry* begins to be an overarching organizing concept that un-methodologies, ~~research~~, deconstructing methods, technicities, propositions, lines of flight, nomadic inquiry (to name just a few concepts being kicked around in posthuman and post qualitative inquiry conversations) can cluster around. Richardson and St. Pierre’s writing-as-inquiry is also an example. Such inquiries seriously consider what “science” (social or otherwise) looks like when all the traditional concepts—data, methodology, research, validity, rigor, etc.—are put under erasure and/or completely left behind.

“ruined,” a “*supple* philosophy” that continues—through very real and material-discursive apparatuses⁸ like the NCLBA—to “produce a diverse range of knowledge projects since man (a specific Western, Enlightened male) first began to believe that he, as well as God could, through the right use of reason, produce truth and knowledge” (Pillow and St. Pierre 5). Unfortunately, as we’ll also see in Chapter II, such projects include the patriarchy, slavery, colonialism. And, in education, it includes the general *dehumanization* of students, justified/normalized (like the other projects listed) through the human/nonhuman binary that allows us to say that children or students are not *quite* human until we’ve humanized them via *education* (Snaza “Toward”). “Ruining” this human/nonhuman binary is at the core of the posthumanist conversations this project is calibrated to, particularly Karen Barad’s agential realism. Such policies as the NCLBA⁹ might be indicative of “a worldwide audit culture with its governmental demands for evidence-based practices ... as if the last several decades of the critique of positivism had not existed” (Lather, *Getting Lost* 2). But in using posthumanism to recalibrate our view of each unique classroom we teach in as not just, as hooks puts it, a “concrete” (6) site, but also, as Barad’s agential realism would see it, a dynamic, emergent, intra-active phenomenon of *both* humans and nonhumans that actually materialize reality together, we can fundamentally alter the possibilities for *making a difference*. And we can make such differences even while teaching under such policies in such sites physically designed for transcendent (Cartesian) work—to teach

⁸ I use Barad’s concept of apparatuses as discussed later in this chapter. Barad works from Haraway’s concept of apparatuses of bodily production and Niels Bohr’s theory of apparatuses being entangled with (and thus constitutive of) the phenomena they are used to “observe,” to rethink apparatuses as more than the “rigified social formations of power” of Althusser (Barad, *Meeting* 240), and to extend Foucault’s apparatuses of observations (i.e. the panopticon) beyond the “materialization of human bodies” (*Meeting* 204) to nonhuman bodies.

⁹ General parental and educator outcry against the over-testing of students and the conservative dislike of perceived federal overreach in the NCLBA led to the (also bipartisan) Every Student Succeeds Act in 2015. However, the reliance on a positivist ontology and epistemology, the standardization and testing systems as well as methodology mandates, largely remain while being shifted mainly to the purview of the states (Lewin and Rich; Severns). Moves by the current administration to, for instance, combine the Departments of Labor and Education don’t promise a turn back toward more progressive policies at the national level any time soon.

anything to anyone anywhere anytime. In those same rooms, we can still “work the ruins of humanism” and toward actually creating the “different worlds” Pillow and St. Pierre hoped for, what this project—using and recalibrating Donna Haraway’s term (“Promises”; *Primate Visions*)—calls *elsewhere*.

But to do such creating-with, we need different stories than humanism—even in its progressive forms—tells. Speaking of the humanism inherent in and perpetuated by Newton’s founding of calculus as a way, using the idea of continuity and prediction to create a “deterministic world” and put “knowledge of the future and past at Man’s feet,” Barad outlines the story the posts, including posthumanism, have worked to “ruin”:

The universe is a tidy affair indeed ... Man’s reward: a God’s eye view of the universe, the universal viewpoint, the escape from perspective, with all the rights and privileges accorded therein. Vision that goes to the heart of the matter, unmediated sight, knowledge without end, without responsibility. Individuals with inherent properties there for the knowing, there for the taking. Matter is discrete but time is continuous. Nature and culture are split by this continuity and objectivity is secured as externality. *We know this story well, it’s written into our bones, in many ways we inhabit it and it inhabits us. (Meeting 233)(my emphasis).*

As we’ll see through a long (and incomplete) list of progressive and critical educators, ex-students, and researchers in Chapter II, voices have long been speaking out and telling how humanist education trying to write such a story—one founded in the nature/culture, human/nonhuman split—into their bones (trying to overwrite what different stories they might inhabit) has done violent and irreparable harm to themselves, their students, and whole groups of

people. But when the science used to set educational policy remains working from such a God's eye view of the universe, it wants to maintain and "restore" (recuperate) the tidiness that such a cacophony of stories and experiences "ruins." In doing so, it dismisses such voices as "evidence" and turns back to "data"—seen as objective—and trials—seen as rigorous—in order to "get back to basics," to return to a nowhere that never was, an Edenic classroom where things just *worked*.

Such a tidiness—in a *quantum* instead of Newtonian (humanist) universe—Barad tells us—is not possible. But Newton and Descartes are the stories still written into our classrooms. These stories are not just written into the educational policies and administrative initiatives but also designed into the "bones" of what Ruth Mirtz calls "all-purpose" rooms—those built by designers via a "code of square footages and chairs sizes" meant to "squeeze the most use out of the most space" by "cramming as many different kinds of instructions as possible in the least amount of space possible with the least amount of furniture" (21). As it's designed and assigned—standardized and allocated through computer algorithms using course caps—the average college classroom tells the story of discrete autonomous-I students given "neutral," inert spaces in which to sit while knowledge is deposited into them. But when we trouble the human/nonhuman binary, such classrooms are not inert assemblages of furniture, but their own, as we'll see with agential realism, *apparatuses*, or phenomena sedimented with the same humanist ontological and epistemological assumptions that Pillow, St. Pierre, and Barad outline and which demand that our students (and ourselves) calibrate to a humanist way of being and knowing, no matter what that means for their own stories.

If we—as the actant determining curriculum and activities for that particular classroom that particular semester—buy into the story that such furniture and technology *are* inert and

either ignore their agency or assume they don't matter enough (that they don't change *what* we teach), then we leave such policies and assumptions in place and their power wholly intact. If, however, we shift to a framework (such as the agential realism this project uses) that argues that what desks we have doesn't just matter (influence if we do group work or not), but also *matters* (as in helps materialize reality), then we *open up* (also materialize) a whole new array of possibilities (not in existence before) for troubling and destabilizing that power. For making immediate, responsible, ethical changes for our students and ourselves *with* the classroom-as-phenomenon—desks included.

Posthumanism's work dissolving the human/nonhuman binary is a necessary edition to the work done by Pillow and St. Pierre¹⁰ and many others, in other critical and progressive education conversations we'll see in Chapter II, in order to further destabilize such power as it continues to dampen or enfold emerging voices criticizing the system itself and demanding change. A transdisciplinary *cacophony* of stories entangled with feminism, poststructuralism, the quantum, and many other theories that revel in and proliferate the *untidy*, posthumanism can indeed help us work the ruins of humanism's stories in ways that, hopefully, lead to such voices dominating the conversation.

Calibrating Our Posthumanism

To do this, posthumanism must tell a wide range of stories, some of them strange, many paradoxical, and almost all of them uncomfortable for humans in general, but particularly for Man (our species as a particular, Western ideal), who has, under humanism's long tenure, been at the center of the story : “naturally [standing] at the center of things ... entirely distinct from

¹⁰ Many of the authors from *Working the Ruins* now purposefully also work with posthumanism or post qualitative inquiry.

animals, machines, and other nonhuman entities ... known and knowable to himself ... [and] the origin of meaning and history” (Badmington, “Mapping” 1345). As the recently published *Posthuman Glossary* (Braidotti and Hlavajova) demonstrates, the terms posthuman, posthumanism, posthumanist, etc. are used in varying often paradoxical ways. The posthumanism this project uses and that I work from and calibrate my own praxis to comes out of the posts and turns and feminisms Pillow and St. Pierre were working in and also follows the material¹¹ and ontological¹² turns which, then, work off assumptions that reentangle the material with discourse (Alaimo and Heckman and ontology with epistemology (Barad *Meeting*) and deconstruct the human exceptionalism that keeps Man in the center.

Though the posts—as we saw above and will see more in the next chapter—have been working to subvert the epistemological (and ontological) assumptions of education since the end of the last century, the application of *posthumanist* theory deliberately and directly to educational research and theory is a relatively new (1993¹³) conversation that took off (in terms of books and articles published on the topic) in 2015 and 2016. In one of the first (2015) edited collections specifically looking at posthumanism and educational research, Nathan Snaza (one of the editors) critiques many progressive and radical educators who mostly still:

fail to situate educational institutions in ecological networks that include humans, animals, an enormous number of inanimate objects, and the myriad of political

¹¹ As Stacy Alaimo argues, “the material turn in feminist theory casts matter as, variously, material-semiotic, intercorporeal, performative, agential, even literate. Whereas discursively oriented studies of human corporeality confine themselves to the corporeal bounds of the human, material feminisms open out the question of the human by considering models of extension, interconnection exchange, and unraveling” (“Trans-Corporeal Feminisms” 244). Alaimo’s own theory of trans-corporeality figures into this project.

¹² The ontological turn is a result of the posts’ deconstruction of the singular autonomous-I and the seemingly singular (Western) ontological and epistemological positions it was grounded in as “natural” and “correct.” It recognizes the multitude of understandings of both ontology and epistemology (and the inseparability of the two in some) in the world (i.e. Eastern, Indigenous, etc.).

¹³ William Spanos’ (1993) *End of Education: Toward Posthumanism* is the first book to specifically theorize a “posthumanist education.”

relations obtaining all these. [They] often ground their labor in a politics of humanization. And, yet, the only way to stop once and for all the dehumanization produced by humanizing education is to remove politics and education from their enclosure within humanism. If our politics were not precisely limited to human beings and human concerns, then it would not have any meaning to treat someone ‘as if’ they are not human. Without this ‘as if,’ we would also lose the ability to engage animals, computers, plants, genetics, ecosystems as ‘objects’ of properly human politics. (“Toward” 27)

For many, this idea of considering education as not an entirely human affair seems to be putting the cart *and* the horse before the student—a human being with human concerns. The kinds of theories—animal studies, plant studies, new materialism, and speculative realism to name a few—the field has coalesced more around in recent years depend on or require seriously rethinking our relations with the nonhuman (living and “not” living) world, often in ways that seem (to some) absurd (or superfluous)—e.g. thinking through “thing-power” as “the strange ability of ordinary, man-made items to exceed their status as objects and manifest traces of independence” (J. Bennett xvi). For many, the comfort zone ends here before flattening¹⁴ out the humanist hierarchy of ontology in a way that would “[replace] the idea that the human is a separate category from ‘everything else’ *with an ethic of mutual relation*” (Taylor “Edu-Crafting” 8)(my emphasis). So while, as “the origin of meaning and the sovereign subject of history,” the *humanist* human is “distinguished absolutely from machines, animals, and other

¹⁴ I don’t follow the OOO use of “flattened ontology” but instead argue (along with Lenz Taguchi and St. Pierre among others) that, while we as humans in a flattened onto-epistemology or a horizontal plane of a relational materialist approach might not give equal “rights” or assign equal “importance/priority” to something like the sand of the beach we’re walking on (i.e., I’m still going to walk on it and not think about “hurting” it in doing so), the flattening here *does* ask us to recognize that the sand plays its own, integral, agential role in enacting the phenomenon “a walk on the beach” just like all the other actants entangled in our intra-action, including myself.

inhuman entities [as] exceptional, autonomous, and set above the world that lies at their feet” (Badmington, “Posthumanism” 374), *posthumanism* “seeks to *challenge* this Cartesian vision of an idealized hierarchy in which the human, with his exceptional (here deliberately gendered) propensity for reason and self-reflection, is the central figure acting against a backdrop of a passive, dead, and mechanistic world” (Marchand and Stratman 401)(my emphasis). The posthumanist theories (and, consequently, posthumanist education and pedagogy) used in this project, in other words, take seriously the idea that nonhuman phenomena ranging from dogs to desks to donuts to drones to Drano® to democracy to the letter “d” and beyond don’t just exist as *relata* or things or objects *for* us but *co-constitute reality in relation with us* (Barad *Meeting*).

Unfortunately, some posthumanist moves that dissolve the human/nonhuman binary—like speculating on the ontology of inanimate objects and inorganic matter (Bogost *Alien*) or rethinking animal studies beyond a “rights” model (Wolfe *Before*)—have caused what Badmington calls a “neohumanist backlash against posthumanism, a call to get back to basics, back to reality, back to nature ... a reactionary retreat [that] might come to undermine or even eclipse the critical advances that have been made in recent years” (“Mapping” 1345). Indeed, such backlashes are grounded in the same sort of narratives (as we’ll see in Chapter II) that drive back to basics movements like the NCLBA and, as Haraway (*Primate Visions*) puts it, rely on entangled Judeo-Christian and Western Enlightenment origin stories of salvation and “recuperation” (Spanos *End*). What is important, Braidotti argues, is to not give in to the anxiety or discomfort caused by the “the displacement of anthropocentrism and the scrambling of species hierarchy [that] leaves the Human un-moored and un-supported” (*The Posthuman* 145). In giving in to our unease with being *unexceptional* as we navigate this fluid and increasingly deterritorialized time, we risk calibrating ourselves to epistemological and ontological

assumptions that might feel more comfortable or make more “sense” (from within the very system such assumptions built) but that decades worth of philosophers *and* scientists have deconstructed and shown to be only one of many ways to know and be *with* the world.

Such discomfort or backlash, however, often goes hand in hand with, I believe, fairly general misunderstandings about the full breadth of the posthumanist conversation, where the field is now (approaching the third decade of the twenty-first century), and what work it can help us do. As someone who has presented on posthumanism in panels on both literature and education for several years now, I have encountered these reactions on a spectrum running the gamut from teasing (a moderator, with a wink: “I can’t quite picture classrooms full of little robots doing English”) to outright dismissal (an audience member, with a wave: “This posthumanism makes no sense. There are many types of humanism, perhaps a more Vygotsky humanism...?”). While I’ll address the second reaction in Chapter II, the moderator’s association of the word posthumanism with *robots-doing-English* stems from the fairly common conflation of particular theories/narratives in the larger posthumanist conversation to “posthumanism itself.”

A large part of this is the fact that speculative and science fiction play such a large role in the conversations; as Neil Badmington argues “posthumanism is as much a matter of theory as it is a question of fiction” (“Posthumanism” 376). This is a strength, as I’ll argue in Chapter III, when using particular *types* of fiction which allow us to speculate through such uncomfortable questions in order to calibrate to more ethical practices. But, from the imaginings of cyborgs in novels like *Neuromancer* (Gibson) to the speculation on downloadable consciousness in films like *Total Recall* (Verhoeven), imaginings of “*the* posthuman” in the sense of *transhumans*—those who through technology or biosciences improve, move beyond, and indeed transcend the human body—are far more popular and widely disseminated among the popular imagination

than posthumanist¹⁵ theories such as material feminisms, new materialisms, animal studies, or particular strains of OOO¹⁶. And while more and more speculative fiction along the lines of Margaret Atwood's *MaddAddam* trilogy imagines the more material and often frighteningly possible consequences of our current environmental and technological situations, people are more likely to be familiar with the Borg¹⁷ of *Star Trek* ("Q-Who?") than with the Crakers¹⁸ of *MaddAddam* (who we'll discuss in Chapter III).

As Badmington argues, "a certain incarnation of the cyborg¹⁹ is to be embraced and celebrated ... for its ability to expose the problems of thinking in essences and universals" ("Posthumanism" 377). But posthumanism, as I define it, is not, in fact, "purely a question of high technology" and recognizes that the "technological rapture" of transhumanism "can all too easily shore up some of the most fundamental assumptions of humanist discourse" (Badmington, "Posthumanism" 377). What, after all, could read more humanistic than the "triumph" of completely transferring the human consciousness into a machine or of finally, truly, separating the body from the mind as if the one had little to do with the being of the other? As Katherine

¹⁵ Cary Wolfe's "Posthumanism" entry for the *Posthuman Glossary* bases its definition of posthumanism on an "insistence on distinguishing between 'the posthuman' and 'posthumanism'" (356). This project is calibrated to the same insistence and, in Chapter II and III, explores the necessity of such careful calibration (whichever way you lean in such conversations).

¹⁶ Object-oriented ontology

¹⁷ Cybernetic beings that, as a hive, invade and assimilate other beings' societies into their cyborg collective, the Borg are from the various *Star Trek* franchises (originally *Star Trek: The Next Generation*). They first appeared in *The Next Generation* episode, "Q-Who?"

¹⁸ Crakers are bioengineered "humans" who first appear in Margaret Atwood's *Oryx and Crake* and are named for the later, their "creator."

¹⁹ He's talking about a cyborg in line with Donna Haraway's and her 1985 "A Manifesto for Cyborgs." In it she is not, in fact, calling for humans to become cybernetic organisms in order to improve or transcend the human body. Instead, she argues that we already are such hybrid beings and, as much posthumanism does in its speculative nature and through a plethora of metaphors, she uses the cyborg as a myth, an image, an embodied imagining to expose humanism's founding illusion, the boundary between human/nonhuman, and all binaries that correspond with it—"mind and body, animal and human, organism and machine, public and private, nature and culture, men and women, primitive and civilized," and beyond—as "all in question ideologically" (2284). Despite Haraway's own insistence that she is not a posthumanist theorist, the posthumanism used in this project stems from what the cyborg's hybridity exposed—a blurring of boundaries between human/nonhuman and all subsequent boundaries that has since been pushed beyond hybridity into concepts of flesh (Wolfe), trans-corporeality (Alaimo), intra-action (Barad) and more. The posthumanism of such theories and of this project chases the question Haraway asked with the cyborg: "Why should our bodies end at the skin; or include at best other beings encapsulated by skin?" (2296).

Hayles argues: “indeed, one could argue that the erasure of embodiment is a feature common to both the liberal humanist subject and the cybernetic posthuman” (4). In Chapter III’s discussion of John Weaver’s work with curriculum studies, we’ll see how choosing to calibrate to transhumanism²⁰ (especially while using the terms “the posthuman” and “the posthuman condition”) can lead us further back into unproductive humanisms.

While posthumanism might have originally been headed in the direction of transhumanism²¹ in the 90s, it has since taken a material turn that doesn’t negate transhumanism’s role in the overall “posthuman” phenomenon but certainly makes it just one piece of a widely disparate yet *largely* immanent field. Theorists like Braidotti, Wolfe, Barad, Alaimo, Snaza, and Lenz Taguchi—to name a few whom I pull from in this project and whom *identify* as working with posthumanism—have since then developed conversations within (or connected to) posthumanism—e.g., animal studies, material feminisms, agential realism—that intra-act with but are not calibrated to the cybernetic, purely transhuman conversation.

For education in particular, this means that, while technology and digital spaces are material and critical concerns for developing posthumanist strategies and classrooms in an era of the internet and globalization, posthumanist education is not about *making* teachers robots or

²⁰ In “[emphasizing] human beings through science and technology, suggesting transcendence of biological bodies and merging with the artificial...transhumanism focuses on transcendence, asserting that human beings are capable of moving beyond their physical constraints” (Marchand and Stratman 403).

²¹ Katherine Hayles’ 1999 *How We Became Posthuman* is something of a liminal space where the moderator’s understanding of posthumanism and mine meet and diverge. In first defining posthumanism as the moderator might (humans-becoming-robots), she calls for a turn away from such cybernetic transcendence and back toward a material immanence that still takes into consideration systems and information theories (i.e. autopoiesis) which can help us account for a non-centered human and a flattening of hierarchization. In conceding, as I do, that a cybernetic emphasis can lead to troubling, Matrix-type visions of virtual humans in a virtual world, Hayles argues that it is the transhumanist retreat deeper inside the autonomous freedoms of humanism, the downloading of humanism into the seemingly immortal fix of the intelligent machine, that inspires such apocalyptic fears of “a culture inhabited by posthumans who regard their bodies as fashion accessories rather than the ground of being” (5). In opposing transhumanism as *the* model of posthumanism, in intervening in the discourse she saw as headed toward “the antihuman and the apocalyptic” before “the trains of thought [posthumanism] embodies have been laid down so firmly that it would take dynamite to change them” (291), Hayles called for us to “craft” other versions of posthumanism that “will be conducive to the long-range survival of humans and of the other life-forms, biological and artificial, with whom we share the planet and ourselves” (291).

students cyborgs. Consider a story that made the internet reporting rounds in 2016: “Artificial Intelligence Writes Novel, Nearly Wins Japan’s Unique Literary Prize” (MaGee). Despite the article’s misleading title, it goes on to explain that the contest allows entries by human-AI teams. Human programmers compiled research, entered “words and phrases from a sample novel,” decided on “the plot and developed the characters” (MaGee). The AI then wrote the novel’s text from the pieces it had to work with and using a sample the programmers gave it for comparison. The novel made it past the first round of the prize as one of 11 other novels written by AI in a contest that allows computer generated texts. I can imagine the winking moderator reading this story and trying to picture the posthuman nightmare in which not only are his students robots doing English, but he’s also having to teach those robots this very novel, “The Day a Computer Writes a Novel” (MaGee), the foundational text (as we might speculate it would become) in the AI cannon.

But if we recalibrate our understanding of posthumanism away from transhumanism and more towards new materialisms or material feminisms, we can see that the AI author—far from a nightmare of Terminator proportions—is a productive example of the entangled being between human and nonhuman that Haraway’s cyborg is meant to expose. Not because these human-AI teams are literal, stitched-together-in-one-body hybrids of machine and human but because that hybridity—the very possibility, the very reality of it—exposes as illusion, as a construction, the boundaries humanism erected around the thinking-I subject it placed at the center of the world. The article about this human-AI team writing a novel is indeed a posthuman tale *not* because it involves a robot but because it tells of the *entanglement* of human programmer with machine, with code, and with stories and of each of the latter entangled with each other and with humans.

What posthumanism calibrated to agential realism in *particular* recognizes is that our students are already cyborgs in the sense that they always already are (and always have been) teams like the human-AI author team. One student may have a team consisting of a smartphone, a laptop, a high speed internet connection at her dorm, an unlimited data plan paid for by mom and dad, and a wireless inkjet printer complete with a gift card for new ink cartridges that grandma and grandpa gave her for graduation. While another student in the same class has a team consisting of a flip-phone only used for emergencies, the shared PCs at the library, the slow/over-used wireless on campus only, and \$0.05 on his student ID card that he can't reload to make more copies with until his paycheck clears next week. These teams are *material*²² and *agential*. They don't just determine what information a student has access to, but actually, via intra-action, *enact* his or her knowledge-in-being. As they sit down to do homework, meaning, for these students, *emerges* (differently) from the intra-action within these unique teams or, as Barad would call them, phenomena.

Posthumanism as used in this project pushes us to see how such phenomena are *more than* the material consequences of or producers of something like class or socio-economics (which are also material-discursive apparatuses that intra-act with that student and, consequently, configure and are reconfigured by that student's intra-action with the classroom-as-phenomenon). Such cyborgian combinations don't only limit or privilege one student over the other but actually *determine* who a student is and what meaning they get out of, for example, a text we assign them. As we'll see when we discuss Barad, this entangling of being and knowing,

²² It's important to note that the term "material" covers technology as well. When I reference the material (or later material↔discursive), I'm not setting it up as a binary against the digital or technological. In taking the material turn in posthumanism, I argue from a viewpoint that recognizes that anything that works in conjunction with a human to achieve a goal that a human can't alone (which covers anything from a pencil to a prosthetic) can be called technology and is (just like humans, concepts, and non-human animals) material↔discursive. Unlike something like transhumanism, this viewpoint doesn't elevate technology or think it should be used to enhance the human body with the intentional goal of transcending that body or elevating human consciousness out of the "natural" world.

an inseparable onto-epistemology, means that the non-human phenomenon students *become-with* can't be afterthoughts or something considered separately from curriculum, but are integral to an intentional, ethical class design (curate) meant to calibrate for the posthumanist possibilities of every classroom.

As Hayles argues (and I agree), “the posthuman does not really mean the end of humanity” (287) as some might fear. Instead, “it signals the end of a certain *conception* of the human, a conception that may have applied, at best, to the fraction of humanity who had wealth, power, and leisure to conceptualize themselves as autonomous beings exercising their will through individual agency and choice” (Hayles 287)(my emphasis). Posthumanism is also “not to be understood as marking or making a clean and clear break from the legacy of humanism” (Badmington, “Mapping” 1349). If anything, it should be seen as an option that always existed alongside humanism but that we have only recently begun to recognize as a possible, productive way to view the world and our interaction with it. And as Pillow and St. Pierre clarify about *poststructuralism*:

[it] does not assume that humanism is an error that must be replaced—i.e., humanism is evil because it has gotten us into this fix; poststructuralism is good since it will save us. It does not offer an alternative, successor regime of truth, it does not claim to have ‘gotten it right,’ nor does it believe that such an emancipatory outcome is possible or even desirable. Rather it offers critiques and methods for examining the functions and effects of any structure or grid of regularity that we put into place, including those poststructuralism itself might create. (6)

The same goes for posthumanism as used here; it's the framework I work from now because it supports the onto-epistemological assumptions necessary to interfere in the humanist structures and narratives built into our classrooms. And it offers other, more productive stories to work with and toward than humanism's founding hope/goal—"that we can 'get it right' once and for all" (Pillow and St. Pierre 4). But, as we'll see with Toby in Chapter III (and as most of the theorists in this dissertation argue), using posthumanism means diving into uncertainty and always keeping in mind that, as Cary Wolfe puts it, "we will have been wrong" (*Before* 103).

For this project, then, I calibrate to Karen Barad's definition of posthumanism just as I use her agential realism. Barad argues that, "posthumanism, as I intend it here²³, is not *calibrated* to the human; on the contrary, it is about taking issue with human exceptionalism while being accountable for the role we play in the differential constitution and differential positioning of the human among other creatures (both living and nonliving)" (*Meeting* 136)(my emphasis). Following the "material turn," and also in line with material feminisms, the posthumanism I calibrated my project to "[builds] on rather than [abandons] the lessons learned in the linguistic turn" to deconstruct "the material/discursive dichotomy ... without privileging either" and to "explore the interaction of culture, history, discourse, technology, biology, and the 'environment,' without privileging any one of these elements" (Alaimo and Heckman 6-7). In questioning and dissolving the separation between the human/nonhuman, knowing/being and material/discursive, posthumanism:

²³ This quote is from Barad's full definition of posthumanism on page 136 of *Meeting the Universe Halfway*. Much like Barad, I don't consider her definition a stable and static definition, but it was a text I read my research and (later) my class through (via diffraction). The qualification "as I intend it here" acts as a reminder of that (following, in the original text, a string of "is" statements) and makes the point that I am doing the same. Barad concedes it's a contested statement and makes her claims here for *her*, for *its use in her agential realism* without claims to that use remaining uncontested outside of this text. As the term itself here is a phenomenon (which she is now a part of as she makes the agential cuts necessary to define the material↔discursive phenomenon of posthumanism as used in the book—a larger phenomenon the term is also a part of), Barad is performing her own agential realism here by not excusing herself from the definition but instead stressing that she is an undeniable part of the material↔discursive constitution of the concept-as-phenomenon.

troubles concepts of will, intention, and agency, recognizing them not as individual possessions, nor as manifestations of the negotiated pull of structure and agency as in social constructionism, but as force, flow, affect, and intensity distributed across a multiplicity of different human–non-human modalities.

(Taylor, “Close Encounters” 201)

The posthumanism used in this project rejects the type of ontological hierarchy that humanist exceptionalism demands. It sees a distinction, however, between the kind of “ontological leveling” (Alaimo, “Thinking as” 14) found in OOO—a matter of equality—and the kind of “flattened ontology”—a matter of intra-action—that I approached the posthumanist classroom from and which allowed me to not just think *with* theory (Jackson and Mazzei) but also “*as* the stuff” of the classroom (Alaimo, “Thinking as” 13). Indeed, flattened ontology as I use it isn’t even a wholly *posthuman* theory, but one that’s circulated among the posts long before posthumanism crystalized into its own field. St. Pierre traces the posts work to subvert humanist, “representational schemas” which “assume depth” by positing a hierarchized relation between the given world/reality—“depth, primary”—and language—“surface, secondary” (“The Posts Continue” 649). The posts, she argues:

do not accept the ‘metaphysics of the ‘depths’²⁴ but present an aesthetics of depthlessness and suggest that everything appears at the surface, at the level of human activity. In this way, ontology in the ‘posts’ flattens what was assumed to be hierarchical. Here there is no Real—nothing foundational or transcendental—nothing beneath or above, outside—being to secure it. Language and reality exist together on the surface (649)

²⁴ St. Pierre is quoting Michel Foucault’s *The Order of Things: An Archaeology of the Human Sciences*, p. 245.

As examples, she uses Foucault (especially his “discourse-object”), Deleuze and Guattari (especially their rejection of the “tripartite division” between world, book, and author), Derrida (especially his use of *différance* and slippage), and Lyotard (especially his concept of *paralogy*) (“The Posts Continue” 649-652). Part of St. Pierre’s argument in all her work with qualitative and then post qualitative research is a reminder that these posts²⁵ were indeed doing work with the material (especially in these specific theories/theorists) and should not be “casually dismissed ... as too ‘discursive’ or ‘linguistic’ to attend to the material and the empirical” (647). In fact, “the posts provide extensive critiques of Enlightenment humanism’s ontologies as well as its epistemologies and its science and that the material is always already imbricated with the linguistic and discursive in that work” (647). In this project, then, a flattened ontology is not part of a “rights” conversation where I argue that desks deserve equal rights with students but is about seeing/understanding the “world” (a *spacetime mattering* that *includes* us, not that is determined or discovered by us) from a material↔discursive onto-epistemology where space, time, and matter all emerge together in continual intra-action.

Such an ethico-onto-epistemology comes from Barad’s agential realism.

Agential Realism

Karen Barad’s agential realism, the theoretical framework this project diffracts through, also has roots in such feminist and poststructural education conversations. Working with science education in particular, she is also part of the feminist science studies conversation—along with Haraway—that was running alongside and with the work done by feminist and poststructuralist educators and researchers. One of the first iterations of her agential realism and posthumanist

²⁵ In fact, in this article, “The Posts Continue: Becoming,” posthumanism is now listed (2013) among the posts St. Pierre had originally used for a similar list mentioned above in “Post Qualitative Research.”

performativity²⁶, her 1995 “A Feminist Approach to Teaching Quantum Physics” argues that we are not teaching the science we actually practice, nor are we teaching ways of *doing* science that we actually *do*²⁷. In other words, despite quantum physics’ role in the deconstruction²⁸ of Newtonian, positivist science and classic physics, teachers at the time (and mostly still) were teaching from the same ontological and epistemological assumptions (pre-existing autonomous-I subject, clearly separate object(s), neutral observation tools, and world as natural, neutral, static backdrop) even though actual scientists (outside textbooks and the classroom) were working from quantum, postmodernist, *posthumanist* assumptions.

Barad characterizes her work as a “feminist reading of Niels Bohr’s philosophy of physics” that “[outlines] an alternative to the “Physics is Phun approach to teaching” (“Feminist” 45) she saw popularized by physics “hero” Richard Feynman and the “dominant culture of U.S. post-Sputnik physics” (“Feminist” 44). In taking a feminist approach, she sees herself offering an alternative way of teaching science to students that invites inquiry and curiosity and which accounts for the paradoxical instead of offering stilted learning and expecting blind acceptance of a humanist, patriarchal, Newtonian system.

As Barad outlines, “the Newtonian worldview” is an “objectivist epistemology” where “a well-prepared mind is able to produce a privileged mental mirroring of the world as it exists independently of us human beings” (“Feminist” 46). In this worldview, objects are “cultureless

²⁶ For her “posthumanist performativity” in agential realism, Barad works from Butler’s theory of performativity, extending it to the more-than-human and reentangling the “different kinds of materiality” through a move from materiality to materialization: “...the framework of agential realism does not limit its reassessment of the matter of bodies to the realm of the human (or to the body’s surface) or to the domain of the social. In fact it calls for a critical examination of the practices by which the differential boundaries of the human and the nonhuman, and the social and the natural, are drawn, for these very practices are always already implicated in particular materializations” (*Meeting* 209-10).

²⁷ This is a similar argument as Noel Gough’s *Laboratories in Fiction* (1993) which we’ll look at more closely in Chapter II.

²⁸ This is alongside postmodernism and poststructuralism’s deconstruction of modern/humanist ontologies and epistemologies entangled with such sciences.

agents, existing outside of human space-time [and] are thought to reveal their secrets to patient observers watching and listening, through benignly obtrusive instruments” (1995, 46). This epistemology assumes a *distinct*, stable, and pre-existing boundary between the object and observer where the two don’t influence each other—the first simply exists and the second takes note of that existence (observing faithfully what is “naturally” *there*). Such boundaries are called “Cartesian cuts” (“Feminist” 52) as their existence and the assumption that they are common sense, natural truth comes from the worldview enabled by Descartes’ humanism (particularly the stable border between the thinking-I and the rest of the world).

But through Bohr’s work in quantum physics (particularly in the 1920s and 1930s), he determined that such Cartesian cuts are not possible, as any cut (boundary) assumed within an experiment must be seen as *constructed by the observer* through the spaces, times, parameters, and instruments (and so on) *chosen* for the observation: “no sharp separation can be made between an independent behaviour of the objects and their interaction with the measuring instruments which define the reference frame” (Bohr as cited in Barad, “Feminist” 52). To make this shift in understanding of cuts/boundaries as constructed instead of Cartesian, Bohr worked from ontological and epistemological assumptions not compatible with classical physics within a Newtonian science. Therefore, for Bohr, Barad explains, “the primary ontological unit is not independent objects with inherent boundaries and properties but rather *phenomena*” (*Meeting* 139). And these phenomena *are* “‘interaction’ between ‘object’ and ‘instrument’” (“Feminist” 57) (what Barad will name in her further work with his theories “intra-action”).

Such an understanding of the world comes from Bohr’s many experiments in and solutions for problems brought up through quantum theory/quantum physics. Though Barad

outlines several of these experiments²⁹, solutions, and theories in her mapping of Bohr's work, the central experiment (and likewise Barad's more productive metaphor for this project and its conception of classroom-as-elsewhere) is Bohr's solution for the "wave-particle duality paradox," the seemingly paradoxical occurrence of light as wave under one set of experimental parameters (using a "two-slit diffraction grating") and as a particle under another, different set of parameters (a modified "diffraction apparatus") ("Posthumanist Performativity" 150, note 21). A "classical realist mindset" ("Agential" 4) can't reconcile that light, an observable "thing" out in the world, can, ontologically, be both wave and particle. But Bohr doesn't look at light as a "thing." Instead, he considers light as *in relation* to all around it—the lab, the kind of diffraction apparatus used to make the observation, the researcher, etc. "Light" from this point of view is *phenomenon* where "light-as-wave represents a different phenomenon than light-as-particle" ("Feminist" 60). And, for Barad, where each iteration of light-as-phenomenon *doesn't exist* outside of intra-action (outside of phenomena) but *is* entangled relationships (phenomenon) enacted when a specific apparatus is applied in a specific situation in such a way that "light" *matters* (comes into being, emerges, congeals...) in a *specific*, determinate way that makes itself intelligible (as wave, as particle, as something yet to be imagined) to the world (*Meeting*).

From Bohr's concept of phenomena, Barad argues that "unlike the 'mirroring' representationalism inherent in the Newtonian-Cartesian-Enlightenment framework of science, scientific concepts are not to be understood as describing some independent reality" ("Feminist" 58). From a "contemporary feminist [theory]" standpoint, Bohr's phenomena are a "sign of the impossibility of a fixed, acontextual, simplistic, or final resolution" ("Feminist" 58). In fact:

²⁹ For instance, see "A Feminist Approach" for other experiments that can be used with students to point out these discrepancies in Newtonian science's epistemological and ontological assumptions (e.g. calculations to determine an object's velocity include an experiment that highlights that our "observation interactions" with objects, nature, etc. are "discontinuous and indeterminable" from quantum theory instead of "continuous and determinable" under classical physics (52).

the ambiguity between object and instrument is only temporarily, contextually decided; therefore, our characterizations do not signify properties of objects but rather describe the intra-action as it is marked by a particular constructed cut chosen by the experimenter (“Feminist” 58)

Wave or particle, then, is not a “characteristic” of the object “light” but the effect of differences from such “constructed cuts.” As Barad expands her theory, they become “agential cuts” and are made by “an author who marks off the boundaries and who is similarly marked by the cultural specificities of race, history, gender, language, class, politics, and other important social variables” (“Feminist” 67). It’s in making the mark and already *being* marked (and in what you marked also marking you back) that, for Bohr and for Barad, objectivity³⁰ is even possible. “Objectivity,” Barad argues, “means being *accountable* to marks on bodies” (Posthumanist Performativity” 142)(my emphasis).

Through more articles, her continued work in feminism and science studies, and her (2007) book-length *Meeting the Universe Halfway*, Barad takes this questioning of objectivity and what (and how) we teach in our (science) classrooms and elaborates on a shift from a humanist to a posthumanist understanding of knowing-in-being through what she calls *agential realism*. She argues that the still dominant, humanist “separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse” (*Meeting* 185). Arguing that ways of being and knowing can’t be, as they have been traditionally, separated, Barad

³⁰ As Barad argues, “the knower does not stand in a relation of absolute externality to the natural world—there is no such exterior observational point. The condition of possibility for objectivity is therefore not absolute exteriority but agential separability—exteriority within phenomena. We are not outside observers of the world. Neither are we simply located at particular places in the world; rather, we are part of the world in its ongoing intra-activity” (*Meeting* 184).

defines onto-epistemology as “the study of practices of knowing in being” (*Meeting* 185). Coming from a clearly posthumanist perspective (and indeed using the term herself), Barad criticizes the humanist tendency, even in social constructivism, to privilege the human as an exceptional, separate entity that can use its unique consciousness and language to create or understand itself and the world without that world’s involvement: “we don’t obtain knowledge by standing outside the world; we know because we are of the world. We are part of the world and its differential becoming” (*Meeting* 185). Not only, then, are “practices of knowing and being ... not isolable ... [and] mutually implicated,” but knowing *can’t*, Barad argues, be considered a purely human practice: “*not simply because we use nonhuman elements in our practices but because knowing is a matter of part of the world making itself intelligible to another part*” (185)(my emphasis). When we argue, then, that the nonhuman actants in a classroom matter, it’s not just because of how we use them or for what, or what impact their presence has on the room, but because they are part of our becoming-with the classroom-as-phenomenon. These “parts” of the classroom, or actants as I’ll call them, make themselves intelligible through agential cuts and the intra-action such boundary negotiations enact.

For Barad:

The relationship between the material and the discursive is one of mutual entailment. Neither discursive practices nor material phenomena are ontologically or epistemologically prior. Neither can be explained in terms of the other. Neither is reducible to the other. Neither has privileged status in determining the other. Neither is articulated or articulable in the absence of the other; matter and meaning are mutually articulated. (*Meeting* 152)

Through this recognition of matter and discourse as entangled forces which make meaning *together*³¹, Barad's agential realism makes two moves: 1) it "elaborates" on Bohr's own epistemology which she saw as "limited" by an "underdeveloped account of the social dimensions of scientific practices" ("Scientific Literacy" 233) and 2) it recalibrates her own feminist methodologies to account for what she saw in some poststructural and/or feminist methods/theories (e.g. forms of social constructivism) as the over-privileging of language. Developing "a posthumanist account of performativity," Barad joins other feminists across the disciplines (at the time and still) in challenging "the positioning of materiality as either a given or a mere effect of human agency" (e.g., language) (*Meeting* 183). Agential realism is not, then, "about representations of an independent reality but about the real consequences, interventions, creative possibilities, and responsibilities of intra-acting with the world" (*Meeting* 37).

In other words, her framework depends on an ontology that:

does not posit some fixed notions of being that is prior to signification (as the classical realist assumes), but neither is being completely inaccessible to language (as in Kantian transcendentalism), nor completely of language (as in linguistic monism). That reality within which we intra-act—what I term agential reality—is made up of material-discursive phenomena. Agential reality is not a fixed ontology that is independent of human practices but is continually reconstituted through our material-discursive intra-actions ("Scientific Literacy" 235).

For Barad, then, identity, meaning, knowledge, all of these are not things or objects, but phenomena formed (continually) via intra-actions between *all* parts of the world: human, animal,

³¹ Her move here developed within a larger feminist and/or poststructural context where similar shifts were happening not just in science but in other fields as well (e.g., Donna Haraway's work through biology with material semiotics, Penelope Ingram's work through philosophy with signifying bodies, and Elizabeth St. Pierre's work through qualitative research with writing as inquiry).

organism, matter, concept, ideology, language, the list goes on. In the material-discursive of agential realism “each intra-action matters” (*Meeting* 185) as *intra-action*—Barad’s neologism for “*the mutual constitution of entangled agencies*”—understands agency differently from “the usual ‘interaction,’ which assumes that there are separate individual agencies that precede their interaction” (*Meeting* 33). Instead, *intra-action*

recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. It is important to note that the ‘distinct’ agencies are only distinct in a relational, not absolute, sense, that is, *agencies are only distinct in relation to their mutual entanglements; they don’t exist as individual elements* (*Meeting* 33)(emphasis original)

Agency, then, isn’t about intention (who does what with or without intending to), or consciousness, or isn’t even a characteristic of something/one. Lenz Taguchi and Palmer elaborate on Barad’s agency in their own work, framing it within a flattened onto-epistemology that focuses on intra-action where agency doesn’t pre-exist as a characteristic of some (or all, or no) bodies³², but “emerges *in-between* different bodies involved in mutual entanglements” (530). Here agency is a dynamic force that flows throughout a phenomenon as it emerges on/from a horizontal (and, of course, immanent), not vertical plane.

But how does all of this apply to education, specifically posthumanist education and a posthumanist classroom? For me and for this project, the shift to an onto-epistemology and an understanding of this knowledge-in-being as emergent through intra-action and material-discursive practices is critical. It destabilizes a pillar that makes humanism so hard to separate from education: knowledge as learnable entity instead of learning-in-action-and-creating. For me

³² Bodies, in this sense (their work and my own) are “as understood in physics ... any kind of body; a human body, an organ, an artefact or any kind of matter” (Lenz Taguchi and Palmer 530) and all emerge/perform/become *in relation(ships)*.

this emphasizes *meaning* over knowledge in the classroom. As Barad understands it, “meaning is not a property of individual words or groups of words but an ongoing performance of the world in its differential dance of intelligibility and unintelligibility” (*Meeting* 149). Instead of knowledge à la the banking model or traditional humanism, meaning can be seen as knowledge-in-being as active, creative, dialogic, entangled, in-motion, and ever-changing. Meaning can be considered an emergent process that comes with seeing being and knowing as inseparable.

Such a shift allows for us to understand students, knowledge, being, meaning, research, teachers, the classroom, *all* as emergent, as existing/becoming/knowing *through* intra-action, knowing-being in relation, not as being while knowing of relata³³. When boundaries are not preexistent but instead negotiated³⁴, constructed, and navigated because of/through a phenomenon’s enactment and the agential cuts that allow us to sense/observe/understand that phenomenon in its intra-action in the continual performance of the world, the very idea of “the human” is deconstructed down to the atomic level, a level, we find, as constructed (a singular narrative instead of supposed objective “truth”) as the thinking-I discretely bounded by skin. Indeed we become phenomena ourselves and can then be understood not as simply multiplicities or as occupying different subject positions in certain situations or times in our lives but as continually emerging (becoming) from (through) our intra-action in specific moments, with specific others, in specific places, with specific things.

As such, agential realism and its terminology (intra-action, diffraction, phenomena, material-discursive, etc.) are widely used theoretical frameworks and language in posthumanist (particularly new materialist or material feminist) education and educational research

³³ Barad uses this term as interchangeable with “things” or “objects” (including “words”).

³⁴ This notion of boundaries negotiating with each other—coming into existence via intra-action, not before—runs throughout Barad’s work but is also a central argument from Haraway’s “Situated Knowledges.”

conversations³⁵. It's a framework that intra-acts well with others, often entangled with other theories like Deleuzoguattarian rhizomatics. And it's one that opens up to the multiplicity of ways of being and knowing, something often lacking in many such conversations, even within posthumanism, still dominated by a sometimes "exclusive focus on Anglo-European thinkers" (Sundberg 42). Its worldview is more in tune with stories of the world—"indigenous peoples have never forgotten that nonhumans are agential beings engaged in social relations that profoundly shape human lives" (TallBear 234)—that have *long* run alongside and challenged Enlightenment and Cartesian narratives. As Marc Higgins argues, "[Barad's agential realism] disrupts the notion that Cartesianism is *the* (only) ontology, not by negating it but rather by positioning it as one ontological configuration among many" (190). As a tool for teachers, then, it can aid in the decolonization of education,

a 'two-pronged process' that entails: *deconstruction* of (neo-)colonial structures and strategies; and *reconstruction* that centres and takes seriously Indigenous, diasporic and other postcolonial ways-of-knowing and ways-of-being in reshaping place-based processes and priorities of education and educational research.

(Higgins 187)(emphasis original).

The approach I take in this project through agential realism, from its onto-epistemological assumptions which remain open to other ways of knowing-in-being, of other stories of the world, allows me to curate↔calibrate *with* each classroom-as-phenomenon, thereby creating an ethics *together* (an ethico-onto-epistemology)(Barad *Meeting*), not before (Lenz Taguchi *Going*

³⁵ In particular, see work in the edited collections by Hughes and Taylor (2016), Snaza, Sonu, et. al. (2016), and Hinton and Treusch (2015), as well as in the "Material Feminisms: New Directions For Education" edition of *Gender and Education* edited by Ivinson and Taylor (2013) and the "Diffracted Worlds – Diffractive Readings: Onto-Epistemologies and the Critical Humanities" special edition of *Parallax* edited by Kasier and Thiele (2014).

Beyond), keeping such posthumanist classrooms (what I call elsewhere) likewise open to *many* other ways of knowing and being without appropriating stories, cultures, and ways of being.

Still, it's important to state here what I argue more fully with Margaret Atwood's character Toby in Chapter III and what Pillow and St. Pierre are clear to argue about their work from the ruins—that this is not a claim of “getting it right.” Instead, agential realism and the other entangled theories, speculations, and doings I curate into this project to make my argument (and share the story of my teaching *with* this phenomenon of voices) are what I use *now* to help undo long-held humanist habits in my own teaching while learning how to best resist a humanist and neoliberal educational system.

Like many educators, Barad intervenes specifically in education conversations with the goal of disrupting policy and systems predicated on Cartesian and (especially for her) Newtonian assumptions. She critiques the concepts of relevancy and context used to “sell” science to non-majors and majors alike “the ingredients that are supposed to make science more palatable to students” (“Reconceiving” 221). Her attitude toward such programs exemplifies one of the basic assumptions in my own work and teaching philosophy:

...scientific literacy is thought of in terms of the successful transmission of knowledge about scientific facts and methods from knowing scientists to ignorant masses. Viewed this way, the problem of scientific illiteracy is seen as a massive transmission failure. Curriculum reforms from the 1960s through the 1990s have focused on potential defects in the receiver, the transmitter, and even the modulation of the signal, all to very little avail. In light of the extraordinary monetary and intellectual resources that have been and continue to be committed

to solving this problem, it is perhaps not unreasonable to ask if the metaphor itself isn't sending the wrong signal" ("Reconceiving" 226).

In working through her own resistance to such metaphors, Barad challenges such stories of science education used by reform movements to (as we'll see in the next chapter) erase or assimilate progressive, postmodern and poststructuralist interventions under the narrative of "getting back to basics" and a nostalgia for a pure past that never existed—a *nowhere*—where education systems ran like a dream, students graduated with all the knowledge they needed, and the transmission, as it were, was *strong* and *true*. As we'll see more in the next chapter, such recuperation and return narratives are part of humanism's suppleness as it keeps its relationship with education and educational policy in tact despite continual challenges by progressive educators and researchers.

Sick, then, of narratives of relevancy and context meant to, for instance, sell science to female students on the premise that it'll be relevant when they, say, need to boil eggs for the family, Barad applies her own agential realism to education, calling for a move from scientific literacy to *agential* literacy:

Agential realism provides an understanding of the nature of scientific practices that recognizes that objectivity and agency are bound up with issues of responsibility and accountability. We are responsible in part for what exists not because it is an arbitrary construction of our choosing, but because agential reality is sedimented out of particular practices that we have a role in shaping. Which material-discursive practices are enacted matters for ontological as well as epistemological reasons: *a different material-discursive apparatus materializes a different agential reality, as opposed to simply producing a different description*

of a fixed observation-independent world. Agential realism is not about representations of an independent reality, but about the real consequences, interventions, creative possibilities and responsibilities of intra-acting within the world. Hence, according to agential realism, scientific literacy becomes a matter of agential literacy—of learning how to intra-act responsibly within the world. What kind of education is needed to work toward the goal of agential literacy? (“Reconceiving” 236)(my emphasis)

While such a curriculum is certainly more calibrated to posthumanism and the kinds of entangled, trans-corporeal³⁶, and emergent onto-epistemologies it aligns with, what’s of even more interest and productive for this project is the idea that a different material-discursive apparatus materializes a *different* agential reality. From such an understanding, I argue that through an agential realist apparatus, a carefully and responsibly curated↔calibrated diffraction grating, we can intervene directly in our own classrooms to move them from the “anywhere” humanist assumptions of education (e.g. the banking model) designed them to be to an “elsewhere” created from the classroom-as-phenomenon *for* the classroom-as-phenomenon. Along with this idea that a different apparatus (i.e. the full array of actants curated into a classroom) materializes a different agential reality, it’s her use of Bohr’s light paradox, her work entangling it with Haraway’s diffraction, and her theorizing of phenomena as *spacetime-mattering* that helped me speculate the classroom-as-elsewhere and better understand what posthumanist pedagogy might be.

³⁶ As defined by its creator Stacy Alaimo, trans-corporeality is “a posthumanist mode of new materialism and material feminism” that “means that all creatures as embodied beings, are intermeshed with the dynamic, material world, which crosses through them, transforms them, and is transformed by them” (Alaimo “Trans-Corporeality” 435).

Diffraction

A part of agential realism, diffraction is, along with pedagogical documentation, the posthumanist strategy I use the most in my current praxis—as teacher-reader-theorist-writer. In fact, I’m using it while writing this very document which diffracts through each other all the theorists, texts, examples, etc. curated into it to create this unique document (a diffraction pattern itself, or an artifact of the *effect* of differences made). Though it began with Haraway as an invented semantics and an optics metaphor (*Modest_Witness*), diffraction has since been folded into the larger posthumanist conversation—particularly in post-qualitative research, material feminisms, and new materialisms, and most often diffracted through Barad—as a way of *doing* as well as thinking. As Kaiser and Thiele argue about this “subject-shifter” (critically for *our* purposes from humanist to posthumanist):

to develop a critical toolbox in the diffractive mode for our studies of world(ing)s seems to us one of the major tasks for future humanities research. To develop literacies for-from-within-the changing economic, ecological, digital, and scientific landscapes and our complex (cultural-economic-ecologic-socio-political) co-dependencies is pressing. (166)

For the purposes of this project, that toolbox includes the more established uses—diffraction as a way to read or become *with* data or *with* theory or to read texts *through* each other—and, more outside the established box, a technicity (Springgay “Approximate”) in the classroom, something the students actually *do* themselves as they continually diffract the class texts and their own writing through themselves, others, and our class questions, and the classroom as well. This meant developing “my own take on diffraction” (Lenz Taguchi, “Diffractive” 267) that wasn’t about researching for research’s sake but for our class’s sake (curate) and that played a productive role in opening up students themselves to a posthumanist view in/of an *English*

literature course (calibrate). As Kaiser and Thiele are sure to emphasize, and which I second, just because it is a scientific term and comes—as an optics metaphor—from feminist science studies, “welcoming” diffraction as an “*affirmative-critical* [device]” we can use to “disrupt, intervene and cut-together-apart (*diffract*) meaning-mattering processes in this still rather young twenty-first century” *doesn’t* mean we are “[signaling] the desire to be adopted by the sciences” (166). As Barad argues in the epigraph above, it’s a tool already entangled in questions of ontology and which “makes the downfall of classical metaphysics explicit” (*Meeting* 73). Diffraction isn’t just posthuman optics (a metaphor set in binary against humanist reflection³⁷); it is co-constitutive of the world, actually enacting *spacetimemattering* (in deciding both—and equally as important—what does and doesn’t matter) and, therefore, both supporting and enabling an agential realist onto-epistemological worldview (*Meeting*). As Sehgal puts it, “it is a physical phenomenon that shatters accustomed assumptions about matter and meaning” (189).

So what is diffraction and how do we use it? Answering such questions drove a large part of my work here (and still), particularly in Chapter IV’s discussion of the two classes I taught using agential realism and pedagogical documentation.

In “The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others,” Haraway develops a theory of artifactualism (instead of humanism’s productionism) whose new “optics,” *diffraction*, creates “interference patterns, not reflecting images” (299). She argues that this diffraction—an actual optical phenomenon in physics (particularly in Bohr’s light paradox)—does not “produce the same” like humanist optics of representation but instead offers a new way to “see” not “words and things” (as Barad calls *relata*) but “articulations³⁸” of the

³⁷ Reflection is not replaced or forgotten and has its own uses (Barad “Diffracting”).

³⁸ Articulations are similar to Barad’s phenomena as outlined above.

world which “signify³⁹.” “Nature” and “realism,” Haraway argues, are the narratives (and she would argue fictions⁴⁰) produced by such “representational practices” (“Promises” 313). And, in such “doctrines of representation and scientific objectivity” ordering the world as if they *are* fact—*realism*—“the world” (nature *and* all the rest) “is precisely what gets lost” (Haraway, “Promises” 313). In the face of such loss, Haraway argues that “where we need to move is not ‘back’ to nature, but *elsewhere*” (313)(my emphasis). As we’ll see, I use this idea of an elsewhere (an *agential* realism) created with the help of diffraction as a productive metaphor for resisting humanist education’s “supple” (Pillow and St. Pierre) narratives of back-to-basics (classroom-as-nowhere) and standardization (classroom-as-anywhere).

Though Haraway first introduces diffraction throughout “The Promises of Monsters,” a more succinct description⁴¹ comes from her 1997 book,

*Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse*TM:

My invented category of semantics, *diffractions*, takes advantage of the optical metaphors and instruments that are so common in Western philosophy and science. Reflexivity has been much recommended as a critical practice, but my suspicion is that reflexivity, like reflection, only displaces the same elsewhere⁴², setting up the worries about copy and original and the search for the authentic and

³⁹ Similar to Penelope Ingram’s signifying body as discussed in Chapter IV.

⁴⁰ As Noel Gough argues in “Narrative Experiments and Imaginative Inquiry” (and throughout all his work), all narratives, including the story of atoms as the bounded building blocks at the center of the world, are fiction in the sense that they are constructed by someone to convey something for a particular purpose. As we’ll see in the rest of this project, notions of the speculative, of fiction, and of narrative are, since Haraway and even before, at the heart of posthumanist education and educational research as used here.

⁴¹ Indeed, Barad uses the majority of this quote as the epigraph to Chapter II in *Meeting the Universe Halfway* which introduces her quantumized version of diffraction.

⁴² Haraway’s use of the word elsewhere here is the commons usage of “someplace else.” The “elsewhere” she mentioned earlier and that I use (with differences) to create posthumanist possibilities, is, in contrast, about a speculative place still *here*, an “articulated” world—one articulated through the situated knowledges of people while articulating itself even if in a discourse those people don’t understand. A world built through relations. In other words, a phenomenon in the agential realist sense.

really real. Reflexivity is a bad trope for escaping the false choice between realism and relativism in thinking about strong objectivity and situated knowledges in technoscientific knowledge. What we need is to make a difference in material-semiotic apparatuses, to diffract the rays of technoscience so that we get more promising interference patterns on the recording films of our lives and bodies. Diffraction is an optical metaphor for the effort to make a difference in the world. (16)(original emphasis)

It offers us, in other words, an option through or beyond binary “choices” like realism and relativism; it is a “subject-shifter” (Haraway “Promises”) and, like posthumanism, offers us a foundational shift—an optics without mirrors (Haraway “Promises”), a different (and difference *making*) apparatus (Barad *Meeting*). Whether semantics, theory, optical metaphor, or methodology, diffraction, for Haraway, offers a way to do science which makes visible again both the scientist and the lab as part of the *meaning made* in an experiment. When translated to the world in general (not just science studies or practice), this “self-visibility” (that reflexivity can’t “produce”) opens up the possibility for “strong objectivity and agential realism”—two critical moves at the heart of feminist science studies’ subversion of Western humanism (in science and beyond) (*Modest_Witness@*, 268).

While “diffraction is a mapping of interference, not of replication, reflection, or reproduction,” Haraway emphasizes (and Barad seconds this emphasis) that “a diffraction pattern does not map where differences appear, but rather maps where the *effects* of difference appear” (“Promises” 300)(emphasis original). To better understand what this means—mapping the *effects*

of differences over the differences⁴³ themselves—we should back up and look at some of the examples Barad offers to help explain diffraction as an actual physical phenomenon in science.

She mentions ocean waves funneled through breakers or rock formations and the rainbowed-light pattern on a CD. But the easiest to visualize is pebbles in a pond:

If two stones are dropped in a calm pond simultaneously, the disturbances in the water caused by each stone propagate outward and overlap with each other, producing a pattern that results from the relative differences (in amplitude and phase) between the overlapping wave components. The waves are said to interfere with each other, and the pattern created is called an interference or diffraction pattern. (*Meeting 77*)

The waves that ripple out from the pebbles aren't "things per se" (Barad *Meeting 76*) but ongoing disturbances in a medium—in this case, water. As these disturbances cross and overlap, they join into "composite wave-forms" known as "superpositions" which, while a new pattern, are still the "sum of the effects of each individual component wave" (Barad *Meeting 77*).

Diffraction, then, in physics, "is understood as the result of superposition" (Lenz Taguchi, "Diffractive" 270), and these superpositions are visible results of a phenomenon's intra-action—the *effects* of difference in relation instead of the listing of differences between discrete relata (as in reflexivity).

The very idea of waves as scientifically defined here is different from the idea of particles (our other option in the light paradox) which have been the guiding metaphor in representationalism, mirroring Enlightenment understanding of both being—we are discrete

⁴³ Critically, this is not difference "that relies on ontological separateness between identified categories, positions or identities, most often in asymmetrical relation to each other" but instead "like life itself: a continuum and a multiplicity that is in a constant state of becoming or differentiation in relation to each singular body, as it affects other bodies and is itself affected (Lenz Taguchi, "Diffractive" 269).

autonomous entities, like particles or atoms ourselves—and knowledge—such discrete and bounded entities can be studied and understood objectively (via “proper” measurement). From this narrative of atoms (told as unproblematized fact), “representationalism takes the notion of separation as foundational. It separates the world into the ontologically disjunct domains of words and things, leaving itself with the dilemma of their linkage such that knowledge is possible” (Barad, *Meeting* 137). Diffraction and its guiding metaphor of waves (considered one phenomenon in a quantum and emerging universe) problematizes representationalism and its role in maintaining fictions of exceptionalism within our species identity, objectivity in still-lingering Newtonian science, and standardization in humanist education (Barad “Feminist,” *Meeting*; Gough *Laboratories*; Haraway “Promises,” *Primate Visions*; Snaza “Toward”). Applying diffraction and its concepts of waves, apparatuses, phenomenon, and so on to the broader, philosophical ideas of ontology and epistemology, thinking *differently* with the world, using, in other words this metaphor and methodology of waves and their diffractive behavior, does signal the “downfall” of a metaphysics sustained by a representationalism. In shifting from *relata* to phenomena, from reflection to diffraction, from mirror to diffraction apparatus, Haraway, Barad and those who work with them to develop a “toolbox in the diffractive mode” shift from negative difference (binaries) and subject-object ontology (Cartesian or Newtonian) to a positive difference in a relational ontology (or, for Barad, onto-epistemology).

But again, this shift isn’t a matter of leaving anything behind as if reflexivity, representationalism, or even humanism doesn’t exist anymore. As Barad emphasizes, “reflection and diffraction are not opposites, not mutually exclusive, but rather different optical intra-actions highlighting different patterns, optics, geometries that often overlap in practice” (“Diffracting” 185). The shift is a “calibration.” Not only must we choose (curate) diffraction gratings (or

apparatuses) which create or allow us to map these effects of difference, these superpositions, but we must also *continually calibrate* that apparatus as we use it. Objectivity-as-responsibility (and, therefore, the opportunity for the ethics-from-phenomenon we'll discuss in Chapter IV) lies, then, in making such choices while factoring in the self and its effect within each calibration—that I myself am an actant in the co-constituted meaning within spacetime-mattering.

Diffraction as *a research methodology*, then, “is not about uncovering the essence or truth of data. This is an uncovering of *a* reality that already exists among the multiple realities being enacted in an event, but which has not been previously disclosed” (Lenz Taguchi, “Diffractive” 275). It is, for Lenz Taguchi, a different way of thinking: “Thinking diffractively, in short, means thinking as a process of co-constitution, investigating the entanglement of ideas and other materialities in ways that reflexive methodologies do not” (Lenz Taguchi, “Diffractive” 271). And, it is for Barad, a different way of reading:

I am not interested in reading, say, physics and poststructuralist theory against each other, positioning one in a static geometrical relation to the other, or setting one up as the other's unmovable and unyielding foil. Nor am I interested in bidirectional approaches that add the results of what happens when each takes a turn at playing the foil, as it were ... my method is to engage aspects of each in *dynamic* relationality to the other, being attentive to the iterative production of boundaries, the material-discursive nature of boundary-drawing practices, the constitutive exclusions that are enacted, and question of accountability and responsibility for the reconfigurings of which we are a part” (*Meeting* 92-93)(emphasis original).

In either case it is material↔discursive—not just about matter as objects or discourse⁴⁴ as constituting reality, but about both being co-constitutive of each other. Though Davies is speaking specifically about qualitative research, her point about the significance of such a posthumanist shift applies to all fields that might take up a material↔discursive diffraction apparatus: “we are so used to using reflection and reflexivity as the primary conceptual and practical analytic tools ... that shifting to diffraction as metaphor and practice makes for a significant interference in thinking-as-usual. Whereas reflection and reflexivity might document *difference*, diffraction itself is the process whereby a *difference is made*” (2).

The Classroom and Curate↔Calibrate

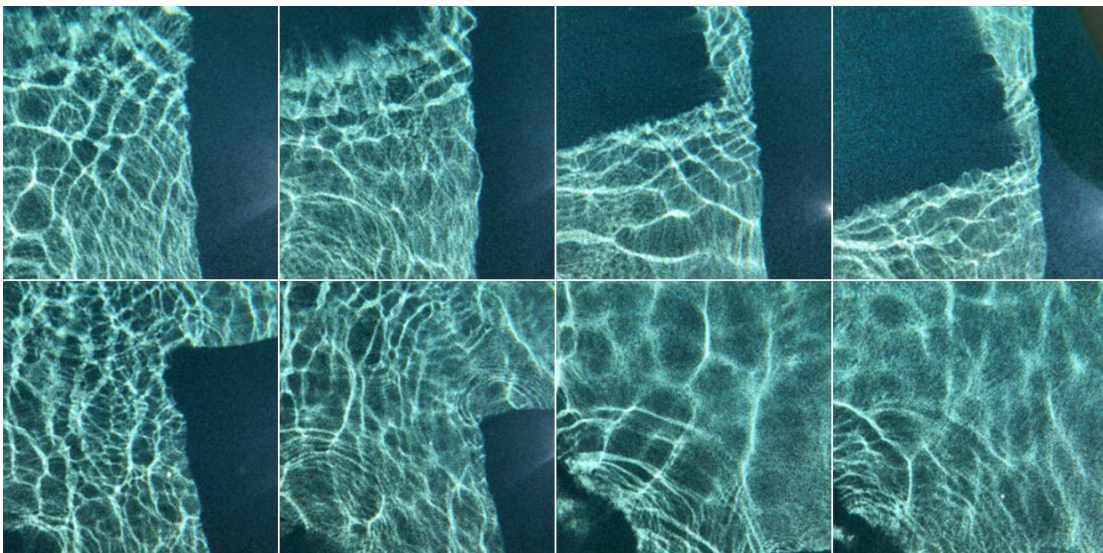


Fig. 1.1. Pictures taken while swimming of the light patterns (diffracted through superpositions) on the bottom of my parents’ pool. The larger shadows are floats. Each image represents an agential cut made as I took a picture that “captures” a unique diffraction pattern that only “existed” in that moment.

⁴⁴ It is worth reminding us here that, as Jackson and Mazzei point out, “discourse is not literally what is said. Discourse is what enables and constrains what can be said. It is through discursive practices that we define what counts as meaningful statements. Only those statements deemed meaningful circulate in fields of discourse to produce constitutions of reality” (*Thinking with Theory* 115).

In fig. 1.1, we can see a documented series (agential cuts made by me that leave us with *this* record of the phenomenon instead of another) of such waves/superpositions in the images taken one after another as I swam in my parents' pool. I, and many other "things," were the pebbles in this "pond," and we made waves that continually interfered and diffracted, moved throughout the pool, moving out from us, crossing where others went, hitting the pool walls and doubling back already changed, carrying change within them, crossing again and again to emerge differently in a number of times and possibilities that boggles the human, linear-thinking mind. None of those waves ever "left" the pool but were continually enfolded back in and diffracted back out as past, present, future constitute each other.

In fig. 1.1, we see agential cuts (images) that document eight particular moments where waves in the water continually intra-acted (diffracted) to create unique, unrepeatable, emergent becomings/beings/meanings/patterns. Such waves/superpositions are the *effect* of the intra-action within a phenomenon, a myriad of actants pictured (the water, the shadows, the bottom of the pool and its texture chosen by my parents long ago over other possible options), not pictured but within the (walled) boundaries of "the pool" (me, the fountain and jets circulating water, the actual floats making shadows, the leaves in other parts of the water, my niece's toy fish knocking into the tiled sides of the pool over and over, the tiled sides of the pool also chosen by my parents long ago over other possible options), and not pictured and outside the (walled) boundaries of "the pool" (the breeze, the sun itself in a cloudless sky, the wasp that occasionally skimmed the water over by the fountain, the pool equipment I could hear humming and that keeps the pool and fountain running, my phone/camera). The waves, then, are "pool-as-phenomenon" or at least tell us the story of its intra-action.

Yet the patterns we “see” here *aren’t* the “waves”—or the water—itsself but a diffraction pattern of light shining through it. In shifting from thinking of the actual waves as physical superpositions/diffractions to considering the *light* patterns produced in these images, “the pool”—the phenomenon incompletely listed above—becomes an *apparatus*, much like the diffraction gratings in Bohr’s light paradox that don’t just observe light but, in intra-acting with it, either produce light-as-particle or light-as-wave. Here, light was diffracted *through* pool-as-phenomenon whose unique gathering together (structure, curation) of actants that intra-acted to “make waves” mattered—what was and wasn’t intra-acting made those particular waves those particular moments. And so, while pool-as-phenomenon (waves created through intra-action) *is* a diffraction, we also “see” a diffraction pattern—the patterning of effects, not the listing of discrete relata (as in the incomplete list of actants above). To see “the pool” this way—as phenomenon, not as a list of discrete and “different” things/people/animals, etc.—is to recognize that both what is and isn’t involved in the intra-action all contributes to the becoming/meaning/pattern/being/phenomenon. To reconfigure the list is to “reconfigure what is possible and what is impossible—possibilities do not sit still” (Barad Meeting 234).

To reconfigure is to change the possibilities for diffraction and, ultimately, create the particular pattern that emerges. Indeed, the floats not sitting still in the images (seen in their shadows moving through the frames) configured and reconfigured new diffraction gratings (apparatuses) within the phenomenon (the larger pool-apparatus) as they moved across the water and funneled water between them in new ways that produced new waves and, therefore, a *different pool-as-phenomenon* for light to diffract through. And yet it was the *water’s waves*—what was produced by the floats’ movement—that (with a slight breeze—also making waves) moved the floats. The apparatus (floats-as-diffraction-grating) both configured (the waves) and

was reconfigured (by the waves) in a continual flow of agency that can't, as Barad says, "run out" and that, "not restricted to the possibilities for human action" is "*crucially* ... a matter of intra-acting ... an enactment" (*Meeting* 235)(emphasis original).

What we are "reading" in the (pictured) pattern as *the* pool is a materialization (iterative intra-action) of pool-as-phenomenon (a continually reconfigured and reconfiguring intra-action of human and nonhuman). And the story told by the images—the differential "pooling" of each frame—above is *discontinuous*⁴⁵ and *indeterminate* because of my observation (making agential cuts that produced boundaries—time, space, and matter emerging *together*). The moment I intra-act and entangle myself (and any apparatuses I use) in the phenomenon, it is no longer possible to "unambiguously" know what "pool" is outside that observation (which is its own phenomenon). It can be theorized or calculated from my pictures, or discontinuous observations (as in certain kinds of quantum experiments that led Bohr to his theory of quantum discontinuity), but the classic idea of objectively measurable change as "continuous transformation" through linear time and neutral space can no longer apply (*Meeting* 179). What we see as change in these images is, instead, the "iterative differentiatings of

⁴⁵ These concepts and the experiments that led to them subverted Newtonian assumptions: "classical physics is premised on the assumption that observation interactions are continuous and determinable. Quantum theory is based on the fact that interactions are discontinuous and indeterminable" (Barad, "Feminist" 52). For instance, an experiment to measure the momentum of an object, must be set up in a fixed way—so that pictures can be taken—and in a darkroom because light has its own velocity and will "disturb" the object when it's shone on it, altering the velocity it would have had if we were not setting up an experiment that had to take a picture (shine light on the object) twice: at the beginning and end positions. From a classic physics standpoint that assumes a separate, objective world observed in a continuous and determinable way, students can express the "uncertainty principle" as "the very act of observation disturbs the way the object would have been had it not been observed" (Barad, "Feminist" 47). Bohr problematizes this by stressing the fact that this experiment can't be done continuously and produces not just a closely calculated determination but an abstraction "from which no unambiguous information concerning the previous or future behavior of the individual can be obtained" (Bohr as cited in Barad "Feminist" 50). The very fact that the observation is discontinuous, that it is clearly constructed and that we as the observers have to choose to construct it one way over another (using *another* approach produces results that are mutually exclusive from *this* approach) means that this isn't about "disturbing" a clearly bounded object that is altered by that observation, but about constructing and negotiating boundaries between ourselves and the object via chosen and constructed apparatuses. There is, from a quantum view, nothing to disturb as there aren't any "Cartesian cuts" (Barad, "Feminist" 52) and "no sharp separations can be made between an independent behavior of the objects and their interaction with the measuring instruments which define the reference frame" (Bohr as cited in Barad "Feminist" 52).

spacetimemattering” (179) where *spacetimemattering* is the continual, entangled, enfolding, becoming of the world (space↔time↔matter) and where the differentiations emerge *through* the agential cut/apparatus, thereby reconfigured by (and reconfiguring) it.

Considering this understanding that, as Barad says, “space, time, and matter are intra-actively produced in the ongoing differential articulation of the world” (*Meeting* 234), dynamics (change) are no longer *causality* (impact as cause and effect) but are instead *performativity* (mattering as iterative intra-activity) (*Meeting*). And the apparatuses through which we intra-act with this continually enfolding/becoming/emerging *spacetimemattering*, make it intelligible to us, but not without *making a difference*, without marking, without *producing* space, time, and matter *with* us in an *agential reality* that was not possible without that particularly configured apparatus (or intra-acting apparatuses) that includes humans and nonhumans alike. An apparatus⁴⁶, then, like a diffraction grating in the light paradox (diffraction apparatus) or like “the pool” diffracting water, in agential realism, is not an “objective” tool like a microscope when used as (and assumed) a “passive” or “inert” tool in Newtonian scientific observation. They “*are* open-ended practices” and they “*are constituted through* open ended practices that are perpetually open to rearrangements, rearticulations, and other reworkings” (*Meeting* 170)(my

⁴⁶ In her application of agential realism to an account of a jute mill, Barad emphasizes that “the apparatuses of production are themselves produced and iteratively reworked, as is the nature of production itself. Agential realism disassembles the notion that structures are Althusserian apparatuses—rigidified social formations of power that foreclose agency and deterministically produce subjects of ideological formations. On the contrary, structures are to be understood as material-discursive phenomena that are iteratively (re)produced and (re)configured through ongoing material-discursive intra-actions” (*Meeting* 240). The same can be said of classrooms, especially considering the link between their design and factory efficiency models (Davidson). She also diffracts Bohr through Foucault to argue that though Foucault’s apparatuses of observation (i.e., the panopticon) theorize “the materialization of human bodies, he seems to take nonhuman bodies as naturally given objects ... [and] does not ... concern himself with boundary-drawing practices through which the division between human and nonhuman is constituted” (*Meeting* 204). Using a sonogram, which in diffracting sound waves through the body and in being used by a doctor both “observes” *and* produces the “object” fetus *with* the fetus, she updates the panopticon for this century of “technobiopower” (Haraway *Modest*) practices and the entanglement of human and nonhuman in agential realism: “producing a ‘good’ ultrasound image is not as simple as snapping a picture, neither is reading one ... the transducer does not allow us to peer innocently at the fetus, nor does it simply offer constraints on what we can see; rather, it helps produce and is part of the body it images” (*Meeting* 202).

emphasis). An apparatus in agential realism is itself a material↔discursive phenomenon of human and nonhuman actants which enacts agential (as opposed to Cartesian) cuts that differentiate one part of the world so that it becomes intelligible to another. Such cuts are always negotiated, always situated, and never the stable, objective, impermeable boundaries humanism encloses subjects, objects, and “objective” observations in. For Barad, an apparatus “cuts together-apart” (“Diffracting”) and, by this very act of including and excluding (determining what *matters*) we are entangled in the apparatuses we build to help us understand the world. And, therefore, we are *responsible* for such choices just as we don’t make them alone but with the world—both human and nonhuman alike. *Objectivity* becomes taking that responsibility instead of assuming it doesn’t exist.

When I use the term “(the) classroom,” then, throughout this project, I am referring to classroom-as-phenomenon, to the unique, unrepeatable articulation of space, time, and matter together (spacetimemattering) through a particular but varied (and variable) human and nonhuman assemblage. As *spacetimemattering*, spaces, times, and matter not “in the room, during class” are also enfolded into the classroom-as-phenomenon. Past, present, and future administrative and pedagogical assumptions, choices, uses, and structures are sedimented out in the furniture, technology, and other features of the room. Human actants “bring with them” the material-discursive apparatuses entangled with their emergent subjectivities (not autonomous-Is, or constructed positions, but continual becomings-with the world), including times, spaces, and matterings not “present” in the room during class⁴⁷. In applying agential realism to the accounts (Fernandes) of operations of a jute mill, Barad argues:

The intra-action of these material-discursive apparatuses, which includes the practices of the workers as well as the managers, produces a space or structure

⁴⁷ We’ll see this in my students’ Semester Stories discussed in Chapter IV.

specifically marked by the topological enfolding of gender, community, and class. In other words, the spatiality of the mill is produced through the dynamics of intra-activity and the reconfiguring and enfolding of structural relations. (*Meeting* 238).

Similarly, along with space, time, and the other nonhuman actants in the phenomenon, in the classroom “economic practices ... [and] social matters (such as gender and community identity)” are all material↔discursive apparatuses in the “production” of meaning with and through the emergent subjects “produced” (*Barad, Meeting* 238).

In other words, my use of the word “classroom” includes the entire range of apparatuses *and* actants⁴⁸—both in the pool and out of the pool—that, as material↔discursive phenomena of their own both configure and reconfigure that spacetime-mattering through continual intra-action. Students, furniture, gender, texts, activities, race, supplies, discussion boards, class, bugs, last semester’s grades, laptops, Blackboard, teacher, food/beverages, illness, fear, whiteboards, assignments, acoustic tiles, the evil writing teacher from Sally’s past, problems at home, a door that won’t prop open...the list goes on and is unique to each classroom. The classroom-as-phenomenon, then, is not *just* the discrete, walled-in pool our parents built years ago with inherited designs, structures, and features we can’t change, but *also* dynamic, entangled intra-actions of humans and nonhumans in which the inclusion or exclusion of different actants, different intra-actions, different apparatuses can *make* a difference.

I say also, because, like in Bohr’s light paradox, the classroom (as I conceive of it here) is not a stable entity (light) with objective characteristics—particle or wave—but a phenomenon with the possibility of being both (or more)—light-as-wave, light-as-particle—depending on the apparatuses used to approach/create (diffract) it. Classroom-as-humanist, classroom-as-

⁴⁸ They can also be both.

posthumanist. Classroom-as-anywhere, classroom-as-elsewhere. Same classroom, different assumptions. Different intra-actions, different possibilities.

These are not in binary opposition and exist within the possibilities of each other; in fact, it's all about possibilities. As Barad says, "agency is the space of possibilities" which can be "opened up" depending on what's included and excluded:

But not everything is possible at every moment. Interior and exterior, past, present, and future, are iteratively enfolded and reworked, but never eliminated (and never fixed). Intra-actions reconfigure the possibilities for change ... [they] not only reconfigure what is spacetime-matter but reconfigure what is possible. Ethicality is part of the fabric of the world; the call to respond and be responsible is part of what is. There is no spatial-temporal domain that is excluded from the ethicality of what matters. Questions of responsibility and accountability present themselves with every possibility; each moment is alive with different possibilities for the world's becoming and different reconfigurings of what may yet be possible. (*Meeting* 182)

Curating↔calibrating a classroom (a phenomenon, a spacetime-mattering, an elsewhere) is about responding *to* the questions of responsibility and accountability that each individual, unique, unrepeatable combination of room, schedule, subject, students, furniture, procedures, structures, and so on presents. Instead of planning everything before the semester, it means curating↔calibrating with/from the phenomenon. It means speculating, but always, in response to each classroom and in resistance to the humanist structures/narratives always already in that phenomenon. In curating↔calibrating, such a response comes through *also* considering classroom-as-phenomenon as *apparatus*, like the pool was, and using strategies like pedagogical

documentation (the one used in this project and discussed in Chapter IV) to purposefully and continually “observe” the diffraction patterns the phenomenon creates in order to curate↔calibrate for particular patterns (possibilities) that are *different* than the ones already sedimented into the room. Much like the series of pictures of the pool, part of curation↔calibration is building an archive of the class for the class—artifacts and reflections that can later be diffracted to help *drive* the curation↔calibration of the class or literally be curated back into the class for further intra-action.

The term “curation↔calibration, curate↔calibrate, curated↔calibrated” then works on multiple levels and, though I use it here and throughout this dissertation, was developed through the process/experience of applying agential realism to two English literature courses (as discussed in Chapter IV). Having read Barad and other theorists who used her theories, it took the *doing* of agential realism (or the attempt) and the purposeful observation of the resulting phenomena to better understand Barad’s points above in their application to the classroom and what they meant for things like “planning” and “doing diffraction.”

On their own, neither curate nor calibrate are uncomplicated terms.

“Curate” has a long history tangled in the noun for a parish priest and the verb describing what a “curator” does: oversee, care for, exhibit, catalog, maintain, preserve, display—the list goes on—collections (e.g. art, books, dinosaur bones, etc.). With those entwined definitions in mind, it’s currently been appropriated in retail, social media, the music industry and more to denote the purposeful gathering together (and often remixing) of clothing, interior design, images, tracks, and more (Williams “On the Tip”). With the significant increase in our production of data, “data curation⁴⁹” has become a conversation within (and beyond) the (digital)

⁴⁹ As Munoz and Renear put it: “Data curation addresses the challenge of maintaining digital information that is produced in the course of research in a manner that preserves its meaning and usefulness as a potential input for

humanities which applies museum/library archival and curation techniques to the preservation, searchability, and, therefore, redeployment of digital data. More broadly in the Digital Humanities, the term is used to calibrate research and teaching to our digital age, “The Digital Humanities Manifesto 2.0” claims that “the Digital Humanities revolution ... recasts the scholar as curator and the curator as scholar”

Curation in the Digital Humanities	
<ul style="list-style-type: none"> • Archive as “a place of teaching and hands-on-learning” • Classroom as “a place of hands on engagement with the material remains of the past” • Learning process includes “the tasks of processing, annotating, and sequencing” • Local knowledge “embraced” for its “tactility and mutability” • Is “modest” in that it never assumes or insists “on an ever more impossible mastery of the all” • Arguments are “through objects as well as word, images, and sounds” • Space is “physical, virtual, or both” which allows for a “fundamentally different” spacialization of “critical and narrative tasks” not done in “language alone” • Engagement in “collecting, assembling, sifting, structuring, and interpreting corpora” • As a medium has “its own distinctive language, skill sets, and complexities” • With the past, “implies custodial responsibilities” • With the present and future, implies “interpretive, meaning-making responsibilities • With our “world of data overload,” “implies information design and selectivity: the channeling, filtering, and organization into intelligible and useable information” • With “new or long ignored corpora,” implies “digging up” the huge quantities of the stored and unused or the undiscovered outside collections 	
<p>Table 1.1. Curation as a practice of the digital humanities. List compiled from “The Digital Humanities Manifesto 2.0”: humanitiesblast.com/manifesto/Manifesto_V2.pdf</p>	

In the Digital Humanities’ list of characteristics and uses of curate/curation in table 1.1, we can see the reworking of the older meanings, or, rather, the word itself used as apparatus, to

further research ... Curation encompasses gathering material, making it discoverable by describing and organizing it, placing it in a context of related information, supporting its use for diverse intellectual purposes, and ensuring its long-term survival. Curatorial practices form part of many humanities research practices, and the digital humanities community, in particular, already possesses sophisticated experience with preserving access to digital scholarship. Given the scope of activities required, curation may be performed by tenure-track scholars, alternative academics, librarians, software developers, students both undergraduate and graduate, as well as interested members of the public.”

recalibrate teaching and learning as acts that are situated, hands-on, creative, material and virtual, spatialized, and through time. It maintains the sense of care for what it works with but combined with a skepticism for ever “getting it right” that’s more in line with our postmodernist and posthumanist thinking than the original curate might have displayed with his parish. Along with the cultural connotations of remixing through juxtaposition (gathering together) and creative acts that are what’s absent as well as present, my use of curate/curation falls in line with the digital humanities’ and popular usages threaded through the originals, particularly in the idea of assembling and caring for a collection or archive.

I use the word calibration as Barad does in her explanation of how she uses posthumanism in *Meeting the Universe Halfway*:

posthumanism, as I intend it here, is not *calibrated* to the human; on the contrary, it is about taking issue with human exceptionalism while being accountable for the role we play in the differential constitution and differential positioning of the human among other creatures (both living and nonliving). (*Meeting* 136)(my emphasis)

Calibration then, is not “to standardize” (posthumanism is varied and fluid itself, a moving target) but about adjusting continually and “precisely for a particular function” (*Merriam-Webster*). For instance, if posthumanism is a moving target (as we’ll see in the next chapter), then it matters “what” posthumanism I’m working with or “calibrated to” or “for” as I work to open up “posthumanist” possibilities in a humanist education system. Currently my posthumanism is calibrated to agential realism, and I use agential realism to calibrate my posthumanism. This will likely change or evolve the more I read, experience, and teach with the

goal of teaching elsewhere. Each reading calibrates me even as I use it (or not) to calibrate the classroom.

Together, the terms take on a more specific meaning for a posthumanist—fluid and flexible—*doing* of teaching and observation. Though curating still means pulling from a vast, virtual and physical archive of curriculums, strategies, texts, people, places, objects, and so on, it's not just to create a certain aesthetic (Sirc) or experience but to *make a difference*—or calibrate. As a form of teaching-as-inquiry, it isn't about “research” to produce generalizable results but “the call to respond and be responsible,” to curate↔calibrate apparatuses and strategies to help us *notice more* of “the questions of responsibility and accountability [that] present themselves with every possibility” (*Meeting* 182) and, thereby, curate↔calibrate apparatuses and strategies to help the classroom answer them *together*.

Curate↔calibrate or curation↔calibration, then, is something of a Mobius strip (Fausto-Sterling, Grosz). I curate to calibrate my praxis or the classroom (entangled as well) to/for posthumanism (to open up possibilities of an elsewhere built on its onto-epistemological assumptions) and I calibrate my curation (or curate) when the phenomenon (always already sedimented with humanist habits and structures) reconfigures our apparatuses to create and close down possibilities of their own. It is both an apparatus and a pedagogical praxis that runs on the purposeful and sustained (and calibrated) observation (teaching↔as↔inquiry) of the classroom (as defined in this project) with the *intention* of opening up more ethical possibilities through intra-action. It's a *doing* that creates the possibility for intervention—for change, for *making a difference*—immediately in the classrooms we are given with the students entrusted to our care who are not static subjects but continually becoming-with the world (and classroom). It resists classroom-as-*anywhere* by curating to calibrate *to/for* and calibrating by curating *of* classroom-

as-elsewhere. It marks us back. It decenters the teacher, then, not literally (her “expertise” is part of her own phenomenon as well as its intra-action with the classroom-as-phenomenon), but in that, because it *is* teaching↔as↔inquiry (requires active observation in order to create↔adjust), it curates *from* the phenomenon—both using literal artifacts from the classroom (including students’ observations) and in responding to the questions the classroom asks. It is an ethical stance, one made possible by the continual movement of curating for the purpose of calibrating based on the intra-actions of the classroom itself, in other words, through the sustained practice of observation and adjustment based on that inquiry. In Chapter IV, I’ll argue specifically that pedagogical documentation, as used by Hillevi Lenz Taguchi in her development of an intra-active pedagogy, is a productive strategy for keeping curation↔calibration going as we try to create more posthumanist possibilities than humanist. Such movement is necessary because, as Carol A. Taylor⁵⁰ argues:

as soon as we express the desire to ‘overcome humanism,’ we very quickly realize how utterly entwined we are within humanism’s affordances and problematics, as feminists and post-structuralists already know. Any dis-entangling, therefore, has to be *a continuing and incisive critical practice*, not one done easily or ‘once and for all.’ (“Edu-Crafting” 9)(my emphasis)

Stories of Nowhere, Anywhere, and Elsewhere

Since I’m an English teacher, my metaphors of choice is stories. And so, while all of the above comes from quantum physics, I diffract it back through what I teach—the making,

⁵⁰ Taylor is a leading voice in using posthumanism, specifically material feminisms, in educational research and is co-editor of both *Material Feminisms: New Directions for Education* (2013/2016) and *Posthuman Research Practices in Education* (2016).

telling, intra-acting with of stories—much as Barad and Haraway (who I pull from here) used fiction, stories, and language with their own work.

In *Primate Visions*, Haraway critiques Western origin stories that she saw as creating primatology *with* the scientists who, working from humanism, “transformed salvation history into natural history, and then constructed biology and anthropology on its stage” (*Primate Visions* 288). Considering the very real, material differences this construction of primatology as “objective science” made (and she maps) in how we understand primates (particularly in relation to ourselves), stories, she argues:

are material practices; boundary conditions are not just structuralist fantasies, but potent aspects of daily life. Discourses are not only social products, they have fundamental social effects. They are modes of power. The life and human sciences are powerful actors in an age of bio-politics, in which the management of the efficiencies of bodies is a major constructive practice ... To contest for origin stories is a form of social action. (*Primate Visions* 289).

Indeed, as apparatuses, stories intra-act with us to create reality, making critical differences in the possibilities available within phenomena. A large part of the work posthumanism can do in education (and in general) is “contest for origin stories,” to disrupt the humanist (classical, Judeo-Christian, and Enlightenment⁵¹) narratives of civilization, salvation, victory, return, and recuperation (all based on fallen Man, linear time/continuous change, and a world-as-stage for such dramas) that pattern educational methods, progress, and reform as we’ll see mapped in the next chapter.

As we saw earlier, in developing diffraction, Haraway began telling a *different* story, one of a “science fictional, speculative factual, SF place called, simply, elsewhere” (“Promises” 295).

⁵¹ This list comes from working with Haraway, Snaza, and Spanos as seen in Chapter II.

A place *made* of diffraction patterns that, in mapping the effects of difference, “trains us to more subtle vision”

If Western patriarchal narratives have told that the physical body issued from the first birth, while man was the product of the heliotropic second birth, perhaps a differential, diffracted feminist allegory might have the ‘inappropriate/d others emerge from a third birth into an SF world called elsewhere—a place composed from interference patterns. (“Promises” 300)

Essentially, this is what curation↔calibration is about, training ourselves as teachers to a more subtle vision, one that, even in the middle of treading water looks down to see the diffraction patterns being made on the bottom of the pool and that wonders whether bringing in a different float might make something *else*, something better *for that* pool *possible*. Such a vision also decides to make such inquiry intentional and continual—with an iPhone or some other way—and documents such intra-actions in an archive that can be intra-acted with. Such an archive can be used for studying such change—discontinuous and indeterminate as it is—between frames and work to answer questions of responsibility and accountability such differentiating patterns present.

Diffracting Haraway’s “elsewhere” through the corresponding words “nowhere” and “anywhere” along with Bohr’s light paradox, I see a posthumanist classroom as an *elsewhere*. We can create such possibilities—elsewheres—even now while humanist education keeps us stuck in its nostalgia for Edenic classrooms of the past (*nowhere*) and assumes that autonomous-I students learn depositable truths in neutral, inert spaces (*anywhere*). All of these options (and more) are possible in the combination of structures (time/space) and students assigned to us each semester. The rooms are built to be anywhere and policies are set to return us to nowhere, but we

can create/build/reconfigure diffraction gratings or apparatuses (curations of texts, objects, people, concepts, activities, furniture, technology, etc.) that diffract or intra-act with each unique, unrepeatable classroom to teach/learn *elsewhere*.

Elsewhere, then, is a classroom-as-phenomenon made of diffraction patterns, a spacetime-mattering where we (all) can make a difference, a speculative, intra-active, dynamic, entangled, emergent becoming-with and knowing-in-being where ethics comes from questions and answers posed and negotiated within the classroom instead of imposed on it from outside. It's a question of possibilities. In the light paradox, one diffraction apparatus produces the phenomenon light-as-particle, another type of diffraction apparatus produces light-as-wave. Particle, wave. Humanist, posthumanist. Anywhere, elsewhere. As Mirtz argues:

we often see the classroom as a contested space, but we are usually speaking of the abstract space of the classroom in our heads, not the physical location that creates, promotes, and resists that mental space ... the physical space of the classroom is more than a metaphor for the mental space of teaching and learning.

(27)

Agential realism and the story of that physical space creating elsewhere *with* us offers us the opportunity to resist humanist structures and narratives that reduce students to “not quite human” in order to humanize them via education (as we'll see in the next chapter). It isn't easy: “The imposed design wears us down ... every class hour, we struggle to convert a ... classroom setting designed for a lecture into something flexible, fluid, and interesting” (Mirtz 22). And as we'll see in Chapter IV, using strategies like pedagogical documentation and diffraction in order to push back against such design (only one structure to contend with) takes time that, already weighed down with administrative duties and other tasks, we don't always have to give. But by

incorporating such inquiry into the actual class design process and doing *something* instead of trying to do *everything*, it's possible to make even small calibrations for *more* posthumanist possibilities.

This project, then, isn't about what a classroom *should* be—if we had the ears of the policy makers and could get administrators to build us sole-purpose classrooms connected to the outdoors and with comfortable seating (or standing) for all. I started out thinking I should (and could) “make” a classroom (via curriculum or moving spaces) posthuman—like a Ms. Frizzle⁵² with her magic school bus that puts her students back into a wide and vibrant and lively world (Cole). By the time I'd finished teaching the classes discussed in Chapter IV and diffracting that experience back through these concepts and the theory and fiction of Chapters II and III, I'd developed curate↔calibrate as a way to help me “stay with the trouble” (Haraway *Staying*) instead, to not fall into the trap of Edenic narratives trying to get us “back to” a “fully” posthumanist world—also a nowhere, and to instead “work the ruins” of the anywheres I'm assigned. Curation↔calibration, then, has become a praxis *and* apparatus to help me build an elsewhere *with* my students where things are far from perfect or utopic, but *different* possibilities are available for what we might do. In the meantime, we continue to speculate, theorize, and do otherwise. And we share more of our doings-now so that we can work together toward making those ears listen to the story, toward sending out enough diffraction waves to interfere.

⁵² In *The Magic School Bus* children's book series (Cole), the teacher, Ms. Frizzle, uses a “magic” school bus to transport her elementary school students through time and space to, for instance, see and learn about the dinosaurs in their native habitats.

Chapter II

Mapping the Cacophony

“Influenced by the civil rights movement of the 1960s, post-structuralism’s linguistic turn, and the emancipation of the human subject via critical theory, the contemporary landscape of educational thought nevertheless remains captivated by an anthropocentric image as the fundamental basis for its methodological and pedagogical developments.”

—Jason J. Wallin

“One Hundred Trillion Anomals Take the Stand” (11)

“Revolutions don’t wait for legislation. Education doesn’t happen in the committee rooms of the legislatures or in the rhetoric of politicians. It’s what goes on between learners and teachers in actual school. If you’re a teacher, for your students you are the system ... If you’re involved in education in any way you have three options: you can make changes within the system, you can press for changes to the system, or you can take initiatives outside the system.”

—Ken Robinson

Creative Schools: The Grassroots Revolution That’s Transforming Education (xxv)

Why shouldn’t education, as Wallin says above, be “captivated by an anthropocentric image”? When thought of as the business of humans teaching humans, such captivation doesn’t seem like a problem. But in working from ontological and epistemological assumptions that dissolve the human/nonhuman binary and radically rethink our relation with the world, posthumanism argues that no human “business” is done *outside* of that world and that thinking otherwise has allowed us to justify violences against it and each other.

In order to show that remaining captivated is a problem and to argue instead for working from a posthumanist praxis that sees us entangled with the nonhuman world, this chapter critiques current popular arguments for change in education that, despite progressive and creative messages, still depend on humanist stories of return and victory that rely on that split. Using Nathan Snaza’s mapping of educational humanism’s foundational move of dehumanizing students in order to justify the “business” of humanizing them (education), I also curate in

critical and progressive voices who have been telling us for decades the violences done to themselves and others via such education. Such stories and critiques continue to diffract through educational conversations and demand that we keep pushing for change, which policy (while evolving in some ways) has yet to fully enact. In looking at the posthumanist conversation so far for ways to enact such change in our classrooms, I diffract William Spanos' work theorizing a posthumanist education through Annette and Noel Gough's to show the importance of working from (calibrating to) a position that questions the human/nonhuman binary instead of staying comfortably within that anthropocentrism. Ending with a brief sampling of the current conversation applying posthumanist theory to education, this chapter diffracts back through this "cacophony and complexity of voices" (Hughes and Taylor 1) and argues that the posthumanist conversation is varied and messy but that its deconstruction of the human/nonhuman binary and the humanist narratives that binary enables is necessary to disrupting the anthropocentric image that has driven educational methods for so long.

Oscillations and Nostalgia

In *The New Education: How to Revolutionize the University to Prepare Students for a World in Flux*, Cathy N. Davidson argues that our current higher educational model is an antiquated relic of the Industrial Revolution and inadequate to the needs of students who don't even remember the pre-Internet society in which the current systems of education were developed:

In a world of such complexity—no human or collection of humans can begin to predict or parse the data our devices generate in a nanosecond—we're still going to school the way we did in 1993, which is to say, pretty much as we did in 1893. What would it mean to redesign higher education for the intellectual space travel

students need to thrive in the world we live in now? What would it mean to reorient educational paradigms that, at present, overly standardize test, diagnose (from disability to giftedness and all points in between), specialize, and discipline students in one-way transmission models inspired by the hierarchy of the factory and the assembly line, not the interactive Internet? (Davidson 6-7)

As we saw in the last chapter, her critique is in line with feminist and poststructuralist's critiques as well as Barad's particular critique of the transmission model in her call for an agential literacy. It's not a stretch, after all, to compare classrooms to a shop floor (as in Barad's analysis of the jute mill) when many of the structures (physical and ideological) we still teach in were designed with Taylorism's factory efficiency theories in mind (Davidson). Despite movements and books and articles and even data—the system's own language—asking these same sorts of questions and pushing for a new—equitable, ethical, critical—approach to American higher education, pedagogy, and even educational research, here Davidson is, in 2017, pushing for the same sort of active-learning, student-centered models that countless educators have championed for, pretty much, as long as we've had higher education.

In fact, just two years before in *Creative Schools: The Grassroots Revolution That's Transforming Education* (2015), Ken Robinson outlines his own arguments for a more organic education while pointing out that he (just like Davidson) isn't the first to try to solve such problems. His particular concept of “personalizing” education, he explains:

is nothing new. Its roots are deep in the history of education. In the seventeenth century John Locke advocated the simultaneous education of the body, character, and mind—in other words the whole person ... Jean-Jacques Rousseau, Johan Heinrich Pestalozzi, John Dewey, Michael Duane, Kurt Hahn, Jiddu

Krishnamutri, Dorothy Heathcote, Jean Piaget, Maria Montessori, Lev Vygotsky, Sir Alec Clegg, Noam Chomsky, and many more. These various approaches don't add up to a single school of thought or practice. What they have in common is a passion for forming education around how children learn and of what they need to learn to form themselves (254).

They are, in other words—along with Robinson himself, Davidson, and many others we'll talk about in this chapter—often “grouped together under the general banner of ‘progressive education’” (Robinson 255). While they all work for different goals using different paradigms and perspectives, these progressive educational movements are, Robinson notes, often set up by critics as “the polar opposite of ‘traditional education’” in “a damaging *misconception* that tends toward many false dichotomies” (255)(my emphasis). Robinson argues that the movement back and forth between this binary of traditional and progressive education has defined “the history of education policy,” the “latest swing” culminating in the standards movement (256). In other words, here is a lengthy list of educators who've led these progressive education revolutions going back as far as the seventeenth century (in Robinson's account), yet here he is in the twenty-first century still trying to achieve similar goals (albeit in newish ways). The *misconception* as Robinson paints it is not the binary structure. To him, the poles are necessary: “Effective education is always *a balance* between rigor and freedom, tradition and innovation, the individual and the group, theory and practice, the inner world and the outer world” (Robinson 256)(my emphasis). Robinson, then, sees the *extreme swings*, what he calls “*oscillation*” as the problem. Because of this oscillation, progressive or critical pedagogy strides, despite these critiques and movements, only seem to stick, as Robinson puts it, “in limited ways—throughout the history of education—in public schools, in whole districts, in experimental and laboratory

schools, in deprived urban areas, in bucolic private schools” (256). Or they don’t stick for America and the majority of countries who engage with similar, Western humanist education models, across a whole system, whether at the state or national level.

While such movement could be called “oscillation” as Robinson argues, it isn’t, to me, a benign consequence of the need for *balance* in education, for a binary system to be put back into proper working order. Instead, as we map progressive moments and their legacies throughout this chapter, a troubling pattern emerges: progressive movements “make strides,” stick in local ways, but are shut down by “back-to-basics” rhetoric (or fear) before they spread *too* much. Or they are absorbed into more mainstream, comfortable, “traditional” (Western, humanist) models. Or they are dismissed out-right as mysticism or touchy-feely or overly-emotional or creative. Working from a liberal and human rights model, Robinson’s metaphor of oscillation (particularly in regards to the binary of tradition and progress) obscures this pattern, disregarding the ontological and epistemological discrepancies/struggles in such an “imbalance” and reducing irreconcilable differences in understandings of both our being and knowing to the “natural”—if not effective—business of a monolithic system/structure over time.

In depicting education as a binary system simply out of balance then (i.e. in not critiquing a two-pole structure), Robinson’s oscillation metaphor becomes another version of a “return” narrative, Western and classical origin⁵³ genres entangled with humanism and structured through binaries that posit a true, pure, original pole (e.g. Eden or Reality) in direct opposition to a false, fallen, secondary/temporary pole (e.g. Wilderness or Cave). Shadows, sin, life itself, etc. pull us toward that secondary pole while we strive to get back to where things are pure, right, correct, true, great, common-sense, logical, *real* and so on. In such a narrative, Robinson’s own

⁵³ For example, as Haraway puts it, “the origin stories told by the Judeo-Christian segment of the ‘peoples of the Book.’ These patriarchal, monotheistic children of the father-God learned to read the Book of Nature written in the ciphers of number in the founding times of the Scientific Revolution” (*Primate Visions* 288).

arguments for creative schools and an organic, personalized education will likely become—if it’s successful—the latest progressive swing that will lose its momentum when resources and policy pull education back to the traditional (“correct”) pole.

In *Lives on the Boundary: The Struggles and Achievements of America’s Underprepared* (1989), Mike Rose hits on one of the larger inherent problems to such narratives of “return,” a fear-driven nostalgia:

We figure that things were once different, that we’ve lost something, that somehow a virulent intellectual blight has spread among us. So we look to a past—one that never existed—for the effective, no-nonsense pedagogy we assume that past must have had. We half find and half create a curriculum and deploy it in a way that blinds us to the true difficulties and inequities in the ways we educate our children. Our purpose, finally, is to root out disease—and, too often, to punish. We write reductive prescriptions for excellence—that seductive, sentimental buzzword—and we are doing it in the late eighties with a flourish. (7-8)

Almost three decades later, the flourish hasn’t died down. Such (fear) nostalgia still influences policy and administrative decisions, particularly through the current American executive branch’s administrative mandate to “Make America Great Again.” Yet Rose is right. Such a past and the perfect, no-nonsense classrooms that existed within it never existed. They exist only in the same constructed stories based in the nature/culture, human/nonhuman binaries and so entangled with science as to seem commonsense. These are the same stories that Haraway’s work with the cyborg and primatology, companion species and now kin (along with countless other voices using vampires, zombies, monsters, and other hybrid creatures and entangled

relationships) has long challenged (and, many believe, “ruined”). Such policy decisions are made using science but entangled with stories of *classrooms-as-nowhere*, stories of Edens that never were and can’t be returned to.

Positioned as voices for common sense, advocates for return, and keepers of the “truth” (the nuts and bolts of “what works”), traditionalists employ this brand of nostalgia (similar to the desire driving narratives of returning to Eden or exiting the Matrix) to swing the pendulum back their way (e.g. back-to-basics movements). As Rose points out, it’s “worthy of reflection ... that our policy is driven so often by a yearning for a mythic past or by apples-and-oranges comparisons to countries, past or present, less diverse and less educationally accessible than ours” (7). As the posts have long argued in the face of Enlightenment and modernist understandings of both history and culture, whatever our educational problems are *now*, they are *unique* to our socio-historical moment. Even as such problems and potential solutions exist within a sedimentation of both progress in some areas and return in others, all current moments of *both* progress and return will still have to work within the difficulties/realities of our particular, neoliberal and globalized era.

In the face of those who resist change by clinging to a nostalgia for education as it’s “always” been—as if “higher education hasn’t changed since Socrates’ Academy two thousand years ago”—Davidson also reminds those of us working in particular in the U.S that the “American university is only about 150 years old” (4). What we have now—majors, disciplines, departments, grades, multiple-choice tests and standardization, the liberal arts and research (later STEM) split, etc.—were all implemented “between 1860 and 1925” by Charles Eliot and his colleagues who sought to “redesign the Puritan college for an unfolding age of industrialization and urbanization that required managers, not ministers” (Davidson 4).

In her excellent and accessible tracing of the American university from that Puritan design through Taylorism's application of factory efficiency science and models to education, through the rise of land grant universities, HBCUs, and later community colleges, Davidson shows that the foundational shift Eliot enacted in how education was done and what sort of student it was *meant to produce* was indeed in response to the *historical and cultural moment*. When industrialization reordered our relation to the world (e.g., families got their meat from the meatpacking industry instead of raising animals themselves), Eliot responded to the "growing national recognition that citizens of an industrialized America needed a relevant higher education" (Davidson 27). Instead of continuing to change, however, as America and the larger, now-globalized world *have* radically reemerged, Eliot's initiatives have solidified into a nearly unshakeable system that is, at its core, she argues, the same. Administrations speak now in the language of customer service and a managerial audit culture while professors, students, and curriculum are far more diverse, but the factory style and efficiency methods are still employed with the goal of training students—in general⁵⁴—for a particular career they can step into after graduation and, being trained only and expertly for that job, keep all their lives. But this structure, Davidson argues, ignores the reality of a twenty-first century global and digital world where "traditional-age college students who were born after the invention of the Internet have spent their entire lives in an ecology of a disappearing, disrupted, disturbed, and disturbing economy" (12). Like the Industrial Revolution, Davidson argues, the invention of the Internet

⁵⁴ Davidson does an excellent job of covering examples of trade schools, community colleges, and other "non-traditional" higher education options including online. In fact many of her suggestions are grounded in specific success at these sites which, she argues, should be applied along with the out-of-the-box thinking that created them to higher education across the board. Some of that nuance is lost here in this broad mapping of her book for the specific purpose of articulating our current socio-historical moment and of critiquing the humanist narrative her argument depends on (as an example of why even a book as creative and inspirational as hers is still caught up in the system it critiques in ways that don't promise the systemic, foundational change she hopes for).

and the consequent reordering of our relation to the world and each other has produced another cultural and historical moment that *demands* foundational change in education.

Davidson sees real progress in initiatives, programs⁵⁵, curriculums, campuses etc. grounded in a “new twenty-first-century education [that] makes the academic periphery the core, emphasizing not requirements to be checked off on the way to a major and a degree (the Eliot legacy) but an intellectual toolkit of ideas and tactics that are as interactive and dexterous as our post-Internet world demands” (14). Her own research is mixed-methods, and she has an eye for detail, noting the nonhuman objects of a room (from whiteboards to Post-its), and pays attention to architecture and interiors with an understanding of design theory and its role in solving the problems she poses. Such attention is part of her flair as a storyteller, where she is likely to give us statistics in one sentence followed by a physical description of a professor down to a jauntily tied scarf. The story she tells balances caution/anxiety—corporations are calling for the end of universities as they move toward increased automation of the workforce—with inspiration/hope—example after example of local, specific programs and strategies grounded in active, transdisciplinary, problem solving, collaborative, impactful pedagogies that make real, material differences in particular students’ lives.

On the surface level, Davidson’s work or perspective could be considered as more posthumanist than most, particularly her concern with the spaces (e.g. Red House) and objects (e.g. Metro cards) that students learn and become-with. But, as this project will continually argue

⁵⁵ Davidson argues, like many before her, for a move to active learning models over passive lecture style. And she sees hope in the “institutes, initiatives, and interdisciplinary groups” that, in interdisciplinary fashion, work outside “traditional areas” and often “in a somewhat uneasy or even antagonistic relationship with the core departments” (45). She highlights excellent programs such as the Accelerated Study in Associates Programs (ASAP) at CUNY, where teachers, administrators, and counselors work together to advise and teach the “whole” student. They try, for instance, to anticipate roadblocks in life outside of school, such as having to choose a meal over paying to ride the subway to class, and, therefore, consider providing students with Metro cards as integral a part of the program as what curriculum they should teach.

and clarify, posthumanism is not just⁵⁶ about objects, animals, and robots (whether as fears or fantasies). As a *post*, it also participates in the deconstructive projects begun by (and still working through) postmodernism and poststructuralism and recognizes that Davidson’s rhetoric *depends on* humanist ontological assumptions—e.g., mind/body—that will (despite her hope and initiative) not support the radically different epistemological assumptions—e.g., meaning is made, constructed collaboratively and critically, through experience—that her new education relies on.

For instance, Davidson opens her book by telling us that “in every myth, there’s a doorway, a portal, a river, a ladder, a mountain, a pathway. There is a threshold and, if you are the hero, your journey requires you to cross over: you start on one side, and the challenge is to reach the other” (1). Colleges, she argues, *are* that portal, “helping young people transform themselves, as they always have, helping them move from dependence to independence, from childhood to adulthood” (4). Davidson’s myth-and-portal metaphor for and hero-quest narrative of education depend on binaries and humanist assumptions of ontology: an autonomous-I comes singularly and finally into being by moving from the undesired to desired side of a binary. Like with narratives of return (as we saw with Robinson) or recuperation (as we’ll discuss later with Spanos), this transformative hero quest narrative also depends on *specific*, humanist understandings of time as linear, the self as autonomous, youth/immaturity as less-than (instead of different), the fallen human (who the less-than youth and other animals are predicated on), and

⁵⁶ These things/ideas are critical to posthumanist theory. What I mean here is that, considering the projects done by the posts in general for decades to deconstruct and problematize the ontological and epistemological assumptions of humanism (particularly the Cartesian or Enlightenment narratives of Man, monolithic history, and positivist science), some people I have interacted with personally as well as critics of posthumanist theory in general tend to use or reduce these things/ideas posthumanism takes seriously as/to tropes that signify the “wackiness” or “redundancy” of posthumanism. Once reduced, they can be used to dismiss it without fully engaging its varied and complex conversations.

progress as (measurable) movement forward (continuous⁵⁷ change), always, toward that truth/civilization/maturity/ideal to be discovered in a separate/objective world (or space as neutral container/stage). At its foundation, then, Davidson's perspective, her story of the world, is predicated on a human/nonhuman binary which is a binary (assumption) posthumanism (as used in this project, particularly with emergent subjectivity and classroom-as-phenomenon) can't support.

Only a few pages later, Davidson shifts gears to Ta-Nehisi Coates' metaphor for doing research on the Internet: "space travel⁵⁸" (6). She finds this metaphor "evocative" and wonders "what would it mean to redesign higher education for the *intellectual space travel* students need to thrive in the world we live in now?" (6)(my emphasis). Indeed this shift is the sort of shift we need for any postmodern approach and in particular for a posthumanist one that moves from metaphors of stable, transformative, portals that clearly mark boundaries between before and after to more uncertain, disperse, hyperlinked, rhizomatic time-space-bending, emergent becomings (quantum leaps). But Davidson abandons this metaphor that she admits is more suited for these in-flux, complex times to again and again invoke humanist narratives that don't support such illogical and "impossible" movements that don't rely on forward and backward, now and then. Instead, they rely on a return or victory narrative predicated on the humanist separation of humans from the world: student/university—immature/mature—barbarism/civilization (Spanos *End*)—nonhuman/human.

Indeed both books, *New Education* and *Creative Schools* are, despite their inspirational and creative messages and methods, examples of more widely circulated (popular) texts that continue to recycle the same message as many of the radical/progressive educators mentioned in

⁵⁷ As opposed to discontinuous emergence (quantum leaps) as discussed in Chapters I and IV.

⁵⁸ In *Between the World and Me*, Coates says, "For a young man like me, the invention of the Internet was the invention of space travel" (84).

the next section but without expanding those ideas to (diffracting them through) problems that posthumanism addresses. In particular, they also leave in place the still widely (outside conversations like posthumanism and animal rights) unchallenged human/nonhuman binary, despite, well into the twenty-first century, the posts and quantum science having troubled such narratives for decades.

In humanist education, the journey is indeed all about “maturing” into civilization: “you start on one side, and the challenge is to reach the other” (Davidson 1). It’s college’s job, Davidson argues, indeed its purpose, to get you to that other side so you can be successful and, consequently, benefit society. But, from a posthumanist perspective, such a challenge isn’t the positive and productive narrative of self-fulfillment, self-discovery, or self-actualization⁵⁹ that Davidson and countless other educators—liberal and conservative, progressive and traditionalist—characterize it as. Working from a postmodern, poststructural perspective that has long challenged grand narratives of all kinds, posthumanism also sees these journey/hero/savior/civilization narratives as enabling (not productively challenging) Western humanism’s longstanding partnership with education in a *dehumanizing* project that, in its dependence on the human/nonhuman binary is an urgent problem progressive, critical, or radical education should work to address. And that they *can*, as I argue in this project, intervene in now in their *own* classrooms—“oscillations” or not—when working through a framework like agential realism to see those classrooms not as an Edenic *nowhere* or even the *anywhere* their all-purpose design assumes them to be, but as unique, emergent, human and nonhuman phenomenon, or *elsewhere*. In this, I agree with Robinson in the epigraph above: “Revolutions don’t wait for legislation. Education ... is what goes on between learners and teachers in actual

⁵⁹ These too are problematized by agential realism (and much posthumanism) which would see fulfillment, discovery, or actualization as the momentary emergence of self that reemerges *differently* again and again in a continual “dance” of becoming-with-the-world (Barad *Meeting*).

school” (xxv). But such a revolution must, from a posthumanist framework, include the nonhumans in the phenomenon too—if we don’t make meaning from “outside” the world, as Barad’s agential realism makes apparent, then we don’t make revolutions without the world either. And they can’t rely on stories (return, recuperation, victory) that enable oppressive structures and missions (e.g., the Roman recuperation of the Greek *paidea* through the civilization/barbarism binary as Spanos (*End*) argues or the English deployment of literature for the colonial mission as Viswanathan outlines below) and, consequently, rely on a dehumanizing structure inherent to this assumed binary and entangled with humanist education.

Educational Humanism as Dehumanization

Going back much further than the creation of American higher education, Nathan Snaza traces, in the Nietzschean sense and Foucauldian fashion, a genealogy—the “fraught ascension to the common sense horizon of globalized political philosophy” (“Toward” 18)—of educational humanism: “the transformations ‘humanism’ has undergone in the West should not be understood as the progressive unfolding of history, but as a continuous overlapping . . . moments of nodes where power relations become overdetermined and the outcome or output is unpredictable” (“Toward” 17). More like an agential realist mapping of superpositions/diffractions, this is a different approach from both Robinson and Davidson, particularly Davidson whose argument that education hasn’t changed essentially since the Industrial Revolution assumes an orderly and linear progression of time in which, actually, much *has* changed, just not perhaps the way we’d like it to.

Such a genealogy, Snaza argues, “[accounts] for how humanism has come to structure *the entirety of Western education*, its institutions, its concepts, its practices” and also “[reframes] humanism by removing it from a progressive, teleological narrativization . . . [that] takes ‘the

human' to be two related but structurally different things" ("Toward" 20) (original emphasis). On the one hand, this being—human, "*Anthropos*, the rational animal, the talking animal, *homo sapiens sapiens*" (20)—simply exists. On the other hand, this being requires humanization via education in order to "come into being" (20). In other words, Snaza argues, under educational humanism, "one is not 'fully' human until one has been educated: It is not something one is, but something one becomes" (20). A maturing, a civilianizing, a return or victory story much like Davidson's portal narrative. This "structural doubling" of 'the human' has consequences, not least of which is that teachers, in their roles of authority in humanistic education, have "to address the students as *both* presently human beings ... and as beings who are *not yet* human" (20) (emphasis original).

In other words, in doubling the human, educational humanism must *dehumanize* beings *in order* to humanize them. Even Davidson's story of thresholds—meant to be inspirational—is predicated on this idea of students⁶⁰ existing on one side of a before and after. This process begins, Snaza argues, well before Descartes *cogito*, with Plato's Republic, which outlines "the basic structure of humanist, humanizing education" where "the human is figured as *first* a kind of raw, ontological input to the educational machine and *second* as the 'fully human' outcome of a particular, civilizing educational practice" ("Toward" 21-22) (my emphasis). Here, in the "suppression of embodiment," Snaza locates the original structure of doubling the human, "the process of splitting the human from itself ... in order to cultivate the 'humaner' [sic] nature ... in opposition to the 'bestial' part" (22). Derrida, Snaza argues, would call such a structuring "carnophallogocentric" as it "positions the masculine, the logical, and the human over and above the feminine, the irrational, and the animal" ("Toward" 23). From there, the Medieval Trivium

⁶⁰ "Students" which can translate to children, which is used to oppress women and minorities, who are all too easily slotted into the "animal" position on the nonhuman side of the binary.

and Quadrivium take the “the Platonic idea(l) of education” and add “properly disciplinary divisions among types of thought” which require “[dividing] thought from itself, segregating different types of knowledge from each other and from their necessarily combined application in the world” (23). Around the fifteenth century, “changes in the (Western) human’s relation to environments, the land, bodies both animal and ‘human’, and processes of production and change” (via the “colonial and imperial ambitions” the discovery of the New World set in motion) led to the “emergence of the university in the modern sense” along with an expanded liberal arts, the modern sciences, and “liberal, individualist philosophies” (Snaza, “Toward” 23-24).

In the Enlightenment, Snaza argues, “the humanizing mission of education became linked to the view that nature is ‘for’ humans and can thus be unconditionally exploited; [to] colonialism and slavery; [to] the sea change in literacy produced by the invention of the printing press; and [to] the state’s growing investments in public, compulsory education of its citizens” (“Toward” 24). By delineating an inner private world from the outer public world, philosophers and theorists proposed a human interiority that is “distinct from every other interiority in such a way that what is common across all humans is this particular ‘form’ of interiority” (24). Abstraction and universalization of such a concept allowed for “the ‘human’ of the early novel and human rights discourse” and assumed “every human ‘has’ a race, a class, and a gender, thus *naturalizing* the categories through which stratification operates” (24)(my emphasis). The Enlightenment is celebrated for advancing the human—allowing “him” autonomy, especially from the Church and most specifically through science and reason. But the human advanced during that time (and after) was indeed a him, a Western conception of *him* at that. And, as Snaza points out,

when ‘human rights’ assumes predominance as the global political form, the only way to continue to justify sexist exclusions, racially motivated colonization and slavery, and capitalist exploitation on a global scale is to produce systems of thought that regard the oppressed as less than human, as beings who are not afforded the ‘inalienable’ rights of humans. Taking up and reconfiguring humanizing education’s practices of dialectically distinguishing the human from animals and machines, Enlightenment thought produced *intermediate* categories of humanness. Women, slaves, the poor, and colonized natives were conceptualized as *potentially but not yet* human. With the rise of compulsory schooling, this educational form, which is more or less the one within which we operate today, takes the structural doubling of the human and puts it to work in the creation of a properly global, (de)humanizing politics. (“Toward” 25)

In other words, Enlightenment thought and educational humanism work(ed) on a reciprocal, structural loop. One needed to set up Others as the nonhumans from which a free “Man” could “victoriously” rise—a threshold crossed, a portal passed through—while the other gave that very Man the proof he needed that his transcendence (his hero’s quest) was the right, civilized, and necessary path for all the world to follow (a recuperation of what’s lost). Such an “educational project” Snaza argues “flourished” through colonialism’s mission, helping to characterize “the natives [as], on their own, not yet civilized, not yet fully human, and a Western educational apparatus [as] required in order to humanize them” (“Toward” 25). Such dehumanization is a human construction—a move *made* by us to create and sustain particular cultural/political/material “realities”—that has, through the long history of its partnership with education as outlined above, come (to some) to seem “natural.” But, as Freire and other critical

pedagogues working from a critical Marxist tradition in the late twentieth century argued, “dehumanization is not a historical fact” but a human product that human action can change (Gottesman 13). And as material feminists, new materialists, and many others in the posts have argued, such “constructions” are not merely the stuff of language and culture (Alaimo and Heckman; Snaza, Sonu et al.; Hughes and Taylor, Pillow and St. Pierre; Ingram; Barad) but are, as Barad (*Meeting*) puts it, material-discursive apparatuses that have very real, very material consequences.

Though Snaza himself outlines the above for the introductory chapter to what is one of the first edited collections (2015) purposefully applying posthumanist theory to educational research, the idea of education’s role in dehumanization has long been a part of critical (particularly Marxist and neo-Marxist) interventions in pedagogy while the mapping itself (as seen in Snaza’s acknowledgment of both Nietzsche and Foucault) owes its method (and the shift in both ontology and epistemology that *allows* such non-linear and rhizomatic, cartographic, and quantum approaches to history, science, and the humanities) to the posts’ deconstruction of the autonomous-I and (re)theorization of “reality” as constructed and emergent. In other words, though approaches differ (e.g., a posthumanist like Snaza works from a deconstruction of the human/nonhuman binary while much critical pedagogy following Freire or Giroux works from a human rights model or democratization), the current decade’s work of rethinking education through a posthumanist perspective comes out of a space *made possible by* work done by both Marxist/neo-Marxist praxis and the posts’ deconstructions of ontological and epistemological assumptions taken for granted during the modern era. This “critical turn” in education began in the late 60s and early 70s with the more Marxist/neo-Marxist based field of critical pedagogy which expanded (or fractured) when feminists took the postmodern and poststructural turns to

develop feminist methodologies and pedagogies and civil rights activists and race theorists developed multicultural pedagogies and later turned to Critical Race Theory (CRT) being done in the legal sector (Gottesman). Though these approaches that came out of the turns and posts are as widely varied and theoretically grounded as those working through posthumanism, they all—along with Snaza and myself—agree that education’s potential for violence is as great as its potential for liberation. Not only is educational dehumanization not a historical *fact*, it is also not a historical *matter*, but something inherent in our educational policies, systems, and realities today despite countless progressive and critical movements, autoethnographic and autobiographical accounts, and philosophical and scientific theories calling for change.

For instance, in his *Pedagogy of the Oppressed* (1968), Paulo Freire famously articulates oppressive education, particularly deployed through colonialism, as the banking model and argues that, in positioning students as receptacles where an instructor deposits knowledge, such (Western) education leads to the dehumanization of student and instructor alike. Meant to facilitate struggle and revolution, Freire’s concept of a problem-solving model (where student and instructor create knowledge together) relocates the teacher as a student among students, all of whom are involved (together) in the educational task of becoming as fully human as possible.

In her *Masks of Conquest: Literary Study and British Rule in India* (1989), Gauri Viswanathan outlines and critiques the creation and deployment of English (language and literature) as a commodified, teachable subject that was first used not at home with British subjects, but abroad in *India* as a secular, hegemonic tool to disseminate the colonizer’s values and morals while casting Indian literature and culture as inferior, uncivilized, and childish in comparison. In her “Red Pedagogy: The Un-Methodology” (2008) Sandy Grande, reminds us, that, in *America*, “by the mid-18th century, Harvard University (1654), the College of William

and Mary (1693), and Dartmouth College (1769) had all been established” with “‘civilizing’ and ‘Christianizing’ Indians” as *part* of their mandates and in an effort, she argues, to “colonize Indian minds as a means of gaining access to indigenous resources” (235)(my emphasis). Boarding schools, she adds, were also used to separate younger students from their tribes and families in an effort to “extinguish Indian-ness by importing culturally imperialist practices” (236). The “un-methodology” in Grande’s work in general is rooted in a movement of indigenous scholars, theorists, and activists working to decolonize the social sciences that have been used as much to *prove* the “successes” of such dehumanizing educational objectives and practices as they have been used to recover and advocate for lost and minority stories. In her *Decolonizing Methodologies: Research and Indigenous Peoples* (1999/2012), Linda Tuhiwai Smith calls for and conceptualizes this indigenous movement, questioning the ethics and dominance of Western, humanist qualitative and quantitative work done and privileged in the name of “evidence-based” science. She questions the policies (educational policy included) that dismiss Grande or Freire’s work in favor of “data” whose validity and rigor stand up in a positivist worldview. “Research,” she argues, is “one of the dirtiest words in the indigenous world’s vocabulary” and “inextricably linked to European imperialism and colonialism” (2).

In *Borderlands / La Frontera: The New Mestiza* (1987), Gloria Anzaldúa recounts how American school systems (both public and higher education) worked to assimilate her into a particular, Anglicized ideal:

I remember being caught speaking Spanish at recess—that was good for three licks on the knuckles with a sharp ruler. I remember being sent to the corner of the classroom for ‘talking’ back to the Anglo teacher when all I was trying to do was tell her how to pronounce my name. If you want to be American, speak

American.’ If you don’t like it, go back to Mexico where you belong ... At Pan American University, I, and all the Chicano students were required to take two speech classes. Their purpose: to get rid of our accents (53-54).

In “Ideology and Ideological State Apparatuses” (1970), Louis Althusser argues that “the School” has replaced “the Church” as “the dominant Ideological State Apparatus” (1348). Coupled with “the Family,” it operates via an essential (and, importantly, “silent”) ideology “which represents the School as a neutral environment” that can offer children/students the “path to freedom, morality and responsibility⁶¹” while it actually “drums into them, whether it uses new or old methods, a certain amount of ‘know-how’ *wrapped in the ruling ideology*” (1346-1348)(my emphasis). In *Discipline and Punish* (1977), Foucault doesn’t just note the patterning of schools after factories but names them, along with hospitals, military posts, and other institutions as part of the larger, dispersed carceral system that disciplines bodies via surveillance (by the self and others).

In *Teaching Community* (2003), bell hooks remembers growing up believing white teachers who told her they didn’t read black authors in school because “they had not written any books or any good books” (2). It wasn’t until she attended college during the late sixties and early seventies, when Black Studies became an institutionalized “space where the hegemony of imperialist white-supremacist thought could be challenged,” (2) that she realized *how much* of what we learn is shaped by those in power. Along with “feminist intervention,” she argues, this “insurrection of subjugated knowledges” brought “herstory” and a black “counter-narrative” into the classroom where “learning could take place that did not reinforce white supremacy” and that challenged the patriarchy (2-4). In *Lives on the Boundary: The Struggles and Achievements of America’s Underprepared* (1989), Mike Rose writes about the damage the “back-to-basics”

⁶¹ This is similar to my critique of Davidson’s use of the portal metaphor.

movement of the 1980s did to poor, minority, ELL, and ESL students by casting them not as people or students needing help making “written language their own,” but as *the* problem—illiteracy—at the center of America’s supposed decay and decline (8). He argues that “remedial” mislabels these students as less than, as having nothing to say just because their grammar and spelling doesn’t meet “standards.” Instead of being drilled with and failed for grammar, he argues they needed to be “immersed in talking, reading, and writing ... to further develop their ability to think critically ... and gain confidence with themselves as systematic inquirers” (141).

As we end the second decade of the twenty-first century, we certainly see that these critiques, protests, and movements have made changes in concrete and local ways: my own university has a Women’s and Gender Studies program, our First Year Writing program stresses invention, critical thinking, and content production over grammatical perfection, and I teach writing in an interdisciplinary Engineering Problem Solving⁶² math course housed in a sole-purpose classroom designed specifically for the work the students will do in it. But we are also struggling against and within an educational system that is entangled with broader social, political, economic, and material systems (apparatuses) and, therefore, largely defined, currently, by neoliberalism and globalization, the corporatization of schools, the incredible, invasive spread of accountability measures, and the almost unshakeable faith many politicians and administrators have in standardization and testing (Malott and Porfilio; Denzin and Lincoln; St. Pierre “Post Qualitative Research”; Lather *Getting Lost*; Giroux; Gottesman). When, as St. Pierre (“Post Qualitative Research”) outlined in the last chapter, policy considers evidence based, random-trial research as the gold-standard (Taylor “Edu-Crafting”), most of the critical and powerful accounts

⁶² At the time I first wrote this paragraph (in late 2017), I had been teaching this ENGR 1300 class for three semesters and would be teaching it, for the final time, the following semester: Spring 2018. We found out toward the end of that semester that the introductory program itself would go on but without the writing lab. That would be replaced with a skills (navigating college, etc.) section that allows the students to count the larger class as a FIG (or Freshman Interest Group).

above that have made significant impacts on education and my own teaching (hence their inclusion here) are all too easily dismissed—along with educators and researchers (teacher researchers, critical pedagogues, post qualitative inquiry, and others) thinking and doing differently outside the rules and narratives of humanism and humanist/positivist science—by more traditional, “what-works” administrators, politicians, and educators. So, though all the many voices above—among many, many others—have spoken out against, offered alternatives to, or denounced in general the dehumanizing structures and effects of education as used throughout our history, we find ourselves facing many of the same problems (though many in different permutations) today.

For instance, though *Pedagogy of the Oppressed* is taught to educators in more progressive programs, the banking model itself is alive and well in the standards movement which is driven by particular, more positivist views of data and assessment and, therefore, needs “knowledge” to be testable-en-masse (deposable)(Davidson; Snaza and Weaver “Introduction”). Though Viswanathan made her critique in 1989 of the hegemonic beginnings of English as a subject, Raja Mehrotra pointed out in 2000 that “even half a century after Independence, India continues to be plagued with the colonial hangover in regard with the attitude towards and the use of English in various domains including education at all levels” (136). And in 2018, one of my international students wrote on his final about his experience with French literature in his own country:

As an African student—wait as an Ivorian (Ivory Coast/ Côte d'Ivoire) student—I totally understand where Adichie's⁶³ coming from. My journey as a reader also started with foreign French stories, stories where characters talked and lived in an

⁶³ Chimamanda Ngozi Adichie. For the final exam, after watching her TED Talk, *The Danger of a Single Story* (https://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story), students responded to Adichie's argument by diffracting it through their choice of three other texts they'd read/watched for our class.

environment totally different from mine. I think of stories as languages, when you start to dream in a foreign language, a language you are learning, it means that you are becoming a part of that language and it is becoming a part of you. But when you're a Black kid from Africa dreaming about being white, playing in the snow you saw on TV, you know that there is something not right ... when I started reading books from African authors like Camara Nangala ... it has also been a great change for I started to find my African identity.

Though indigenous inquiry and methodologies like Grande's Red Pedagogy are still decolonizing—as Smith called for in 1999—and changing the face of qualitative inquiry and inspiring moves to post qualitative inquiry, their findings are often disheartening. Pulling from both of these women, Stephanie Masta observed Native American middle-schoolers in 2011-2012 and concluded that these students' ability to engage in what she calls “accommodation” or, in other words, “to adopt practices or values that will benefit them in White spaces ... reflects an ongoing colonization process meant to erase or diminish Native American student identity in schools” (33). Though bell hooks praised the feminist and multicultural courses of the 60s/70s, her reflection in 2002 goes on to explain that “very little praise is given Women's Studies, Black Studies/Ethnic Studies, for the amazing changes these disciplines spearheaded in higher education” because “progressive white men created the alternative discipline of cultural studies” (6). In the face of both liberal and conservative pushback, the academy “mainstreamed,” in other words, what had been “concrete locations of power where different policy and educational strategy could be enacted” (6). “White male rule,” she argues, “is intact” (6). And, though I was taught Rose's book by a (progressive) education professor as an undergrad English major in 2002, when I taught high school (2009-2013), ready to follow Rose's lead, any time I had

available to immerse my own ELL, ESL, or low-literacy students in reading or writing beyond what we did as a class was stolen—from them and me—by *hours* of gathering and assessing their writing via systems like TELPAS, all to produce data on their literacy for *others* to use and that they would *never* see themselves.

I don't offer these "afters" as a list of progressive "failures" posthumanism is somehow going to cure or solve. For one thing, in line with Robinson's back and forth metaphor of a broken, oscillating system in need of balance, such an offering assumes a linear progression of time and the associated continuity of change that, as Barad argues, "the quantum disrupts" (*Meeting* 223). I don't see these moments of resistance, progress, and invention since the 1960s (and before as we saw in Robinson's list) as progressive "flukes" that have been lost in a back and forth oscillation between tradition and progress (as the narrative told from the traditional/humanist pole would argue). They are, from a posthumanist (agential realist) perspective, waves in a mapping of education across times as well as, for this project, within America as it exists in phenomenon with the rest of the world. Such theories, accounts, stories, strategies tell a different story besides the "victory" and "return" narratives education is entangled with. They "make waves" as we discussed in the last chapter, interfering and diffracting through superpositions that enfold time and space to continue to make differences through the innumerable educators and researchers who *don't* dismiss but instead take them up as "evidence" that humanism and education's partnership needs fundamental change (down to the human/nonhuman binary it's predicated on). In my own intellectual space travel, I am then, as St. Pierre puts it, "always collaborating with authors living and dead when I read and write" (Guttorm et al. 17). And, curated into this document, these authors, though not "posthumanists" themselves diffract and diffract through my argument, reconfigured by and reconfiguring them

for a posthumanist praxis I calibrate to agential realism. Indeed, they are part of that curation↔calibration. Along with the poststructural and feminist work mentioned in the previous chapter, they and the work they've done (and more besides) are as much a part of the archive I curate from as agential realism and related material feminisms, new materialisms, and post qualitative inquiry.

As, in "Toward a Posthumanist Education," Snaza et. al make it clear, in arguing that a posthumanist schema is needed to help such progressive education and critical pedagogies gain traction (I would say make differences), that they (and I) "fully acknowledge that posthumanism is certainly not the first theoretical perspective to critique humanism" (41) and that they are not blazing a new trail, but actually following in the footsteps of feminist, postcolonial, decolonial, indigenous and other progressive theorists/theories⁶⁴:

We are forwarding posthumanism not as a new "discourse" per se, but rather we are forwarding posthumanism as a way of recognizing that a wide variety of seemingly disparate critical approaches (feminism, anticolonial and antiracist thought, technology studies, ecology, etc.) have a common ground in directly challenging the ways humanism has restricted politics and education. We do not aim to replace or reclaim anything, but rather we call attention to how these previously disparate theories have a particular common cause and that [education and educational research] could benefit from always engaging with the "human" as problematic. In other words, we problematize all human/humanist-centric theories because previous critiques of humanism's violence have functioned as

⁶⁴ The particular example they use here is "Tuck and Gaztambide-Fernández's (2013) critique of settler colonialism, in that both critiques resoundingly reject 'the construction of non-white peoples as less than or not-quite civilized, an earlier expression of human civilization'; both critiques also reject the ideology that 'makes whiteness and white subjectivity both superior and normal' (p. 74)."

what Sedgwick (1990, p. 85) calls “minoritizing” discourses—discourses that matter to some people (women, the formerly colonized, etc.) and can be easily dismissed or ignored by those with the privilege of not needing, wanting, or choosing to care. *We believe posthumanism pushes intersectionality to the point where no one—no matter their field, interest, or position of power—can afford to ignore these critiques.* (41)(my emphasis)

In other words, while all of the progressive theories and movements discussed here are challenging Cartesian forms of humanism, those that dehumanize to humanize, what they are, for the most part, stopping short of is a radical rethinking of *the human’s relation to the nonhuman world* and the *necessity of that shift* in theorizing and practicing a more equitable, ethical, and productive education and pedagogy *for humans* at the same time that such an education grounds humans in a more ethical and productive relationship *with* the nonhuman world. A move to posthumanism recognizes that “asserting that some people excluded from the category of the ‘human’ are really human does nothing to disrupt the *structure* of educational humanism” (Snaza “Toward” 26). Such a disruption requires us to take seriously the idea that both politics and education are not only a “human affair” and to challenge the idea that “all nonhuman objects are potential ‘resources’ to be extracted, refined, exchanged, and used” (26). The move this project makes, then, to a posthumanist pedagogy is necessary because:

Until education is decoupled from [the humanist] human, we will continue to face the future with a mixture of dread and paralysis, our ‘debates’ about education (and politics, economics, sustainability, etc.) spinning in place. Until we reject the idea that the human is separate (and separable from everything else on the planet, we have no traction to move toward different futures. (Snaza “Toward” 29)

I would argue that “traction” and “toward” might play into humanist notions of time and so, though the sentiment is similar, calibrate it to say⁶⁵ that perhaps what we need is amplification—the making of more and stronger waves—so that our stories interfere more and more in education-as-phenomenon.

And that, though the ultimate goal is indeed a future where other-than-humanist narratives/sciences emerge as the basis for policy, we have the opportunity to make a difference now. To “move” elsewhere, as Haraway put it, or to diffract posthumanist possibilities through classroom-as-phenomenon, as I’ve argued, depends on how we curate↔calibrate and that includes what theorists we read to try and figure out our own posthumanisms with. As I’ve said before, the posthumanist conversation is wide and varied and the conversation within education just as much so. Not all stories told, all theories calibrated to, all strategies curated are working toward the same goals. And humanism, as we’ll see next with Spanos, is a supple thread running through it all, which is why calibration is continual and inseparable from curation: what texts, fiction and nonfiction, we read-with *matter*.

Theorizing Posthumanism

In his 1993 *End of Education: Toward Posthumanism*, also the first book-length project to apply the term posthumanism to education, William Spanos traces the particular neoconservative, back-to-basics moment Rose characterized as “flourishing” in the 80s to the “adoption of the Harvard Core Curriculum Report” (HCCR) in 1979 (xiv). Spanos argues that, “theorized by prominent American humanists⁶⁶,” the HCCR and the movement it stemmed from

⁶⁵ I also say this with the full recognition that I often use terms of “progress” myself (including “progressive education”)—posthumanist praxis is a continual examination and undoing of habits.

⁶⁶ Spanos further qualifies this as: “conservatives such as William Bennett, Walter Jackson Bate, and Allan Bloom, and by liberals such as E.D. Hirsch and Wayne Booth” (xiv).

worked to “[recuperate] not only the humanist curriculum that was ‘shattered’ by the protest movement of the 1960s but also the discourse of disinterestedness⁶⁷ now called into question by the theoretical discourses that have come to be called ‘postmodern’ or ‘poststructuralist,’ but which this book prefers to call ‘*posthumanist*’⁶⁸” (xiv)(my emphasis). In other words education policy, led by Harvard’s actions in 1979 reacted to courses like Black Studies which hooks found critical to her education but which depended on postmodern and poststructural ontological and epistemological assumptions that problematized the humanist system that had, in her youth, kept such narratives out of hooks’ schooling experience. As St. Pierre argued in the last chapter about the NCLBA’s SRE report and standardization, the HCCR was a neoconservative move to, at the very least, assimilate such courses as Black Studies back to the core (if not eradicate them altogether).

In its recuperation effort, the HCCR looked back to past moments of reform, particularly at Colombia University in 1919 and Harvard in 1945, “which gave shape to the idea of the

⁶⁷ Spanos’ use of “disinterested” comes from Foucault and Said. To give you a better idea of the calibration of his use of the word posthumanism, he lists “diverse manifestations of posthumanist theory” as “Heidegger’s destruction, Derrida’s deconstruction, Lacan’s psychoanalysis, Kristeva’s semiotics, Foucault’s genealogy, Althusser’s neo-Marxism” which, though they all start from “specific sites of knowledge” (e.g., ontology, textuality, the psyche, etc.), also all, through their work, reveal the “center elsewhere”—make visible its construction (189-90).

⁶⁸ Spanos at this point uses “posthumanist” as interchangeable with (much like Patti Lather two years prior in *Getting Smart*) poststructural or postmodern and later for a strange retreat back into humanism in the face of critiques of being an anti-humanist. I leave the word here as is because it is (along with Lather) one of the earliest applications of the word post-human, posthuman, posthumanist, or posthumanism to education or educational research and because, at this moment in his scholarship, Spanos is indeed using it along a trajectory that remains in line with the current understanding of posthumanist theory and the definition of posthumanism this project is calibrated to. At the time, substituting posthumanism in for “postmodern” or “poststructuralist—as if they are commensurate—wouldn’t have necessarily been challenged. But, as we’ll see in this chapter, that’s not necessarily the case anymore. Badmington cites H.P. Blavatsky’s 1888 *The Secret Doctrine* (“a strange and dense theosophical treatise”) (“Posthumanism” 376) as the first use of post-human (albeit with the hyphen). Neither Blavatsky nor the other “handful of writers—Jack Kerouac among them—who used the term in passing at various points in the first half of the twentieth century” (“Posthumanism” 376) actually elaborated on the term. Francesca Fernando cites Ihab Habib Hassan’s 1977 “Prometheus as Performer: Toward a Posthumanist Culture?” as the first uses of the “posthuman” and “posthumanism” in “postmodern literature” (26). Badmington (“Posthumanism”) cites Haraway (with the qualification that she both didn’t use the term herself in her foundational 1985 “A Manifesto for Cyborgs” and *did* distance herself from the term as she moved away from cyborgs and toward companion species) and Fernando cites “feminist theorists in the Nineties, within the field of literary criticism” as the forces that “fully enacted,” as Fernando puts it, “the posthuman turn” (29).

general education program that has served as the essential ... measure of undergraduate study in American colleges and universities” (Spanos xix). Instead of considering both of these past movements as “specific sociopolitical” reactions to particular historical moments (the World Wars and the Cold War), the HCCR refers to them within a “rhetoric invoking the self-evident universal values of the core curriculum” (Spanos xix). In other words, the report set up these constructed systems as the “natural” evidence/blueprint for a “true,” effective, no-nonsense, nuts and bolts pedagogy that, as Rose put it, we fear we’ve somehow gotten away from or, as I put it classroom-as-nowhere and classroom-as-anywhere. Meanwhile, Spanos points out, the HCCR “strategically makes no reference to the historical circumstances ... the student, civil rights, and feminist protest movements during the Vietnam decade” (Spanos xix) that the HCCR was written in direct (if not admitted) response to.

“Reformation,” Spanos argues, “of the humanities curriculum was compared to the recuperation of the good health the nation apparently lost during the turbulent decade of the Vietnam War because of the civil rights, feminist, and student protest movements” (3). In other words, for the humanists of Harvard (and other conservative and/or⁶⁹ humanist groups who saw our nation and its education in “decay”) getting back to “Great Works, important bodies of knowledge and powerful methods of inquiry⁷⁰” (3)—a national canon and objective science—was imperative to, as some are calling for again today, making America “great⁷¹” via consensus

⁶⁹ These terms are not inherently linked. Neither, however, are they mutually exclusive.

⁷⁰ Here Spanos quotes William J. Bennett, “The Shattered Humanities,” *Wall Street Journal* (December 31, 1982).

⁷¹ I first read Spanos’ book in late 2015 and, for this chapter, read it again after the 2016 presidential election—the difference in meaning I got out of these two readings of the same text during two vastly different cultural/historical contexts is, to me, an example of how reading is an embodied intra-action and onto-epistemological act. What is important at this point in our story is that, in that second reading, the similarities to the current political (and educational) climate were glaringly obvious. As Spanos pointed out in a 2015 follow-up article, we are still struggling with the same issues he addresses in this book, but now from a post-9/11 viewpoint instead of post-Vietnam. If he’d written that follow-up in 2017 instead of 2015, I believe he would have drawn an explicit link between the idea of “make America great again” after almost a decade of progressive politics during Obama’s presidency and the “recuperation” effort mentioned here after the progressive protest movements of the Vietnam era.

and a regrounding of education in a standardized, streamlined, powerful, and objective national consciousness.

In fact he argues that such reformation is part of the entire Western ontotheological tradition⁷² which

has assumed too unquestioningly that human beings exist in some kind of fallen state and therefore that the essential purpose of learning is self-evidently recuperative: to regain heights—and the mental and spiritual well-being from which they have fallen into the disease of time. It has assumed that the catastrophic fall was, in one way or another, a fall from the unity of being, oneness, totality, enlightenment, presence, eternity, truth, into division, multiplicity, nothingness, darkness, absence, time, error. (11)

Such are the narratives (and their underlying ontological and epistemological assumptions) that allow nostalgia and fear, as Rose put it, to assimilate or erase progressive emergences in the name of back-to-basics or make the “civilizing” mission of colonialism sustainable as a means to “saving” other from such falls. Haraway’s cyborg critiqued these very Western origin stories and, as we’ll see in the next chapter, SF gives us *different* stories, ones that can perhaps help us disrupt such recuperative movements.

Spanos sees *his* book working to counteract this recuperation and “deconstruct the educational theory and institutional practice of modern humanism with a view to making explicit

As Spanos quotes at length, William J. Bennett, Reagan’s secretary of education wrote a report titled “To Reclaim a Legacy”—the sentiment strongly similar to “Make America Great Again” and in more than just the title: “It is we the educators—not scientists, business people, or the general public—who too often have given up the great task of *transmitting* a culture to its rightful heirs. Thus, what we have on many of your campuses is an unclaimed legacy, a course of studies in which the humanities have been siphoned off, diluted, or so adulterated that students graduate knowing little of their heritage” (quoted on page 2 of *End of Education*)(my emphasis). Note the use of the transmission metaphor we’ve seen both Barad and Davidson (and myself) critique so far. And, of course, diffracted through the list of examples used in this chapter so far, we’d have to ask “whose heritage?”

⁷² According to Spanos, the ontotheological tradition is classical philosophy through classical historiography through classical science/psychology though realist novels through classical/humanist poetry.

the ideological relay hidden in them and the emancipatory pedagogical possibilities this relay has hitherto repressed” (xv). He uses “posthumanism” as a term meant to encompass this counteraction or way forward, building off the poststructuralist, postmodern, and protest work that deconstructed and decentered the anthropologos but has, he argues, been *unable* to theorize alternatives that humanism can’t successfully resist⁷³. He uses Foucault, Heidegger, Derrida, Kristeva and others to disavow the Great Works curriculum—the type of hegemonic canon that we saw Viswanathan outline—and to call for “oppositional intellectuals” who do not teach such curriculum and canons as transcendental truths but who strive instead to “get outside of the circular/specular frame of the dominant culture and to rethink the relay of minority terms that its imperial binary logic has systematically demonized and colonized in the name of disinterested inquiry” (*End* 220). He sees oppositional intellectuals as *posthuman* in their difference from traditional intellectuals: “whereas the traditional intellectual assumes the canon he or she professes is the natural and evolving fruit of free inquiry, the *posthumanist* specific or organic intellectual is acutely aware that all cultural production is finally without transcendental justification” (*End* 219)(my emphasis). His focus on humanism/humanists as founded on this illusion of disinterestedness—in other words, objectivity—does indeed mesh with similar conversations in feminist science studies⁷⁴ at the time critiquing and challenging the objectivity inherent in Newtonian science. He doesn’t engage with that conversation—which is a problem I’ll address soon—but, along with the focus on decentering the anthropologos, this is another

⁷³ Though they use the word “supple,” Pillow and St. Pierre, as mentioned in the last chapter, cite Spanos’ mapping of education’s inability to find ways to resist humanism completely as part of their evidence for calling the philosophy supple.

⁷⁴ From Alaimo and Heckman: “Initially, feminist critiques of science focused on the androcentrism of science—the masculine constructions, perspectives, and epistemologies that structure scientific practice. Following the social studies of science, feminists argued that scientific concepts constitute the reality they study, that science, like all other human activities is social construction. Despite the persuasiveness of this position, however, questions began to arise about the viability of this approach. Feminist and other critics of science began to explore alternative approaches that bring the material back into science without losing the insights of social constructionism” (*Material Feminisms* 5). Many of those alternative approaches coalesced into material feminisms (or new materialism).

thread of similarity between his work which he labels as posthumanist and the theoretical work started by Donna Haraway and others a decade before that will lead to what we know as posthumanism today.

Postmodern Theorists have failed	Posthumanist Intellectuals ⁷⁵ will
<ul style="list-style-type: none"> • To “fulfill the radical transdisciplinary imperatives of the decentering of the anthropologos” (191) and remained working within the university’s disciplinary structure • By becoming opponents of each other’s work instead of the university’s (and society’s) discourse • By becoming disciples of particular theorists (Heideggerian, Derridean, etc.) instead of “[transforming] pedagogy according to the imperatives of decentering” (201) • To deconstruct the civilization/barbarism binary which necessitates the university in the first place as a way to inscribe the anthropologos’ relay of binaries in our “young in order to reproduce the dominant sociopolitical order” (198) 	<ul style="list-style-type: none"> • “Thwart” disciplinary structures/division of labor and create “bonds between specific sites of oppressed and alienated knowledges” (200) • Establish a dialogic (Freirean) space where they meet students without condescension and as fellow organic intellectuals “mutually, if differently, oppressed by the central and centering discursive practices of the liberal humanist institution” (200) • <i>Not</i> proliferate “a multitude of discrete and autonomous course offerings” like the ones that triggered the postwar reforms to “reaffirm and institutionalize the core curriculum” (208) • <i>Instead</i> bring the cannon into the arena of crisis with students and teacher alike for “the genealogical critique” together “of the narrative of history that produced the canon” (208) • Move to dialogic instead of dialectic, see knowledge production as interested, not replace one decentered authority with another • Not just negotiate difference but actively make a difference while defining “their struggle as a theoretical praxis that works to conceptualize youth’s unconscious resistance to the core curriculum” (217)
<p>Table 2.1. Characteristics of postmodern theorists versus posthumanist intellectuals in Spanos’ <i>End of Education</i> (1993).</p>	

⁷⁵ This would entangle Said’s oppositional intellectual as “critical consciousness” with Foucault’s “specific intellectual” and (following Gramsci) the particular North American sociopolitical moment to create “organic intellectuals” (Spanos, *End* 200).

In table 2.1's comparison of Spanos' arguments for his move to the use of the word posthumanism instead of poststructuralism or postmodernism, we can see him take a strong stance on the "failure" of postmodern theorists to realize the potential of their theories to reveal and deconstruct (truly ruin) the anthropologos and its deferred relay of binaries that continue to structure society and, most importantly, he argues, education. In his description of where he believes *posthumanist* intellectuals will make better progress in this endeavor, Spanos intuitively points to many points that the posthumanist conversation coalesces around in the twenty-first century: becoming transdisciplinary, a flattened ontology (and epistemology) between students and teachers, the responsibility to *make*⁷⁶ a difference instead of just describe difference, and a continued deconstruction of canon/history, etc.

Most importantly, to me, in this chart is his critique that we have failed to deconstruct the civilization/barbarism binary. It is that binary, he argues, that continues to obfuscate the constructedness of the *necessity* of the university (or education in general) as a place to "civilize" when in fact the university, following the humanist mission, inscribes the anthropologos' relay of binaries in our "young" (*End* 185). In this, he makes the critical argument—up to that point, he claims, ignored—that it was *students* who dared to lead many of these protest movements and that the university played a role (by responding with recuperation initiatives) in diminishing this powerful resistance "natural" in our youth. The university uses education (the core), in other words, to train this passion and ethics out of students to be replaced with "the dominant sociopolitical order" (the center) (*End* 198). Again, we see similar attitudes today as, despite youth at schools becoming the most frequent victims of mass shooting violence in America, some adult lawmakers outright dismiss (and even insult) the student-led movements for gun

⁷⁶ Spanos is talking here about activism and praxis, not in the agential realist sense I've used the term *make a difference* (via materialization) so far.

control as ridiculous and as children not staying their place⁷⁷. Youth are kept in such places, Spanos argues, by the binary civilization/barbarism and its role in the university. Though a similar argument to Snaza's genealogy of the dehumanizing doubling of humanist education, it's important to note that the binary Spanos uses is civilization/barbarism (both human affairs) while Snaza works from the human/nonhuman, human/animal binary. In fact, all of the binaries Spanos lists (despite being predicated on the human/nonhuman binary that he never mentions) as examples of the anthropologos' structuring relay, only refer to *human* affairs. This will be a problem for him going forward as the term posthumanism becomes what it is today.

At the time, however, Spanos' book offers, in its discussion of "identity," the following description of what he calls posthumanist education:

the alternative approach to the curriculum demanded by posthumanist theory at large does not involve the substitution of one foundational discourse or self-identical and totalizing (panoptic) overview for another, not the indoctrination of students with an identity (or series of discrete identities) that perceives itself in a binary opposition to the identity in place. *It does not, in short, demand a practice of 'political correctness.'* In rejecting the self-identity of the anthropological center (and the ruse of the sovereign subject to which it gives rise), posthumanist theory implies a view of the curriculum that would compel both teacher and student into the dialogic arena of crisis, of historicity, the disruptive force of which discloses their identities to be fictions, the effects of difference. These identities are necessary for praxis in a world dominated by the

⁷⁷ For instance, Florida state Rep. Elizabeth Porter, in the wake of the Parkland shooting in her state dismisses these movements, asking if we let kids make the rules now: "The adults make the laws because we have the age. We have the wisdom. And we have the experience to make these laws. We have to make laws with our heads and not with our emotions. Because emotions will lead us astray. However, our common sense and our rationale will not" (Willingham).

anthropological/disciplinary overview, but they are always subject to radical change. (219)(original emphasis)

In these points on identity and curriculum, along with the points from table 2.1 to move to transdisciplinary intra-action and to not become bound to a particular theory, and in his outlining of the “back to” initiatives as recuperative narratives functioning within the larger Western origin story of fall and return, Spanos outlines, at the end of the twentieth century, a promising—if difficult⁷⁸—direction for a posthumanist pedagogy.

However, even though Spanos wrote the book⁷⁹ at the same time feminist (especially feminist science) theorists were indeed developing posthumanist theories around/from Haraway and the cyborg, he doesn’t cite—or even hint at—either Haraway or those who expanded on her work. Nor does he mention Patti Lather who’d used the term post-humanism in her own work applying postmodernism to education (the field he’s theorizing) and research two years before (indeed, the entire “working the ruins” conversation mentioned in the previous chapter is missing). This is particularly troubling in someone whose main argument is that posthumanism’s curriculum should include more than canon and that its intellectuals should thwart disciplinary boundaries. Even though, in its infancy, the terms posthuman/posthumanism were even more up for grabs and appropriation than they are now⁸⁰, Spanos’ ignorance of or decision not to engage with feminist science studies scholars (and others) of the time is surprising when you take into consideration his strong stance on transdisciplinary work and deconstructing the anthropologos.

⁷⁸ As Spanos says, “how difficult it is within the uneven distribution of power relations obtaining in the academy for the oppositional intellectual to articulate an alternative pedagogy that does not resort to a totalized and totalizing theory, but also how necessary it is that he or she always think this inhibiting predicament” (*End* 221). This is a constant struggle for me as well, even as I sit here and turn to a critique of Spanos’ later return to humanism. As we’ll see in Chapter IV with the character of Toby, vigilance is a process that requires both a healthy uncertainty and a continual calibration.

⁷⁹ It’s published eight years after Haraway’s “A Manifesto for Cyborgs,” two years before Barad’s “A Feminist Approach to Teaching Quantum Physics,” and six years before Hayles *How We Became Posthuman*.

⁸⁰ See Note 68. Not that the terms have been pinned down. See the recently published *Posthuman Glossary* (Braidotti and Hlavajova) for the varying and often paradoxical uses of the term.

Not as surprising (and what makes the above critique important to our story) when you consider his decision to *still* not engage with feminist science studies (and, by then, the related fields of material feminisms, new materialism, eco-criticism, and other feminist-based posthumanisms⁸¹) when given the chance to follow-up his 1993 work through an invited article for a “Posthumanisms” special edition of *symplekē* in 2015. Instead of complicating his work with the feminist threads he’d previously not touched on, Spanos not only admits that he is “uncertain⁸² as to what ‘posthumanism’ means⁸³ and a posthumanist praxis would entail,” but also redefines posthumanism as a more evolved kind of (instead of alternative to) humanism: “the posthumanist, from this perspective of the time of a now and its logic of belonging⁸⁴, is a non-Humanist humanist⁸⁵” (“Posthumanism” 35). He retreats from the current idea of and conversations around the term he once thought to use to encompass his theories (moving forward from postmodernism and poststructuralism) and instead tries to fold posthumanism—as if it isn’t a now-complicated concept fully engaged elsewhere—back into humanism⁸⁶. A full abandonment of the term—an admission it’s come to mean something else entirely and, therefore, he’s actually further theorizing on Edward Said’s⁸⁷ non-Humanist humanism—would

⁸¹ He does make a nod to Agamben’s “bare life” which is often used in animal studies (bios), but via Hannah Arendt, not even someone like Cary Wolfe which mediates the idea that he is necessarily anti-feminist (which I wouldn’t say anyway considering his praise of feminism as part of the protest movements, but it does point to a larger problem of academics theorizing from within their comfort zones and refusing to dive into other conversations).

⁸² This isn’t necessarily a bad thing, as I’ll argue more with Toby in the next chapter.

⁸³ I’m not entirely sure half the time either. Most days, I think it’s possible I’m “getting it wrong” considering the different ways it’s used. But Spanos’ overall language (thorough the piece) implies he doesn’t know just how many articles and books are out there now wrestling with this very problem.

⁸⁴ He’s reframed his theory through 9/11 (instead of Vietnam) and the continuing (never-ending) War on Terror and to better address globalization.

⁸⁵ This is a term borrowed from Edward Said’s *Humanism and Democratic Criticism*. New York: Columbia UP, 2004. The capitalized “H” on the first use of “humanist” is Spanos’ emphasis.

⁸⁶ These are inseparable concepts; using one doesn’t end your use of the other or erase the other from the conversation. When I say fold, I mean that Spanos is trying to do just that, end one by returning to the other.

⁸⁷ Said is theorizing a humanist whose “task” is “to be both insider and outsider to the circulating ideas and values that are at issue in our society or someone else’s society or the society of the other.” He references Isaac Deutscher’s *The Non-Jewish Jew* and the theorists it’s about—Spinoza, Freud, Heine—as an example of this non-humanist humanist and argues that “Not many of us can or would want to aspire to such a dialectically fraught, so sensitively

make more sense (and get me off his case). But the very title of this follow-up article is “Posthumanism in the Age of Globalization” and, in an effort to reassure critics of the original book that he is not an anti-humanist “rejecting the human” (33), he doesn’t just overemphasize/use the word humanism, but also retreats back into humanism, “attempting to go beyond its traditional Western meaning by going back to the point of its *origins*” (34)(my emphasis). Instead of dismantling humanism as he called for in his book, Spanos elevates it in this later article. And his use of the word ‘origins’ along with his admitted move *back* toward them is baffling considering his book-length (and stringent) denouncement of the recuperative narratives whose ontological and epistemological assumptions sanctioned the HCCR’s “back-to” move. In this article he enacts all the failures he strongly chastised postmodernist theorists for: staying cloistered in his own discipline, becoming disciples of theorists (he more than doubles down on Said and his other allegiances stay firm despite sixteen years of becoming), and working from the narratives (recuperation, reclamation, return) that the humanist binaries built.

located a class of individuals, but it is illuminating to see in such a destiny the crystallized role of the American humanist, the non-humanist humanist as it were” (*Humanism and Democratic Criticism*, 76-77). Spanos elaborates on this long quote from Said: “Just as Deutcher’s corrosive questioning of the logic of belonging endemic to the Jewish people renders him a non-Jewish Jew, so under the corrosive questioning of the humanist tradition Said becomes a non-humanist humanist, and exilic figure” (“Posthumanism” 33). Said is an example of what Spanos now calls for in his oppositional intellectuals: “The humanist remains a humanist, but his/her humanist identity is now understood as a historical construct. And the binary logic of belonging of Western humanism remains oppositional, but the violence of its traditional operations undergoes a metamorphosis: the war to the end becomes loving strife, in which the strife enriches rather than degrades antagonists” (“Posthumanism” 33). Despite this idea of a position of exile, a liminal identity that is both insider and outsider who questions (but doesn’t abandon) things like the canon in order to undermine the metaphysics of traditional humanism and its centering of the Western Man (and all the binaries that creates), this humanist has little (if anything) to do with posthumanism beyond this shared goal. This is entirely a human affair, one where humans are still inherently—as if it is, despite deconstructing the center, the natural order—in charge of a “continuum of being” (“Posthumanism” 32). But where a traditional humanist would claim “mastery” over this continuum—“flora, fauna, animals, and all humans who did not think, speak, and act like humans,” non-humanist humanist retains this “ontological privilege” but the “right to master becomes humility—the grace—of care, a profound and abiding responsibility, or, as this terms implies, a ‘loving strife’” (“Posthumanism” 32). Beyond a reference to Agamben’s bare life, this is all the time he gives to non-human (or dehumanized and/or animal) beings/things. In the context of the arguments made in the last chapter, it should be clear that, instead of a movement toward posthumanism, this is, oddly, a retreat deeper into (and an elevation of) the humanism Spanos spent an entire book railing against.

While posthumanism is an arguably fluid concept, it is certainly not an *elevation* of humanism. At the heart of most of its permutations is the idea that there isn't a productive way forward (to achieve the goals of such movements Spanos praised as changing education—feminism, civil rights, etc.) through, (much less back into) humanism. In fact such linear movements expressed in the language of forward and back and progress and regression and oscillations are replaced with that space travel Coates was talking about and that Davidson abandoned for portals: Baradian quantum leaps and emergences and superpositions and Deleuze and Guattarean rhizomatics, in-the-middles and lines of flight, and, and, and.... There is no going *back*. But there is, as we'll see with Toby and her story that challenges Western origins in the next chapter, an emerging-with that is, in the classroom-as-elsewhere, also a “staying with” (Haraway *Staying*).

Despite reducing the entire critical pedagogy movement to a footnote in his book and chastising them for following Althusser in not linking their theories to the particular socio-historical moments that inspired them, Spanos ignores a couple of decades worth of theoretical, historical, social, and, indeed, material entanglement and, instead of emerging differently, stays comfortably in his niche. It takes only a cursory glance at both bibliographies (the 1993 book and 2015 article) to see that Spanos is not just *willing* to ignore posthumanism's genealogy, but, in fact, does. I believe we can find a better understanding of *why* he chose this retreat in the article's clarification of his stance on the canon (which is quite a bit different from that discussed earlier).

While he still feels a canon shouldn't be viewed as “natural,” there should, apparently, *be* one:

... in calling for the globalization of the University according to the dis-closive (sic)—liberating—imperatives of the decentering of Western Man, I am not recommending that we reject *tout court* the canonical approach to humanist

literary studies that is intrinsic to the University under aegis to the nation state ...

As **oppositional American humanist intellectuals**, to invoke the area with which

I am most familiar, we must, therefore ... to break the strangle hold that the

American exceptionalist ethos has perennially had on American literary studies,

read the national canon from a global or, better, transnational perspective.

Whereas traditional American humanist scholars and teachers teach and read

American literature from a nationalist perspective the imperial exceptionalism of

which blinds them to the negative effects of this canonical literature on the rest of

the world ... ("Posthumanism" 36-7)(my emphasis)

In adding both *American* and *humanist* to his original term for posthuman educators, Spanos is making it very clear (if the bibliographies didn't do that for us) that he is *not* involved in posthumanism as we currently know it. This failure to engage or acknowledge (bordering on erasure) is more than problematic for this particular conversation. It's symptomatic of a particular reaction to—blanket denial and/or blithe dismissal of—the very idea of posthumanism and academia's incorporation of its onto-epistemologies and approaches (much less education's use for it).

Spanos' "line" is the civilization/barbarism binary he so critically applied to the binary university/students in *End of Education*. Like all the binaries, this one can ultimately be boiled down to the human/animal, human/nonhuman split, but Spanos' work—instead of acknowledging this or the nonhuman world anywhere else in his work—actually *depends* on keeping the binary couched in "human" terms and the animal supplement unproblematized. Here we can still say, while *deconstructing* civilization/barbarism, "we shouldn't treat our children (students) *like* animals because x, y, z," such variables pulling from a list of reasons why (e.g.,

their natural passion for resistance, inalienable human rights, morality) that all sub in for the seemingly compassionate and ethical rallying cry “they are *not* animals.”

But posthumanism (particularly the material feminisms this project calibrates to via agential realism) asks us to cross the line Spanos has stepped up to here and ask “why should we treat *animals* in ways we wouldn’t treat ourselves?” For Spanos, still working from humanist (even anti-Humanist humanism) assumptions, such questions don’t *matter*, at least not until we get the *human* issues squared away. For those working from posthumanist assumptions, especially agential realism and the material-discursive, such questions absolutely matter. Our “human” issues are inseparable from the larger nonhuman world and can’t be “squared” away separately from it either. Not only do such questions *embody* (and, therefore, help materialize through our work-with-the-world) the assumptions that the more-than-human (going beyond animals to plants, things, and so on) are *actants* in our becoming-with the world, but they also flatten ontology in such a way that students (or animals, or desks) are not *like* anything but are *themselves*, unique actants emerging through intra-action with a *classroom*, that uniquely complex and continually becoming spacetime-mattering that enfolds together much more than 42 separate students and 1 singular teacher in 1 room on 1 campus over 1 semester. As we learn *how* to curate↔calibrate such classrooms (those *elsewheres* instead of *anywheres*) we may not have (or ever get a full) handle on what that might *look* like, but we have to at least *speculate*, think-with the world through such question (as I attempt in the next two chapters). Which means asking the questions posthumanism asks, engaging the conversations even if some posthumanisms are calibrated to strange and uncomfortable questions/concepts/theories like (as we’ll see below) “thinking with bricks” in schools or “looking for bears” in data.

The speciesism⁸⁸ inherent in Spanos' retreat from such questions and considerations, in his new "posthumanism" calibrated to an originary humanism back before humanist humanism, keeps the anthropologos firmly centered, on the same continual relay of deferment⁸⁹ that Spanos outlined, *recentering* the human in a horizontal and ontological hierarchy built upon the idea that *what we are not* is *why we are* on top of that hierarchy. Despite *theorizing* postmodernism and poststructuralism, then, he continues to *perform* the Western humanist origin narrative of "getting back to," of recuperation, reclamation, of the fall down the ladder and the climb back up again to the triumph at the top.

Spanos' admission, then, that he is "[invoking] the area with which [he] is most familiar" ("Posthumanism") is at the heart of his personal retreat and indicative of more general dismissals of posthumanism as a viable or important part of education conversations. Posthumanism is not a familiar place. It can seem counterintuitive to much of what we believe about ourselves and our role in the world, what seems like "truth" only after centuries of humanism ingraining in us that it is so, those humanist assumptions that haunt and linger even the most extreme posthumanisms. We *are* human (whatever that might mean), after all.

When I present on posthumanist education, one response I often get (in the form of a general dismissal of my use of the term "posthumanism") is that there are many kinds of humanism (not just some straw-man Enlightenment humanism) followed by a question along the

⁸⁸ As Wolfe argues, "the full transcendence of the 'human' requires the sacrifice of the 'animal' and the animalistic, which in turn makes possible a symbolic economy in which we can engage in what Derrida will call a 'noncriminal putting to death' of other humans as well by marking them as animal" (*Animal Rites* 6). As a brand of posthumanism that retheorizes the relations between humans and animals (or, more broadly, non-humans) animal studies actually [shows] that "crafting a posthuman theory of the subject *has nothing to do with whether you like animals*" (Wolfe *Animal Rites* 7)(emphasis original). Indeed, as Wolfe states, "we all, human and nonhuman alike, have a stake in the discourse and institution of speciesism; it is by no means limited to its overwhelmingly direct and disproportionate effects on animals" (*Animal Rites* 7). See also Wolfe's *What is Posthumanism?* and *Before the Law* as well as Haraway's *When Species Meet* and *Staying with the Trouble*.

⁸⁹ Spanos relies on Derrida as much as he does Heidegger, Foucault, and Said.

lines of “Why can’t we just use a more Vygotsky⁹⁰ humanism?” This is not a bad question and one I’ve taken pains and pages to try and answer here. I curate Spanos’ work with the term “posthumanism” into this document as a phenomenon of its own (where the book and article intra-act to create meaning via the unique spacetime-mattering of his career, my reading, and, the Goughs’ story in the next section) because we can see Spanos make this move to rebrand “posthumanism” as just another “type” of humanism, and it’s a move away from the “contaminating” concerns of nonhumans toward “getting back to the basics” of human concerns (that *might* also include care for animals and the importance of objects in such concerns). It’s a kind of “back-to” narrative itself that still assumes an autonomous/separate human not always already entangled with the world. It participates in the oscillation narrative, balance between tradition and progress. It spins in circles, as Snaza and Weaver (“Introduction”) put it. It is repeating instead of emerging. Working from different, incommensurable (indeed multiple) onto-epistemologies, posthumanism is not a replacement⁹¹ for humanism or postmodernism or poststructuralism or indigenous onto-epistemologies (which have been making similar claims for *far* longer). But as its own actant in an ever-emerging story of education, it offers different assumptions, different narratives, different speculations. And, as we’ll see in Chapter III, we need different stories for different ways of knowing-in-being, for curating↔calibrating our classrooms-as-elsewhere.

⁹⁰ I use this one real question to stand in for many other versions of the same.

⁹¹ Indeed, I consider myself a feminist poststructuralist posthumanist (among many other things).

Performing Posthumanism

The Goughs are one such story.

The same year Spanos published *The End of Education*, Noel Gough published *Laboratories in Fiction: Science Education and Popular Media*. The word posthumanism isn't just missing from the title but also from the entire short work. It's the title of John Weaver's 1999 article, "Synthetically Growing a Post-Human Curriculum: Noel Gough's Curriculum as a Popular Culture Text" that first links Gough explicitly to the post-human (hyphenated and preceded by a "the" in Weaver's work). Looking at all of Gough's work up to that point, but focusing on *Laboratories in Fiction*, Weaver claims that Gough "remakes the future of curriculum theory and information technology as he critically enters into a dialogue with the post-human condition and the manifestations of this condition in popular culture texts" (162-3). Gough, unlike Spanos, uses the words postmodern and poststructuralism, not really thinking to use posthumanism until Weaver later reframes Gough's work as such.

In his contribution to the 2015 (at which point he does think of himself as a posthuman theorist) *Posthumanism and Educational Research*⁹², Gough outlines the purpose of his 1993 *Laboratories in Fiction*: to "set out a vision for what [he] then called a postmodern science education" ("Undoing" 154). Much like Barad does, he calls out science education (specifically, in his case, textbooks) in the late twentieth-century for holding onto and perpetuating a "Newtonian worldview and a nineteenth-century image of science as the study of material structures and simple systems" ("Undoing" 154). Instead of invoking Bohr's quantum theories, Gough invokes science fiction (much like Haraway and others⁹³), particularly in "comics, books,

⁹² This collection is edited by Weaver along with Nathan Snaza and is the book that Snaza's genealogy of humanist education is from.

⁹³ This is discussed more in at length in the next chapter.

movies, and even popular music” as “more plausible representations of twentieth-century science as the study of informational structures of complex systems” (“Undoing” 154).

A large part of his argument is how science fiction, versus textbooks and education in general, show scientists at work:

Scientists in SF are not the objective, value-neutral, and apolitical creatures of textbooks who work in disciplinary silos but, rather, are more lifelike people who struggle with moral and political issues and improvise their interaction with colleagues in their own and other disciplines, other organisms, materials and machines. I did not argue [in *Laboratories in Fiction*] that SF is simply a more palatable way of introducing or illustrating textbook science. Rather, I argued that SF gives imaginative form to the limits of our own constructed knowledge (and particularly to what might lie beyond them) and is thereby a *conceptual territory* in which to explore ideas and issues that may be more significant to learners than those to be found in conventional science textbooks. (“Undoing” 154)(my emphasis)

Fiction, in other words, (and science fiction in particular here), doesn’t “pretend” to objectivity (it isn’t necessarily “disinterested”). Rather it’s “transparent” in both its constructed and speculative nature—both of which it owns. Meanwhile, as a product of the humanist system which sets the human in the center where he makes his observations of a knowable and separate world, much science—especially, Gough and Barad would argue, science taught in textbooks—follows the Newtonian tradition of *claiming to be* the transparent discourse in the binary pairing that sets objective science (data/facts/truth) against fiction without critically examining that

claim⁹⁴. Gough argues that “exposing this part of the story is part of postmodern science” (*Laboratories* 26), and unlike Spanos, it’s clear Gough is not just aware of Donna Haraway, a key figure in the feminist science studies movement that’s integral to “postmodern science,” but also uses her work and speculative strategy extensively (among others). Not only does he quote from Haraway’s *Primate Visions* at length, but he also includes a 16 page excerpt of the text along with excerpts from two other authors in a final “Readings” section of *Laboratories*. He argues that Haraway’s “critical history of the development and cultural effects of primatology” is a prime example of “the insights which can emerge from a deliberate blurring of distinctions between science and literature, fact and fiction” (*Laboratories* 37). And his curation (as I see it) of whole pieces of work from an author he’s entangled with onto the page with his *own* work inspired some of the structural moves made in this dissertation document.

Haraway, however, is most famous⁹⁵ (in general) for using the cyborg instead of primate (and, later, companion species) for such work of blurring boundaries. And it is that material-discursive figure which Gough takes up in his 1995 article “Manifesting Cyborgs in Curriculum Inquiry” to argue a similar point:

much educational experience, and much of what we think of as the ‘subject matters’ of school curricula, can be represented more appropriately—and questioned more critically—by fictional modes of storytelling. I argue that critical

⁹⁴Gough comes at this constructed binary in several different ways, including linguistically: “Contemporary science educators tend to conceive fact and fiction as opposites ... but it should be noted that they have cultural and linguistic similarities. The etymology of ‘fact’ refers to human action; a fact is a thing done, ‘that which actually happened,’ the Latin factum being the neuter past participle of facere, ‘do’ ... Thus, both fact and fiction refer to human experience, the important difference being that ‘fiction’ is an active form—the act of fashioning—whereas ‘fact’ descends from a past participle, a part of speech which disguises the generative act. Facts are testimonies to experience. Scientific facts are testimonies to the experiences of scientists in actively producing facts with their increasingly elaborate technologies of data generation and inscription, their rule-governed practices of interpretation, and their specific traditions of social relations and organisation. Thus, the opposition of fact and fiction in modern science is a fiction—part of a story which rationalises the strategies used by scientists to produce facts. Exposing this part of the story is part of postmodern science” (*Laboratories* 26).

⁹⁵ And, in many cases, she is misread or misunderstood.

readings of fictional texts and creative uses of fictional storytelling should be major components of our narrative repertoires in curriculum work. (72)

In doing so, he points out that “concerns about the meanings, qualities, ambiguities and possibilities of life at the interface of human and machine are not new,” citing Mary Shelly’s Frankenstein’s monster as an “early version of cyborg-as-discursive-formation” (“Manifesting” 71). He also points out that his work applying narrative theory to curriculum studies is nothing new, citing decades worth of “reconceptualisation of curriculum studies” (“Manifesting” 71). Gough explains his use in the past of two particular strategies within this reconceptualist⁹⁶ movement, *currere* and narrative inquiry, which, in “privileging storytelling,” both “seek to understand and question the ways in which curriculum is constituted in the subjectivities of teachers and other curriculum workers” (“Manifesting” 71). But wary of the tendency of both of these methods to assume (in the humanist and modern traditions) “a singular, fixed, and essential self,” Gough shifts to “playing” with “postmodernist *currere*”—his own term—which uses “postmodernist texts and textual practices to frame autobiographical method and narrative inquiry” (“Manifesting” 72). Continuing to encourage his own students to use these methods, he’s revised his pedagogy:

to invite a mutual interreferencing and deconstruction of personal and cultural texts—to read stories of personal experience within and against examples of postmodernist forms of storytelling, including metafiction, graphic novels, hypertexts, and cyberpunk science fiction, and then to rewrite these stories (and/or

⁹⁶ His roots are in the reconceptualist movement that led to curricular theory becoming a field (Weaver “Synthetically”) and he follows theorists like William Pinar into alternative methods of research such as Pinar’s autobiographical curriculum inquiry, or *currere* (Gough cites Pinar’s 1975 *Curriculum Theorizing: The Reconceptualists*).

write new stories in ways that self-consciously display their intertextuality.

(“Manifesting” 72)

In this, parts of this dissertation document like the long excerpt from Atwood in Chapter III, the diffractions in Chapter IV, and this sentence here as I draw attention to such constructions and their link back to Gough take cues from (both) Gough(s) as well as Barad, Haraway, and others who play with textuality and metacommentary as ways to diffract instead of reflect, and other feminist poststructuralists and post qualitative inquirers who use technicities like writing-as-inquiry (Richardson and St. Pierre) in their posthumanist praxis.

While retaining the benefits of using such techniques (in his case in curriculum studies) as “autobiographical writing and keeping personal-professional journals” (71), Gough makes a posthumanist move (taking effective strategies and pushing them even further by addressing any problematic traces of humanism) by approaching it in a postmodern way—interfering and deconstructing, attending to “nonessential, fragmented, decentred selves” who live in “an ontologically plural *multiverse* of experience” and indeed push, cross, blur, and dissolve “ontological borders” with figures like the cyborg (72). Granted, he hasn’t taken up the mantle of “posthuman theorist” yet, but he does, in theorizing this *postmodern currere*, emphasize the “‘power of the imagination’ in theorising a⁹⁷ posthuman condition” (71) and, whether conscious or not, makes the first waves of posthumanist thinking and theorizing throughout his career.

But the posthumanist element to Gough’s work comes from more than his use of fiction to challenge the “naturalness” and “common sense” of scientific narratives—to point out that scientific observations are just as much stories/narratives/discourse as “fictional” stories are.

Though with obvious roots not just in poststructuralism but also social constructivism (i.e. the

⁹⁷ His use of “a” here, as opposed to John Weaver’s continual use of “the” in the same position predicts the productively posthuman path his career takes, particularly in contrast to Weaver who I work with extensively in the next chapter.

linguistic comparison between fact and fiction in note 94), Gough's work makes the critical move of pushing the movements' more effective strategies/theories—such as Judith Butler's performativity—onto a more, as Barad would say, material-discursive, more posthumanist path. Gough chooses to “perform autobiographical curriculum inquiry (as distinct from merely using it in [his] teaching of curriculum studies)” in a 1991 chapter titled “An Accidental Astronaut: Learning with Science Fiction” (“Undoing” 152). In the chapter, he “reflects⁹⁸ upon a succession of fortunate accidents through which particular SF stories influenced [his] personal and academic development, and how SF eventually became significant in [his] work as a teacher educator and curriculum scholar” (“Undoing” 152). For him, this work of tracing how SF authors like Arthur C. Clarke and, especially, Ursula K. Le Guin influenced (I would say intra-acted with) not just his *life* but also his *pedagogy* and *scholarship* “powerfully demonstrated to [him] that ... *currere* ... indeed has the capacity to reveal how our collective and individual histories and hopes permeate our stories of educational experience and to ask how our interpretations of them influence curriculum thought and action” (“Undoing” 152). In other words (or in Barad's terms for her agential realism), he isn't just acknowledging what's “influenced” him (as we might on an acknowledgments page) but is instead presenting himself, his work, his theories, his very subjectivity, as an emergent *phenomenon*—an ongoing and continually performed material-discursive intra-action. This performative element would also continue to evolve throughout his career and work (especially, as we'll see next, in his work with his partner). In terms of my own project, it is an example of curation↔calibration as, in taking his work as a whole, we can map

⁹⁸ This chapter was an invited submission for the edited collection *Reflections from the Heart of Educational Inquiry*. It's important to note the term reflection in the title as well as his verb choice here. This is before his encounter with Haraway. After which he will, like Barad, explore diffraction as a way of taking into account difference and interference instead of trying to engage in a mirror-representation of reality (via reflection). Autobiography's use in *currere* as a “reflective” exercise is one reason he feels, after working with Haraway, that he has to move to a postmodern *currere* that does more.

where the curation of new theories/texts into Noel-as-phenomenon calibrated his praxis and scholarship (which are inseparable) toward posthumanism.

This is an interesting entanglement, a science (and outdoor) education scholar turning to narrative theory and applying it back to curriculum studies with an emphasis on the subjects he teaches. And it is Gough's own story of that transdisciplinary entanglement that intra-acts with multiple theorists over time—a common thread throughout his work as he continually updates this story as it evolves⁹⁹—which not only highlights the posthumanism of his work but that also serves as a model—particularly for myself and this project—of ways a posthumanist researcher-educator might engage *instead* in inquiry-as-teaching¹⁰⁰ (or teaching-as-inquiry).

In tracing the genealogy of his own work, Noel emphasizes the influence of his partner Annette Gough who, at the time he was researching for *Laboratories in Fiction* was herself studying/researching for a PhD—“a feminist post-structuralist analysis of the discourses of environmental education's ‘founding fathers’” (“Undoing” 154). *Her* work turned him on to Haraway's work which is such an entangled part of the phenomenon or assemblage that is Noel's¹⁰¹ oeuvre.

Annette herself was what Weaver calls a “reluctant posthuman theorist” and yet her “conversation with the posthuman is not only theoretical, it is also a material reality” (*Educating* 31). Much like Noel's life-long love of science fiction ended up shaping his story as an educator

⁹⁹ At first I found the repetitive nature of Gough's articles annoying. I'd read whole paragraphs I recognized in multiple articles years down the road. However, the more I worked with them and developed my own understanding of what I wanted my own posthumanist praxis to be, I saw that they were, as Barad puts it, iterative differentiations as he continually emerged (as we'll see with Toby in the next chapter) with his work through different apparatuses (curation↔calibration). When I say multiple theorists here it's in contrast to Spanos who, despite his mandates, remained with the same theorists while Gough's work changes over time as he diffracts it through Deleuze and Guattari, Haraway, Latour, Barad, and others—some together others alone, some one time and others another time.

¹⁰⁰ As I'll discuss more in chapter 4, the move here from “research” to “inquiry” here is deliberate on my part.

¹⁰¹ As we've reached the point where I'm talking about two Goughs, I'll refer to both of them by their first names from now on in this chapter. I claim no familiarity with either author and mean no disrespect. But, I also reject the notion of using the male's last name for himself and the female's first name only to distinguish between them.

and curriculum theorist, Annette's mastectomy and reconstructive surgery after being diagnosed with Paget's disease of the nipple set her—"as an educational researcher (with a science background)"—on "the almost predictable" course "from positivist through interpretive to critical, and then into feminist and poststructuralist work" ("Blurring Boundaries" 7). And from there she moved into posthumanism¹⁰² as she later "conceptualized cyborg methodology ... as being concerned with blurring boundaries, (physical, social and intellectual), constructing identity, sexuality, and gender as you please; all informed by feminism, poststructuralism and Foucault" ("Blurring Boundaries 6).

The story of getting, embracing, and, finally, theorizing/enacting praxis *from* her prosthetic "cyberboob" ("Body/Mine" 259) is a "real" example of Haraway's cyborg myth in action, entangled with Annette's 30 years of experience as an "environmental educator" ("Body/Mine" 250):

... a recurring theme in my curriculum development work has been the impact of mining on the environment, and what 'restoring the land' means after 'Man' has removed a prized resource from various locations. It never occurred to me that my body could also become a mine site ... This story tells how I came to terms with my postoperatively scarred body as a mine site that I saw as needing reconstruction to normalize my appearance, and what that entailed theoretically (as a feminist poststructuralist researcher) and physically (as an aging heterosexual female) ... I want to explore 'the possibilities of theorizing within

¹⁰² It's Weaver who labels Annette (along with Noel) as a posthuman theorist five years later in *Educating the Posthuman*. In her 2015 chapter for a book Weaver edited (with Snaza), she concedes that he "rightly [recognized] her work as posthumanist and that her later work "continues [her] conversation with the posthuman at both theoretical and material levels, and in an environmental education context" ("Resisting Becoming" 168). I also agree with this assessment even though I argue in the next chapter that Weaver himself struggles with his own work being transhumanist instead of posthumanist.

stories instead of about them¹⁰³ ... and in doing so to rethink my own educational research work ... In writing this story, I enact Donna Haraway's ... cyborg manifesto, relating her arguments and cyborg imagery to both my corporeal body and the body of my own research. ("Body/Mine" 250-251)

As "an environmental educator interested in embodied agency in educational research" ("Resisting Becoming" 167) and a self-identifying feminist poststructuralist researcher¹⁰⁴, Annette has (since working with Haraway in her own 1994 dissertation¹⁰⁵) approached environmental education as a pedagogy "concerned with crossing disciplinary boundaries and behavioural boundaries in educating people to act *for* the environment, and even in learning *with* environments" ("Blurring Boundaries" 6)(emphasis original).

She sees theorizing within stories as a possibility to enact/perform poststructuralist theories of subjectivity—"subjects are nonunitary, multiple, and complex"—via feminist methodology—"knowledge is constructed from where the researcher/theoretician is situated," and ... we need complex means of investigating and knowing the world which reject binary modes of thinking" ("Body/Mine" 254). Like Barad, she sees her work and particular enactment of these entangled theories and methods as exploring and questioning the relationship between epistemology and ontology. She writes about enduring medical surveillance, being driven by societal norms, imagining being an animal bewildered by the first sound of human machinery announcing a significant/unimaginable change, feeling binaries dissolve, feeling like she "embodied Braidotti's Deleuzian notion of becoming-woman/animal/machine," realizing she

¹⁰³ Annette is quoting Bochner's "Narrative Virtues." *Qualitative Inquiry* 7 (2001), p. 141.

¹⁰⁴ Her definition (in "Blurring Boundaries") for "feminist poststructuralism" comes from Weedon: "a mode of knowledge production which uses poststructuralist theories of language, subjectivity, social processes and institutions to understand existing power relations and to identify areas of strategies for change" (Weedon. 40-41).

¹⁰⁵ *Fathoming the Fathers in Environmental Education: A Feminist Poststructuralist Analysis*, Unpublished doctoral dissertation, Geelong: Deakin University.

would be “a cyborg,” (“Body/Mine” 256) negotiating what that meant for her, her research, and her own theories. She writes, fully aware of the “tensions around writing the body in feminist poststructuralist research” to “conceptualise [her] self as ‘a mode of holding together the epistemological and the ontological¹⁰⁶” (“Body/Mine” 260).

Her theorizing *within* her *story* has, she argues, “helped [her] to understand discourses of the Other better because [she has] experienced ... ‘multiple, fragmentary, and unfinished’ identity as ‘a performative struggle, always destabilized and deferred’ ... [her] practice as an environmental educator has been changed through being an embodied subject in [her] own mine site story, stripped of [her] ore body” (“Body/Mine” 262). In “experiencing these boundaries and border crossings intimately,” Annette has found “the space ... to rethink the construction and deconstruction of boundaries in [her] environmental education work, particularly with respect to ‘building and destroying machines, identities, categories, relationships, spaces, stories¹⁰⁷” (“Blurring Boundaries,” 6). In this she’s much like Toby (who we will meet in the next chapter), Margaret Atwood’s fictional character whose continual and embodied becoming emerges with an unfamiliar world and within her story of working the ruins of humanism.

In roughly the same years Annette published different versions of her conceptualization of cyborg methodology and subjectivity via an enactment of theory through (instead of about) story, Noel continued his own enactment of theory in “RhizomANTically Becoming-Cyborg: Performing Posthuman Pedagogies”:

This paper is a narrative experiment inspired by Deleuze and Guattari’s (1987) figuration of the rhizome. It is a textual assemblage of popular and academic representations of cyborgs that I hope might question, provoke, and challenge

¹⁰⁶ Annette quotes Elspeth Probyn’s *Sexing the Self: Gendered Positions in Cultural Studies*.

¹⁰⁷ Annette’s citation for this quote: (Haraway, 1991, p. 181, with correction noted by Alaimo, 1994, p. 152).

some of the dominant discourses and assumptions of curriculum, teaching, and learning ... I have coined the term ‘rhizomANTic’ ... to name a methodological disposition that connects Deleuze’s rhizomatics, ANT (actor-network theory), and Donna Haraway’s (1997) ‘invented category of semantics, *diffractions*’ (p. 16, my caps). (“RhizomANTically” 253)(emphasis original)

While both Annette and Noel share¹⁰⁸ Haraway, Annette’s work is more entangled with Foucault and his theories of writing (on) the body while Noel incorporates Deleuze and Guattari. He continues to evolve his theories of “narrative experiment¹⁰⁹” by diffracting them through Deleuze and Guattari’s “figuration of the rhizome” to develop a “process” he debuts years later in 2007¹¹⁰: “rhizosemiotic play” (Undoing 156). He refrains from defining this term, staying true to its Deleuzian roots:

I share Deleuze’s disinterest in asking what a sign or concept or text ‘means’ but, rather, asking how they work and what they do or produce. If my narrative experiment does the work I intend, readers will experience ‘rhizosemiotic play’ immanently, as emerging from this text. (“Changing” 282)

Indeed, for us, an exact and stable definition of rhizosemiotic play isn’t necessary here either—the point is the performative nature of Noel’s work and the “real life” play of ideas between him and Annette which continually circulate/diffract through each other so that there is no beginning

¹⁰⁸ Much as they share Annette’s experience (though it impacted each of them and their theories in different as well as similar ways): “However, in 2001 my partner was diagnosed with a rare form of breast cancer and underwent a mastectomy and breast reconstruction. Somewhat predictably, given our mutual interest in Haraway’s work, we began to interpret her experience and changing subjectivity terms—her breast implant rapidly became ‘cyberboob’” (Gough, “Undoing” 155).

¹⁰⁹ In footnote 7 from “Changing Planes,” Gough elaborates on (though doesn’t necessarily define) (t)his term: “My narrative experiments have similar purposes to the ‘thought experiments’ conducted by quantum and relativity physicists in the early part of the twentieth century. Their purpose was not prediction (as is the goal of classical experimental science), but more defensible representations of present ‘realities’” (282).

¹¹⁰ “Changing Planes: Rhizosemiotic Play in Transnational Curriculum Inquiry”

or end or one or the other or Annette-herself or Noel-himself, but there is a larger phenomenon: the Goughs.

The Goughs are—to continue with Noel’s use of Deleuze and Guattari¹¹¹—a rhizome in and of themselves. Their partnership is an assemblage—personal, professional, inside, outside, private, public, his, hers, theory, practice, all entangled together—which you could truly come to “in the middle.”¹¹² To see them in this way, is to recognize the posthumanist way in which their being and knowing are inextricably entangled. And I see them this way because they make *themselves* visible, are as transparent as it is possible to be in acknowledging and foregrounding the constructed nature of the narratives they put forth to make their experience(s) intelligible to us.

Other actants inhabit (are entangled in, intra-act with) this rhizome as well. Noel traces some of them in his performance of a rhizome: “Haraway’s cyborgs, the cyberpunk science fiction of William Gibson and others, and the young people I encountered in homes, schools and universities who increasingly seemed to be taking ambiguous kinships of organisms and machines for granted (“RhizomANTically” 255). As we’ve seen, John Weaver¹¹³ is an integral part of the Gough assemblage, particularly as he encourages them to think of themselves as “posthuman” theorists. Annette’s cyberboob and Noel’s own later cancer figure heavily in this assemblage. So do ants (see Noel’s “RhizomANTically Becoming”). The list goes on, but suffice

¹¹¹ He’s in good company here. Along with Haraway and Barad, Deleuze and Guattari (particularly rhizomatics, nomadic ontology, and assemblages) circulate widely through posthumanist education theories/strategies.

¹¹² Noel in “Changing Planes,” p. 292: “Deleuze and Guattari (1987) explain that rhizomes have no beginnings or ends but are always in the middle: beginnings and ends imply linear movement, whereas working in the middle is about ‘coming and going rather than starting and finishing’ (p. 25, *A Thousand Plateaus*).”

¹¹³ Weaver tends towards transhumanism which I find as problematic as Spanos’ retreat back into humanism. His book-length exploration of the posthuman and curriculum studies came out when many theorists had made the material turn and steered posthumanism off the humanist trajectory toward transhumanism and the cyborg as ultimate transcendence. Weaver misses this turn. Like Spanos, he doesn’t engage with the whole conversation. While his book is sure to pop up in a search for “posthuman education” and his name continues to pop up in co-authored texts about posthuman educational research, his work doesn’t fit (except for following Gough to use fiction) this project’s use of (material feminist) posthumanism and agential realism. I’ll discuss this more in Chapter III.

it to say, what makes the Goughs posthumanist in my book is, much like fictional Toby in the next chapter, their *attention to* that list and their understanding that this is a list of actants with which not just their Being but also the knowledge they make and circulate with their students, colleagues, and the world *emerges*.

In the Goughs' work I see much that is missing from Spanos' work, from a fellow theorist trying out posthumanism through the same time period.

- Full engagement with the postmodern and poststructuralist turns (in disciplines other than their own) and building from a variety of poststructural and feminist theories and methodologies.
- Engagement with a myriad of posthumanist theories and theorists. An awareness of a larger, non-philosophy conversation.
- A fluidity that speaks to being and becoming-with (a focus on trying to create meaning via intra-action instead of theorizing as an autonomous thinking-I).
- Performativity. Enactment of theory (from within stories or not). A move to bridge or dissolve the gap/divide between theory and practice.
- Acknowledgment that the articles, chapters, etc. they share are stories (whether technically “fiction” or not). They are constructed, but not just by language. They make the material turn and begin to work with (after Barad, Alaimo, Heckman, Ingram and others) the material-discursive or the entanglement of matter and language where both *matter*, neither preexist the other, and both create meaning (and intelligibility) together (Barad *Meeting*).

The Goughs, in other words, don't stay within disciplinary boundaries or stick only with a particular theorist or theory or shy away from a complex conversation when it takes turns away

from where they might have been headed or away from the comfortable. Instead, they engage in a theorizing that's much like a surfing pedagogy, moving between planned and improvised spacetime (Lenz Taguchi *Going*). Their research is messy (Fenwick and Edwards; Lather *Engaging*), often bewildering (Snaza *Bewildering*), and, so far, resists being pinned down. It's fully embodied in a kind of posthumanist performativity (Barad *Meeting*) that requires emerging with the world through intra-action. And, though making agential cuts such as articles or this dissertation document that become artifacts, such a performativity doesn't insist on repeating such diffractive patternings exactly¹¹⁴ (an impossibility) as they, again and again, become-with unique phenomenon. It requires thinking of the self as already in relation to others (human *and* nonhuman alike) via rhizomes or assemblages or phenomena. Their praxis, then, is the kind of movement, embodiment, material-discursive intra-action, and onto-epistemology which this project also engages in as it diffracts life through fiction through non-fiction through scholarship through theory. It sees all of them as inseparable and all of them as part of the larger curation↔calibration of praxis from which we configure (curate) classrooms-as-elsewhere just as it and reconfigures (calibrates) us and that praxis back.

While this list is informative of what I look for in the posthumanist education and educational theory I continue to calibrate my own work to, what it fails to show (as I'll argue with many of the artifacts of the pedagogical documentation and diffractions in Chapter IV) are all the ways in which the reading-with and working-with the Goughs calibrated me and my praxis as I curated them into this project and, particularly, when I diffracted them through Spanos. As we'll see below, the posthumanist conversation within educational fields is, though relatively new, incredibly varied. And though the calibration from working with the Goughs helped me dive into the cacophony and get lost without getting totally lost, their work, like much

¹¹⁴ As Spanos tries to do in "simply" reframing his argument through the War on Terror.

of the work mentioned below, lacked more than cursory diffractions through pedagogy—the stories of implementing some of these embodied strategies in *classrooms* and what insights such enactments gave them as they recalibrated their praxis through such inquiry. But even such a lack calibrated my work. In my frustration with them and others, I decided it was not just important but critical that I talk about the classes in which I myself tried to develop a posthumanist praxis.

Reading (and Reading and Reading) the Cacophony

As Hughes and Taylor point out in their introduction to *Posthuman Research Practices in Education*, “the cacophony and complexity of voices within the field of posthumanism can be confusing as one works through the histories and implications of alternative arguments” (1). Applying it to education and educational research, Taylor adds, is also a challenge in that (in line with what we saw above and the last chapter), currently,

education operates within a largely performative context, in which regimes of accountability, desires for a quick and easy relay from theory to practice, and the requirement that ‘evidence’—the most valorized form of which often comes in the shape of large-scale randomized controlled trials—ought to inform pedagogic interventions, constitute the dominant ways of thinking and modes of inquiry.

(“Edu-Crafting” 5)

For the most part, no matter the theory it’s calibrated to, posthumanist education and educational research calls into question all of that context, including the anthropocentrism that *enables* such a context. There are no straight genealogical lines either from humanism to posthumanism or between the posthumanist conversations (Taylor “Edu-Crafting”). Instead practices and theories and metaphors are as entangled, mangled, and emergent as they theorize subjectivity and reality

to be. Publications (shared stories, snap shots, agential cuts, artifacts), particularly when curated together, offer a dizzying array of actants (from theorists to things to animals to weather to concepts to words to technologies and beyond) involved in the ever-emerging story of what education from a posthumanist framework might (should, can, already does) do.

For instance, it might follow the course of a teacher's sweater in the classroom while considering our responsibility to observe such nonhuman and human intra-actions in a new materialist framework (Robbins). Or, without getting lost in some of the more extreme posthumanisms (e.g. of Bogost), it might think "with" a brick to develop a "mild posthumanism" that can help us recognize the role the built environments of our schools play in education (L. Bennett). Or it might argue that OOO shows us places where the tensions of humanism and posthumanism "play out" (Weaver "To What"). It might rethink schools as ecologies and ecology as performed in emergent praxis (Rotas "Ecologies," "Moving"). It might use new materialisms and Deleuze and Guattari to critique MOOCs as a move *deeper* into humanism (Knox). Or it might use Latour and Actor Network Theory analysis to see "classrooms, teachers, curriculum, a policy, standardized testing, racism or evidence-based practice are each in fact assemblages of myriad things" (Fenwick and Edwards 4). Or it might use Baudrillard's simulacrum to argue that we should use *Six Feet Under* to help students learn to recenter themselves in the face of fractal time and avatar identities (Petitfils 2014). Or it might take Haraway's promises of monsters to heart and use "exopedagogy" to "examine the possibilities for an education that exists in the indeterminate zones where tried and true boundaries between self and other, friend and enemy, and nature and culture seem to give way" (Kahn and Lewis). It might adapt snaplogs—a visual qualitative method—to an agential realist methodology (Sauzet). Or it might create workshops that have students write-through their

bodily intra-actions with weather in order to help teach feminist material orientations to climate change as both a subject and practice (Neimanis). It might use art pedagogy, performance, drama, art appreciation, and other fine art modes that consider “practice as thought already in action” (Hickey-Moody and Page). Or it might use Haraway’s cyborg as a figure for students to use to write-through the myriad connections that drive every act during their days (e.g., tracing making a pot of coffee from the machine through the wires in the wall, to the plant that supplies electricity, to the cows and farm where the creamer comes from, and so on) (Angus, Cook, and Evans). Or it might use zombies for multiple reasons including as an apparatus (along with popular culture) to reveal our hybridity and think through our role in the neoliberal education machine (Huddleston) or to think through dark posthumanisms and why “a contemporary posthumanist turn in education must be one capable of thinking with death . . . and the death of the anthropocentric conceit that the world is *as it is for us*” (Wallin 143). It might use Manning, Massumi, and architectural design to rethink predetermined methodology as activating and emergent technicities and propositions (Springgay). Or it might develop a data analysis theory of “looking for the bear” in which we learn to ignore what data first catches our eye in favor of the missable and hidden threads (Gannon). It might use animal studies to rethink the use of animals in schools (Pedersen *Animals*) or how better relations between animals and humans might translate to more ethical educational settings as well (Miller; Pedersen “Educational;” Morris). It might entangle Barad’s agential literacy with Indigenous “ecologies of relationships” and “storywork” to decolonize content areas like science (Higgins). Or it might follow a single piece of evidence—a mark in the margins of a page—to entangle posthumanist and Indigenous onto-epistemologies (along with its Indigenous and non-Indigenous co-authors) in a critique of some new materialism’s claims to truth and in resistance to the idea of working outside the “rules of

science” (Jones and Te Kawehaw Hoskin). Or, as we’ll explore at length in the next chapter, it might use fiction, particularly SF, to speculate on all of the above and more besides.

This is yet another incomplete sampling, this time of the kind of work in posthumanist education that’s exploded in the last half of this decade (the three edited collections much of the work mentioned above comes from came out in 2015 and 2016¹¹⁵). For the most part, as Taylor argues, such posthumanist approaches are

immanent, vitalist, materialist, embedded, embodied, relational, sensory, affective, contingent, experimental. These are the modes of thinking-in-being which issue a call to those interested in posthumanist research practices in education. Such research cannot be ‘done’ or ‘carried out’, it may only be activated, enacted, instantiated, so that it strives to set in motion a ‘cacophonous ecology’ of bodies, objects, materialities, affects, sensations, movement, forces. Posthuman research enactments are a practice of the plunge: letting go, diving, freefall, surfing, swimming, waving and drowning. They are a plunging into particularity that collapses scale, structure and level—to (try to) see the world in a grain of sand, indeed—and a committed ethico-onto-epistemological venture to (try to) do away with the binaries that have held ‘man’ and ‘human’ so securely in place as a means to other everything/everyone else. (“Edu-Crafting 20)

Such practices of the plunge, as St. Pierre points out, are “not predictable, and, for that reason, the ‘posts’ do not and cannot offer an alternative methodology” (“Post Qualitative Research”

¹¹⁵ *Teaching with Feminist Materialisms* (Hinton and Treusch 2015), *Posthumanism and Educational Research* (Snaza and Weaver 2015), *Pedagogical Matters* (Snaza et. al 2016), and *Posthuman Research Practices in Education* (Taylor and Hughes 2016). 2010 was another productive year seeing Pedersen’s “Is the Posthuman Educable” and *Animals in Schools, Educating the Posthuman* (Weaver), *Actor Network Theory in Education* (Edwards and Fenwick), *Education out of Bounds* (Kahn and Lewis), and *Going Beyond the Theory Practice Divide in Early Childhood Education* (Lenz Taguchi). While other articles and special editions of journals published work on varying posthumanisms in education and educational research in the years between (and since Spanos), these works represent two major emergences of such literature through books and edited collections in the current decade.

622) to more traditional ones (whether in research or teaching—which are often separate in traditional qualitative and quantitative research). There are no textbooks here. And let's hope that remains the case.

Still, many of the articles or chapters cited above in that list and much of the literature in general so far that purposefully applies posthumanism to education is from conversations in educational research or curriculum studies. In the first, the focus is often how to disrupt the structures of humanist research, most often positivist science. While this sometimes shows glimpses of classrooms involved in the research being problematized or tried, it more often centers on questions of how to interact (intra-act) with data, what data is (or could be), how to create methods without being ruled by textbook methodologies, how to intra-act ethically with those we research, and, generally speaking, what research looks like when you try to leave behind the humanist, autonomous-I. As such, actual teaching (beyond teaching student teachers) is rarely mentioned. These are still important conversations to pull from as they address ethical concerns of intra-acting with others—both nonhuman and human alike—when humanist notions of interaction are shifted to posthumanist ontologies and epistemologies of relations. And, as I'll argue in Chapter IV, as teaching↔as↔inquiry (curation↔calibration) in our own classrooms-as-phenomena is critical to a posthumanist teaching elsewhere, reading such conversations, particularly post qualitative research, is also critical.

Curriculum studies is similar in that in its focus on what we teach and how we teach such curriculums, it doesn't actually show much of that teaching in action. Instead, it tends to remain in the theoretical and apply posthumanist metaphors (also critically important) to troubling humanist ways of “doing” curriculum and of choosing curriculum, for instance, the zombies mentioned above or the Spawns from Hell discussed in the next chapter. Or articles from either

field might focus on one aspect of educational spaces, such as the playground (Knight) or a student's use of a mattress in a semester long protest (Jackson and Mazzei "Agentic Assemblage"). All excellent readings to think through and with as we build archives and praxis, but which don't always provide examples of what such thinkings might look like applied to the day-to-day work of the average college classroom. What we learn about and in our own classrooms is, as I'll argue in Chapter IV, not generalizable to all classrooms outside that unique phenomenon. But I do believe that the biggest problem with current literature in posthumanist education is a lack of sharing from *actual* teachers—not just researchers or curriculum theorists, etc.,—but actual teachers whose main role on a campus is to teach students on a day to day basis. And that the sharing of such classroom stories could, like superpositions, begin to build an amplified, diversified pattern of possibilities that we can use, not to pin down what posthumanist pedagogy in higher education *is*, but perhaps to better speculate what it also might be. Outside of Early Childhood Education—where classrooms are much more lively and customized than higher education—the sharing of such stories is sparse (and often, again, tends toward the theoretical). As we'll see in the next chapter, I found the most productive look at what such pedagogies might look like in action in Margaret Atwood's speculative fiction.

Curation↔calibration, then, is not just for each classroom but for building of our archives (bricolage, toolboxes) in general so that when we come to each new classroom-as-phenomenon we have a wide and varied collection of texts, objects, strategies, experiences, people, stories, and so on to curate↔calibrate from and with. It should pull not just from academia but from fiction, popular culture, conversations with colleagues in the copy room, classroom observations, our lives outside campus and so on. Instead of promoting an "anything" goes descent into play and chaos, the curation↔calibration of praxis within such a cacophony of theories/stories

requires an even deeper responsibility and ethics—if materialization is a matter of what is and isn't included in a phenomenon, then the choices we make as we choose reading paths (agential cuts through various apparatuses of time, interest, and so on) make *critical* differences to our own knowledge-in-being and, therefore, the possibilities we bring to the classroom. As we saw with Spanos, choosing to not engage in particular conversations caused the same sort of failure he accused postmodernists of. As we saw with the Goughs, continual intra-action with various theories/ists, nonhuman actants, bodies, and each other created possibilities for posthumanist becomings with each other and within their work.

Part of curation↔calibration, then, is also learning what to leave out, what is counterproductive to our own goals. As we'll see in the next chapter, for me and my project this includes work calibrated to transhumanism (Weaver "Curriculum," *Education*) or to the idea of "the posthuman condition" and its need to be cured or alleviated (Petitfils). The feminist, material, posthumanist position I advocate for by offering my own reading, theorizing, and experience with it in this dissertation relies on the productivity and necessity of *uncertainty* when taking up the responsibility of education and the role of teacher with students who are not less than human, who do not need humanizing, but who inhabit positions that are continually becoming just as *I* am continually becoming. Such a responsibility requires us to defer certainty again and again, to demand of ourselves a strong objectivity that recognizes its partial perspective (Haraway "Situated," "Promises") and to read and experience widely and deeply and with, as I'll discuss in the next chapter, a skepticism or vigilance that allows us to work on disentangling from humanist habits without getting completely swept away or up in a cacophony *meant* to be messy.

Chapter III

Speculating the Praxis

“To speculate further: do stories free the human imagination or tie it up in chains by prescribing ‘right behaviour,’ like so many Victorian Christian-pop novels about virtues of virtuous women? Are narratives a means to enforce social control or a means of escape from it? Is the use of ‘story’ as a synonym for ‘lie’ justified, and, if so, are some lies necessary? Are we the slaves of our own stories—our family narratives and dramas, for instance—which impel us to re-enact them? Do stories optimistically help us shape our lives for the better or pessimistically doom us to tragic failure? Do they embody atavistic rituals? Are they essential to us—part of the matrix of our shared humanity? Do we tell them to show off our skills, to unsettle the complacent audience, to flatter our rulers, or, as Scheherazade the Queen of Storytelling did, to save our own lives? Are they the foundational bedrock of our various societies, or possibly even our various nations—whether those nations have been aspiring ones, in the throes of defining themselves; imperial ones, justifying their domination of others; or declining ones, lamenting their own passing? ... Or are stories just pastimes—old wives’ tales to be spun round a cottage fireplace—or sentimental and sensationalistic novels to be devoured by bored young ladies reclining on nineteenth century chaise lounges, or TV-series spinoffs ... in all cases frivolous by definition? The answers to such questions have varied over the years—indeed, over the millennia—and many heads have literally rolled and many panel discussions have been held over the differences among those answers ... We live in an age of intense speculation about stories and their origins and purposes ... In any case, hearing a bush speak, especially in such a portentous manner, is not something a Jane Austen heroine would be likely to experience. Such an event might happen in an Ann Radcliffe Gothic shocker, but only if there were a sinister count hidden inside the bush. It could happen easily in a fairy tale ... or in a Greek myth ... And it could happen effortlessly on Planet X”

—Margaret Atwood

“Burning Bushes: Why Heaven and Hell Went to Planet X” (41-45)

“It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what ties tie ties.”

—Donna Haraway

“SF: Science Fiction, Speculative Fabulation, String Figures, So Far”

As Neil Badmington argues, “posthumanism is as much a matter of theory as it is a question of fiction” (“Posthumanism” 376). Fictions, in this case, are a wide variety of things—metaphors and figures to think with as well as narratives, both “fictional” and “non-fictional.”

Speculation, then, is an essential component for a posthumanist praxis meant to curate↔calibrate a classroom-as-elsewhere. Speculative *fiction* (and genres like it)—whether literature, art, popular culture, and so on—“[give] imaginative form to the limits of our own constructed knowledge (and particularly to what might lie beyond them) and is thereby a *conceptual territory* in which to explore ideas and issues” (Gough, “Undoing” 154)(my emphasis). Considering the role fiction, SF in particular, plays in conversations around posthumanist education and inquiry, this chapter curates Margaret Atwood’s *MaddAddam* speculative fiction trilogy into this dissertation to serve as both a conceptual (speculative) territory—its own textual elsewhere to “work the ruins¹¹⁶” in a way unavailable to us in our current humanist education system—and as texts through which to diffract my own praxis and the artifacts of the classes taught and discussed in the next chapter. After arguing for the productivity of using this particular type of fiction and after critiquing John Weaver’s use (and non-use) of science fiction in posthumanist education conversations, I map ways in which *The Year of the Flood* and *MaddAddam* can serve as such conceptual territories and in which the character Toby can help us calibrate our praxis for posthumanist concepts of emergent subjectivity, productive skepticism, storytelling as knowledge-in-being, and ethical relations with students.

Using Fiction, SF, Stories

As a literature and composition teacher—first for high school and now for undergraduates—and now a student/scholar who considers her home field literary and critical theory, the idea of using fiction as conceptual territories, as “laboratories” or apparatuses of their own with which to consider my own praxis (and for my students to “do inquiry” with as well) is

¹¹⁶The ruins of humanism Pillow and St. Pierre referred to in Chapter 1.

not necessarily revolutionary. Through the postmodern and poststructural turns, deconstruction, and now the material and ontological turns, literary and critical theorists, as a matter of course, use fiction in their research to subvert humanist and oppressive systems (or expose ones embedded in such narratives). Even if none of that applies, as we see in Atwood's detailed, but not exhaustive, list of questions in our epigraph, stories—their existence, their construction, their role, their tellers, their problematics, and their subversiveness—have been the business and data (to use the language of corporations and sciences) of the humanities for a long, long while.

As Haraway—a feminist scientist who has made stories (and how and by whom they are told) a central part of her praxis since the start of her career—puts it, “story-telling is a serious concept” (*Primate Visions* 8). In looking at primatology as a storytelling process, in entangling science and fiction as equally constructed and human *doings* (albeit *with* others and the world), she adds that “stories are means to ways of living. Stories are technologies for primate embodiment” (Haraway *Primate Visions* 8). For the purposes of posthumanist education and post qualitative inquiry we can drop the primates (with full acknowledgment of their inextricable role in the thinking through of this concept) and say, simply (or not), that stories are technologies for embodiment.

Indeed, in her *The Signifying Body: Toward an Ethics of Sexual and Racial Difference*, Penelope Ingram curates together a set of literary texts that, *with* the reader, do the embodied work of “guiding us along the path of our ontological inquiry” (111). These texts in particular contain bodies (characters) that exceed, confront, side-step, deconstruct, problematize, and generally *menace* representation:

The physical signification enacted by the signifying bodies in the texts of Jordan, Coetzee, Morrison, and DeLillo should be viewed as ... a language that shows,

not speaks, and as we have seen, it is through these corporeal becomings that the characters exhibit authentic Being-in-the-world, and through which Being is revealed ... The signifying language that occurs within the confines of the literary text enables the reader, herself, to undergo the ‘experience of language’ ...

Through the act of reading, then, the ontological possibility of authentic Being-in-the-world can be disclosed to the reader in her inescapably ontic experience.

(Ingram 111)

A phenomenological approach grounded in Heidegger, Irigaray, Fanon, Bhabha, and others, Ingram’s working through of material semiotic or material-discursive possibilities of certain types of texts, indeed, certain types of *characters* (bodies), models a productive curation with the intent of calibration (in her case, and as her title says, curating an elsewhere calibrated “toward an ethics of sexual and racial difference” as diffracted through the above mentioned authors of both fiction and theory).

As in the classroom—with its unique and unrepeatable spacetime-mattering—not just any “text” or “work of art” will do, and not just because particular students in particular spaces at particular times with particular goals and particular human and more-than-human actants need *particular* texts. When arguing for the importance of fiction and, indeed, narrative theory and concepts in general to shift our ontological and epistemological assumptions, indeed to open up our praxis, politics, and policies to the *many* (different) possible ways of being and knowing (which storytelling can contain), it’s critical to remember that stories, fiction, texts, narratives, have all been used to foreclose such possibilities as well. As Haraway (*Primate Visions*), Gough (*Laboratories*), Barad (“Feminist”) and a whole genealogy of feminist science studies theorists would say, the story of science as a non-story is just such a foreclosing narrative that we are still

working to deconstruct. In other words, like any theory, tool, strategy, apparatus, etc., this “serious concept” can be used with serious and violent consequences. As Ingram puts it:

Literary and cultural texts are often implicated in the shoring up of cultural ideologies; historically they have been used to support, justify and persuade readers of everything from imperialism to patriarchy. Realist literature naturalizes ideology and *obfuscates the constructed nature of all representation* (92)(my emphasis)

Reading, then, (particularly with certain kinds of texts) can guide us in unproductive, even dangerous directions as well¹¹⁷.

Indeed, such obfuscation is at the heart of both Gough’s and Barad’s critiques of science textbooks as we’ve discussed in earlier chapters. The unproblematic presentation of science—its literacy, its doings, its professionals—through a Newtonian, positivist narrative that claims *not* to be narrative but logic, reason, fact, and common sense instead, obfuscates the constructed—indeed narrative nature—of such a representation. The shift from classic to quantum physics should, much like the shift from modern to postmodernism, have shifted the teaching of science—its representation in classrooms and textbooks—and opened up the kinds of “data” and “methodology” accepted as “legitimate” by policy makers, politicians, administrators, etc. too, but, as both Barad and Gough argue, it hasn’t.

In her explanation of Bohr’s role in this ontological and epistemological shift, Barad not only dramatizes a fictional scene between Bohr and Einstein gambling and analyzes Michael Frayn’s fictional play, *Copenhagen*, about Bohr, but also notes Bohr’s turn to work being done in the humanities with language:

¹¹⁷ This is yet another reason why the curation of texts into a unique classroom is such a critical process that should take into account the unique spacetime-mattering of each class. Such choices materialize possibilities.

Desperate to make sense of all this, Bohr makes one of the strangest moves in the history of physics: he turns his attention to the question of... *language!* (A respectable move for a scholar in the humanities, but what on earth is a physicist doing examining the nature of concept use and meaning making?!) Entertaining questions that most physicists wouldn't even see as questions Bohr asks: What do we mean by 'particle' or 'wave'? ("Quantum Entanglements" 253)(emphasis original)

As I mentioned in the mapping of Noel Gough's work in the last chapter, he, as a science and outdoor education teacher made a similar move, using Haraway as a model for turning to both narrative theory and science fiction and popular culture texts to help him reconceptualize how science is taught and what is used to teach it. This was not an unheard of move when he made it, even one more accepted than Bohr's, perhaps, as Gough's particular brand of science is educational inquiry which, despite continuing to aspire to positivist approval and gold-stamping, participated heavily in the qualitative and narrative turns in the social sciences (Denzin and Lincoln; St. Pierre "Post Qualitative Research," Lather *Getting Smart, Getting Lost, Engaging*). For instance, Madeline Grummet arguing that curriculum is the collective story we tell our children (1981); William Pinar developing the autobiographical *currere* method meant to "[encourage] personal (and sometimes collaborative) reflection on stories generated through ... autobiographical writing and journal-keeping" (Gough "Narration, Reflection" 62); Patti Lather getting smart (1991) and later lost (2007) and messy (2010) by "[foregrounding] ... the textual staging of knowledge" (*Getting Smart* 13) and contemplating "theoretic fictions organized into a pedagogy that can affect social change ... [in order] to salvage praxis" (12); or Elizabeth Adams St. Pierre developing reading and writing as inquiry which depends on the cutting-together (in

Baradian terms) of theorists and narratives—her own and her “subjects”—to trouble oppressive and colonial tendencies still prevalent in ethnography and autoethnography (“Post Qualitative Research”).

Threads of all of these considerations run through this project, but here in this chapter we are most interested in Gough’s arguments—following Haraway—for using fictions themselves (not just fictional strategies or blurring the lines between fiction and fact in all discourse, including research) as both conceptual territories and diffractive apparatuses:

Fiction may be particularly useful to us when we are attempting to reconceptualise or reconstruct some aspect of our work. Reading and writing fiction can help to move us beyond the naïve empiricist dream of representing ‘reality’ without distortion, beyond the ‘heightened empiricism’ of critical storytelling, and even beyond the reflexivity of texts that self-consciously display the narrative structures through which we produce realist, critical and reflexive stories. Fiction also provides potential discursive spaces within which new knowledge and understanding can be produced ... such speculative thinking is not just an intellectual exercise, since some of the ‘new relationships’ and ‘new ideas’ that are generated in fiction can become the kinds of cultural inventions that materially affect—and are part of our social reality ... The ways in which images, symbols and metaphors drawn from such fictions as Karl Capek’s *R.U.R.* (in which the term ‘robot’ was coined), Aldous Huxley’s *Brave New World*, Orwell’s *Nineteen Eighty-four* and Mary Shelley’s *Frankenstein*, have been strategically deployed, over long periods of time, clearly demonstrate that made-up stories can both create and critique a real world. In terms of the optical metaphors to which

Haraway refers, these fictions are diffractions rather than reflections of the social and material realities in and from which they were generated, and they are still ‘making a difference in the world’ through their direct and indirect influences on successive generations of readers and authors. The overlapping genres collectively signified by the umbrella term ‘SF’ are among our richest sources of diffractive fiction. (“Narration, Reflection” 58-60)

This particular outlining of his argument is from 1994 and shows a separation of discourse from the material (a cause and effect relation) consistent with the times. Since then, though he has focused more on approaching inquiry itself as a fiction by using fictional practices and diffracting his thinking through postmodern and popular culture texts, his overall argument has developed to follow the material turn and reentangle the material and discursive so that instead of material effects from a discursive space, these “made-up stories” are always already material-discursive phenomena participating in a continual becoming-with the world. As apparatus and/or phenomenon, in other words, they don’t just cause or effect but *materialize*.

Coupled with the move here through reflective and meta-narrative texts to push for more, for *diffractive* texts, and with the argument that such texts can be found in SF, Gough calls for the use of particular—disruptive, meta, conscious-of-construction—fictions as laboratories (conceptual territory), methodologies (diffraction), and data ((inter)textual artifacts) as legitimate, rigorous, and valid in scientific and educational inquiry¹¹⁸. Again, though not revolutionary to feminist, poststructuralist literary and cultural theorists like Ingram or myself (also posthumanist) who use fiction (in both of our cases popular culture texts as well as literary) in our research as a matter of course, Gough’s argument—just like Haraway’s for biology—

¹¹⁸ It’s actually important to note (whether it was done consciously or not at this point in his career) that Gough uses the word “research” in relation to facts and “inquiry” in relation to fiction. St. Pierre makes the switch from research to inquiry in her development of post qualitative inquiry.

starts an important conversation in *educational research* which, despite Grummet, Pinar, Lather, St. Pierre, Haraway, Barad, and all the feminist, poststructuralist, postmodernist, postpositivist work of the last seventy-some-odd decades, is still (in setting policy and constructing the classrooms we teach in and the curriculums we deploy) “primarily concerned with documenting ‘facts,’ without distortion, in ‘true’ stories” (“Narration, Reflection” 49).

The use, then, of fiction as *a* type of apparatus, methodology, and/or data—either on its own or in conjunction with other “non-fiction” narratives—is a legitimate move in posthuman pedagogy and posthumanist educational research conversations, even if it must be litigated with administrators, evaluators, for grant applications, etc. As we saw in just the brief mapping of the current conversation in the last chapter, it is, in fact, par for the course, whether we use the figure of a zombie or the stories told about and through zombies to think with and theorize through curriculum (Huddleston) or we develop a particular brand of praxis such as exopedagogy theorized through monsters and the stories (fiction and non-fiction) told about them (Kahn and Lewis). Within the post qualitative and even most poststructuralist inquiry conversations, the troubling of narrative—the breaking up of linearity, the problematizing of a singular, autonomous author and his authority, the reconceptualization of “objectivity,” and the decolonization of practices (who speaks for whom and why and how) in general—has been a legitimate means of inquiry within the educational field for some time (Denzin and Lincoln; St. Pierre “Post Qualitative Research;” Lather *Getting Smart, Getting Lost, Engaging*). As we saw with the mapping of “oscillations” in the last chapter, whether or not that holds sway outside the community, an individual’s praxis, local movements, and critical and/or subversive publications depends on our cultural and historical moment¹¹⁹. But in our move in this project to agential

¹¹⁹ I would argue that such sway is minimal at best during this particular neoliberal moment, especially in conjunction with the current presidential administration’s call to Make America Great Again through, looking at

realism and the curation↔calibration of classroom-as-elsewhere, the curation of stories—fiction or otherwise—that help us calibrate for posthumanism makes critical and immediate differences as it materializes a particular range of possibilities with each classroom.

Calibrating for the Posthuman Condition: John Weaver, Stoner, and Spawns from Hell

It was John Weaver in his 1999 article “Synthetically Growing a Post-Human Curriculum: Noel Gough’s Curriculum as a Popular Culture Text” who noted Gough’s approach and labeled it “post-human.” In his 2010 book *Educating the Posthuman: Biosciences, Fiction, and Curriculum Studies*, Weaver argues that “in posthuman terms, Noel Gough is our forefather, he is the Robocop¹²⁰ (first cyborg in film) and the Phillip K. Dick (innovative, visionary SF writer) of curriculum studies” (*Education* 32). There is no mention of “foremothers.” Noel’s partner Annette is mentioned and labeled, rightly, as “a reluctant posthuman theorist” (*Education* 31), Hayles is referenced and, unsurprisingly, taken in transhumanist directions, but, despite linking Noel here with the “first cyborg in film,” Haraway’s cyborg (“Manifesto”) is largely forgotten. As is the case in many humanist origin narratives (i.e., those that Haraway’s cyborg

education specifically, privatizing schools (through the rhetoric of choice) and the merging of education with the Department of Labor (among other concerns). The reliance on data as unproblematic along with a strange dismissal of science when the data goes against corporate and lobbyist interests depends on a positivist view of science that would reject the postmodern deconstruction of the fact/fiction binary.

¹²⁰ In a response (largely a thank you) to Weaver in his article appearing in the collection edited by Weaver and Snaza, Gough footnotes the following comment to Weaver’s quote: “...Arguably the first cyborg in film appeared in Eugène Lourié’s (1958) *The Colossus of New York* ... but I suspect the first cyborg in film to capture the public imagination was Darth Vader in George Lucas’ *Star Wars* (1977). For the record, and despite the gender difference, the cinematic cyborg with whom I prefer to identify is Major Motoko Kusanagi from Mamouri Oshii’s anime movie *The Ghost in the Shell* (1995), a law-enforcement officer who quotes feminist philosophers and berates any of her male colleagues who dare to utter misogynistic remarks” (“Undoing Anthropocentrism” 162-163). I like to think that last line is a gentle rebuke to Weaver who, in general, tends to rely heavily on male characters and writers while arguing that it’s the feminist science fiction writers who are the best source for such fictional subversiveness. This *isn’t* to say we can’t use male characters and writers, but to point out Weaver’s calibration is different from my use of posthumanism in *multiple* ways, including his addition of OOO and systems theory to his work which ends this same edited collection while, again, leaving the feminists out of it. Indeed, he seems to have given up on Hayles and Haraway altogether in this later chapter despite their continued roles in (or, better yet, founding of) the conversation.

was used to think a way out of), this one is *fathered* and maternal options erased when, really, in *posthumanist*¹²¹ terms “mothers” and “fathers” become two options among many possibilities (most of which we haven’t speculated yet). But Weaver’s claim here is indicative of his work in general and its calibration to “*the posthuman condition*” as “a merging of humans and machines to enhance or improve human capabilities” (*Educating* 11) and “*the post-human*” as

also a symbol of the multi-national, post-industrial world ... To have access to information, cosmetic surgery, and good paying jobs is to define what the future will be. To be post-human is to be privileged; to be artificially constructed, neurologically altered, and mechanically enhanced guarantees success.

(“Synthetically” 166)

I emphasize “the” in both these cases as a major difference between Weaver’s work with *the posthuman* and my own *posthumanist* praxis. His work remains calibrated for a *transhumanist*¹²² conversation while my own took the material turn and has calibrated to material feminisms and agential realism which argue we always already were “posthuman(ist)” (trans-corporeal, emergent, immanent, material-discursive, enfleshed, etc.) and use *posthumanism* to rethink our

¹²¹ I could be accused of comparing apples to oranges here. I concede that Weaver uses the term “posthuman” here which, as he defines it throughout his work (usually with a “the” and a hyphen and meaning a type of enhanced and extended human-to-come), is indeed an option in the larger posthumanism conversation which holds within it many terminology paradoxes. A read-through of the recent *Posthuman Glossary* (Braidotti and Hlavajova) makes it clear that even the “experts” use the/a posthuman/posthumanism/posthumanist/posthuman condition in varying and often contradictory ways. As is probably the point, this “glossary” proliferates more than pins down any sense of what these terms “mean.” In this case, then, if we link Weaver’s term “posthuman” to the popular conception of the cyborg in such masculine figures, then he is correct to crown a forefather. So such origin stories go. My point is that *this project* and my own posthumanist praxis is grounded firmly in poststructural and material feminisms. It follows a genealogy “mothered,” if we want to use such a problematic term from the same sort of rhetoric/narrative Weaver employs, by Haraway’s ironic, metaphoric, and subversive figuration of the cyborg (and her list of SF *already* doing such work in her manifesto). And while Weaver drops a line of Haraway in “Synthetically,” he drops that pretense here and ignores her work, feminist science studies in general and poststructural feminisms as well. This misses most of the points Gough, who works directly from Haraway and relies heavily and lovingly on Ursula K. Le Guin, makes (hence my argument in the previous note). Perhaps we could say, then, that Haraway is the grandmother Weaver forgot to thank for giving birth to his dad. Regardless, his use of “posthuman” is part of the conversation and should not be set up in binary contrast to mine or any other. Which is why I included in this assemblage my orange with his apple.

¹²² Posthumanist models “that emphasize human beings through science and technology, suggesting transcendence of biological bodies and merging with the artificial” (Marchand and Stratman 403)

relation(s) with(in) a larger nonhuman world. As Cary Wolfe—one of the foundational theorists in the genealogy I follow—argues, “many of those who aspire to, or imagine the inevitability of what is often called a ‘posthuman’ condition . . . are, philosophically speaking, rather traditional humanists” (“Posthumanism” 356).

Much as I did Spanos, I curate Weaver into the conversation here *because* his work follows this genealogy of posthuman theory/praxis that, unfortunately, is most often what people think of when I mention “posthuman” education or pedagogy (precisely because of Robocop, Darth Vader, and other popular versions of cybernetic super humans). For instance, when the moderator of a panel I’m presenting on jokes that he can’t quite picture “robots doing English,” his understanding of the terms posthuman(ism)(ist) is calibrated¹²³ for the 90s through early twenty-first century where Katherine Hayles’¹²⁴ *How We Became Posthuman* was widely cited in the field and, of course, Terminators (Cameron), the Borg, and the Matrix (Wachowski) were (and still are) popular figures of what we might look like in our dreams↔nightmares of the future.

¹²³ Or like Brad Petitfils’ *Parallels and Responses to Curricular Innovation: The Possibilities of Posthumanistic Education* (2014) which is calibrated for Baudrillard and his simulacrum and, therefore, sees “the posthuman condition” as something that must be cured/mediated and a posthuman education something that “*recenters*” students in the face of fractal time and subjectivity. Though relying on mindfulness rhetoric, this is problematic terminology considering the work of other posthumanist theory to decenter the human and, therefore is calibrated for a different understanding than the one used in this project.

¹²⁴ Despite critiques of Hayles (Wolfe is among them), my reading of her assumes she was calling for a turn *away* from this sort of leaning into “the posthuman condition” and our transcending into “the posthuman,” seeing any sort of fantasy of transcendence into cybernetic or perfectible bodies as a turn back into humanism. She was, in fact pushing back against a cybernetics informed posthumanism that she saw erasing the body as surely as liberal humanism did. I see her book more as a liminal space in the field, an intervention in the discourse headed toward “the antihuman and the apocalyptic” before, as she says in the conclusion, “the trains of thought [posthumanism] embodies have been laid down so firmly that it would take dynamite to change them” (291). We can, she argues, “craft” other versions of posthumanism that “will be conducive to the long-range survival of humans and of the other life-forms, biological and artificial, with whom we share the planet and ourselves” (291). These other versions have indeed risen and are what I am using in this project; theorists like Braidotti, Wolfe, Alaimo, and Barad created conversations away from the cybernetic strains that predicted the end of the human race or the melding of it together with intelligent machines. I would also add that Hayles uses stories in her own work as well.

This calibration to the biosciences matters as well in his understanding of what fiction texts are productive for rethinking/reconceiving curriculum theory (his home field). In the 2004 *Science Fiction Curriculum, Cyborg Teachers, and Youth Cultures*, Weaver and the other editors curate together a group of essays that all think with fiction through issues of curriculum, teachers, and students—ranging from the figure of vampires through the YA *Animorphs* series and much else between. In a fairly polemical, no holds barred introduction, the editors argue that “what is accepted as real is deplorably deranged” and that using science fiction allows them:

to take flight, *soaring away* from the present course of essentializing educational practices, proletarianizing policies, commodification, exploitation, and objectification under neoliberal/neoconservative reformist rubrics while simultaneously seizing (imaginative) power to influence the way in which education is visualized in the present. We take control of our dream, and thus empower ourselves!” (Anijar et al. 3-4)(my emphasis)

While I don’t necessarily disagree (the whole point of this chapter is that fiction can—depending on the text—help us make local differences to our own praxis that may eventually help recalibrate the system as a whole), their language (and this sample is indicative of the whole introduction and much of the rest of the collection) is unproductive, relying on Exodic and Edenic rhetorics of a way out and back to and on strong either/or rhetoric that paints anyone who has reservations about their characterization of the field (as is or as it could be) as blind at best, deranged at worst. While the use of fiction can do, I believe, incredible things as we “[enlist] the resources of the imagination and [propose] a new alliance of critique with creativity ... for learning to think differently, inventing new concepts and actualizing alternatives to the dominant humanistic vision” (Braidotti “Posthuman Critical” 341), it’s neither a cure-all (as if there’s

something to cure) or an entirely unproblematic strategy (for reasons mostly outlined by Ingram above). It's important as we curate↔calibrate our posthumanist praxis to remember this and resist being swept away and back into the essentializing (humanist) gestures or rhetorics we work to undo. This is something I, admittedly, struggle with myself. But, as is the point with the use of the term calibration and its entanglement with curation via a double arrow, this work is an ongoing undoing, a continual, critical practice that is never, particularly when humanist systems are so supple, done.

In his own chapter for this collection, Weaver, however, leaps in with an absolutist style indicative of all his work and uses the Home Box Office (HBO) miniseries *Spawn* to think through, as the title puts it, "Curriculum Theorists as Spawns from Hell" (21). This is a call for those in his field of curriculum studies/theory to not be like the Clown in the series, trying to impose order on chaos like curriculum designers, but more like the Spawn who "embraces the freakish and uncertain world ... we have" ("Curriculum" 28). He claims that our "post-human" students, then, are, "true to life ... the offspring of the cyborg mercenaries" from the series. Smarter than "their more natural classmates," our *posthuman* students

with their implants, memory drugs, and prostheses are the ones who are prepared for the future ... are able to cosmetically alter their bodies, learn at the speed of computer chips, and turn a disability into an advantage

while

those students who are unable to alter their bodies to make them more buffed and attractive, enhance their learning abilities, or benefit from increased strength and ability with a prosthesis will be the new urban and suburban poor, relegated to the unskilled and underpaid jobs and lifestyles of the future. ("Curriculum" 30)

Arguing that his “musings” are not “another example of dystopic predictions of a dark future,” Weaver uses Spawn as a figure for curriculum theorists: “always messing up the best-laid plans of those who still believe order is the nature of the classroom” (“Curriculum” 22). He argues that, like Spawn who perches atop his cathedral base to watch the throng of humanity below, they too “watch [their] colleagues become nauseous as uncertainty, disorder, and complexity overrun their grand narratives of order, simplicity, and generalizability” (“Curriculum” 23). But though the idea of causing trouble, of ruining such grand narratives is part of posthumanist work, sitting perched above the resulting chaos, separate from it all, is not. As we’ll see with Toby, there is no getting away from or out of (above) the messy, uncertain world to do such work from a Spawn’s eye view.

Weaver’s chapter is (though I find much of the language off-putting and on the self-righteous end of the spectrum) passionate, creative, and imaginative. Consequently, and in its use of popular culture, it is, (as Weaver argues throughout his work) what has been drained from education and educational inquiry by the Clowns. Unfortunately, despite his protests to the contrary, it does set up a nightmare dystopic “warning” as its main argument for becoming “Spawns from Hell.” This isn’t necessarily a “bad” thing. As a genre, much of the point of dystopia (which, as Atwood reminds us always contains the thread of utopia within it and vice versa) is to exaggerate the now (what *already* is) to speculate where we’re headed before we arrive in the hopes of maybe doing things, at least a little bit, differently (“Dire Cartographies”). I use Atwood’s *MaddAddam* trilogy in this chapter to speculate just that. However, coupled with the “humanist posthumanist” or transhumanist (Wolfe “Posthumanism” 356) rhetorical/narrative

devices Weaver relies on, his speculations through *Spawn* fall in line with a sort of neohumanist backlash/polemic¹²⁵, like that in Francis Fukuyama's *Our Posthuman Future*.

Weaver's book-length project¹²⁶, *Educating the Posthuman: Biosciences, Fiction, and Curriculum Studies* (2010), swings back toward more *canonical* texts (so far, in fact, as to make it almost wholly unproductive as well). Still calibrated for the idea of "the" post-human and "the" posthuman condition in more transhumanist and humanist iterations, Weaver outlines ways education has contributed to—in both negative and positive ways—the "posthuman condition" already here and the dire consequences to come. Like Frankenstein, he argues, education has created (helped create) a monster. Unlike Frankenstein, we must accept our responsibility and *educate* that monster, setting a more ethical and productive course that taps the positive side of the posthuman condition (the technological and scientific "progress" and invention) without exacerbating the bad (the corporatization of the biosciences). He uses novels¹²⁷ (each with its

¹²⁵ In *Our Posthuman Future*—a book critical of the posthuman viewpoint—Francis Fukuyama argues that : “the most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and thereby move us into a ‘posthuman’ stage of history. This is important ... because human nature exists and is a meaningful concept, and has provided a stable continuity to our experience as a species. It is, conjointly with religion, what defines our most basic values. Human nature shapes and constrains the possible kinds of political regimes, so a technology powerful enough to reshape what we are will have possibly malign consequences for liberal democracy and the nature of politics itself” (7). Fukuyama's definition of human nature: “is the sum of the behavior and characteristics that are typical of the human species, arising from genetic rather than environmental factors” but goes on to qualify that “all natural characteristics show considerable variance within the same species: natural selection and evolutionary adaptation could not occur were this not so. This is particularly the case with cultural animals like human beings.” In fact, he argues, “variance in behavior is inevitably greater ... than for animals incapable of cultural learning” and that, therefore, “typicality is a statistical artifact—it refers to something close to the median of a distribution of characteristics” (130). The universalizing human nature of humanism becomes, in Fukuyama's project, the “positive” median of a distribution instead of the long-challenged center that creates the margins. As Badmington points out in his reading of Fukuyama, “what can be seen in his statistical turn is precisely the terror of consensus, how it can only ever be produced, forced from a spray of difference” (“Mapping” 1347). In “fixing the human” via a statistical median, Fukuyama “produces a distributed difference that can be measured in terms of distance from the norm, and an ‘inhumanity’ that can be a project in itself (to be modified, trained, or eradicated)” (Braun 1352). Braun argues that the “great irony in Fukuyama's project” is that while “he fears ... Aldous Huxley's *Brave new World*, he produces nothing less than the conceptual scaffolding needed for exactly such a project” (1352).

¹²⁶ Often cited as the first book-length project to apply posthumanism to education, it came out nearly two decades after Spanos' *End of Education*.

¹²⁷ Mary Shelly's *Frankenstein* (focusing on science and Shelly's four visions of education), Phillip K. Dick's *Scanner Darkly* (focusing on the overmedication of our students), Oscar Wilde's *The Portrait of Dorian Gray* (focusing on our advertising as posthuman art), John William's *Stoner*, J.K. Rowling's *Harry Potter and the Order*

own chapter) to outline and support his argument that the humanities must step up and broker a better, stronger relationship with the biosciences.

Such a relationship, he argues, can (must) mediate or break up entirely the current partnership in the university (and larger world) between the biosciences and corporations/businesses (a relationship he sees most specifically through the grant money poured into STEM by the latter and, therefore, encouraged and sanctioned by university administration). For curriculum theorists like himself, this means also breaking with education departments and colleges—where “such ontological questions are not found ... [since they] cannot be placed in a rubric or quantified for the next NCATE visit—and “moving” to the humanities (*Educating* 110). Bringing together both these points, he argues that the posthuman university to come “should be interested in vital questions and research centered around the nature of what it means to be a thinking human being” and that “it is in the biosciences and humanities that curriculum studies scholars will find vital discussions about the purpose of the university and its role in shaping what it means to be human in the future” (*Educating* 110). While overgeneralizing all education departments and colleges¹²⁸, his argument here has merit and nods toward arguments of becoming transdisciplinary in the larger posthumanist conversation. His comments on the “thinking human” and what that means in the future, however, still only take into consideration the human which, while appropriate for transhumanist and humanist conversations, are not in line with posthumanism as used in this project.

of the Phoenix (focusing on the biosciences’ role in the current state of public schools), and Toni Morrison’s *A Mercy* (focusing on the question of who will count as humanity). *Stoner* will be discussed at length next.

¹²⁸ Based on my personal experience of getting a Masters of Education, I would find the generalization here accurate. But, in having done reading and research in posthumanist education and inquiry, it’s obvious that there are teacher educators and researchers doing things differently in education departments and colleges across the country. Either way, posthumanist education shouldn’t require a literal abandonment of particular departments/colleges but a deconstruction of disciplinary boundaries in general so that, even housed in “education” buildings or focused in education conversations, teachers/scholars work to become *transdisciplinary*.

In making his argument that “it is the poetic and literary worlds that provide us with the most hope to understand what it means to live in the posthuman world” (*Educating* 2) and that the humanities need to create a stronger relationship with the (bio)sciences (both points I agree with), he argues that John William’s Stoner (from the book of the same name) “represents the life academics should and can live” (*Educating* 102). Stoner becomes, in Weaver’s book (not mine), “our model, our metaphor, our guide” for finding our place in the “posthuman university to come” (*Educating* 115). In introducing him, Weaver freely admits, in fact revels in the idea, that Stoner is a traditionalist:

He did not write about the poststructural novel, postmodern poetry, or gender, race, and social class in literary criticism. He was a late medieval and Renaissance literature expert. He was proficient in both Greek and Latin ... his peers respected him. He did not see the value of most meetings nor did he see the importance of any non-academic committee. However, when he did speak, he defended academic standards and traditions. He was proud to be a professor and equally proud of any colleague who met the highest of standards of an academic ... those standards he could not compromise. (*Educating* 95-97)

As painted here by Weaver (and in line with Rose’s points from the last chapter), Weaver is a nostalgic figure, one from a pristine time before poststructuralism when, holding themselves to high standards, Men went about the business of getting the important things done and done well. It’s a strange picture considering Weaver’s entrance into the conversation nearly two decade ago, calling for us to use not just science fiction, but *feminist* science fiction (long-time partners with and users of poststructural theories of narrative and troublers of gender and race).

Indeed it seems to be about as far from Spawns from Hell as one can get. Unless you consider that the Spawn¹²⁹, instead of a subversive figure (SF or otherwise), is himself as much a hyper-masculine fantasy or “construct of the military-industrial complex” (Weaver “Curriculum” 29) as the cyborg mercenaries in the series. In fact he is *fallen*, searching for redemption—even (especially) if he approaches it with the badass indifference of a lone wolf, a cowboy, an American (anti)hero. When diffracted through each other, Spawn and Stoner offer a different pattern altogether, a getting-back-to, where Weaver is working very much through narratives of recuperation, redemption, return—those fathered origin¹³⁰ stories feminist SF (their cyborgs included) have been “retelling” and “recoding” (Haraway “A Cyborg Manifesto” 55-56) for a long time.

Still, Stoner has several things going for him. According to Weaver, he also rejected the “false dichotomy between teaching and scholarship” (*Educating* 110) as well as theory and practice, saw the university as a place where we construct ourselves, experienced life and *became* through literature, knew its importance and had a passion for it that (later in his career) excited students, didn’t rely on textbooks but did his own reading, contributed to his field, and extended himself through time and to others through the book he wrote. I find these characteristics more productive and cultivate them in my own praxis. But, while a promising (arguably necessary) base for *any* professor, they are, on their own, not enough to be our guide in

¹²⁹ Weaver’s description of Spawn that opens his chapter: “The Spawn is a former CIA gun runner who killed only the bad guys and loved only his family more than his country. Now, a victim of a double cross within the CIA, the Spawn finds himself in Hell where a deal is brokered. The Spawn can return to earth to visit his wife and daughter if he agrees to lead the Devil’s army of the dead when the apocalypse begins. When he returns, the earth is just as he left it... there is an internal struggle going on inside the Spawn’s mind. He may be dead but he still has a conscience which includes memories and flashbacks of his family. When the Spawn is in battle, it seems that ruthless killing is becoming an instinct, but the Spawn still has some uncertainty about doing the Devil’s bidding” (“Curriculum Theorists” 21-22).

¹³⁰ Throughout this chapter I use the term “origin” in relation to stories to refer to Western, largely Christian origin stories of fallen Man, etc. This use does not include other versions, such as indigenous creation stories which are their own genre from different ontological and epistemological positions which are often used, like SF, to deconstruct such origin stories as well

curating a praxis meant to calibrate us for posthumanism and curate↔calibrate classrooms-as-elsewhere. Still missing is a consideration of Stoner as phenomenon¹³¹, as emergent, as part of an entangled, dynamic nonhuman world. Still missing is a huge shift in ontological and epistemological assumptions that would demand we consider more than “what it means to be a thinking human being” (Weaver *Educating* 110) and moves us to questions of how do we, as (post)humans, think *with* a larger nonhuman world from which we can’t consider ourselves separately (Alaimo *Exposed*).

On the transhumanist end of the spectrum, John Weaver is, like Spanos, a pretty traditional humanist despite his prominence in “posthumanist” educational research. While certainly progressive (in educational terms), he calls for change from a position that claims subversiveness and chaos while holding tradition and nostalgia as its ultimate guide. You can, in other words, passionately call for science fiction as curriculum and teachers as cyborgs and still use those very stories/figures to reinscribe the humanist traditions they’re supposed to resist. There are moments of wonderful criticism and admirable passion in all of Weaver’s work. Equally, there are problematic traces of misogyny and ableism. Ultimately, his focus on “the” posthuman condition (one of extension and expansion) relies too heavily on nightmare images of our students getting plastic surgery for graduation, teachers as drug-pushers, even worse besides, and more to come.

¹³¹ Having read *Stoner* myself, I would argue that there are moments—particularly when Stoner is at his happiest with his daughter in his study and his mistress studying in her apartment—that Williams notes the nonhuman world in a way that draws *some* attention to its role in those scenes/Stoner’s life. But, like Weaver’s assessment of Stoner the character, *Stoner* is a realist novel that doesn’t question or emphasize such relations without being diffracted through a posthumanist apparatus. I would also add that Weaver’s basis for Stoner being “posthuman” is that he grew up on a farm and came to the University of Missouri to study agricultural science, at his father’s suggestion, in order to help the family farm. Therefore, he comes from science and found his passion in literature—a seemingly productive posthuman relationship. Except that Stoner, who hates his classes, rejects science, takes up literature, doesn’t tell his parents until he’s graduated and, after taking a teaching job and going on for his PhD also abandons the farm—the land—for books. It’s a weak justification for him as an example of the humanities and biosciences finding a stronger relation.

This may all be true (indeed some of it *is*¹³²) and, what's more, truly distressing. But there are other ways to address the urgent necessity of becoming transdisciplinary, the alarming corporatization of both education and the sciences, the general anxieties that accompany living in the Anthropocene, and fears of what (if anything) comes after. Calibrated for agential realism specifically and a material feminist posthumanism more generally, this project, as I've argued, recognizes that we are always-already posthuman, an understanding made more apparent by recent work in posthumanist theory that has also taken a material turn. It also recognizes that the sort of hellfire and brimstone polemic needed to make the Spawn option appealing or the sort of romanticized nostalgia that makes the Stoner option seem commonsensical both play into unproductive modes of despair and denial. I rely instead on what Haraway has more recently theorized as "staying with the trouble" which, in contrast, "requires learning to be truly present, not as a vanishing pivot between awful or edenic (sic) pasts and apocalyptic or salvific futures, but as mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings" (*Staying* 1). As I'll argue with Atwood's *MaddAddam* trilogy, there is much uncertainty but also much hope in recalibrating our thinking this way.

While the calibration of our posthumanisms might be different, I do find Weaver's assessment of SF through his analysis of Gough's work accurate:

[SF as curriculum] requires us to suspend our suspicions of popular culture and admit that SF is a, and other forms of popular culture are, sophisticated form(s) of knowledge offering insights into the state of science, literature, the environment, history, and math while permitting speculations of the future that are so desperately needed for the literary imagination of young people and adults. SF is

¹³² He is referencing (in *Educating the Posthuman*) anecdotes of parents gifting their children plastic surgery for graduation (Chapter 3) and critiquing teachers' complicity (as he sees it) in blindly aiding the overmedication of students to create zombies who will sit still and passively receive information they can be tested on (Chapter 4).

an outlet for the revitalization of our creative souls that traditional academic and curriculum work has so painstakingly drained from us and labeled as illegitimate, unreliable, and invalid... Through his work, Noel Gough has demonstrated that a different present can be visualized and practiced. (Weaver, “Synthetically Growing” 165).

In light of Weaver’s work as I’ve outlined so far, I would add that when I use SF, I am using it in the sense Haraway uses it and, following Ingram and unlike Weaver, with the understanding that not all SF will work. SF as, Haraway maps it in her earlier work which also develops the notions of diffraction and artifactualism as we’ve already discussed, is:

generically concerned with the interpretations of boundaries between problematic selves and unexpected others and with the exploration of possible worlds ... SF—science fiction, speculative futures, science fantasy, speculative fiction—is an especially apt sign under which to conduct an inquiry into the artifactual as a reproductive technology that might issue in something other than the sacred image of the same, something inappropriate, unfitting, and so, maybe, inappropriated. (“Promises” 300)

Through her continual calibration of her own work (companion species, kin, critters, and so on), this list of what falls under SF has altered¹³³ a little but, regardless, still *curates* into relation that which “is practice and process ... becoming-with” (*Saying* 3), that “[requires] readers radically to rewrite stories in the act of reading them” (*Primate Visions* 15), as it “[follows] a thread in the

¹³³ Of particular note here for us, she drops the speculative fiction and picks up speculative fabulation. I stay with this list here not only because Atwood categorizes her own work—particularly the *MaddAddam* trilogy and the *Handmaid’s Tale*—as speculative fiction, but also, as we’ll see in a moment, because this list is linked with Haraway’s concept of *elsewhere* which this project uses but which Haraway later—particularly in *Staying with the Trouble*—reconceives as *Terrapolis* or the *Chthulucene*. Haraway is adamant that both are not for “posthuman” but “com-post.” Respecting her wishes, not sold on her concept of compost and humus (though I find the word compost productive when linked to composition), and not willing to abandon posthumanism myself, I stick with the concept of elsewhere and list speculative fiction in my own understanding of SF.

dark, in a dangerous true tale of adventure, where who lives and who dies and how might become clearer for the cultivating of multispecies justice” (*Staying 2*), and, therefore, intentionally *calibrates* us for “an ‘elsewhere’ from which to envision a different and less hostile order of relationships among people, animals, technologies, and land” (*Primate Visions* 15).

Working the Ruins of Humanism: Margaret Atwood, Toby, and *MaddAddam*

It’s worth noting that Weaver’s best option for a posthumanist teacher-metaphor-guide is a white male at a Midwestern university, working in the classics, struggling to keep “rigor” and tradition alive, who gave up his ties to the land and severed all connections with the science he came to the university to study. And, in his pick of Harry Potter as “the epitome of the posthuman other,” (*Educating* 126), Weaver uses a book set in a school patterned—magical elements and monstrous subversions aside—off a British boarding school. We live and work in such systems every day; indeed the next chapter is about how I approached curating↔calibrating a posthumanist classroom in a similar¹³⁴ university system/setting as Stoner worked in. While Stoner and Harry have interesting stories/settings, with SF we have the opportunity to speculate on something *radically* different in order to better calibrate our approaches in the here-and-now. We also have the opportunity to move beyond (where most of the posthumanist education literature does its work now) the potential of a character or species (e.g. vampire, zombie, etc.) as a metaphor to think with and through our problems and praxis. To also consider a whole world materialized by the text as a simulation, conception, laboratory, speculation.

What would it mean to literally “work the ruins” as St. Pierre, Pillow, Lather and other feminist poststructuralist researchers spoke of metaphorically when they believed in the 90s that

¹³⁴ As Davidson outlined for us, much has changed but much hasn’t.

poststructuralism and postmodernism had deconstructed humanism, before the neoconservative backlash of NCLB and other positivist, foundationalist policy proved otherwise? For there to not be Midwestern or British boarding school options, no matter how progressive, because humanist educational systems weren't just deconstructed but *gone*, along with the vast majority of the human race? Margaret Atwood's speculative fiction *MaddAddam* trilogy (*Oryx and Crake*, *The Year of the Flood*, and *MaddAddam*) speculates such a world and gives us the character of Toby who *does* work the ruins, even as she works to recalibrate the humanist traces and habits left behind in the Waterless Flood¹³⁵. And better yet, it all happens here, on our own planet where we stay with the trouble (Haraway *Staying*) instead of trying to fly away (Anijar, Daspit, and Weaver, "Introduction").

The *MaddAddam* trilogy speculates on life leading up to and in the wake of a plague (spread by Crake through the BlyssPluss pill) that wipes out—as far as our characters can tell—most of humanity in the twenty-first century. The world Atwood speculates arrives at its destination on the same tracks we travel now. Animals are going extinct, pigs are being raised as possible organ donors despite concerns they might grow human brains¹³⁶, elections have been

¹³⁵ The name given by the God's Gardeners to the prophesied impending disaster. Because they were actually a group also actively resisting the Corps by "rescuing" its defecting scientists, the group speculated that the next catastrophic, population culling event would be something like the BlyssPluss pill that causes the plague (hence, *Waterless*).

¹³⁶ An NPR headline on May 18th, 2016 reads "In Search For Cures, Scientists Create Embryos That Are Both Animal And Human" (Stein). Scientists are currently using pig embryos to create and study chimeras—pig/human genetic hybrids—in the hopes that one day they can be used to grow human organs that can be transplanted into terminally ill humans. The procedure erases certain genetic markers in pig embryos so that those blanks can be filled with human genetic material from specific organs that may then grow. The National Institutes of Health has now banned funding to such projects until a better understanding of the ethical implications of these practices can be reached. To Pablo Ross, one of the researchers, the pigs and chimeras are inconsequential, merely the material through which he can "improve peoples' life (sic)" (Stein). In the name and prioritization of human health, Ross straps female pigs to surgery tables, cuts them open, implants 50 some-odd chimera embryos in their uteri, monitors those embryos for 28 weeks, then cuts open the pigs again to retrieve the embryos for study. What happens to these living incubators or how many times they are used for such procedures isn't discussed. There is the possibility that instead of growing the targeted pancreas, the injected material will instead grow a human brain. Stuart Newman, a professor of cell biology and anatomy at the New York Medical College, argues that this could lead to "animals that might actually have consciousness like a human. It might have human-type needs. We don't really know" (Stein). And there is also the possibility that if two chimera mate, both containing human genetic material, the sperm and

compromised (hacked), walls are being built and refugees dehumanized, corporations have enormous power, STEM and the Humanities war. In the acknowledgements for the final book, Atwood writes, “Although *MaddAddam* is a work of fiction, it does not include *any* technologies or biobeings that do not already exist, are not under construction, or are not possible in theory” (393)(my emphasis).

In the opening book, *Oryx and Crake*, the two-culture war¹³⁷ has, in our not-too-distant future, reached the unfortunate conclusion of a total separation in higher education of STEM/research and the Humanities. In fact, Atwood speculates a world *completely* ordered by such a split, where the truly privileged class (high-ranking scientists and corporate executives) live—and work—on Compounds built and run by the corporations (Corps) they work for. These Compounds are “safe,” sterilized, clean, self-sufficient, and luxurious communities protected behind high walls and a hired security force (CorpSeCorps) from the outside “pleeblands” or cities. The “accepted wisdom in the Compounds” characterizes the pleeblands as a dangerous, filthy place where the dregs of society scavenge, steal, snort, and sleep around: “there was no life of the mind. Buying and selling, plus a lot of criminal activity” (*Oryx* 196). Here we see founding humanist binaries at work (and, in fact, taken to extremes). This “wisdom” elevates the

egg could produce a fully human embryo in a chimera mother. Ross assures us that such concerns are negligible, not because it can't happen, but because he won't allow them to mate. In *Oryx and Crake*, when Atwood's pigoons (based on stories like these) escape into the wild they do mate. And they do have “human” brains.

¹³⁷ The “two-cultures” in this war refers to the long-standing debate over the separation of the sciences and humanities as exemplified in the debate between C.P. Snow and F.R. Leavis in the 1950/60s. Though they were certainly not the first to debate the split, Snow first articulated the separation of the sciences and humanities as the splitting of one, shared culture into two cultures who, to the detriment of all, were not communicating (in his model, science was the much maligned culture which the humanities looked down its nose at. Though probably accurate from his standpoint then, as someone who teaches English at a STEM-centered research university in the twenty-first century, I would argue the tide has turned)(see Critchley for how this split effects (continental) philosophy in general). In American education—specifically public primary/secondary education—the “culture wars” (without the qualifying two) refers to the longstanding back and forth in popular and political debates between religious/secular and conservative/progressive over who gets to shape the narratives, standards, and objectives of public education (Hartman; Goldstein). These wars should not to be conflated/confused but certainly, taken together, offer a more layered understanding of how a split between the sciences and the humanities in general impacts policy and changes over time.

Compound scientists and executives (and their families) and relegates pleeblanders to Othered status.

For book one, we follow Jimmy (Snowman or Snowman-the-Jimmy) and Glenn (or Crake) who both live and are educated on such compounds before the plague hits. Compound High Schools as Atwood conceives them are the embodiment of fears of privatized education turned into training grounds for corporations who expect fresh scientists and businessmen from their investment (see the HelthWyzer High list in table 3.1). In fact the corporations participate in student auctions where they bid on graduates, offering full rides to top students to come “learn”—in other words work—at their EduCompounds which have replaced traditional universities. Crake gets snapped up by the Watson-Crick Institute where he goes to do research with other students who invent things like ChickieNobs—faceless lab grown chicken with mouths but not heads—or Wolvogs—dogs who look harmless but bite your hand off (on commission for a security company) (see table 3.1). The arts are a waste of time to these students who proudly call their university Asperger’s U and disdain neurotypicals. Indeed, they very much resemble “the posthuman” students of Weaver’s Spawn metaphor, able to modify not just themselves but other biobeings as well and “constructed to meet the needs of the military and corporate worlds” (Weaver, “Curriculum” 29).

Jimmy (our narrator and self-proclaimed “words man” to Crake’s “numbers”) is one of the “normal” or less-than’s of Weaver’s story. He doesn’t make it into one of these EduCompounds and gets a lukewarm offer from the Martha Graham Academy, a moldering Arts-and-Humanities university that used to focus on the performing arts but now teaches “Contemporary Areas” such as Applied Rhetorics, part of Jimmy’s major, Problematics¹³⁸,

¹³⁸ One of my favorite quotes from *Oryx and Crake*: “Or Problematics. Problematics was for word people, so that was what Jimmy took. Spin and Grin was its nickname among the students. Like everything at Martha Graham it

nicknamed Spin and Grin. For a list of examples see table 3.1 which lists classes and typical activities from each of the main forms of education featured in the series.

I can only guess Weaver didn't use Margaret Atwood's *Oryx and Crake* in *Educating the Posthuman* because he was unaware of it. Because this first book in the *MaddAddam* trilogy is a fictional embodiment of his warning to curriculum theorists in particular and the humanities in general of what might happen if the humanities don't break up the current relationship between STEM (particularly, in his argument, biosciences) and businesses. As Pedersen puts it in her reading of *Oryx and Crake*:

In Atwood's scenario of the future of education, not only privatisation, but incorporation of education in the capitalist system has been carried to its logical extreme. Both content and organisation of education as well as its 'raw material', i.e. the students, have been commodified. ("Is the" 239)

There's not much more to say. It's a chilling vision of what might happen if the corporatization of the sciences, research, and education continues down its current path. It's also a fait accompli. Other than burning it down (which Crake himself does), there's not much for us to learn here other than it's disturbing, unethical, and not where we want to end up. As a spur to do something now, it's, at least for me, effective, but I find the last two books, when the characters are living in the ruins of this world, more productive for our purposes here.

To get to that, it's important to know that Crake is recruited by a top Corps after graduation and, with their full backing, opens the Paradise dome where, through genetic engineering he develops the Crakers, "designer people" as Atwood calls them, spliced together with animals in order to "edit out" everything Crake felt was wrong with the human race ("Dire

had utilitarian aims. *Our Students Graduate with Employable Skills*, ran the motto underneath the original Latin motto, which was *Ars Longa Vita Brevis*" (188)

Cartographies” 91). He puts his “girlfriend” Oryx to work as their teacher, and she and her stories are the only contact with outsiders they have. Meanwhile he hires Jimmy to do the marketing for the project and tasks him with taking care of the Crakers if anything should happen to him and Oryx. That happening is the plague Crake himself releases through the BlyssPlus pill. Jimmy, believing he’s the only “human” alive, takes the Crakers out into the world and continues, importantly, to tell them stories about Oryx and Crake as he slowly loses his own mind.

It’s in *The Year of the Flood*¹³⁹ that we get to see outside of Compound life, in the pleeblands, through alternating narrators Toby and Ren. At certain points in both women’s lives, they are with the God’s Gardeners, a vegan/environmental/religious group that memorizes extinct animals to carry their memory with them through the Waterless Flood—what they call the catastrophe they know is coming. The Wellness Center at the God’s Gardener complex offers a view of a different sort of education (as seen in table 3.1) where students aren’t allowed to write anything down permanently and so rely on slates and chalk, memorization, chants, hymns, etc. to learn how to survive when the world ends. For instance, Toby teaches Holistic Healing—how to heal using plants and other resources that the children work with in the garden.

MaddAddam reunites all players who survived the plague, puts them into direct intra-action with the Crakers, unfolds the backstory of brothers Zeb and Adam (leaders of resistance groups through both the MaddAddam group of defecting Corps and activist scientists and the God’s Gardeners), and speculates on what life might look like after the general collapse of humanity.

In table 3.1 and figure 3.1 we can see what I went into this trilogy planning to discuss—the differing forms of education in this speculative, dystopian tale and where they fall on the

¹³⁹ The timeline overlaps *Oryx and Crake*, retelling leading up to the plague and right after through these new characters’ eyes.

humanist to posthumanist spectrum. The consequences of the two-cultures split are the arts turned into marketing (see Martha Graham list) and sciences turned into corporate research (see Watson-Crick list). The alternative is a homeschool-style education with a (for all intents and purposes) cult whose back-to-nature rhetoric and training obfuscates the leadership's real goal—survival and resistance (see Wellness Clinic list). The Crakers are an alternative to both, as the most posthumanist, though not unproblematic option. But in compiling this information, in working with it and physically manipulating it into these more visual iterations, in presenting this information and responding to a colleague's¹⁴⁰ question—"What about Toby?", in writing back through my response to such a question while teaching the second class I discuss in the next chapter, in reading St. Pierre and Pillow's *Working the Ruins* while writing the opening chapters of this document at the same time, a whole new diffractive pattern emerged, one that I try to map below. This pattern doesn't ask us to become Spawns from Hell or remain Stoners, but asks us to read-through (intra-act with) *Year of the Flood* and *MaddAddam* as conceptual territories that can help us calibrate our posthumanist praxis. It allows us to intra-act with Toby-as-guide as we think-through more abstract concepts like what it means to teach-with (and have ourselves) emergent subjectivities, to take note of the nonhuman actants in our classrooms, to approach new theories and strategies with a productive mix of curiosity and skepticism, to walk with our students in a more ethical relation, and to consider the ability of storytelling to help us do just that.

¹⁴⁰ My thanks to Jeffrey Marchand for a seemingly simple yet incredibly productive question.

Spindletop U <i>Adam One</i>	Watson-Crick Institute <i>Crake</i>	Martha Graham Academy <i>Jimmy, Toby, Ren</i>
<ul style="list-style-type: none"> University associated with the OilCorps and/or Petrobaptists or PetrOleum Church PetrTheology Homiletics PetrBiology (learn biology in order to disprove it) 	<ul style="list-style-type: none"> EduCompound / “Asperger’s U” Botanical Transgenics NeoGeologicals NeoAgriculturals (ChickieNobs) BioDefences (Wolvogs) Student Services (provides what students ask for, e.g., a specific type of prostitute) Research is already their job: all work is done to invent/complete projects for the EduCompound (Corps) they’re educated at Contracted by outside sources for jobs as well Pristine, high-tech, work-oriented, students are zoned into their research 	<ul style="list-style-type: none"> Arts-and-Humanities University Webgame Dynamics, Image Presentation Pictorial and Plastic Arts (PicPlarts) Problematics, Quadruple-Entry Creative Asset Planning Holistic Healing (Lotions & Potions) (<i>Toby</i>) Dance Calisthenics, Dramatic Expression, Irony in Dance Theatrics (<i>Ren</i>) Problematics (Spin and Grin): Applied Logic, Applied Rhetoric, Applied Semantics, Relativistics, Advanced Mischaracterization (<i>Jimmy</i>) Jimmy’s Thesis: “Self-Help Books of the Twentieth Century: Exploiting Hope and Fear” Job Fair (AnooYoo Spa, Scales and Tails strip club recruit) Football team, coffee shops, co-ed dorms, protests, pranks, clubs
CapRock Prep <i>Adam One, Zebulon</i>		
<ul style="list-style-type: none"> Private all-boys school funded by the OilCorps 		
HelthWyzer High <i>Crake, Jimmy, Ren</i>	Wellness Clinic (The God’s Gardeners) <i>Ren (s), Toby/Adam One (t)</i>	The Crakers <i>Blackbeard</i>
<ul style="list-style-type: none"> State-of-the-art computers, Read-A Screens Hoodroom and Ultratexts, Neotechnology, Nanotech Biochem, Geolonomics, VizArts: splice together videos and create their own movies out of stock footage (no other “arts”) Football, tennis, rowing Field Trips to sites on-compound (e.g., the golf course) Life Skills: double-entry on-screen bookkeeping, banking by fingertip, using a microwave without nuking your egg, filling out housing applications for Module or Compound jobs, negotiating your marriage-and-divorce contracts, wise genetic match-making Libraries with vintage tech (Encyclopedia on CDROM, etc.)(<i>Jimmy</i>) 	<ul style="list-style-type: none"> Slates and chalk (no permanent writing) Memorization, chants, songs, festivals, hymns, Adam One’s “sermons” Saints and animals Track time Culinary arts, sewing Mental Arithmetic Bees, Mycology Holistic Healing with Plant Remedies, Wild and Garden Botanicals Meditation Predator-Prey Relationships, Animal Camouflage, Urban Bloodshed Limitation Young bioneers (similar to Girl or Boy Scouts) and gleaning: crafting, decorations, recycling 	<ul style="list-style-type: none"> Oral tradition Stories/storytelling Questions and repetition Watching and mimicking Curiosity—children led Mentoring (chosen by mentee) Nonhuman actors unquestionably part of being/becoming/meaning Storytelling (ritual) that includes nonhuman actors Reading and writing by the end

Table 3.1. Atwood’s *MaddAddam* trilogy offers a look at several kinds of educational systems. Here the main examples are listed with samples of class names, activities, school supplies and/or services mentioned in the books. POV characters (Crake being an exception) are listed under the schools they were students at and/or taught. The Crakers are included even though there is no “formal” system as we would consider it. Still, it is, as I’ll argue, the most productive example of “education” for us to look at if we want to use posthumanist theory.

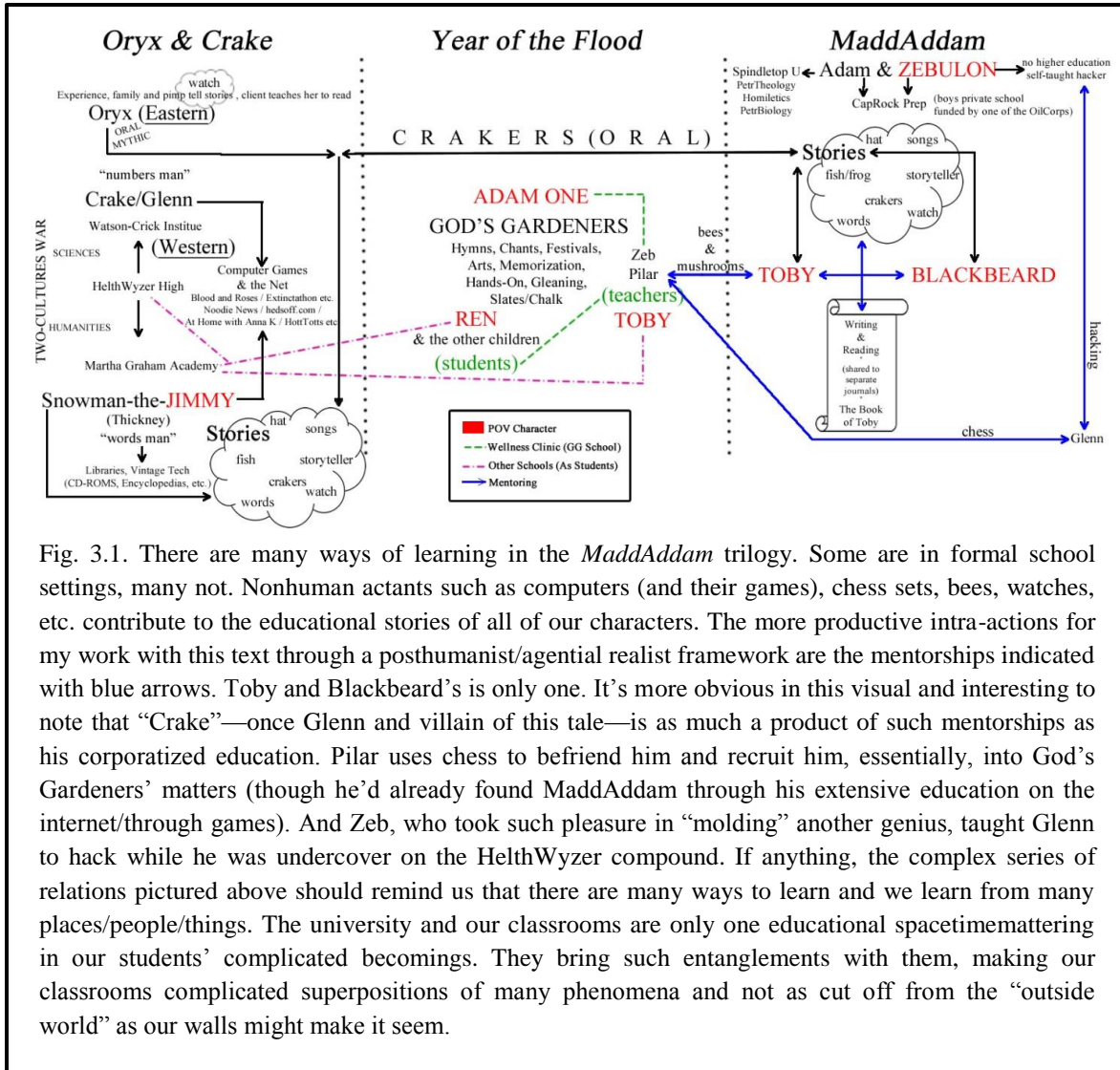


Fig. 3.1. There are many ways of learning in the *MaddAddam* trilogy. Some are in formal school settings, many not. Nonhuman actants such as computers (and their games), chess sets, bees, watches, etc. contribute to the educational stories of all of our characters. The more productive intra-actions for my work with this text through a posthumanist/agential realist framework are the mentorships indicated with blue arrows. Toby and Blackbeard's is only one. It's more obvious in this visual and interesting to note that "Crake"—once Glenn and villain of this tale—is as much a product of such mentorships as his corporatized education. Pilar uses chess to befriend him and recruit him, essentially, into God's Gardeners' matters (though he'd already found MaddAddam through his extensive education on the internet/through games). And Zeb, who took such pleasure in "molding" another genius, taught Glenn to hack while he was undercover on the HelthWyzer compound. If anything, the complex series of relations pictured above should remind us that there are many ways to learn and we learn from many places/people/things. The university and our classrooms are only one educational spacetime mattering in our students' complicated becomings. They bring such entanglements with them, making our classrooms complicated superpositions of many phenomena and not as cut off from the "outside world" as our walls might make it seem.

A Posthumanist Praxis: Toby as Entangled and Emergent

Holed up in the AnooYoo spa where she'd been the manager when the Waterless Flood (or, rather, Crake's engineered BlyssPluss pill plague) hit, Toby (or Tobiatha as she was known

at the spa) keeps up her God's Gardener training¹⁴¹ by keeping track of the Feast Days, the moon phases, her gardening activity, etc. in journals she found at the spa. As she jots down the entry below she contemplates the many "prunings" of self she's been through:

The Feast of Serpent Wisdom. Old Moon. Toby enters the Feast Day and the moon phase on her pink notepaper with the winky eyes and kissy lips. Old Moon is pruning week, said the Gardeners. Plant by the new, slash by the old. A good time to apply sharp tools to yourself, hack off any extraneous parts that might need trimming ...

Today she will pare her fingernails. Toenails as well: they shouldn't be permitted to run rampant. She could give herself a manicure ...

Do it for Yoo, AnooYoo used to croon. *The Noo Yoo.* I could have a whole new me, thinks Toby. Yet another whole new me, fresh as a snake. How many would that add up to, by now? (Atwood, *Ye ar* 237)

Most of the characters change drastically, but, in particular, Toby's story in *The Year of the Flood* is an incredible phenomenon of emerging subjectivities that don't just represent change and the occupation of "new" subject positions, but, within an agential realist framework, demonstrate the continual becoming-with that being becomes (and which is better thought of as knowledge-in-being) when we assume that we aren't separate but are instead inseparable from

¹⁴¹ In the words of Adam One himself, as set down in the text *Year of the Flood* right after the transcript of a song from *The God's Gardeners Oral Hymnbook*: "While the Flood rages, you must count the days, said Adam One. You must observe the risings of the Sun and changes of the Moon, because to everything there is a season. On your Meditations, do not travel so far on your inner journeys that you enter the Timeless before it is time. In your Fallow states, do not descend to a level that is too deep for any resurgence, or the Night will come in which all hours are the same to you, and then there will be no Hope" (*Year of the Flood* 163). The *Year of the Flood* is structured around "records" of such teachings—usually with a sermon from Adam outlining a point of their theology or discipline or going through the Saint or Festival of that day and what animals/beings are involved and why followed by a hymn that coincides with the Feast Day. Interestingly, the records of these sermons that we read have the same oral "on the fly" feel as Toby's stories in *MaddAddam*, including bits and pieces of current events in the plot and phrasings and interruptions that signal that the speaker is responding to cues or actual questions from his/her audience (i.e. like Toby's "Please stop singing" phrases in *MaddAddam*).

non-human actants. And that our subjectivity is, therefore, inseparable from “places, history and corporeality” (Iverson and Renold, “Valleys’ Girls” 718).

Older than the Jimmy/Crake generation, Toby grew up on a family farm in the shrinking American countryside (not an option Jimmy’s either/or descriptions of the Compounds and pleeblands in *Oryx and Crake* provided). Through flashbacks, we see their white frame house on acreage (where Toby grew up hunting and witnessed the arrival of the first glowing green rabbits). When Toby’s mother dies (poisoned by the HelthWyzer supplements she’d sold for a living), her father commits suicide with the illegal rifle he’d buried on his property (this is not long after the CorpSeCorps orchestrated the outlawing of all firearms outside their security division and switched their own weapons to sprayguns). Unable to face the consequences—either financially (her mothers’ medical debt) or legally (her father’s illegal gun)—Toby buries her father and the rifle (which she’ll dig up after the Flood) and disappears like, she tells us, more and more people with similar financial and legal situation were doing: “if you sank down—down where names disappeared and no histories were true—the CorpSeCorps wouldn’t bother you” (*Year 30*). Unable to return to Martha Graham to finish her degree in Holistic Healing (nicknamed Lotions and Potions) and without a usable ID or her belongings, she disappears into the Sewage Lagoon pleeb, sells her hair and her eggs (accidentally sterilizing herself through infection) and goes to work at a Pleebmob business (SecretBurgers—a possible front for corpse disposal). Toby’s manager, Blanco, forces her into a violent and unwanted relationship after he murders his current “girlfriend,” and Toby resigns herself to a slow death.

However, a chorus of God’s Gardeners children, led by Adam One, protest/proselytize at the SecretBurger and sweep Toby away in the commotion. In the neighboring Sinkhole pleeb, Toby hides among the Gardeners, working sanitation before coming under the tutelage of Pilar,

or Eve Six, who works with the bees, mushrooms, and holistic healings for the group. Knowing (as he tends to somehow know the histories of everyone) that Toby was at Martha Graham for Holistic Healing, Adam One asks her to start taking on a few of the children's classes, and she agrees.

As time goes on she assimilates—outwardly—completely into the God's Gardeners (*inside* is another story) much as she almost disappeared completely into Sewage Lagoon. Through Ren's perspective we see Toby as the eyes-in-the-back-of-her-head teacher who none of the children dare to cross: "she was a hardass ... but Toby held us to account, and we trusted Toby more" (*Year 62*). When Pilar, dies, Toby takes on the rest of her mentor's classes and the Gardeners' bees and mushrooms (the later necessary for Enhanced Meditations). At Adam One's request (and despite Toby's strong reservations), Toby also takes Pilar's place on the Adams and Eves council. Through Zeb's perspective (after the Flood when they've found each other again and become lovers) we see Toby as the consummate Eve Six: "Miss Total God's Gardener Purity as far as I could tell. ... Talking to the bees, measuring out the head trips. You were like Mother Superior" (*MaddAddam 250-1*).

For years she teaches, lives, and works among the Gardeners and serves on the Adams and Eves Council before Blanco finds her. To keep her safe, Zeb books her surgery on the Street of Dreams for new hair, skin color, and eyes and installs her at the AnooYoo spa as a manager. There, her only contact with her old life is through Zeb's MaddAddam chatroom in the *Extinctathon* computer game. As the Gardeners predicted, the Waterless Flood (Crake's BlyssPluss plague) comes and, while she survives, she's all alone, holed up in AnooYoo, watching her supplies dwindle, writing about Feast Days, moon phases, her gardening routine, hearing Adam Ones and Pilar's teachings in her head, fearing she's the only one left in the

world, flashbacking through her own life, losing hope for a future beyond the spa, and slowly, but surely fading into the space itself.

I list all of these events because a key part of Toby as a metaphor for a posthumanist professor is her continual and radical becoming. In contrast to the preachings of Adam One which center on “man’s” *ongoing* fall into knowledge and the need to reset/return back to an Edenic setting from which *all* humans (indeed a much-reduced population) engage in a more responsible relation to the earth and its creatures, Toby continues, again and again, to become *with* her circumstances, environment, and others. She follows, in other words, a different narrative than the sort of Edenic return that Adam One relies on (even though we’re never totally sure he himself is much of a “believer” in the Christian sense). There is, for Toby, no going back—no redemptive tale tied up in narratives of fall, exodus, Eden, and return—because there is no “origin” story, only a continual becoming-with each different phenomenon, assemblage, rhizome, etc. she encounters. In each instance she is, “staying with the trouble” (Haraway *Staying*) or “working the ruins” (Pillow and St. Pierre *Working*).

<p>“Gradually, Toby stopped thinking she should leave the Gardeners. She didn’t really believe in their creed, but she no longer disbelieved. One season blended into the next—rainy, stormy, hot and dry, cooler and dry, rainy and warm—and then one year into another. She wasn’t quite a Gardner but she wasn’t a pleeblander any more. She was neither one nor the other” (<i>Year of the Flood</i> 87).</p>	<p>“At night, Toby breathed herself in. Her new self. Her skin smelled like honey and salt. And earth.” (<i>Year of the Flood</i> 101).</p>	<p>“And so it was with Toby once she became an Eve. She could feel the Eve Six title seeping into her, eroding her, wearing away the edges of what she’d once been ... How had she allowed herself to be sewn into it this way?” (<i>Year of the Flood</i> 188).</p>	<p>“She remembered her early desire to leave the Garden, out of boredom and claustrophobia, and the desire for what she used to think of as a life of her own; but now she was actually going, it felt like an expulsion. No: more like a wrenching, a severing, a skin peeling off” (<i>Year of the Flood</i> (257).</p>	<p>““Think of yourself as a chrysalis,’ Zeb had told her before the transformation process had begun. Sure enough, she’d gone in as Toby and come out Tobiatha. Less angla, more latina. More alto...her new skin, her new abundant hair, her more prominent cheekbones...Once her scalp was rooted firmly to her head and her skin tone was uniform, Toby was ready to move in to her new identity” (<i>Year of the Flood</i> 262).</p>
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Table 3.2. In this curation of quotes, we see some of Toby’s thoughts on her continually changing circumstances.

As we see in table 3.2 and the quote that opens this section, Toby is—in these flashback moments—very aware of her many “transformations,” and not always pleased by them. This kind of metanarrative draws attention to these becomings as she perceives them happening, making them an integral part of her character and story. But despite her fears or contemplations (or even hopes in the case of her time in Sewage Lagoon), this continual and emergent becoming does not “erase” her “past selves.” As Barad argues, and as we see through the Toby at AnooYoo who is intra-acting with us through cutting-together this *particular* series of flashbacks/snapshots of her becoming, “change” is a mark within the “sedimenting process of becoming” where sedimentation “is an ongoing process of differential mattering” in which “the past is never left

behind, never finished once and for all, and the future is not what will come to be in an unfolding of the present moment” (*Meeting* 181).

In “Quantum Entanglements and Hauntological Relations,” Barad argues that:

Unlike the ‘original’, the new diffraction pattern is not plainly evident without explicitly tracing the (extant) entanglements. That is, the trace of all measurements remain even when information is erased; it takes work to make the ghostly entanglements visible. The past is not closed (it never was), but erasure (of all traces) is not what is at issue. The past is not present. ‘Past’ and ‘future’ are iteratively reconfigured and enfolded through the world’s ongoing intra-activity. There is no inherently determinate relationship between past and future. Phenomena are not located in space and time; rather, phenomena are material entanglements enfolded and threaded through the spacetime-mattering of the universe. Even the return of a diffracted pattern does not signal a going back, an erasure of memory, a restoration of a present past. Memory—the pattern of sedimented unfoldings of iterative intra-activity—is written into the fabric of the world. The world ‘holds’ the memory of all traces; or rather the world is its memory (enfolded materialization) (261).

Toby herself, when thinking back on the farm and seeing everything else but herself in the picture, remarks that she’s the frame, the only thing holding all the neural firings of these memories together. As a frame she is also an apparatus we’re entangled with as we read. And unlike the abbreviated, linear summary of a life I outlined above (while making all sorts of cuts as to what details stayed and went and in what order, etc.), AnooYoo-Toby (or Toby-as-frame) doesn’t “live” the above life as *I* ordered it. Nor do we, as reader, *experience* it with her that way.

Because of Atwood's (and, therefore, Toby's) storytelling process—flashbacks, shifting points of view, mimicking storytelling-in-the-moment with its interruptions and intra-actions, layering different experiences of the same events over each other like superpositions—we become-with Toby diffractively, in agential cuts (narrative moves) that emphasize spacetime-mattering—the *world*—knowledge-in-being as “quantum entanglements” (Barad “Quantum Entanglements”). She (we) emerges (emerge) in quantum leaps¹⁴² (*here then there—particle then wave—without ever being anywhere—(any)(every)thing—in between*). The storytelling and narrative moves of the text—its own materiality—cuts here, there, again, back, forward, up, down, in and out, so that we live Toby¹⁴³ (and Ren), intra-act with her (them), in a way that troubles our understandings of time, space, change, identity—all the sorts of troublings we need to do in order to make the ontological and epistemological assumptions posthumanism requires. The act of reading, as Ingram argues, is its own embodied experience-(being)-with language, as Barad would say its own material-discursive phenomenon or spacetime-mattering. And in reading an SF text with its ability to play with/emphasize non-classical ideas of time and space, we experience concepts that while theoretical are often hard to wrap the head around in real-time. To look at it another way, as a summarized example (life) in a dissertation, Toby is just another example of how we all go through changes and our subjectivity evolves through linear time and neutral space. As a fiction in a piece of SF like *Year of the Flood*, she becomes a *material-discursive*

¹⁴² As Barad explains: “Quantum signifies the ‘smallest possible, and therefore, indivisible, unit of a given quantity or quantifiable phenomenon’ (Wikitionary). It is a measure of the discreteness of nature. Unlike any ordinary experience of jumping or leaping, when an electron makes a quantum leap it does so in a discontinuous fashion belying the very notion of a ‘leap’, classically and colloquially speaking). In particular, the electron is initially at one energy level and then it is at another without having been anywhere in between. Talk about ghostly matters! A quantum leap is dis/continuous movement, but a particularly queer kind that troubles the very dichotomy between discontinuity and continuity” (“Quantum Entanglements” 246).

¹⁴³ The flashbacks do move in a fairly linear fashion, giving us a Linear-Toby—the “person” who lived the narrative I mapped above in that order and, therefore, experienced time linearly in the way we think we, as aging, humans do (her thoughts in the moment as seen in table 3.2 show some of this). But we don't read/enact it that way with her. Instead we read through AnooYoo-Toby—our guide along the path of ontological inquiry—who embodies and enfolds all those iterations so that we calibrate to the idea of past-present-future not being closed to each other.

phenomenon—an apparatus—that, “guiding us along the path of our ontological inquiry” (Ingram 111), *intra-acts* with us in ways that help us calibrate for *different* ontological and epistemological assumptions than those humanism requires.

Toby’s emergent, agential realist subjectivity is a posthumanist one, as Braidotti argues it should be: “embodied and embedded, firmly located somewhere, according to the feminist ‘politics of location’” (*Posthuman* 51). But it is also, using Barad’s quantum framework, *more* than located within “the flow of relations with multiple others” (*Posthuman* Braidotti 50); instead it *becomes through* the *intra-actions* within such flows, is in fact constituted by those relations instead of positioned *before* them in order to *then interact* with them. We are, in Baradian terms, phenomena ourselves, continually becoming and making ourselves intelligible to the world through intra-action with other phenomena. As Carol Taylor puts it when applying Barad to educational research, “subjectivity is not the property and possession of a separately bodied individual ... all that exists comes to being through intra-active, material processes of emergence (not as pre-existent separate entities)” (“Edu-Crafting” 14). Toby—an embodiment of the *complex* concept of posthumanist subjectivity—becomes a productive figure to think-with as we curate↔calibrate classroom-as-elsewhere through a posthumanist praxis that demands new questions, such as: How do you handle (ethically and productively) each unique bringing-together of students when they’re no longer thought of as embodying predetermined and differing subject positions but as continually emerging subjectivities through entangled (and unique to each assemblage) becomings? This troubles the notion of students developing on a continuum that structures like schools and universities can measure against “norms” (Lenz Taguchi *Going*) and asks us to consider other ways to “assess” change and growth that takes into account such becoming-withs and that students become *differently* with different phenomena.

One answer for this specific question for our posthumanist praxis is that we can't assume such emergent becomings are human-only affairs. Especially in the classroom. Though in table 3.2 we see her thoughts within flashbacks and could leave it at that, a praxis calibrated to posthumanism will note that the traces of honey and salt are from her evolving companion-species relation with the Gardeners' bees and the earth is from her work serving and teaching within the garden and tending mushrooms. Fiction—and I'd argue *good* (or productive) fiction, and in our case we'll say here, in particular, *speculative fiction* which builds a recognizable world a disconcerting centimeter *differently*—pays attention to these more-than-human actants that tell a story with characters, author, readers, etc. It is (or should be), in other words, calibrated to nonhuman actants through its very function of curating them (and not *this* or *that* else or otherwise) into scenes, into the story as a whole.

Here, in a moment in *MaddAddam*, Toby pauses considerably and takes stock of the survivor's communal dinner table set up outdoors:

Around the table is a collection of random chairs: kitchen, plastic, upholstered, swivel. On the tablecloth—a rosebud-and-bluebird motif—are plates and glasses, some already used, and cups, and cutlery. It's like a surrealist painting from the twentieth century: every object ultra-solid, crisp, hard-edged, except that none of them should be here. But why not? thinks Toby. Why shouldn't they be here? Nothing in the material world died when people did. Once, there were too many people and not enough stuff; now it's the other way around. But physical objects have shucked their tethers—Mine, Yours, His, Hers—and have gone wandering off on their own. It's like the aftermath of those riots they used to show in documentaries of the early twenty-first century, when kids would join phone-

swarms and then break windows and mob shops and grab stuff, and what you could have was limited only by what you could carry. And so it is now, she thinks. We have laid claim to these chairs, these cups and glasses, we've lugged them here. Now that history is over, we're living in luxury, as far as goods and chattels go. The plates look antique, or at least expensive. But now she could break the whole set and it wouldn't cause a ripple anywhere but in her own mind.

(*MaddAddam* 33)

This moment comes right before the Crakers rope her into becoming their storyteller who intra-acts with several objects that make meaning (stories) with the teller and listeners. These moments of notice and even thinking through are not coincidence, but the deliberate refocus, with the majority of humans gone, on that which is often left out of the thinking-through otherwise but which is always already entangled with us.

Indeed Atwood calibrates her writing of Toby to the posthumanist concept of trans-corporeality¹⁴⁴ when she emphasizes the actants in Toby's many becomings—e.g., bees, Mo'Hair scalp, rifle¹⁴⁵, notebook—as essential actants embedded and becoming-with Toby in a dynamic world (Alaimo “Trans-Corporeality”). This, in turn, can calibrate us, making explicit an onto-epistemology which takes into account the more-than-human while going beyond animal studies concepts such as “companion species” (Haraway *When*) to instead “think as the stuff of

¹⁴⁴ As defined by its creator Stacy Alaimo, trans-corporeality is “a posthumanist mode of new materialism and material feminism” that “means that all creatures as embodied beings, are intermeshed with the dynamic, material world, which crosses through them, transforms them, and is transformed by them” (Alaimo “Trans-Corporeality” 435).

¹⁴⁵ In an interesting aside considering Toby's musings that these objects have shucked their tethers, Zeb refers to the rifle as “Toby's rifle” (*MaddAddam* 276) while listing all the tools/weapons the MaddAddamites will need to take with them to hunt the Painballers (language matters; he could have simply said rifle). The rifle—considered an antique next to the sprayguns gleaned from the ruins, a piece of Toby's childhood buried by her father to keep it from the CorpSeCorps and dug back up by Toby to help protect her after the Flood, and then the means with which she killed the boar whose sow will later come to her as Pilar in an Enhanced Meditation with her piglets and also with which she shot Blanco in the leg creating a wound that would ultimately kill him—is a pretty huge part of Toby's phenomenon throughout the books. I'd say Zeb's comment is, even if unintentional, important and indicative of the sort of tracings that can be done with many more-than-human actors in this series—animals included.

the world” (Alaimo “Thinking” 13) where animals, things, concepts, dreams, etc. are *all* their own material-discursive phenomena (Barad *Meeting*).

Here in a conceptual territory, Atwood (and Toby through her) has the option to calibrate for the nonhuman or not—and she does. Such actants matter, as Barad says often, in both senses of the word—they bring the story (meaning) into being *and* what is or isn’t there is important because of it. And, so Atwood’s construction of and attention to the more-than-human participants in her conceptual territory, in her characters’ beings and becomings, as well as her characterization of Toby as just as attentive to them (or else her channeling of her attention through Toby), offers us an example of the way a posthumanist praxis should calibrate its inquiry/curation to all actants in the classroom, not just the human. Like speculative fiction, then, good (productive) posthumanist praxis pays attention, it “thinks *as* the stuff¹⁴⁶” (Alaimo “Thinking”) of the classroom. It doesn’t get lost in some OOO debates that would ask us to think about what it might be like to be the desk (Bogost *Alien*) but instead, as in material feminist practices, “[traces] intra-actions and other modes of entanglement between substances and systems [which] enables . . . the development of ethical and political modes that do not separate the human from the material world” (Alaimo “Thinking” 15). Such tracings are a critical part, as we’ll see in the next chapter, of teaching↔as↔inquiry and the resulting curation↔calibration that allows us to teach elsewhere: where all actants in a classroom matter, in both senses of the word.

¹⁴⁶ As Alaimo puts it: “Thinking as the stuff of the world is a mode of thought that embeds theorists, activists, and artists within material substances, flows, and systems. This posthumanist mode of being and knowing in which transcorporeal subjects grapple with “environments” that can never be external is indebted to feminism and understood through science studies theories of material agencies and disclosure” (“Thinking” 13).

A Posthumanist Praxis: Toby as Skeptical and Vigilant

Despite Ren and Zeb’s observations of her as outlined above and despite her original feeling of light and relief—that some higher power or mechanism got her to the God’s Gardeners and away from Blanco—Toby never considers herself a “real” Gardener. Skeptical of their beliefs in general, she questions many of the inconsistencies in their stories/beliefs even before she later, as Eve Six, gets to see behind the scenes of (and participate in) their theology-making (reconciliation of Science with the sanctity of life, or, “lies”). She also sees her inability to leave behind old habits as signs that she isn’t Gardener enough: “From time to time she thought of deserting. For one thing, she was swept with periodic but shameful cravings for animal protein” (Year 46). But as we see in the curation of quotes in table 3.2, while that doubt never fully fades, it does *change* as she configures and is reconfigured through iterative intra-actions with *both* human and more-than-human actants in the God’s Gardener phenomenon until, though she never intended to stay with the group, when she’s forced to leave it’s a terrible blow.

Her mentorship with Pilar and the bees/mushrooms is one of the more important relations. When first taken under Pilar’s wing, Toby can’t decide if her mentor is joking the first time she introduces her to the bees and remarks that they are just like the Gardeners, all of them willing to live and die for the hive. Or when she explains they are the messengers between the living and the dead and that they must be greeted each day and given the news in order to take it to their queen. And yet she does as Pilar teaches her and becomes-with the bees in a relationship that will last the rest of her life. By the time Pilar dies, Toby, knowing that anyone from the pleeb below (the bees live on the Edencliff rooftop) would think her crazy, covers her head—as was Pilar’s custom—speaks Pilar’s words to the bees, and tells them to tell their queen of Pilar’s

death and that Toby will be their new Eve Six. She thinks they don't sting her because they interpret her trembling as grief, not fear.

When Adam One asks Toby to take Pilar's place, she explains her reservations about becoming Eve Six when she has doubts: "An understatement: she believed in very little" (*Year* 168). She still takes on the job and even cultivates a new beehive in the survivor compound long after most of the God's Gardeners are gone:

The bees fly in and out of the hole in the Styrofoam cooler. They seem to like it here in the garden. Several of them come over to investigate her. They test her floral bedsheet, find it wanting, move to her face. Yes, they know her. They touch her lips, gather her words, fly away with the message, disappear into the dark.

Pass through the membrane that separates this world from the unseen world that lies just underneath it. There is Pilar, with her clam smile, walking forward along a corridor that flows with hidden light. Now, Toby, she tells herself. Talking pigs, communicative dead people, and the Underworld in a Styrofoam beer cooler.

You're not on drugs, you're not even sick. You really have no excuse"

(*MaddAddam* 277)

Towards the end of *MaddAddam*, this scene not only shows their companion species relationship—their making of kin (Haraway *Staying*)—but demonstrates the continual back and forth of a productive¹⁴⁷ (for me/us) and often humorous skepticism that runs through the core of Toby's character. This same sort of skepticism is, I believe, also essential for curating↔calibrating a posthumanist praxis, indeed, in keeping that process going instead of settling into comfort which can become, as with Spanos, stagnation. I've been accused, rightly

¹⁴⁷ This is not always the case. For instance, when applied to Zeb, this presents as an unproductive jealousy that plays out in unfortunate (very unproductive) thoughts about some of the other women. Despite how it may sound so far, I don't think Toby is perfect.

so, of being evangelical about posthumanism and its use in the classroom. And we saw what I thought of Weaver's absolutist passion.

Toby has served as helpful for calibration in this area as well, particularly when diffracted through others:

In explaining how her grandmother gave her a grounded sense of place, spiritual connection with the land, "a sense of reality, and a sense of humor about ourselves,"

Linda Tuhiwai Smith says:

It may be those qualities that make me *skeptical* or *cautious* about the mystical, misty-eyed discourse that is sometimes employed by indigenous people to describe our relationships with the land and the universe. I believe that our survival as peoples has come from our knowledge of our contexts, our environment ... We had to know to survive. We had to work out ways of knowing, we had to predict, to learn and reflect (13)(my emphasis)



In describing her journey through structuralism and deconstruction with her dissertation and toward post qualitative inquiry through her teaching, St. Pierre says:

I *formed* and then *shed* attachments to scholars and their theories as I read, and those shifts taught me there would always be another sentence in another book that might well *shatter* my life again. Reading guaranteed transformation, and I couldn't get enough ("Post Qualitative" 620)(my emphasis)



In navigating her roles within academic and indigenous communities, Rauna Kuokkanen relates a similar stance:

I am more interested in Spivak’s notion of productive crisis and interruption: the idea of bringing various, even opposing discourses together in such a way that they critically interrupt one another. With this approach, we aren’t required to keep one discourse and throw out the others. It is at the confluence of these various shifting streams—discourses and intellectual conventions—that I see to locate myself. In that place, I am both *curious* and *vigilant* (xiv)(my emphasis)



In a different goal for vigilance, Bruce Braun comments on the neohumanist responses to posthumanism which seek to “recentre man,” arguing for a posthumanism that is:

consistent with ...[a] sort of ‘deconstructive responsibility’ that watches vigilantly over the figure of the human as it is continuously deployed and defined within culture, politics, and philosophy. *Vigilance*, rather than transcendence, for if we assume that we have left humanism behind, discredited and abandoned for all time, we risk being blind to its traces, to how it haunts the posthuman (1353)(my emphasis)



And while Lenz Taguchi reminds us that:

one central consequence of an onto-epistemological perspective is that there can be no non-contextualised and universal ‘best ways of learning’

education ... What we are engaged in, in pedagogical practices, can simply be understood as constituting *habits* (*Going* 49-50)(my emphasis)



Taylor reminds us that:

as soon as we express the desire to ‘overcome humanism’, we very quickly realize how utterly entwined we are within humanism’s affordances and problematics, as feminists and post-structuralists already know. Any dis-entangling, therefore, has to be a *continuing and incisive critical practice*, not one done easily or ‘once and for all’ (“Edu-Crafting” 9)(my emphasis)

Diffraction back through these readings—*continuing, incisive, habits, vigilance, vigilant, curious, shatter, shed, formed, cautious, skeptical*—Toby’s doubt becomes a strength. Part of her continual emergence (survival) becomes an openness grounded (particularly as we’ll see in the next section on her as a storyteller) in productive *uncertainty* that relies equally on curiosity and skepticism, what I’ll call from now on “vigilance.” Inspired by her and this diffraction back through these theories, such vigilance reminds us in our continual curation↔calibration to be always searching for and open to new tools, strategies, theories while not letting ourselves be swept away in the flood of ever-proliferating theories, terminology, and trends or become unquestioningly tied to habits and practices we take up. Such a continual vigilance is critical when working from a posthumanist framework that recognizes the bees in our classrooms (and life). Our decisions—what theories, what ideas, what stories to curate—*calibrate* a phenomenon that includes many others besides ourselves. Indeed they materialize, make a difference in what is possible and what’s not possible. It’s no longer a question of what we’d like to read or teach

but of knowing that whatever we *do* choose marks the phenomenon and the bodies intra-acting in it just as they mark us back. With such responsibility, vigilance is essential.

A Posthumanist Professor: Toby as Storyteller

Toby has been telling us a story all along—a narrative experience of thinking differently with the world. But it’s the move in *MaddAddam*, to her as “Storyteller”—indeed her education in and calibration of that skill and her intra-action with the Crakers—that offers us more than a metaphorical figure but also a conceptual territory to think-with. While we saw her as teacher with the God’s Gardener children, it was in a setting with similar trappings of humanist classrooms: benches to keep students in orderly rows, memorizable facts, chants, slates and chalk to aid memory, being trained to accept certain beliefs. Unlike with Stoner who remains firmly in the hallowed halls of a romanticized liberal higher education, including cannon and impassioned lectures, Toby does at least teach in and work with her students in the garden or help them build and make and craft out of recycled materials (learning embedded in a more diverse and active spacetime-mattering). But change of “scenery” (or space) alone doesn’t “make a classroom posthuman” as I found out through developing my own posthumanist praxis as we’ll see in the next chapter. It’s in the final book, *MaddAddam*, when the human world and its systems are in ruins and she’s living with the “human” survivors and the Crakers (and the Pigoons), that we have to opportunity to speculate on what education could look like if the humanist educational system was, if not totally gone, at least catastrophically deconstructed.

Even though the surviving “humans”—the MaddAddamites¹⁴⁸ and ex-God’s Gardeners Toby is living with—in Atwood’s fictional scenario are indeed living within the ruins of their old society and systems, many of them—particularly the once “captive science brainiacs, working the evolution machines for Crake” (*MaddAddam* 43) to help design the Crakers—are set on maintaining many of the old habits, assumptions, and perspectives that keep them separate from the Crakers who they have mixed (at best) feelings about (whether because they view them as the experiment they had a hand in or they see them as the monstrous creations of a traitorous Crake). For instance, it becomes a habit at meals, “as if they’re all at a graduate seminar” (*MaddAddam* 43), for them to debate their observations of the Crakers, arguing and joking (as they probably did in the Paradise dome at similar meals or breaks) about everything from the Crakers lack of “fear,” to the success of their “design,” to the need for Toby to tell happy stories like Oryx did to keep them “placid,” to whether or not they could breed with the “humans,” and so on.

These particular academic and scientific discussions typically—as we see them—take place around the very dining room table described at length earlier. The MaddAddamites might dismiss the objects “lugged” back here, as Toby puts it, as simply spoils gleaned from the ruins and repurposed for their use in this new space, but, as actants in such scenes and debates, these objects contribute to the dynamic flow of agency, their presence (or absence) calibrating the human survivors to what-was. The table set with what is familiar and even desirable (that china you may not have had access to *before*) orients the MaddAddamites inward, turned toward each other in a familiar-to-them scene of human communion and community that, consequently, keeps their backs to the world around them and the slow erasure of the traces of the “human” world by plants, water, and other actants. It keep them, much like Weaver’s Spawn perched high above the

¹⁴⁸ MaddAddamites are humans who resisted the Corps under the leadership of Zeb, including God’s Gardeners who followed him when he split off from the Gardeners’ peaceful branch and scientists who were kidnapped by Crake to help create the Crakers.

mess, separate from the Crakers, Pig Ones, Wolvogs, and many others, certainly now numbering many more than their little huddle around an altar to their species' past. Throughout the book (and with implications for a more entangled future) there *is* some readjustment of thinking on the Crakers based on these observations, but still too often from an objective distance as if, for many of these scientists, the experiments continue just “in the wild” instead of in the Paradise dome. Even with many of the constructed boundaries that kept them separate from the nonhuman world dissolved or in tatters, they cling to a sense of hierarchy and separation, to the superior workings of their “natural brains” and vaunted knowledge.

Meanwhile, Toby¹⁴⁹ engages with the Crakers not as an observer, not for science, not to collect data, but to become a storyteller with and among them (even if first coerced by their reasoning and her own conscience). The relationship isn't perfect; Toby has her own lingering habits and assumptions as any of us would and, in fact, do. The productive difference for now and for us is her struggle (vigilance) with and work to, in a continual critical practice, undo old habits (trouble her assumptions) and engage different ones, particularly considering the MaddAddamites' debates, discussions, jokes, and dismissals of the Crakers in general.

For instance, consider this exchange between Rebecca and Toby:

“Those—what would you call them, anyway?”

“They're people,” says Toby. Or I think they're people, she adds to herself. “They're Crakers. That's what the MaddAddam bunch calls them, and I guess they should know.” (*MaddAddam* 34).

And in her first meeting with Blackbeard (whose mentor/mentee relation we'll look at in a moment and is mapped in fig.3.1), when she wakes up to find the Craker child in her room

¹⁴⁹ Most of the ex-God's Gardeners (except for Rebecca) engage with the Crakers, less so than Toby but more so than the MaddAddamites.

feeling her legs to prove to himself that she too has legs under her “second skin” or clothes, she goes from first considering “the hand of *this child*” to remarking that his riffling through her stuff is “something a *normal human child* might do” to wondering when he leaves “will he go back to the others and tell them disgusting marvels, as *real children—as children* do?” (*MaddAddam* 90-94)(my emphasis). Seeing this active struggle with words (and their limitations)—particularly in the actual moment of thinking or saying of them—to describe beings is not coincidence. In a series where language¹⁵⁰ and stories (and how they are told and why and by whom and for what and *with* what) are all as much *the* “story” as any actual plot, Toby’s continual mental (and written) editing of herself is notable and important.

As Toby wrestles with her understanding of their new world and her place in it, her vocabulary struggles to encompass the Crakers in a way that shows her as the most willing¹⁵¹ to remain open to the Crakers on their own terms. Unlike the MaddAddamites, she tries to approach them not as “unreal” because they were “constructed” or as an experiment to now study in “the wild” or a as “replacements” to hate, but instead to approach them as neighbors, albeit ones she is slowly learning to understand.

While Toby’s struggle here to understand the Crakers as people is not entirely unproblematic, she is, at least, working the ruins instead of staying huddled around the dining table. In her continual checking of her language instead of letting it remain unquestioned, we can see the same sort of continual curation↔calibration I argue is necessary in a pedagogical praxis

¹⁵⁰ Names in particular—and we could broaden this to say categorical words like human or child—are important to all players in this series from the God’s Gardeners who memorize lists of extinct animals in order to be living “arks” to carry the memory of them through the Waterless Flood, to the MaddAddamites who still go by their *Extinctathon* codenames like Manatee and Lotis Blue, to Jimmy, Zeb, Ren and Toby’s concerns with “losing” language, words in particular, through their different isolations/trials.

¹⁵¹ The younger generation (the children who Toby taught at the Wellness Clinic who are now grown up) who were not at Paradise have different reactions to the Crakers altogether. Amanda and Ren’s interactions are clouded by their rapes in their first encounter with the Crakers which Toby names a cultural misunderstandings and Crozier is developing a “bro” like relationship with the men, happy to swap stories (he’s the one who gets them going on Zeb who ate a bear) and pee with them in the perimeter circles.

that hopes to work from posthumanism (the ruins) in a still-humanist system ordered by policy based in positivist science (the table). This is her *vigilance* in (imperfect but purposeful) action, that continual (reading, learning, developing habits, *calibrating*) checking of our assumptions as our praxis *emerges* differently through every classroom we curate↔calibrate. One of many concepts, strategies, ways of being we might bring back from our time in the ruins with her to enact with our own classrooms.

Becoming-with the Crakers as they are, then, means engaging in storytelling as a way of being-with the world. While Crake believed he'd edited¹⁵² the need for origins and ideologies and the like out of the Crakers, it's Oryx who tells him it failed and begins giving them what they ask for—stories about where they come from. Jimmy takes up the tradition in his (relatively negligent) attempt to take care of them after the plague, and it's Toby whom they recruit to tell the stories when Jimmy's injury unites the heretofore separated camps:

Three Crakers—two women and a man—are sitting beside Jimmy's hammock on chairs that may once have belonged with the dining table: dark wood, with retro lyre backs and yellow-and-brown-striped satiny upholstery. The Crakers look wrong on these chairs, but they also look pleased with themselves, as if they're doing something quietly adventurous. Their bodies gleam like gold-threaded spandex,

¹⁵² As Crake tells Jimmy: “What had been altered was the nothing less than the ancient primate brain. Gone were its current illnesses. For instance, racism ... the neural complexes that would have created [hierarchy] ... territoriality ... In fact there would never be anything for these people to inherit. They were perfectly adjusted to their habitat, so they would never have to create house or tools or weapons, or, for that matter, clothing. They would have no need to invent any harmful symbolisms, such as kingdoms, icons, gods, or money. Best of all, they recycled their own excrement. By means of a brilliant splice, incorporating genetic material from...” (*Oryx and Crake* 305). He seems to be wrong on some accounts.

huge pink kudzu moths are fluttering around their heads in living halos.

They're preternaturally beautiful, thinks Toby. Unlike us. We must seem subhuman to them, with our flapping extra skins, our aging faces, our warped bodies, too thin, too fat, too hairy, too knobbly. Perfection exacts a price, but it's the imperfect who pay it.

Each of the Crakers has one hand on Jimmy. They're purring; the hum gets louder as Toby walks over to them.

"Greetings, Oh Toby," says the taller of the women. How do they know her name? They must have listened more carefully than she'd thought last night. And how should she reply? What are their own names, and is it polite to ask?

"Greetings," she says. "How is Snowman-the-Jimmy today?"

"He is growing stronger, Oh Toby," says the shorter woman. The others smile.

Jimmy does look somewhat better ... On his head is a battered red baseball cap, on his wrist a round watch with a blank face. A pair of sunglasses with one eye missing is perched awkwardly on his nose.

"Maybe he'd be more comfortable without those things on him," says Toby, indicating the hat and sunglasses.

"He must have those things," says the man. "Those are the things of Snowman-the-Jimmy."

"He needs them," says the shorter woman. "Crake says he must have them. See here is the thing for listening to Crake." She lifts the arm with the watch on it.

"And he sees Crake with this," says the man, pointing to sunglasses. "Only he." Toby wants to ask what the hat is for, but she refrains.

"Why have you moved him outside?" she asks.

"He did not like it in that dark place," says the man. "In there." He nods towards the house.

"Snowman-the-Jimmy can travel better out here," says the taller woman.

"He's travelling?" says Toby. "While he's asleep?" Could they be describing some dream they imagine Jimmy is dreaming?

"Yes," says the man. "He is travelling to here."

"He is running, sometimes fast and sometimes slow. Sometimes walking, because he is tired. Sometimes the Pig Ones are chasing him, because they do not understand. Sometimes he is climbing into a tree," says the shorter woman.

"When he gets to here, he will wake up," says the man.

"Where was he when he started the traveling?" says Toby cautiously. She doesn't want to convey disbelief.

"He was in the Egg," says the taller woman. "Where we were, in the beginning. He was with Crake, and with Oryx. They came out of the sky to meet with him in the Egg, and to tell him more of the stories, so he can tell them to us."

"That is where the stories come from," says the man. "But the Egg is too dark now. Crake and Oryx can be there, but Snowman-the-Jimmy cannot be there any more." The three of them smile warmly, as if certain she's understood every word they've said.

"May I look at Snowman-the-Jimmy's hurt foot?" she asks politely. They have no objection, though they keep their hands in place and continue with their purring.

Toby checks the maggots underneath the cloth she wrapped around Jimmy's foot the night before. They're busily at work, cleaning up the dead flesh; the swelling and oozing are diminishing. This batch of maggots is nearing maturity: she'll have to get hold of some rotting meat tomorrow, leave it in the sun, attract flies, create new maggots.

"Snowman-the-Jimmy is coming closer to us," says the short woman. "Then he will tell us the stories of Crake, as

he always did when he was living in his tree. But today you must tell them to us."

"Me?" says Toby. "But I don't know the stories of Crake!"

"You will learn them," says the man. "It will happen. Because Snowman-the-Jimmy is the helper of Crake, and you are the helper of Snowman-the-Jimmy. That is why."

"You must put on this red thing," says the shorter woman. "It is called a *hat*."

"Yes, a *hat*," says the tall woman. "In the evening, when it is moth time. You will put this hat of Snowman-the-Jimmy on your head, and listen to this shiny round thing that you put on your arm."

"Yes," says the other woman, nodding. "And then the words of Crake will come out of your mouth. That is how Snowman-the-Jimmy would do it."

"See," says the man. He points to the lettering on the hat: *Red Sox*. "Crake made this. He will help you. Oryx will help too, if the story has an animal in it."

"We will bring a fish, when it is getting dark. Snowman-the-Jimmy always eats a fish, because Crake says he must eat it. Then you will put on the hat and listen to this Crake thing, and say the stories of Crake."

"Yes, how Crake made us in the Egg, and cleared away the chaos of bad men. How we left the Egg and walked here with Snowman-the-Jimmy, because there were more leaves for us to eat."

"You will eat the fish, and then you will say the stories of Crake, as Snowman-the-Jimmy always did," says the shorter woman. They look at her with their uncanny green eyes and smile reassuringly. They seem entirely confident of her abilities.

What are my choices? thinks Toby. I can't say no. They may get disappointed, and go away by themselves, back to the beach, where the Painballers can grab them. They'd be easy prey, especially the children. How can I let that happen?

"All right," she says. "I will come in the evening. I will put on the hat of Jimmy. I mean Snowman-the-Jimmy, and tell you the stories of Crake."

"And listen to the shiny thing," says the man. "And eat the fish." It seems to be a ritual.

"Yes, all of that," says Toby.

Shit, she thinks. I hope they cook the fish.

I curate this (almost entire) chapter titled "Hammock" (*MaddAddam* 36-39) into our conversation here as a shared intra-action (a better way to calibrate our understanding than my

struggles, like Toby, to explain the Crakers) with the sort of complex and diverse phenomena that create this series, particularly the last two novels where Toby participates in narrating. In this three page scene we get a sense of the Crakers rhythm (both their unique language and thinking and general way-of-being), of Toby's uncertain approach to interacting with them and understanding them, of the novels' emphasis on the role animals, objects, and other actors play in our lives (here alone we have all of Jimmy's things, maggots, moths, Crakers, Toby, a hammock, stories, the anticipated fish, etc.), of the role storytelling plays in these stories, and of the kinds of learning that takes place outside of any "formal" educational space. While a teacher in the past, Toby now becomes teacher↔student as storytelling becomes the main avenue for her relations where learning is involved (going both ways) from now on.

When moth time comes and Toby tells the stories as asked, she notes that the Crakers *know* the story—it's the *telling* they want. The doing, the intra-action. It is a way of knowing-in-being that also emerges through a phenomenon that includes the more-than-human: Snowman-the-Jimmy must wear his read hat¹⁵³ (an old Red Sox cap), and his faceless watch (Oryx), and the Crakers must bring him a fish, caught and cooked. And when Toby takes over, the same phenomenon must be curated so the intra-action, the unfolding, the being-with and the knowing-in-being can emerge. And, as with the pool from Chapter I, the substitution of her for Jimmy makes a difference, unfolding the story but materializing it differently:

They prompt, they interrupt they fill in the parts she's missed. What they want from her is a seamless performance, as well as more information than she either knows or can invent. She's a poor substitute for Snowman-the-Jimmy, but they're doing what they can to polish her up (*MaddAddam* 45)

¹⁵³ Indeed, the Crakers don't doubt an object's agency. In one storytelling moment, when Toby tries to pass the hat to Blackbeard and have him tell a story, he refuses and starts to cry, afraid of how putting on the hat will change him.

In such polishing we see Toby in this relationship and as Storyteller is as much student as “teacher.” Indeed, throughout the book we see her continue to learn and become (and gather new stories) until there are moments in the text where as something is happening, she’s also thinking through how she will craft the story for the Crakers. From their polishing/intra-action, Toby emerges differently again.

As productive as this excerpt is, it is also problematic. The inclusion of the fish¹⁵⁴ in this phenomenon could be considered a sacrifice to Snowman who, because he was starving and unable to adapt to this world himself, told them Crake required them to bring Snowman a fish. Coupled with the ritual nature of repetition and incorporated objects, the storytelling assemblage takes on shades of ideology, origin stories, and the possibility of the dogma which—as we know from our own human experience—ritual can solidify into. The Crakers, in other words, infected with human, as Crake puts it “illnesses,” could be on the path to repeating our mistakes.

Still, the fish could be, to the Crakers’ minds, a gift. And as with stories and storytelling in general in this series, we, as readers, witness/experience the construction of the apparatus, the diffraction grating, and the phenomena that emerges and that will, while sedimenting out practices, fold back into the continual flow of becoming to emerge differently or not, depending on new agential cuts made each time the story emerges. Despite repetition, the stories are not “the same” but become superpositions interfering with other tellings to create new patterns each time. They also get added to the more the Crakers encounter in the world they don’t understand and curate such questions and actants into the telling. Considering the behind the scenes looks

¹⁵⁴ Particularly because they have a different understanding of fellow creatures than we do and are confused by why Crake would command them to kill one of the Children of Oryx and disgusted by the idea that Snowman (or anyone) would want to eat one of those children. They still bring one, emphasizing each time that it’s ok in this situation because Crake said so. Later, when Blackbeard takes over storytelling, he makes a point of saying how he only has to take a little bite and gags on it—a hopeful read would say he eventually does away with the practice based on this scene, but it could be the other way around.

we get at the God's Gardener and Church of PetrOleum theologies and their constructed natures, we can also read this as another iteration of Atwood's theme that "there's the story, then there's the real story, then there's the story of how the story came to be told. Then there's what you leave out of the story. Which is part of the story too" (*MaddAddam* 56). Origins, in other words, are sketchy at best¹⁵⁵ and such moments remind us of that.

Toby's assumption that the Crakers might find them "subhuman" and her taking on the responsibility of "protecting" the Crakers offer two more examples of the struggle to break old habits. In both cases she's projecting her own humanist assumptions on the Crakers. Along with Toby, we learn through watching the Crakers intra-act with their environment, with the other MaddAddamites, with "Children of Oryx¹⁵⁶," and with the Pig Ones, that they approach members of all these groups with the same sort of curiosity, welcome, joy, confusion, and even respect that hints that Crake's goal to edit our hierarchies may have worked. Instead of condescending, they enfold Toby in their different way of talking, their rhythms (we can see already in "Hammock" that, by the end, she's picking these up), and trust her to keep up, help them as she's so competently helped Snowman-the-Jimmy so far, and to ask questions as they do when they don't understand.

She, however, still condescends in her concern over them. Certainly, she's right to be concerned about the threat of the Painballers to everyone—MaddAddamites, Crakers, and, as it turns out Pigoons alike—and she feels particularly responsible having let them escape. But her thoughts here come from her—at this point—brief personal interaction with the Crakers and— even more so—the general scientific consensus at the dining table that the Crakers are barely one

¹⁵⁵ And, considering the scene where Blackbeard discovers that Oryx and Crake are now smellybones in the Paradise dome instead of up in the sky—and his positive spinning of the story to the other Crakers later—there is no going back to where you originated from.

¹⁵⁶ Animals. In the stories Jimmy tells them (based on the stories Oryx had already taught them), Crake made the Crakers (we aren't sure what they call themselves) and Oryx made the animals.

step up from automatons (if they'd edited out their singing that would be the case as they apparently found out in trials) who may never be capable of learning fear¹⁵⁷ or how to accept/return violence and, therefore, protect themselves. Regardless of whether it's true or not, the characterization of that way of being as naïve or childish or in need of change or intervention from those who "know better" who "know how the world works" is a characterization made from the same sort of humanist assumptions that allow us to slot other humans—women, minorities, children—into the animal side of the human/animal binary. That allowed the deployment of education in service of the dehumanizing and/or colonial missions as we've already seen Snaza and Viswanathan discuss. It also often haunts democratizing missions of some liberatory education models which can—when not vigilant—reinscribe humanist assumptions while trying to "free" students by helping them become more like their liberators (Ellsworth; Grande).

In other words, while the plague/Flood might have stalled it in the larger world, such thinking and attitudes toward the Crakers in the MaddAddamites' camp "jumpstart[s] the anthropological machine, which always defines the human as a surplus of the animal" (Khan and Lewis 74). Khan and Lewis outline this anthropological machine as a humanist pedagogy through the story of a feral boy who Itard tried to humanize/civilize through education in the

¹⁵⁷ Toby struggles against this kind of condescension much like with her language; in just her relationship with Blackbeard she alternately stops herself from keeping him from danger ("he has chosen his duty") and argues to keep him out of the final confrontation with the Painballers ("he has no fear—or none that's realistic") (270, 343). Of the whole group of Crakers who thought nothing of following the MaddAddamites and Pig Ones on their journey to find the Painballers, Toby thinks while watching them all sleep outside, "How trusting they are ... They've never learned fear. Maybe they can't learn it" (MaddAddam 293). Her thought here doesn't take into consideration the Crakers actions just the day before during the Pig Ones↔Crakers↔MaddAddamites negotiation. When the Crakers first greet the Pig Ones (who've come into the MaddAddamites' camp), they approach (while the MaddAddamites stay back) and pee in a semi-circle before standing calmly, safely behind it (the piglets that approach and smell the pee run away squealing). Neither totally naïve nor overly aggressive, the Crakers step into the breach in a situation that could have gone badly and mediate the dispute. These aren't the actions of clueless, naïve children but beings who are adapted to their environment in different ways that create in them a different approach/relation to that world. Blackbeard in this scene is as mystified by Toby's fear of the Pigoons as she is unable to understand his lack of fear in general.

1800s. In line with Snaza and Viswanathan's arguments, this kind of civilizing goal that exorcises the "feral" other translates, then, through the anthropological machine and this particular brand of humanist education to children "as such." In theorizing their own posthumanist praxis (exopedagogy) from such stories, then, Khan and Lewis speculate:

But what if Itard started with ... a question that did not begin with predefined...assumptions about what it means to be fully humans? What if [Itard] walked with Victor [the feral boy] into the beastly place between forest and city where all are strangers to each other and to themselves? In this paradoxical no-man's-land is it not possible to attend to the appearance of an uncanny wonder that suspends the divisions of the sovereign decision over and against Victor?...To ask such questions is to inaugurate the first steps of an exopedagogy as a pedagogy that profanes the humanist subject of education by learning from the exceptional and monstrous profanation of the human in order to let the animal, the unconscious, the creaturely, and the body speak. We must risk the open space between human and nonhuman animals that emerges when we let the anthropological machine idle, and in this sense produce a new educational machine. (73)

Blackbeard and the Crakers may not fit the violent connotations of feral but they are characterized by the MaddAddamites as undomesticated animals who may not be capable of becoming "more," judged, in other words, on what "humanism" they might or might not be able to "learn" or their ability to be "civilized" through education.

Because such ontological and epistemological assumptions based in the human/animal, human/nonhuman binary are so hard to shake—indeed we need continual vigilance to leave them

idle—it is critical to note in this scene, and with Blackbeard's mentorship with Toby, that the Crakers and Blackbeard come *to* Toby and initiate the storytelling or mentorship. If one of the MaddAddamites had gone to the Crakers with the mission to, as Itard did, teach them to read or write or to *be* otherwise in an effort to “help” them, the colonizing, dehumanizing mission would reengage with full force. However, not even the instigator in this relationship, Toby does walk *with* the Crakers—particularly Blackbeard—through what, to her, is ruins, but to them is the place cleared by Crake *for* them. She doesn't seek “to gentrify the monstrous but rather engage with it through imaginative practices of play” (Khan and Lewis 72), through their way of being, storytelling¹⁵⁸.

Indeed she is, in her vigilance and doubt, consistently and continually aware of and worried about the influence she might have over Blackbeard in particular as he decides to attach himself to her. After she woke the first time to him checking¹⁵⁹ to see if she had legs, he, from then on, follows her around and learns from her through close observation and continual questioning: “he's her little shadow, he's absorbing everything” (*MaddAddam* 138).

When Zeb gleans composition notebooks for her on one of his trips, Blackbeard comes upon Toby once again recording feast days and asks what she's doing. She teaches him the basics of

¹⁵⁸ There is no doubt that Toby is aware of the sort of “spin and grin” (to use the phrase applied to the degree Jimmy received at Martha Graham) she is participating in by continuing to tell the stories Snowman engineered to explain good kind Crake and his decision to make a space for the Crakers by clearing away the “bad” in the world. She confronts Jimmy about this when he insists that she take over permanently for him. In their origin in purposeful lies/cover-up they do resemble Adam One's (or even his father's) sermons which we know were meant to achieve a goal most of his followers were unaware of (reconcile science and human/animal relations in a way that persuaded people to care through consequences). But their content as it evolves with the Craker guidance (their interruptions and questions steer the content-creation) more resembles some indigenous creation stories (and the use of objects could also be read in this direction as well). The critical thing, again, here to note for our purposes is that Toby is engaging them in their chosen way of being-with-the world instead of trying to impose something else upon them, especially considering Atwood's focus on the created nature of all stories and Blackbeard's claim at the end that the hybrid children will be taking over storytelling (both oral and written).

¹⁵⁹ Such curiosity is par for the course with all Crakers. The walls of the cobb house and any other MaddAddamite structure is not a boundary to them—indeed they seem to not understand boundaries as such (particularly clothes and personal). If Toby's becoming with nonhuman actants emphasized our trans-corporeality, then the Crakers could be seen as an embodiment of the concept, a recognition of what we already are.

writing and reading and, later that day finds him writing his name from the paper with a stick in the sandbox while the other children watch and sing. She immediately questions what had been such a joyful and exciting exchange (on both their parts) earlier: “What can of worms have I opened? What comes next? ... The Testament of Crake? ... Have I ruined them? (*MaddAddam* 204).

From then on, he steals the journal from Toby whenever he can, collecting everyone’s names and learning to write from Toby who uses the joint nature of the journal to follow his progress. She enjoys but is never easy with their lessons, more than once asking herself if the Crakers would be better off without writing. But, as with the Crakers polishing her as a storyteller, this relationship is more of a sharing than the colonization or ruination she fears it might become. Blackbeard helps her adjust to the ruins through everyday experiences/questions/curiosities. In other words, she is “walking with” Blackbeard into *his* world, where she admits “she’s deaf and blind” (*MaddAddam* 343). There, his intra-actions with Pigoons, his understanding of and ability to communicate with them and other Children of Oryx, and even his lack of “fear” help Toby work through some of her own beliefs, work on disentangling some of those old habits and assumptions life in this different world won’t support. Blackbeard, then, is as much mentor as mentee in this relationship he initiated. It is an (if imperfect) example of the sort of student↔teacher relation that Freire could get behind (where both parties are both to each other and work together solving problems that matter to and are the choice of all involved).

On a final note, though the MaddAddamites’ argue that Crake must have seen the Crakers as indigenous people and humans as the conquistadors who needed to be destroyed to ensure his New Humans would survive, for us as readers (particularly those of us working in

posthumanist theory who are ourselves from Western onto-epistemologies), the Crakers are not a “metaphor” for indigenous people. Their ontological and epistemological assumptions are *more in line* with some¹⁶⁰ indigenous worldviews, as can be seen in their use of oral storytelling, in that they haven’t learned, much less “forgotten that nonhumans are agential beings engaged in social relations that profoundly shape [their] lives” (TallBear 234), and in their relationship to land, animals, etc. But to read that as commensurate with “indigenous” as if that term relates only to such characteristics is problematic. In the indigenous methodology community, most scholars begin their work reminding the reader that the term “indigenous” *does* collapse the differences—including onto-epistemological—between the many, many people who unite under the umbrella of having been colonized. Atwood herself calls the Crakers “designer people” (“Dire Cartographies 91) and so we might better consider them as Frankenstein or Dr. Moreau’s monsters. But while using monsters (much like cyborgs) to trouble humanist assumptions is a well-used methodology from before Haraway on down to Khan and Lewis as we’ve seen, monsters can just as easily be Clowns (of Weaver’s Spawn metaphor) as feral boys.

For me and in a way I found most productive for this project, the Crakers signify, in Ingram’s theory, on their own. They are signifying bodies without any need to relate them “as” something else. In referring to them as floor models, Crake remarks that “they represent the art of the possible” (*Oryx* 305). I would argue that *in the novel*, they signify a language of possibility: as trans-corporeal bodies, as entangled phenomenon, through the storytelling of their “actual creator” (Atwood), and through the intra-actions materialized with Toby and with readers. Our different readings-with them-as-guides may close down some of that possibility, but it is there. And curated into the framework and posthumanism of this project, they offer a *critical*

¹⁶⁰ Much like posthumanism, the term indigenous encompasses many different approaches from many different groups of people/tribes (Smith; Kuokkanen).

reminder that, in the ruins there is room for many and varying ontologies and epistemologies—for a multiplicity of ways of being, becoming, and knowing-in-being. So is the case *elsewhere*—that classroom we work to curate↔calibrate from within a very much whole and supple humanism. My reading *with* the Crakers has calibrated my own praxis to resist, as Sundberg puts it, “the tendency in posthumanist theorizing to treat Anglo-European theory as the only body of work relevant to ontological questions about nature and culture” (42) and to include other theory/worldviews, *including* the rich variety of indigenous work already in the field.

A Posthumanist Guide: Toby and the Cacophony

As we saw in the last chapter, the posthumanist education conversation is a cacophony of voices, theories, and ideas for how to “ruin” the humanist assumptions and narratives still running our educational systems and written into the structures of our classrooms. Entangled with the Goughs of the last chapter too, Weaver was one of the first of those voices I read—with his book, along with Spanos’ was—pre-2015—one of the only sustained (book-length) looks at what posthumanist education might be. Though his calibration for the posthuman condition is not the majority of the conversation anymore, his work remains typical in that it stays in the theoretical and metaphorical. In other words, after working with Stoner and Spawn, Weaver doesn’t diffract such findings back through some sort of “practical” application for the classroom (or, in his case, curriculum). While this isn’t necessary, it is frustrating. And, in the more general cacophony itself, misses an opportunity to continue building (with the rarer work that already does do this) a more complex, layered superposition of patterns—stories and strategies—that, as a community of teachers, we can use to inspire, diffract, and curate↔calibrate our praxis and classrooms.

What does becoming a Spawn from Hell—that aloof observer—actually mean for my building a curriculum for my classrooms? How does walking with Stoner—that proud traditionalist—as my guide into the ruins of humanism translate to work with students in the classroom? Neither one sounds particularly productive for the kind of intra-active, entangled, staying with the classroom I argue we need to do. Either perched above the mess or lost in passionate lectures, both of these options separate us from the classrooms we teach and become-with. There might be thinking *about* the classroom—what to plan, what to do, what to teach—but there is very little (if any) thinking *as* the classroom which, extending Alaimo’s phrase (“Thinking”) to our classroom-as-phenomenon, gets more at what we’ll see in the next chapter with teaching↔as↔inquiry and an ethics that comes from the classroom instead of being imposed on it.

As Ursula K. Le Guin says: “It is the story that makes the difference” (169).



As Strathern says: “It matters what ideas we use to think other ideas with” (10).



As Haraway says: “It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with” (“SF”)



As Barad says: “Mattering is differentiating, and which differences come to matter, matter in the iterative production of different differences ... Difference patterns do not merely change in space and time; spacetime is an enactment of differentness, a way of making/marking here and now”

(*Meeting* 137)

Toby made a difference for me and for my praxis and for the writing-through of this dissertation. Though positioned here before the chapter on the classes, she didn't start working with me until in the middle of the last class I taught, and so my analysis of those classrooms and my findings diffracts as much through her as any of the theorists and theories mentioned so far. Though not always referred to, she shows up in comments about being vigilant about both new theories and imposing our own ways of being and knowing on our students. Diffracted through her, the concepts of *working the ruins* (Pillow and St. Pierre) and *staying with* (Haraway *Staying*) became central apparatuses and changed the shape and direction of this document. Here, in this chapter by herself, she serves as a conceptual territory for us to walk through together so that you might better see what I mean when I talk about students (and myself) having entangled and emergent subjectivities and the importance of skepticism and vigilance for a posthumanist praxis that can help us teach elsewhere. Her interference patterns run throughout the whole document as she and the *MaddAddam* trilogy made a difference, changed what it was possible for me to think through and with. It matters what we read with, what stories we pick to help us disrupt the humanist narratives of return and victory.

Unlike Weaver, we won't leave it there. Instead, in the next chapter we'll see how all of this might apply to the classroom through my work with two different sophomore level literature courses.

Chapter IV

Curating↔Calibrating the Classroom

“Though some of us who engaged the ‘posts’ tried to work in the ruins and out of the ruins of [qualitative inquiry], its structure, so deeply mired in humanism, continued mostly unabated as it was proliferated by the publishing industry in too many textbooks, handbooks, and journals and by universities that disciplined and perpetuated it in research courses. Never taken too seriously by many in power—as we learned during the debates about scientifically based research—our task was to establish the validity of an alternative to positivist social science methodology though we did so, ironically, by relying chiefly on positivist markers such as systematicity, linear processes, technique, clarity and transparency of language, accurate observation, representation, and so on that idealize and normalize a particular form of science that equates knowledge with science. Early in the western Enlightenment, Descartes invented the *cogito*, the *knowing subject*, and it will be difficult for those of us who call ourselves researchers to escape the centuries-old knowledge-making machines his fiction has spawned”

—Elizabeth Adams St. Pierre
 “The Posts Continue” (654)(emphasis original)

“How we see reality is the starting point of the questions we ask about our work. In turn, our questioning is a way of uncovering the narratives and meanings present in our classroom.”

—Joseph C. Fischer
 "Action Research Rationale and Planning: Developing a Framework for Teacher Inquiry" (47)

“My keenest sense in the writing of this chapter is the many different directions I could have gone with it, the gulf between the totality of possible statements and the finitude of what is actually written or spoken.”

—Patti Lather
Getting Smart: Feminist Research and Pedagogy with/in the Postmodern (123)

This chapter diffracts the theories, analysis, and speculations discussed so far through my experience of teaching two sophomore literature classes: Reuse. Remix Rewrite. (RRR) in Fall 2016 and American Literature (AL) in Spring 2018. It argues for teaching↔as↔inquiry as an

essential part of posthumanist education and explains my development of my own version as curation↔calibration through the use of pedagogical documentation and diffraction. I use the examples of curating↔calibrating my own classes and the adjustments made between the teachings of them to demonstrate the importance of developing *some sort* of sustained and focused method of inquiry of and intervention *with* the classroom-as-phenomenon in order to enact the *ethico-onto-epistemological* (Barad *Meeting*) possibility of the classroom-as-phenomenon and teaching elsewhere.

Teaching↔as↔Inquiry

It has been incredibly hard to figure out how to explain my relationship with “research” (or its role) in this project. I’m not a social scientist—at least I didn’t train to become one and then focus my work in deploying those skills in research projects. I’m an English teacher who, as is pretty common, picks up strategies from theory/colleagues/trainings/students/random inspiration/fiction and more. As a feminist poststructuralist and posthumanist (to narrow it down), I believe in being transdisciplinary and, as a literary and critical theorist, I most often talk about my scholarly *research* as intra-acting with theory and texts and the world. When Barad and her use of Bohr’s light paradox and quantum physics (which I hadn’t studied before) resonated with me in a way Heidegger and others hadn’t, I went with it, seeing where it might take me. Not because it was “science¹⁶¹,” but because it helped me think, to do my entangled jobs as teacher and theorist *better*. It calibrated me to see and think *differently* about what was possible for the classrooms I teach, even housed in all-purpose, algorithmically assigned rooms that configure other possibilities. As Haraway says and I repeat, it matters “what matters we use to think other matters with ... what thoughts think thoughts” (SF). Agential realism and, in particular, the light

¹⁶¹ And somehow more “legitimate.”

paradox helped me speculate, and, when I diffracted my own work through it, things got interesting. When a suggestion from a professor sent me to Hillevi Lenz Taguchi who also uses Barad diffracted through Deleuze and Guattari to create an “intra-active pedagogy,” I read her work in *Early Childhood Education*—far from the university classroom—with dissolving the theory/practice divide through making such theory and practice material (via pedagogical documentation and diffraction) and, therefore, easier to intra-act with in a “surfing” or “listening” pedagogy (*Going*). I knew agential realism, pedagogical documentation, and diffraction were strategies I wanted to pick up and incorporate in my pedagogy as I tried to “make my classroom more posthuman(ist).” And I wanted to be able to talk about what happened in the class I used them in, which meant I needed to write an IRB protocol. But an IRB protocol wants to know answers before you’ve asked questions. It asks you to anticipate *specifics* when the goal *here* was to learn how to better emerge-with. In trying to *word* the procedures with specificity and in ways that would get the approval I needed, my focus shifted to seeing the “study” as the point instead of teaching *differently*. Words *matter*. How we ask the questions *matter* and bring our ideas into being with us. With these words, I got a little lost, and not in the productive way Lather calls for from “the ruins” (*Getting Lost*). In Toby terms, I let the IRB turn me inward toward the conversation at the table when the whole point had been, to “walk out” into the classroom.

But this is what all of these voices I’ve curated into this document so far have been trying to say: humanism is not “dead” or gone, and we’re as much wrapped up in it in all its flavors (including the progressive and emancipatory ones) as we are posthumanist possibilities. It’s supple and what sets educational policy (through the gold-standard of evidence-based and positivist science, or Research...IRB included) in our current standardized and managerial audit

culture (St. Pierre “Post Qualitative Research;” Lather *Engaging*; Giroux; Spooner). In correcting course, I came to understand that this is what calibration is for (not just for me, but also for a classroom struggling to be elsewhere) and why it’s not just continual but also *inseparable* from curation which pulls not just from our own personal archives but also *from* the classroom-as-phenomenon itself. As I argued through Toby (with help from other voices such as Lenz Taguchi and Taylor), vigilance includes not just healthy skepticism toward new theories, but also the continual examination and untangling of old habits and assumptions. And, therefore, it also helps us continually *disrupt* humanist assumptions that build classrooms as *anywheres* (i.e. from the epistemological assumption that knowledge can be passed from teacher to student anywhere, the university algorithmically assigns classes based on course caps to rooms designed to be “one-size-fits-all” and that come equipped with “standard” supplies and equipment). This *necessary* disruption is at the heart of this chapter and its argument for (and understanding of) teaching↔as↔inquiry as a posthumanist curation↔calibration of classroom-as-elsewhere.

In other words, I calibrate myself to posthumanism and pull from the post qualitative¹⁶² conversation (*both* genealogically entangled with feminist poststructuralism and material feminisms) because I believe it’s more productive to resist instead of work from a (progressive) humanist framework. To productively and continually resist, part of my praxis must, I’ve learned from teaching the two classes talked about here, be a more purposeful, focused, intra-active observation of and response to the classroom-as-phenomenon and the dynamic flow of agency among human *and nonhuman* actants alike through a quantum spacetime (i.e., classroom-as-

¹⁶² According to St. Pierre: “post qualitative inquiry offers a critique of conventional humanist qualitative methodology and marks a turn toward poststructural and posthuman inquiry. It also takes account of the new empiricisms emerging with the ontological and material turns in the humanities and social sciences. This inquiry is not methods-driven but informed by concepts like Karen Barad's entanglement and Gilles Deleuze and Felix Guattari's assemblage and by conceptual practices those concepts make possible, practices that will be different in different projects. Post qualitative inquiry is an invitation to think and do educational inquiry outside normalized structures of humanist epistemology, ontology, and methodology” (“Post Qualitative Inquiry”).

spacetimemattering as I've used throughout). I don't argue for a particular *way of doing*¹⁶³ such observation but caution, as Fischer does in the epigraph above that “how we see reality is the starting point.” For instance, Weaver's calibration for “the posthuman” as a condition pulls him into the transhumanist and humanist direction. And as St. Pierre argues in her epigraph as well (and throughout this document), such humanist calibrations are already built into many strategies we might pick up from the long history of qualitative (and quantitative) research/inquiry and are still used generally to aid positivist science and policy “in the reproduction of systems of oppression” (Kincheloe et al. 237). Decolonial and indigenous researchers would also remind us of the need to decolonize and generally question qualitative methods which played roles in their colonization and continued oppression (Smith; Kuokkanen; Grande). This is not to say such methods can't be recalibrated; as we'll see with pedagogical documentation, they can. But such recalibration still takes a different *starting point* that always already questions methods, tools, and apparatuses used because, unlike a positivist (humanist) epistemology, it *assumes* they aren't neutral and that they *matter*.

For my starting point, then, I chose posthumanism, particularly agential realism and, from there, my own version of pedagogical documentation (inspired by Lenz Taguchi's use in Early Childhood Education) and diffraction as demonstrated in this chapter. As such, I don't consider what I did and write-through in this chapter “Research.” I consider it teaching. *Carefully* (curate). *Responsively* (calibrate). With a *different*, intentional focus on classroom as emergent phenomenon and with the express purpose of teaching from/with phenomena. Here a different ethics is possible—an ethics of *immanence*, as Lenz Taguchi argues from Barad and Deleuze—that comes *from* teaching with a phenomenon, not before (*Going*).

¹⁶³ Like my use of Barad, pedagogical documentation, diffraction, etc. the theories, terms, and ways of doing should resonate with the doer. These are the larger players in my current framework, but this should change over time and in relation to the classrooms I curate↔calibrate in the future.

In thinking of it as teaching↔as↔inquiry¹⁶⁴, I follow much indigenous, feminist, critical, (post) qualitative work where researchers are using the word “inquiry” as a word less entangled with positivist science (Guttmann et al.) and colonial violence (Smith) than “research.” Lenz Taguchi’s point in developing pedagogical documentation as a part of her posthumanist intra-active pedagogy was its reintegration of theory and practice. This is also in line with teacher research and action research in general, which came of out the 80s along with feminist poststructuralists, and particularly Lather’s “research as praxis” (*Getting Smart*) which also dissolves the theory/practice binary. Those working in critical pedagogy also argue that “critical researchers and teachers understand that praxis involves both theory and action and that each informs the other” (Kincheloe et al. 240). The idea of teaching being inquiry, then, has long been entangled in the conversation.

Indeed, the teacher researcher movement in particular argues for teachers researching their own classes as a matter of course “with the fundamental purpose of improving practice rather than developing a general theory” (Hara 93). This is often a hard sell because, as Jungck points out:

the dominant perception of what is considered ‘real’ or legitimate research has functioned to artificially separate teachers from researchers, teaching from researching, and theorizing from practicing. Thus it should not be surprising that so many teachers reflect detachment from the dominant ‘received view’ of research. (333)

¹⁶⁴ Not to be confused with “teaching inquiry” which is a particular pedagogical style where students *do* inquiry (e.g., choose a research project) and the teacher guides them through the process as they create knowledge and gain research skills at the same time (as in, “I am teaching the inquiry process”). Also, as I hope to show in this chapter, it also isn’t just subbing in the word inquiry for research in traditional “teacher research”/action research.

Tending to rely on a “constructivist paradigm [that] differs from positivism by assuming that reality and knowledge is situated, created, and constructed, not fixed and discovered” (Jungck 336), teacher research and the related action research (as in such research is *in action*) “provided a new lens through which to recognize and legitimate alternative ways of knowing” (Jungck 338). Jungck argues that having such lenses (I’d say diffraction gratings) calibrated us to see “the kinds of inquiry and knowledge production that good teachers ... have always conducted ... not as systematic and explicit research protocol, but more as a natural¹⁶⁵ and necessary process of their own learning” (338). In action research in particular, “researchers spiral through ongoing cycles” of “data-gathering techniques [that] tend to focus on collecting evidence about the effectiveness of new strategies and perspectives of the various stakeholders” (Jungck 340) with a typical goal to “initiate, inform, and sustain long-term community dialogue around local issues” (Jungck 342).

Fischer also sees the related (often used interchangeably) action research as a natural part of teaching. It holds that effective teaching is informed by personal knowledge, trial and error, reflection on practice, and conversations with colleagues. To be a teacher means to observe students and study classroom interactions, to explore a variety of effective ways of teaching, and to build conceptual frameworks that can guide one’s work. Teaching also involves reflecting on the nature of human development, examining the place of schools in society, and developing a personal philosophy of education. All this is a personal as well as professional quest, a journey toward making sense out of and finding satisfaction in one’s teaching. It is the work of teacher researchers. (29)

¹⁶⁵ This is a problematic phrasing that characterizes this kind of way of seeing the world as not constructed in comparison to others, whereas the point of such research is to counteract such narratives.

Teaching↔as↔inquiry, then, follows Fischer and Jangck’s points on the important role observing our own classrooms should play in our teaching for the best and most productive teaching possible with each class. But there is nothing natural about it: it’s a learned, honed, constructed, and *interested* skillset that has to be cultivated and often isn’t. What makes a “good” teacher—which is what Fischer is describing—is as constructed and learned as what makes a “good” scientist, artist, or anything else. Casting it as natural reinscribes humanist and positivist science narratives that there is an Edenic, objective, or pure form—in this case of research—that can be returned to instead of continuing to rely on an “unnatural” Research. Like reflection and diffraction, such options shouldn’t be in binary opposition to each other but do certain things for certain purposes. And certainly, neither of them is uncomplicated or unstructured. Objectivity-as-responsibility requires that we trouble all notions of our ways of doing and being as “natural” or not. In the case of teaching↔as↔inquiry, “research” keeps curation↔calibration moving and our possibilities calibrated more for posthumanism. It takes developing strategies (like pedagogical documentation and diffraction), reading widely and critically (research) in theory, fiction, and popular culture, and diffracting all of that through the failures and successes of the classroom. Every decision, particularly through the lens of agential realism matters and changes what is possible. It’s necessary, active, dynamic, and *agential*, but not “natural” in the humanist sense.

Kincheloe et al. argue that, like teacher researchers, those teachers working with critical pedagogy, specifically critical action research:

appreciate the benefits of research, especially as they relate to understanding the forces that shape education that fall outside their immediate experience and perception. As these insights are constructed, teachers begin to understand what

they know from experience. With this in mind, they gain heightened awareness of how they can contribute to the research on education. Indeed, they realize that they have access to understanding that go far beyond what the expert researchers have produced ... thus, critical scholar teachers research their own professional practice. (240-241)

In contrast to teacher researchers who work to intervene directly into their own practice, classroom, and school, critical action research “must connect student, school, and community problems with the broader social, economic, and political dimension of our society” (Kincheloe et al. 242). Such research stresses researching *with* students, in line with the Freirean problem-solving model that puts teacher and students on a level field as they work to solve problems immediate and important to all involved. Kincheloe et al. argue for using bricolage as a method dexterous enough to do research on an “object of inquiry” in a world where everything is situated in a socially constructed “web of reality” (248). While I consider curation similar to bricolage¹⁶⁶, agree with the focus on working with students, and appreciate the goal of working for larger issues of justice, it, like teacher research, critical pedagogy and critical action research isn’t exactly what I’m arguing for here. They are in the same vein of the teacher observing the classroom as part of praxis and set a good (though not widely accepted as proof enough for policy change, etc.) precedent for the practice, but we’re working with different goals.

Teaching↔as↔inquiry, or what I call curation↔calibration or “teaching elsewhere,” then, shares several assumptions about “good” teaching with teacher research, action research, and critical action, though it sees such observation and reflective (diffractive) practices as anything but natural and works from different onto-epistemological assumptions about what

¹⁶⁶ I disagree, however, with the humanist calibration of their *use of bricolage* and in reference to “objects of inquiry” in the article.

research is, should aspire to, and, ultimately be used for. Diffracting the idea of teacher research through a posthumanist agential realism and work being done in post qualitative inquiry gets us closer to the productive possibility of teaching↔as↔inquiry and its necessity for the classroom-as-elsewhere.

Post Qualitative and Posthumanist

“The challenge,” Taylor argues, “for posthumanist educational research is how to produce knowledge about education which undoes the humanist presumptions that have thus far grounded educational research” (“Edu-Crafting” 22). In other words, to use posthumanist theory, to calibrate our praxis for posthumanism as this project does, is to think-and-become-with the world through entirely different ontological and epistemological assumptions than the ones that support humanist hierarchical and subjective thinking and being (still typically used in traditional teacher research and critical pedagogy which tend not to purposefully question the human/nonhuman binary). As Lather and St. Pierre (foundational theorists in the development of post qualitative inquiry through post structuralism and now posthumanism and always feminism) put it:

If we cease to privilege knowing over being; if we refuse positivist and phenomenological assumptions about the nature of lived experiences and the world; if we give up representational and binary logics; if we see language, the human, and the material not as separate entities mixed together but as completely imbricated ‘on the surface’—if we do all that and the ‘more’ it will open up—will qualitative inquiry as we know it be possible? Perhaps not. (630)

The collective answer from those making a move to post qualitative (and/or posthumanist) inquiry seems to be no. For instance, the sort of work done in the (2013) post qualitative special

edition of the *International Journal of Qualitative Studies in Education*¹⁶⁷—all done from a “posthumanist stance” (Mazzei 732)—challenge notions of data, methodology, voice, and interview at the center of traditional (humanist) qualitative inquiry. Strategies in the volume range from using Deleuze’s theories of sense to engage the materiality of language and follow data that “glow,” acknowledging data’s ability to speak to us instead of pinning it down via coding and knowledge production (MacLure); to using Deleuze and Guattari’s ontology of becoming and rhizomatics to move to mapping (instead of tracing) and, therefore, making visible unnoticed dynamic flows of agency (Martin and Kamberelis); to using Heckman’s work with Pickering’s mangle to not start analysis from the human but, instead *from the mangle* (Jackson); to using Deleuze and Guattari’s nomadic subjectivity and rhizomatics to “read” data as a flow throughout the entire entanglement, i.e., in line with Alaimo’s trans-corporeality (Lenz Taguchi “Images”); to rethinking voice in participant interviews as Voice without Organs, inspired by Deleuze and Guattari’s Body without Organs (Mazzei).

Stephanie Springgay makes it clear that we can’t—as Haraway, Barad, and others have argued about knowing-in-being in general—“perform materialist posthumanist research from the outside” (“Approximate” 79). This aligns with Barad’s point that there is no outside when the very cuts we make—in research or life—entangle us with the very apparatus and phenomenon (Barad *Meeting*). For Springgay, then, this means that posthuman educational research “is not a matter of collecting research data using qualitative methods and then approaching this data set through a posthuman lens” (Springgay 79). She believes, like Lenz-Taguchi, that we must “turn away from conventional questions ... of how do we do research (methods) to the how of research” which “requires that we invent not only new language to describe posthumanist research, but ‘new ways of being research’ posthumanistly” (Springgay 79).

¹⁶⁷ Lather and St. Pierre’s quote is from their co-authored introduction to this issue.

Whatever we choose, the goal is to find something that “assists in a move away from analyzing humans as rational, free, conscious subjects (the center of inquiry)” to a dynamic flow of agency where human and nonhuman, material and discursive agency all emerges together (Jackson 746). As St. Pierre argues, such strategies can help us get away from the need “to mimic a simulacrum of the hard sciences—a real that never existed” (Guttorm et al. 17). In doing posthumanist and post qualitative inquiry, then, we can’t, as St. Pierre points out, be “so concerned with being rigorous, systemic, scientific—with the prestige of hard science—that we force ourselves into these narrow methodologies that almost prevent us from doing something different” (Guttorm et al. “Do” 17).

This is not a call for relativism or chaos, but to, as Springgay puts it, keep posthumanist and post qualitative inquiry “at the level of a proposition or activation ... Pulsing with potential technicities, posthumanist research is an event in the making” (79). In other words, methods, strategies, propositions, should come from intra-action with phenomena. In terms of teaching↔as↔inquiry for posthumanist possibilities in the classroom, they should be curated for, with, and from the classroom-as-phenomenon they are meant to intra-act with or be an apparatus for and they should be calibrated for goals that come *from* the phenomenon and that keep it working *elsewhere* (in its own unique spacetime mattering) instead of anywhere (in the “neutral” and inert space assigned for it to fill).

Several of the people cited above are also in the cacophony that ends Chapter II and all of them are making the same moves that the Goughs make to develop their own posthumanist, entangled, and continually emerging scholarship. But how does all of this translate to the college classroom, to everyday teaching, to what we’re able to do, not in fiction or our imaginations, but within the physical and systemic parameters we’re given? This wasn’t something many of them

were saying, or they were saying it about Early Childhood Education which has far more lively and customized classrooms than higher education typically provides.

My biggest critique of the work and literature in posthumanist education right now is that much¹⁶⁸ of it leaves out the “practical”—the pedagogy (or practice) of the praxis phenomenon. When much of the conversation is also about avoiding reterritorializing or pinning down (and therefore closing down) what posthumanist education might be, it’s understandable that much of the conversation remains in the theoretical. It’s also *hard* to actually apply such theories to the classroom, to figure out how you might, for instance, *actually* approach your students as “emergent subjects” from your own “emergent-with-them subjectivity,” to continually question habits and try to undo them in a dominantly humanist and now neoliberal system. There’s much failure and discomfort and frustration involved—all of which needs to be shared.

To “run” (diffract) such theory through the classroom (fictional or real) and out through our scholarship alongside the theory does *not* necessitate the development of check-box methodology and new textbooks or programs. At least it doesn’t if we resist and continually curate↔calibrate our praxis with each classroom (phenomenon), or keep our theory emerging differently through practice. Certainly stagnation instead of sedimentation is a possibility, but, through meta-commentary and the foregrounding of such concerns, doesn’t have to be the case. And the reward—a richer, more productive cacophony and intra-action—seems worth the risk.

Indeed, this is a method of sharing knowledge among many indigenous communities. As Kuokkanen argues,

¹⁶⁸ This has gotten much better in a short amount of time. For instance, the difference between the 2015 *Posthumanism and Educational Research* edited by Snaza and Weaver which is almost entirely theory and speculation vs. the 2016 *Posthuman Research Practices in Education* (Hughes and Taylor) which, while heavily theory-based, has anecdotes or practical application experiments/possibilities in at least half the articles.

Indigenous epistemologies are not based on the experiences of one individual; rather they are based on a collective and cognitive experience established by combining personal experiences and sharing the results within the community ... final decisions as to the validity and usefulness of knowledge are made jointly, based on the diverse experiences of the community members. Also, indigenous knowledge is constituted in response to past circumstances and is shared with other members of the community through language, oral traditions, and ceremonies. (xviii)

Problems of “validity” and “rigor” in such posthumanist and post qualitative work that problematizes traditional language and accountability systems (e.g. triangulation) might find possible “solutions” in such already established indigenous methods. In sharing, we might diffract patterns that help us approach (differently) things *like* “validity.” Although, convincing policy makers and administrators to accept such “validation” is a different story than the one being told here. “Success” in the case of curation↔calibration *for* a classroom is best determined by/from the phenomenon itself. For this I layered the students’ observations of our classroom with my own in Diffraction #2 as I try to measure the success of the curation↔calibration done in the American Literature class talked about below. But this was one method tried that semester based on those students’ preference for drawing and an article I stumbled upon—it came, in other words, from the phenomenon.

Whether successful or not, I’ll recalibrate with the next classroom as it is its own unique spacetime-mattering that will make meaning and do things in its own way. As St. Pierre says, “what happens next is not predictable, and, for that reason, the ‘posts’ do not and cannot offer an alternative methodology” (“Post Qualitative Research” 622). And so in sharing the concepts and

methods diffracted through my story of teaching with them, I don't argue that this is *the way* to do posthumanist pedagogy in the university classroom, but share what attempts at such a pedagogy have looked like for me so far. As Lather argued for feminist poststructuralists “working the ruins” of humanism in the 90s (and still), “rather than establish a new orthodoxy, we need to experiment, document, and share our efforts toward emancipatory research” (*Getting Smart* 69). Perhaps, if we share more and more, such diffraction patterns might spread through the larger conversation and change the possibilities of the system itself.

Reuse. Remix. Rewrite. Recalibrate.

In the process of calibrating my praxis in general for posthumanism, I've taught two literature classes, both discussed in this chapter. Both were sophomore level non-English-major literature courses that fulfilled our university's philosophy and language credit without requiring students to have an English/Comp pre-requisite like 1301. In Fall 2016 I taught a special topics course, Reuse. Remix. Rewrite. (RRR), which, through looking at adaptations and the social responsibility of living in a remix culture, asked “Do stories matter?” and “How do we make meaning?” In Spring 2018, I taught a non-survey American Literature (AL) course that, through challenging our ideas of what stories are and who gets to tell them, asked “What *is* the American story?” and “Do stories matter?” In a way, then, they used similar curriculums, questioning the role of stories as actants—phenomena themselves—in the world and our lives, but came at the question in different directions for different reasons (and in AL's case, much more based on the direction the class took such questions). In both classes, we explored the constructed nature of stories and how they change when told within or from different phenomena (i.e. “Allegory of the Cave” becomes *The Matrix* with different spacetimematterings) or how they create different

meanings with different actants (i.e. a particular set of texts chosen from the Curation Project list in table 4.2 will create a different meaning together than another set). In each class, by asking “how is meaning *made*” and looking at reading and writing as intra-actions between phenomena (human and nonhuman alike), we used posthumanist terminology (e.g. diffraction, intra-action) and concepts in our classrooms in meaningful and productive ways.

RRR began with 38 students and ended with 35 and met three days a week for 50 minutes in a small lecture room in the Business Building without windows and with tannish acoustic panels that, from time to time, fell off mustardy walls. The horseshoe tables were arranged in theater style with the back table up several stairs from the table on ground level at the front of the room. Luckily, the chairs weren’t attached, which allowed for us to still do group work even though the tables didn’t allow comfortable or easy grouping (see fig. 4.5 for a hand-drawn sketch of the seating). AL began with 18 and ended with 17 students and met twice a week for 80 minutes in the basement of Trimble Hall (TH20)—no windows again, and no bathroom in the basement—and had absolutely nothing on its incredibly white cinderblock walls. In table 4.1 and 4.2 we see lists of major assignments and texts used in each class. These were all chosen and designed with disrupting humanist systems as well as ontological and epistemological assumptions in mind. But, as I would learn, curriculum—texts used, activities done, and assignments assigned—while important (it matters what stories we tell stories with¹⁶⁹) are only *part* of an apparatus that needs to be continually curated↔calibrated not just for my own goals of resisting humanism, but for the students’ own goals and becomings as well.

¹⁶⁹ Haraway, *SF*.

Major Assignments	
Remix.Reuse.Rewrite. (RRR) Fall 2016	American Literature (AL) Spring 2018
<ul style="list-style-type: none"> • Journal (20%): <ul style="list-style-type: none"> ○ <i>Similar to PD, a place for students to do and collect work including intra-actions with texts. To also write for 5 minutes a day through “Daily Observations” replaced later with “write-arounds.” Entangled daily life and “outside world” with classroom.</i> ○ <i>Used in Journal Diffraction exercises and a Journal Final Analysis that asked them to map and intra-act with their work over the entire semester as a “story.”</i> • Adaptation Project and Presentation (20%): <ul style="list-style-type: none"> ○ <i>Student choice of any story adapted through any medium (both approved in proposal conferences by me). Share “video defenses” of their adaptation choices to small groups who come to class ready to discuss all members’ work.</i> • Signature Assignment (15%): <ul style="list-style-type: none"> ○ <i>Traditional essay designed and required by department.</i> • Daily Assignments, Responses, and In-Class Activities (10%): <ul style="list-style-type: none"> ○ <i>Group work, lecture/notes, activities with texts, writing workshops.</i> • Midterm (10%) & Final (10%): <ul style="list-style-type: none"> ○ <i>Diffractions (using journals to gather artifacts of past work to curate together to create new meaning) that lead to more traditional essay answers. Created their own question for the Midterm. Read new material and diffracted past work through it for the Final.</i> • Reading Experiment (5%): <ul style="list-style-type: none"> ○ <i>Read each chapter of Alice in Wonderland in a different way/space (e.g. listening to audiobook while driving, reading on a screen while in a quiet place, reading the print book while listening to music) and kept track (in their Journals) of bodily intra-actions within the spacetime and the impact they had on reading/retention/meaning making.</i> • Partner Fanfiction (5%): <ul style="list-style-type: none"> ○ <i>Write fanfiction story with a partner, trading the narrative back and forth like Nick and Cath in Fangirl (a novel read for class).</i> • Jabberwocky Art Project (5%): <ul style="list-style-type: none"> ○ <i>Remix a line, word, or other piece of the poem Jabberwocky into an “art piece” brought into class for a gallery walk intra-action/diffraction. See Diffraction #1.</i> 	<ul style="list-style-type: none"> • Field Notes/Composition Book (30%): <ul style="list-style-type: none"> ○ <i>Name change to dissociate from “diary” or high school journal assignments. Emphasize intra-action with texts using “diffraction lenses” to do write-arounds. Move to Daily Compositions (variety of writings/doodlings/observations) and Consumptions (tracking daily social media use).</i> ○ <i>Used in Diffractions and FN Conferences (met with students 3 times to intra-act with them and their CBs as I “graded” them).</i> ○ <i>Used to curate “data” for the Semester Story. See Diffraction #2.</i> ○ <i>Reading Experiment: Done with Republic of Imagination, more fully integrated into CB.</i> • Curation Project (15%): <ul style="list-style-type: none"> ○ <i>Students curate together and spend time intra-acting with texts of their choice (see table 4.2.). Using the meaning made through this intra-action, visually finish the question “The American Story is also about ___” on presentation boards brought to class for a gallery walk intra-action. Turn in a short “written defense” of their sentence to me.</i> • Signature Assignment (15%): <ul style="list-style-type: none"> ○ <i>Traditional essay designed and required by department.</i> • Cards, Daily Assignments, Responses, and In-Class Activities (10%): <ul style="list-style-type: none"> ○ <i>Daily continual movement between small and larger groups and class discussion, write-through pauses throughout each class (in CBs), whiteboard work as a class, two mini-lectures, hands-on group projects with objects/materials curated into the classroom (e.g., puzzle people and pieces, presentation paper), more embodied activities (e.g., statues).</i> • Conferences (10%): <ul style="list-style-type: none"> ○ <i>Two one-on-one writing conferences with me (signature assignment draft and curation project check in), in-class peer writing conferences, in-class workdays.</i> • Midterm (5%) & Final (5%): <ul style="list-style-type: none"> ○ <i>Still essays, still diffractions using CBs, curated past work together with new text. Final was culmination of two workdays (prior to exam day) in class with CB Final Analysis and Semester Story. More processual—mimicked a typical class day.</i> • Signature Assignment Zero Draft (5%): <ul style="list-style-type: none"> ○ <i>Write-through ideas for sig assignment, group setting, pause to share and talk-through issues, bring and use laptops (see fig. C.5 in Conclusion).</i> • Semester Story Essay (5%): <ul style="list-style-type: none"> ○ <i>See Diffraction #2.</i>

Table 4.1. Major Assignments for both classes.

Texts	
Remix.Reuse.Rewrite. (RRR) Fall 2016	American Literature (AL) Spring 2018
<p>Chosen before the semester:</p> <ul style="list-style-type: none"> • <i>The Sleeper and the Spindle</i> by Neil Gaiman (graphic novel) • <i>Alice in Wonderland</i> by Lewis Carroll (novel) • <i>Boy, Snow, Bird</i> by Helen Oyeyemi (novel) • <i>Fangirl</i> by Rainbow Rowell (novel) • <i>The Stone Gods</i> by Jeanette Winterson (novel) • <i>The Matrix</i> by The Wachowskis (dirs.)(movie) • Perrault’s “Sleeping Beauty in the Wood” (fairytales) • Grimm’s “Snow White” & “Briar Rose” (fairytales) • <i>Once Upon A Time</i>, Season 1 Ep. 1 & 3 (television series) • Disney’s original <i>Snow White and the Seven Dwarfs</i> (movie) • Big Magic Part II / Elizabeth Gilbert (essay/memoir excerpt) • “How Stories Last” / Neil Gaiman (lecture) • <i>Everything is a Remix</i> by Kirby Ferguson (documentary on YouTube) <p>Prep for the Journals (chosen before semester):</p> <ul style="list-style-type: none"> • “On Keeping a Notebook” / Joan Didion (essay) • “Mindfulness” from <i>Wired to Create</i> by Scott Barry Kaufman and Carolyn Gregoire (chapter) <p>Chosen in response to class intra-action:</p> <ul style="list-style-type: none"> • <i>Plato’s Allegory of the Cave</i> by Alex Gendler (TED Talk) • <i>Jabberwocky</i> by Christopher Myers (remix) • Four online articles about fanfiction • <i>The Danger of a Single Story</i> by Chimamanda Ngozi Adichie (TED Talk) 	<p>Chosen before the semester:</p> <ul style="list-style-type: none"> • <i>American Gods</i> by Neil Gaiman (novel excerpts) • <i>The Republic of Imagination: A Life in Books</i> by Azar Nafisi (essay/memoir chapters) <p>Prep for Composition Books (chosen in response to class intra-action):</p> <ul style="list-style-type: none"> • “On Keeping a Notebook” / Joan Didion (essay) • “Mindfulness” from <i>Wired to Create</i> by Scott Barry Kaufman and Carolyn Gregoire (chapter) • “Everyday Use” by Alice Walker (short story) <p>Chosen in response to class intra-action:</p> <ul style="list-style-type: none"> • “How Stories Last” / Neil Gaiman (lecture) • <i>The Truth About Stories</i> Thomas King (essay/memoir chapters) • “Iroquois Creation Story” David Cusick (creation story) • <i>Hidden Figures</i> by Theodore Melfi (dir)(movie) • <i>Turtles All the Way Down</i> by John Green (YA novel) <p>Text options for Curation Project (ALL chosen in response to class intra-action):</p> <ul style="list-style-type: none"> • One short story from the following list: <ul style="list-style-type: none"> ○ “Recitatif” / Morrison ○ “The Thing Around Your Neck” / Adichie ○ “No Name Woman” / Hong Kingston ○ “How to Tame a Wild Tongue” / Anzaldúa ○ “When Mr. Pirzada Came to Dine” / Lahiri ○ “The Things They Carried” / O’Brien ○ <i>Two or Three Things I Know for Sure</i> (Excerpt) / Allison ○ “Edison, New Jersey” / Díaz ○ “Battle Royal” / Ellison • One short story from an author not listed above • Two poems: one from before 1900, one from after 1900. • Student Choice Book (already read) • Student Choice Movie (already seen) • Student Choice Song • Student Choice Object
<p>Table 4.2. Texts for each class. All but two of the texts for AL were chosen after our classroom formed and began intra-acting.</p>	

As I’ve mentioned already, I came into RRR planning to *make* it (the class, the room, the pedagogy) “more posthuman.” While writing the IRB calibrated me to being specific and

anticipatory (about data, method, etc.) in an unproductive way (we always anticipate, but this was closing down possibility instead of opening it up), there wasn't a ton of calibration necessary. I wanted to use "posthuman pedagogy" (even though I wasn't sure what it looked like) but I'm also a planner in life in general. And I was originally trained to plan every detail out as a teacher through teaching high school and its focus on objectives on the board, outcomes on paperwork, assessment during, after, and again, planning with teams, six-weeks plans in advance for approval, and no variation from the team (or level) plan. The summer before the class, I planned RRR down to the daily assignments, determined that I would *get this right* and create a posthumanist classroom.

I did go into the planning with the best of posthumanist intentions. I:

- Chose a curriculum and texts that challenge(s) the ontological and epistemological assumptions of humanism by questioning what stories are, how they're made, and what role they play in our lives as well as how meaning is made.
- Built the playing card system¹⁷⁰ into the course, introducing a new object to the room in order to quickly facilitate group work and movement meant to disrupt the humanist-designed "one-size-fits-all-classes" space.
- Structured the majority of class activities through pairs, group work, and large wrap-up discussion for the same reasons and to promote intra-active learning.

¹⁷⁰ Each student drew a card from the deck their first week in class. This card was glued on to the cover of their Journal and, therefore, always with them in class (but after a few classes they had their card memorized). I used a deck in class, then, to draw cards for random students to call on and to quickly organize groups (e.g., all the Kings together) and reorganize them (e.g., now get with your suit) in order to maximize movement out of chairs and around the room. This also disrupted the student tendency to sit in the same place and not meet other students (i.e., they might walk in one day to see "Sit with your suit, hearts on the back row" (and so on) on the whiteboard). All students are referred to by their playing card throughout this document.

- Held class outside when possible for the same reason (particularly when we had active group work that couldn't fit into our room).
- Held one-on-one writing conferences at Starbucks instead of my office in order to meet with students in a space not built to assert my authority, to meet on a more common ground instead of “my territory.”
- Designed multi-class activities like the Jabberwocky Art Project that allowed students to create and make through other mediums (art, technology, fiction) and that then brought those products into the room as actants to intra-act with (e.g. gallery walk).
- Used our digital Blackboard space more than I had in the past to create a semi-flipped environment where instructional and informational videos prepped students before class, allowing us more time to be active together in the room but also connected in our classroom's digital space.
- Maximized student intra-action through group work, projects, and discussions in the room and online.
- Designed assessments to use diffraction and intra-action as methods for students to study their own work and create new meaning with artifacts (gathered via their Journals).
- Designed the semester's major project to allow students to choose a story to adapt based on their own interests and through a medium that they felt they could best express themselves in (some included: jewelry making, graphic novel, fashion design/sewing, short story, poetry, PowerPoint, and so on).

- Designed ongoing assignments like the Reading Experiment which asked them to observe and analyze the impact of their physical environments and other nonhuman and human actants on their learning.
- Included a wide variety of reasons for and ways to write, from traditional essays, to in-class work-shopping, to partner writing, to writing-through, to writing-around.
- And, most importantly, structured all activity and assessment around the students' use of a Journal to write in different ways for different reasons in one place that was meant to collect these writing *experiences* as they enact the self-with-phenomenon in a situated, and embodied, material-discursive act that doesn't ask students to retreat into the autonomous self as discrete intellectual, but instead urges them to spread their messy and wandering awareness out in all directions and let it play with the world in all its intra-active becoming.

As we'll see below in the discussion of the pedagogical documentation and diffraction I used to observe if all of the above was "working" or "making the classroom posthumanist" or "enacting a posthumanist pedagogy," while this was *all* necessary and a good start in the right direction it also stayed mostly in the realm of curriculum design (texts and activities). It still, in other words, approached "classroom" (what I later in that semester saw as spacetime-mattering cut-together-as-phenomenon by all actants involved) from a humanist perspective of space-I-can-impose-my-human-will-on) and the curriculum that filled that space as pre-packaged by me, even with posthumanist intentions and student choice, and able to be applied to any group of students.

All of the above disrupted, problematized, and deconstructed humanist assumptions of the autonomous-I, the separate world, and knowledge as discoverable objective reality. But it

was the *doing* of pedagogical documentation which included and led to larger diffractions that calibrated my understanding of *my* role as teacher with a posthumanist classroom and led to the development of curation↔calibration and the apparatus/metaphoric of classroom-as-elsewhere.

Pedagogical Documentation and Diffraction

I first encountered pedagogical documentation through Hillevi Lenz Taguchi and her use of Barad and Deleuze and Guattari to develop an intra-active pedagogy with her student teachers as described in *Going Beyond the Theory/Practice Divide in Early Childhood Education: Introducing an Intra-Active Pedagogy*. Pedagogical documentation was not “invented” as a posthuman strategy per se and has a “long history¹⁷¹” in early childhood education as a research tool and option for formative assessment (Buldu 1440). In the form Lenz Taguchi first encountered it, pedagogical documentation was used to counteract qualitative observation strategies such as observation boxes—think deer blinds in the classroom—which were supposed to allow observers to watch children’s behavior without students seeing them so that researchers might “see what [children] ‘really’ are, so that [they could] treat them right and ‘set them free’ as developing, maturing creatures” (Lenz Taguchi *Going* 71). The image of an observer behind a screen observing children learning is the epitome of a Newtonian science model that assumes objectivity is possible because of (or, actually, *is*) a clear divide between subject and object and that the observer can indeed observe *out there*. As Lenz Taguchi argues (via Barad), even looking through a microscope doesn’t allow for such “passive” gazing and observation. The “seeing” is actually “a complex set of practices” that take part in what we see, are a “*doing* and an iterative *practising*” (72)(emphasis original) that calibrates what we see to our expectations for what we want (or have been taught/conditioned) to find.

¹⁷¹ Buldu references Dahlberg, Moss and Pence for this history.

In other words, in a Newtonian understanding of “seeing,” if, sitting in our observation box practicing humanist research, we compare children’s actions to how we’ve been taught children should behave at certain ages or in certain situations¹⁷², then, when we notice the “correct” behavior or deviations from that behavior, we believe we’ve discovered “truths” about children’s behavior, phenomena that can be repeated exactly. And yet, “it is not possible, not even with a microscope, to actually see or observe on each occasion the exact and identical observation,” nor “can we expect observations of specific children in specific environments under specific conditions to be identical” (Lenz Taguchi, *Going Beyond* 72). Or at least this is the argument about apparatuses we can make once we’ve calibrated ourselves from a humanist (positivist) realism to a posthumanist *agential realism*.

Because of these “problems connected to observation and documentation” in traditional humanist research, Loris Malguzzi and his Reggio Emilia¹⁷³ schools developed pedagogical documentation, Lenz Taguchi argues, to “[turn] the [observational] tool around for it to speak the voice of the multiplicity of differences of children’s strategies and conceptualisations ... without any desire to categorise what it was they heard or seen (sic)” (72). First used and continually developed since “the late 1960s,” it is, according to Lenz Taguchi, “a resolute resistance against using observation and documentation as normalising and reductive strategies in early childhood practices” (72). Pedagogical documentation, then, as used by Reggio Emilia schools (and many of the teachers/schools inspired by their work in early childhood education), rethinks its user’s

¹⁷² To put it in terms of our guiding metaphor of the light paradox, if we set up the experiment (diffraction grating) to produce particles, then it’s going to produce particles. Likewise with the wave. Our choice of diffraction grating already sets the “norm” that something would confirm or deviate from, the “correct” possibilities they either achieve or don’t. In the case of the children in such an experiment, if we assume our observational choices can be negated by a screen and passive observation, then, even though children could actually present as particle or wave, we risk characterizing any that didn’t present what we’re looking for (say particle) as “off”—deviant instead of different.

¹⁷³ According to Lenz Taguchi, and pertinent to this project: “The Reggio Emilian philosophical and pedagogical approach has been called a ‘pedagogy of listening’ that activates ‘the hundred languages’, referring to the usage of a multiplicity of aesthetic tools and strategies for inter-disciplinary learning, as well as to aesthetic means of observing and documenting children’s learning processes” (*Going* 10).

objectivity in terms of Haraway's feminist (strong) objectivity in situated knowledges or as not at all "disinterested," as Foucault or Said would say. In line with Barad's agential realism, then, it realizes that the observer doesn't "influence" the phenomenon but, in fact, participates in (helps create) its being/doing/becoming. A distinction that is part of the shift from a humanist worldview that demands we—for credibility's sake—be objective, to a posthumanist worldview that recognizes—for ethics and responsibility's sake—that we *can't* be objective in the *positivist* sense and so works from that new assumption to redefine objectivity as the continual recognition of the responsibility involved when observer becomes actor in a phenomenon. Pedagogical documentation's foremost difference, then, from other types of qualitative educational research tools, is an understanding that what it "records" is not generalizable and necessarily applicable to *all* children, but is instead *a map of the multiplicity of specific children in a specific location and situation*. A step then, in a posthumanist and productive direction.

But, Lenz Taguchi argues, the methodology/tool of pedagogical documentation as developed by Reggio Emilia also has a "taken-for-granted focus on the human subject and the intra- and inter-personal process s/he is involved with in education" (*Going* 65). In other words, they are working from a humanist schema where "pedagogy is understood to be about either internal cognitive processes in the individual child, or emerging through an encounter with other human beings, and especially the teacher who knows what to learn" (*Going* 65). In her book, Lenz Taguchi recalibrates this apparatus by taking Reggio Emilia's pedagogical documentation and diffracting¹⁷⁴ it through Barad's agential realism. As in this project, for Lenz Taguchi, diffraction isn't comparing or contrasting or even analysis or reflection as traditionally conceived, but a kind of *putting in motion* of interferences as well as a mapping of the *effects* of

¹⁷⁴ In this case, this isn't me applying Baradian terms to someone else's work. Lenz Taguchi uses this word herself and has several other articles that discuss her use of diffraction as methodology and way of reading.

difference that such interference makes. Pedagogical documentation and agential realism (along with her new materialism and Deleuzian thinking) intra-act/diffract, then, in what Lenz Taguchi calls an intra-active pedagogy that considers “the equally important encounter with things, matter, artefacts, materials, furnished environments and architecture” (*Going* 65). The main shift then, for Lenz Taguchi, is in not only seeing the pedagogical documentation as “a *material discursive apparatus* ... [which] is *in itself* and active agent in generating discursive knowledge” (61)(emphasis original), but in also documenting the material intra-actions—from the technology to the classroom to the furniture and beyond—that students have with the *nonhuman* elements that create the class (and the meaning made within it) *with* humans.

Lenz Taguchi calls pedagogical documentation a protagonist of her book, “understood as a performative act in itself and as such also a ‘methodological’ tool for learning and change in any pedagogical practice” (*Going* 10). But she also stresses, diffracting it again through Deleuze and Guattari’s understanding of a machine¹⁷⁵ that, in the “context of education,” pedagogical documentation “is an apparatus and machine, which should be understood as a movement or force in itself—a verb—and which can only be identified by what it produces. Thereby it should not be understood as a machine or apparatus in terms of a noun¹⁷⁶” (*Going* 67). This understanding of pedagogical documentation as not a strict, check-box methodology that produces “brute data¹⁷⁷” aligns with poststructuralist, posthumanist and post qualitative turns, in

¹⁷⁵ Lenz Taguchi describes a machine as Deleuze and Guattari define it as “not a mechanism or a metaphor for anything, but the event of life itself as it enables and produces the connections between organisms, matter and human beings that make life and ongoing movement of living” (*Going* 67).

¹⁷⁶ See discussion of apparatuses in Barad’s agential realism in Chapter I for how this differs from conceptions of an apparatus by theorists like Althusser.

¹⁷⁷ “Informed by the interpretive and critical turns in the social sciences,” qualitative research methodology, St. Pierre reminds us, was/is seeking a way out of “any science—social and natural—stripped of values and ethics” (“Appearance” 224). This means working from something other than “an ontology and empiricism that assume there is a given out there, a brute datum, an object, that exists ahead of the interpretation of a subject” (“Appearance” 224). But even as qualitative methodologies stress that “what we call data are really our own constructions of other people’s constructions of what they and their compatriots are up to” in an effort to “be hard and reap the benefits of

which researchers like St. Pierre, Lather, or Jackson and Mazzei continually put the terms “methodology” and “data” under erasure (St. Pierre “Post Qualitative Research”) in attempts to disrupt humanist assumptions so sedimented¹⁷⁸ into these words. Lenz Taguchi explains that:

Without having any specific identity in itself, pedagogical documentation can be understood as a movement or force that creates a space that makes our lived pedagogical practices *material*. It is the material films, images, observations, etc., that make up the documentation that together construct such a space where intra-active phenomena between children, concepts, and materials can emerge and be actualised (i.e., made visible and readable to us). In other words, the documentation can be understood to create a temporary ‘territory’ or space where a constructed cut of the event is actualised and from which further intra-activity emerges (*Going Beyond* 66)(emphasis original)

Pedagogical documentation, then, becomes a critical practice in her education students’ (student teachers included) work in their own classrooms, but it should, particularly as used within an agential realist framework, resist definitive definition and form. Diffracted through the last chapter and Gough’s arguments that SF can serve as a *conceptual* territory, we could also (and I do) consider pedagogical documentation the making of our “semester story¹⁷⁹” material in a way that can be read and intra-acted with for curation↔calibration.

Pedagogical documentation as Lenz Taguchi conceives it (and as I use it) within an intra-active (posthumanist) pedagogy can take many (really any) “forms”—photograph, written

the game of Science,” too many researchers working with qualitative methods, St. Pierre argues, treat their compiled interviews, observations, and interactions as brute data (“Appearance” 224).

¹⁷⁸ As St. Pierre argues, “. . .the old words don’t work anymore because so many are grounded in the subject of humanism. . . Those humanist words embed you in a particular discursive and material structure. Derrida wrote that when you use a concept you bring with it the entire structure in which it is thinkable” (Gutttorm 15).

¹⁷⁹ As we’ll see in Diffraction #2, my AL students had an assignment that asked them to do just that.

observation, video¹⁸⁰, and so on. Using the example of a photograph of a class, Lenz Taguchi explains pedagogical documentation as an apparatus, as an agential cut as Barad theorizes them. The photo is not “a representation of the world and what is photographed. Rather, being part of the pedagogical documentation, it constitutes a constructed cut of an event taking place in a pedagogical space” (Lenz Taguchi, *Going* 67). As they did in our pictures of the pool documenting its diffraction patterns, when examining such a cut and intra-acting with it in order to make meaning and knowledge together, all of the actants entangled with the apparatus matter: the camera itself, the film, the button pushed to take the shot, the moment chosen to take the shot, who chose the moment, the way they framed the shot, the actants—human and nonhuman—focused on in the frame. Every “thing” and every “one” involved in the constructed cut that materializes one specific moment via specific observation by a specific person of specific objects *matters*. They are all entangled in an active becoming, being, knowing and, in fact, do not “exist” prior to or without each other. In Barad’s agential realism, which Lenz Taguchi is diffracting pedagogical documentation through, the camera, the observer, the students, the objects in the room are not *relata*—discrete and stable things, words, humans, concepts, objects, etc.—but relations, phenomena, knowing-in-being. The constructed cuts of pedagogical documentation as apparatus—which, also, is not a thing itself but a *doing*, a phenomenon and set of practices as well—mean that the photo is not a capturing of reality but an agential cutting of phenomenon, a negotiation of boundaries between all actors involved where the snapshot-as-boundary is determined by an invested and situated observer whose choices matter, not in that they capture what is most important or real, but in that the choices determine what is included in the frame and what is left out. *Objectivity* becomes taking responsibility for your role in the cut (recognizing this intra-action) and not making claims about what’s in the

¹⁸⁰ This is the same as the Reggio Emilia model.

picture as if you had no hand in materializing it “just so.” *Meaning*—material-discursive knowing-in-being—emerges in the intra-action of the room and through the photo itself.

Indeed, the photo’s “job” or work doesn’t end in its development. While it may appear (at the point this “frozen” image is viewed on screen or paper) less cut (doing) and more artifact (cut-and-dried), this photo-as-pedagogical-documentation as Lenz Taguchi conceives it becomes, then, an actant itself in the experiment/class. It is practice, theory, and discourse made material so that the teacher can further intra-act with it as she continually listens to or surfs the class—or, as I came to understand it, curate↔calibrate. It can even be used (and should be used) with students to engage them in intra-action with their own work¹⁸¹ as pictured in my own classroom in fig. 4.2.

Lenz Taguchi includes “concepts and words” in her theorizing of agency here—it isn’t only pictures or video or art or bodies “that can give voice to the multiplicity of intra-actions and differences taking place” (*Going* 88-89). In this way, and particularly in doing something like pedagogical documentation, “concepts we use to express things act upon us and can thus be understood as material-discursive matter that are taking part in the ongoing reconfiguring of the world in relation to other matters” (*Going* 89). Here, then, where concepts, words, observations, and documentation are just as involved in the continual intra-action that, in agential realism, is the very dance of being and becoming (Barad *Meeting*), is where Lenz Taguchi makes her move to deconstruct that binary slash between theory and practice: “What we call *theorising* is a result

¹⁸¹ Lenz Taguchi discusses a particular pedagogical documentation where one of her students took video of her one-year-old students engaged in an experiment with bowls of water and different materials which they put in the water to observe whether they sank or floated. On a later day, the teacher projected this film on a large screen on the wall while the children continued their play with the water and items. Some children watched themselves or their classmates in the film and mimicked some of the moves or play they saw on the screen. Others ignored it and played on their own. Either way, the film playing in the background—what was originally a materialization of practice, an agential cut—is put back into the circulation of meaning emerging with the class. And even if it wasn’t physically projected onto the classroom wall, such “observations and documentations” once made “can be understood as having agency of their own and in terms of their own materiality, acting upon us just as any matter” (*Going* 88).

of material-discursive experiences of intra-actions that we have from living in the world. Hence, there is no theory/practice divide when we think in this way” (*Going* 89). Like the dissolution of any binary—of binary thinking, doing, being, knowing—this reintegration of the two concepts or activities is a critical step for calibrating our own pedagogical apparatuses for posthumanism. Indeed, it’s my basis for the use of curation↔calibration as a posthumanist praxis.

Using pedagogical documentation in an intra-active pedagogy, then, takes a strategy already used to resist humanist education but still stuck within the humanist system/priorities (through a focus on human/human interaction) and recalibrates the tool for posthumanist education where intra-action takes into consideration the more-than-human. As Lenz Taguchi argues, this makes it:

possible to understand [pedagogical documentation] as making practice material for us to engage in further entanglements with and *become different in ourselves as teachers*—being transformed in our new phenomenon of knowing and becoming with practice, which *makes practice real in a new way*. Thereby we not only engage in making ourselves aware of intra-activities in-between different matter, but also engage in enacting further intra-active processes from what we have learned. We can choose to *resist* the dominating ways of understanding what it is we should be looking for in the documentation ... and instead *read* the event from its multiplicity—from the perspective of the water, or cotton balls, or the hand of the child. But what is most important is that we move our gaze from individual children as objects of intervention and their development ‘from

within,' to the phenomena taking place in the intra-actions in-between the child and objects and matters around it. (*Going* 88)(my emphasis¹⁸²)

Pedagogical documentation as recalibrated here by Lenz-Taguchi became, for me, a means of dissolving the theory/practice divide, of documenting not for the sake of collecting “brute data” for a “case study” to prove the success of “making the classroom posthuman,” but instead for the sake of engaging in a material-discursive process, of doing, of playing, of *purposefully* noticing agential flows and nonhuman actants. It allowed me to work from/with the phenomenon¹⁸³, instead of my-*self* (Lenz Taguchi *Going*). And it allowed me to recirculate both student work and my own work back through the classroom *for the curation↔calibration of that particular classroom* and all its unique becomings, knowings-in-beings, and needs. Inquiry becomes teaching becomes inquiry, or, as this project views this intentional understanding of praxis as quantum entanglement, teaching↔as↔inquiry becomes curation↔calibration for teaching elsewhere.

For me, pedagogical documentation took on several forms/uses through the two classes and evolved over time as I better understood (through experience) how to best use it to help me curate↔calibrate my praxis and the classroom-as-elsewhere. That range can be seen in

¹⁸²I emphasized these words after working on the fiction chapter and jumping back in here to work on this section and, therefore, diffracting what I'd done here so far through my recent grappling with the SF work. In that diffraction these words—where they hadn't before—popped out (patterned) as descriptors for pedagogical documentation as also the production of agential cuts to be intra-acted with as *conceptual territories* as Gough argues for SF and considering Lenz Taguchi's mention earlier of temporary territories. While that may not be a mind-blowing observation worthy of a footnote, the italics here are a materialization of the bodily and spacetime-mattering work that goes into these marks on the page/screen that are often viewed, as a product, as discursive-only acts that produce material products. Each italicized word in this block quote is a wormhole, space travel, quantum leap, unfolding, cut-together that involved many more actants than my brain, fingers, and a keyboard—all material enough on their own—and the emergence of spacetime that does not stick to linear cause and effect. Writing (and reading) are material-discursive acts/doings not just because they involve or produce material artifacts but because they matter, they bring into being, create, through an often erased and/or unnoticed but heavily populated phenomenon.

¹⁸³ As mentioned earlier, Jackson uses Heckman's work with Pickering's mangle to not start analysis from the human but, instead *from the mangle*. As Barad distinguishes her work from Pickering and his mangle, I note that again here but don't cite it in text.

comparing fig. 4.1, the beginning of my use of pedagogical documentation in RRR (a typical gathering together of student work as artifacts and my written notes while intra-acting with them), to fig. 4.2, one of the last uses in AL (the redeployment of selected images from the semester's archive in a PowerPoint slideshow playing while students worked¹⁸⁴). Though they highlight different uses of the materials collected, they both pull from archives built over a semester of intentional pedagogical documentation in large sketchbooks that allowed me to paste in and mark on, around, and through pictures, student work, photocopies of texts we were working with, etc. As we'll see with both Diffraction #1 and #2, I also did larger pedagogical documentations/diffractions on poster board, whiteboards, and cork boards. But the compilation of and intra-action with the main archive happened in sketchbooks as seen in the figures discussed next.

¹⁸⁴ See note 181 for the inspiration from Lenz Taguchi's book for using the slideshow that day.

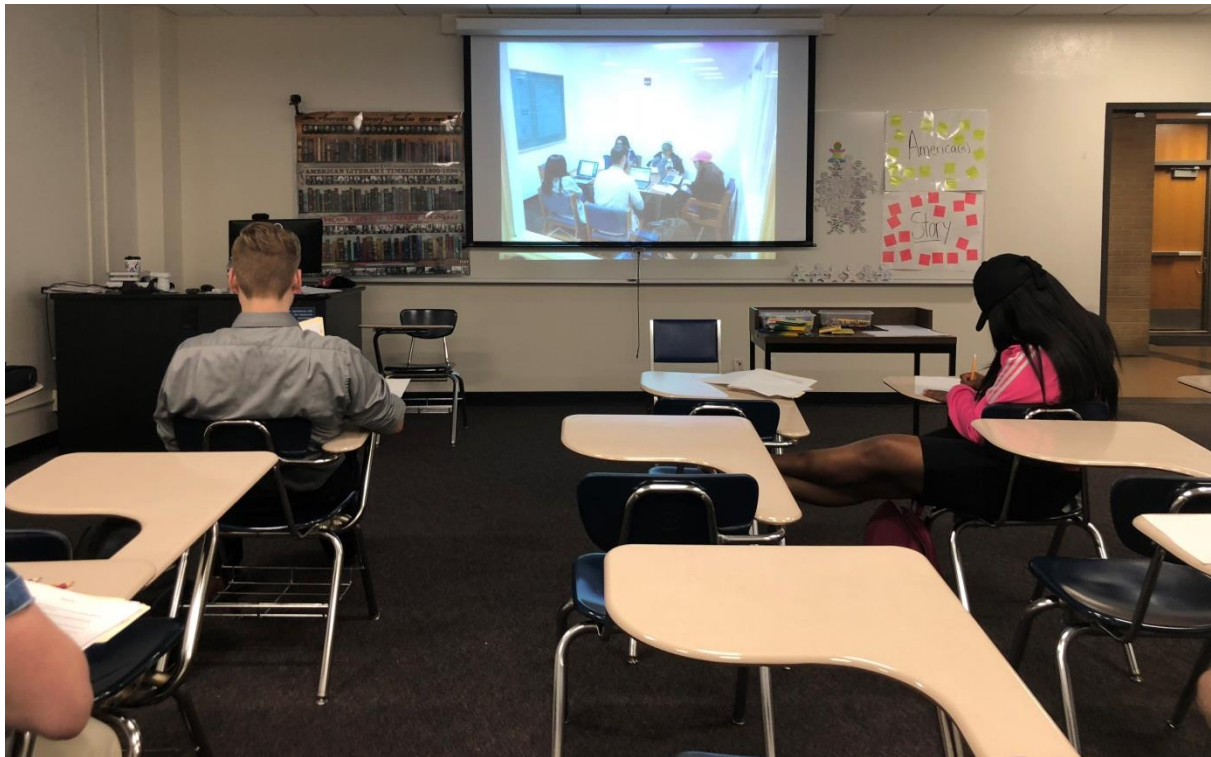


Fig. 4.2. One of my last uses of pedagogical documentation in/with AL. I curated photos of the class from our semester and put them in a PowerPoint slideshow that played continuously at the front of the room while students drew their “Semester Story” drafts in class.

In fig. 4.1 we see my first attempt. The top picture shows the work I did while in class and directly after (I stayed in the room to “reflect” for about 15 to 20 minutes). The PowerPoint slides were for that day and had been pasted into my sketchbook before class started so I could note our progress. Such notes, along with thoughts and observations jotted down during and right after class, are in black ink. The observations range from concerns about the room: “won’t keep door open? –don’t like the feel, esp. w/out windows of room w/ it closed. –security? –need doorstep” or “Room is tight. Can’t get between the rows—or behind the back row.” To comments on student discussion/work: “Inc. impressed by how pushing selves & writing” or “I’m worried about the nurse reaction.—Huge contingent. Busy students. Don’t have the passion I do for the topic. So how do we approach that?”

As I was using this practice in my pedagogy for RRR, it continually developed as I continued to ask myself questions like “How is this any different from traditional field notes?” In that top picture of fig. 4.1, the product on the page tends toward reflection and my work in the sketchbook shows my struggle with how to “do diffraction” *instead* throughout the RRR semester. But continually asking questions like “What does pedagogical documentation look like on a daily basis when there aren’t cotton balls, rocks, and bowls of water around?¹⁸⁵” (because most traditional college classrooms lack the *variety* of actants often found in early childhood spaces, even on non-project days), pushed me to pay better attention to including the more-than-human (always already in every classroom) in my pedagogical documentation (from now on I’ll call it PD). And in that struggle of trying (just as I tried to “make” the classroom posthuman) to always be “diffracting” instead of reflecting, I recalibrated my thinking (loosened up) to realize that it’s not an all or nothing thing. Reflection/reflexivity has its own function (Barad “Diffracting Diffraction”): sometimes you just need to know or remember what “happened,” a

¹⁸⁵ See note 181.

list of what actants you noticed in the room, a timeline of events—the narrative as you saw it that day in the moment and any thoughts on it directly after¹⁸⁶. After all it's also in later analyzing what we notice and how we notice it (which we have now as an artifact) that we work to curate↔calibrate our praxis and the classroom-as-elsewhere. For instance, when I took the pictures of the pool from Chapter I, I was just taking pictures of cool patterns that caught my attention and made me think about work I was doing for this document while trying to relax. They are, on their own, more a “reflection” of “what happened.” But once I curated them into Chapter I to try and help explain diffraction and my use of it here, we intra-acted—artifact, myself, keyboard, etc.—to create whole new meanings and observations and possibilities that I didn't “notice” when taking the picture but did, later, in doing further work (intra-action) and, through a new diffraction, seeing “patterns” I'd missed.

Such diffraction work can put us into relation, into intra-action—then or later—with such reflections-as-artifact, other artifacts, objects, writings, sketching, etc. and help calibrate for observations we might have missed at the time (or didn't and still need to work through). In Diffraction #1 that we'll discuss later, I did just this and curated together PD and other artifacts to diffract them through each other and map patterns I'd obviously missed in class. This particular PD diffraction instigated one of the largest recalibrations of praxis from RRR to AL: the conscious and deliberate addition of visual artifacts (through IRB approved¹⁸⁷ photos of the classroom) to the pedagogical documentation process. While photos are not somehow “better” at

¹⁸⁶ I realize from the outside this might seem like an obvious observation, but try to keep in mind that I dove head first into “posthuman education” as if humanism was smoking and I could quit cold turkey. Of course “quitting” in this metaphor is impossible, but much of this journey has been a recalibration of my own praxis to vigilant-Toby instead of evangelical-Weaver after that first gung-ho foray into “making” a posthuman classroom. Also, much of the literature on diffraction and its use as a methodology tends to set reflection/reflexivity up as “bad.”

¹⁸⁷ I didn't have this IRB approval for RRR and so, though I took some pictures, they can't be shared in this document or elsewhere. Of course that's not why I took them, and their presence in my archive proved invaluable to Diffraction #1. That value prompted me to put photos into the AL IRB protocol so that students had a clear understanding of why I was taking pictures, what they'd be used for (PD), and could tell me if they didn't want their picture taken at all or shared outside my own PD.

capturing what's "really" happening in the room (they are as constructed and reflective as a narrative can be), they do offer productive/different possibilities for noting nonhuman intra-action and agential flows when curated into the diffraction process. This is a practice I plan to use going forward with all classes, despite the sometimes difficult hoops of securing IRB approval. And, even though PD *is for the curation↔calibration of that classroom*, such permissions are necessary considering the possibility of sharing stories (including diffractions of the PD archive) from these classes which should be a purposeful part (whether in formal scholarship like this document or informal like the blog linked to throughout this chapter) of a posthumanist praxis, with the goal, as in indigenous communities, of building a complex conversation/storying of community knowledge (Kuokkanen *Reshaping*) from which common understandings and practices can be sedimented out and recalibrated over time without making them "dogma."

In early iterations of PD, one of the easiest¹⁸⁸ (or, at least, seemed *most obvious* to me¹⁸⁹) ways to keep the material in the forefront of my praxis was to incorporate student work into the sketchbook itself and to intra-act with it via pen or marker. In the middle picture of fig. 4.1, with the pink index cards, we see an early example where I chose cards (student work from that day) that both represented what a majority of the class was doing/thinking and also that went in

¹⁸⁸ Perhaps, instead of "easiest," I mean deliberate. As I try to convey throughout this project, working in a humanist education system (and Western society) means constantly having to calibrate to (for) posthumanism, like trying to pick up a faint radio signal in a sea of static. It's easier, and instinctual (and far more comfortable) to just dial it back to the clear station so you can get on with listening to some music. This dialing back into the clear station oftentimes isn't even deliberate; it just seems to happen because that station sometimes overpowers everything else. So, when I say easy here, I mean that taking student work, especially cards like these in fig. 4.1 which are "physical" artifacts, was the most deliberate or *obvious* way—to me at the time—of incorporating the material directly into pedagogical documentation (which is itself material-discursive).

¹⁸⁹ I emphasize "seemed obvious to me" because, again, such an understanding of the cards or other student work as material and of their use as obvious were points of resonance for me as I read and struggled with the theory I wanted to put into practice. Just like *curate↔calibrate*, this strategy is not necessarily generalizable or one that will also resonate with everyone working to create a posthumanist praxis. But such apparatuses are, in fact, the point. Propositions, technicalities, strategies—the gathering, cultivating, and doing of them is the important part. And of course the honesty with ourselves when we need recalibration for whatever reason.

completely different or surprising directions or that caught my interest/attention. The blue ink in the bottom are my thoughts/reactions as I intra-acted with the artifacts glued together on the pages of my sketchbook. We can see that, in doing that later PD, I went back (blue ink) to my in-class notes and added to (intra-acted with) my earlier thoughts after working with the students' work.

This intra-action instigated a new curation for the following class where I built our activity out of the students' work and understanding of Snow White stories (importantly, this took us in a different direction than the more concrete plan I'd sketched into the syllabus that summer). Part of that new class day would be the handout, pictured at the bottom of fig. 4.1, which curated together all of the students' answers (accounting for repeats) and asked them to intra-act with the lists by striking through, drawing where they felt the "right" answers should go within typical plot diagram categories, and answering a question that occurred to me *during* my own PD¹⁹⁰. Such an exercise introduced a physical representation or "record" of the class' understanding of Snow White fairy tales, "making visible" the range of knowledge within the class (before we studied the tales together) in a way that they could *mark*, reorder, and reconsider (particularly as diffracted through their own answers). From this individual warm-up, they moved to group work, then sharing out with the class until we had a class-agreed upon plot diagram for a "typical" Snow White tale. Their diagram—not something I had made for them to "learn"—and the related list of objects that the story "had to have" in order to be considered a version of Snow White became our baseline that we revisited when we read new versions of the

¹⁹⁰ Importantly the question wasn't inspired by a trend I'd noted in our class discussion. Instead it took going back through their work for the day with the intent of creating the worksheet and curating the class that a new observation and question that wouldn't have happened otherwise (say, if I was simply reading through to quickly grade for completion) occurred to me. We often miss currents and trends in the room because we can't follow and note every intra-action. While this means we make agential cuts about what's observed and collected in the first place, it also means that when we intra-act with these artifacts and observations again through different pedagogical documentations some of those missed currents/trends emerge through the new curation.

fairytale and analyzed the adaptations. Through this process of PD, diffraction, and recirculation, the class activity came from the *phenomenon* instead of solely from me as did an apparatus, *student curated*, that we'd use throughout the semester to analyze other texts. Such decisions opened up and closed down possibilities for our classroom, but they were also made by the classroom instead of me alone. It's clear looking back at the sketchbook itself the impact of index-cards-as-actants beyond completed student work. Something I hadn't recognized—beyond considerations of a useful tool—in my praxis so far.

Though obviously less “textual,” fig. 4.2 from AL shows “in action” the sort of redeployment of student work into the classroom phenomenon that the worksheet from Figure 4.1 also achieved but that isn't “captured” on the page. Inspired by Lenz Taguchi's story (*Going*) of the student teacher video with its cotton balls and water bowls, I curated pictures from the archive I'd built over the semester into a PowerPoint slideshow that ran continuously while the students worked (alternately) independently and in groups on drawing the first draft of their Semester Stories¹⁹¹. The slideshow (see fig. 4.3 for a visual compilation of all the slides) cycled through images of the different objects, assignments, and activities brought into and enacted in our classroom. Those objects and doings were *part* of our classroom (the unique spacetime-mattering), emergent through different class meetings and then enfolded back into our phenomenon. As we discussed with Toby and her emergent subjectivities, the “presence” of these actants and activities wasn't erased, but still, as Barad argues, “it takes work to make the ghostly entanglements visible” (“Quantum Entanglements 261). In this case, PD aided in that work. In other words, the compilation of such an archive offered an opportunity to “bring them back” into *TH20*—the physical space assigned to us by the university—for that ninety minutes to

¹⁹¹ This assignment is discussed at length in Diffraction #2.

remind us they are still entangled actants in our *classroom*—the entire *spacetime* mattering of AL Spring 2018 (more on this in Diffraction #2).

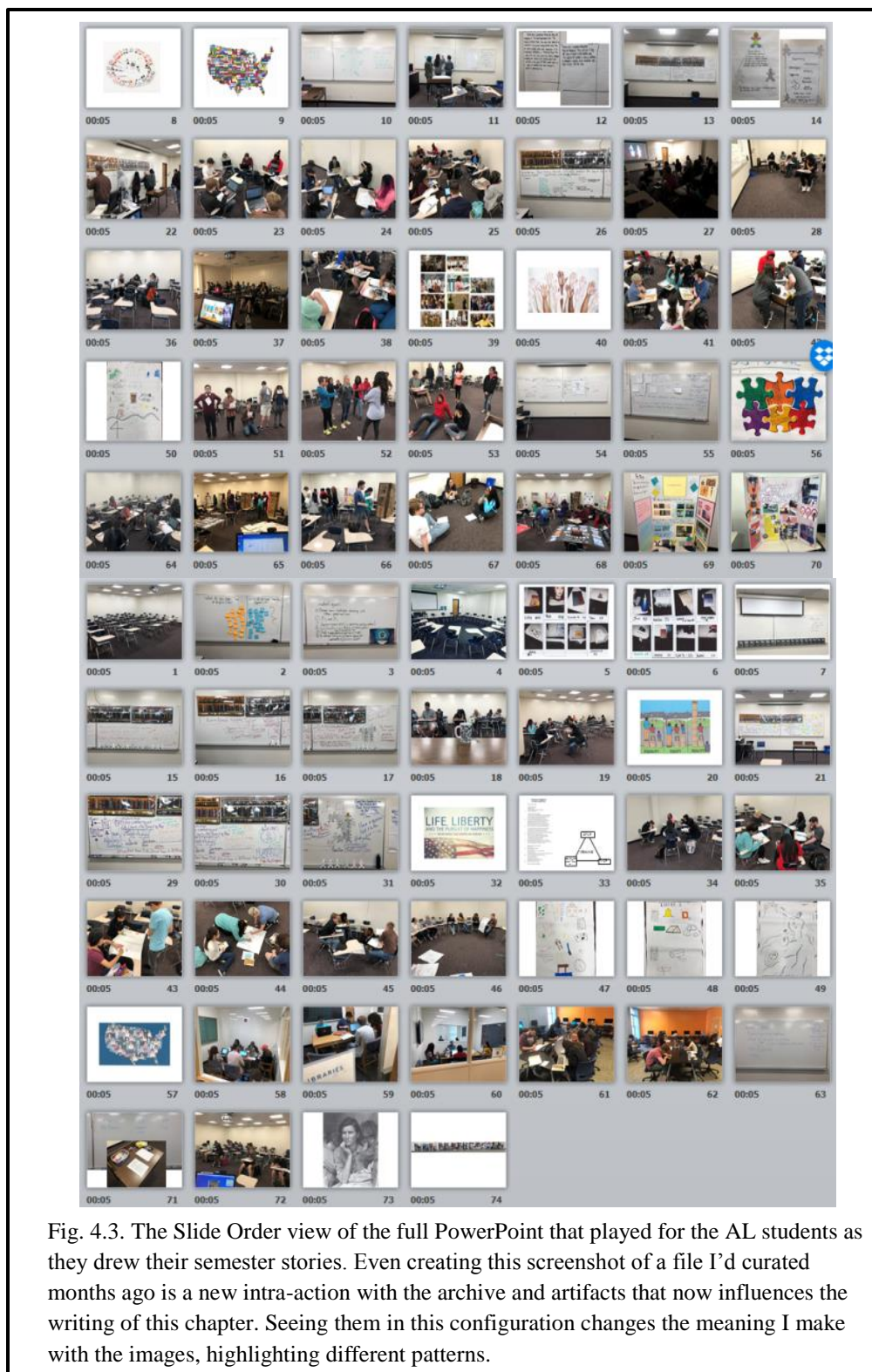


Fig. 4.3. The Slide Order view of the full PowerPoint that played for the AL students as they drew their semester stories. Even creating this screenshot of a file I'd curated months ago is a new intra-action with the archive and artifacts that now influences the writing of this chapter. Seeing them in this configuration changes the meaning I make with the images, highlighting different patterns.

Fig. 4.4 from RRR is an example of me “writing-through” (as I have my own students do in their Composition Books) my use of diffraction with the students and in my own PD. Concerned after the first Journal Diffraction assignment in RRR that I wasn’t “getting” diffraction and, therefore, was still relying solely on reflection for PD and creating meaningless activities for my students, I copied-and-pasted Haraway’s use¹⁹² of Lynn Randolph’s painting, *A Diffraction*, and Barad’s chart¹⁹³ contrasting diffraction to reflection (middle picture) into my sketchbook with a page¹⁹⁴ on diffraction from Lenz Taguchi’s chapter on pedagogical documentation (top picture), and the Journal Diffraction worksheet the students used along with several photocopied examples of student work (bottom picture). Writing-through this three-page spread of gathered artifacts with an orange pen and red highlighter, I intra-acted with a variety of texts (from both theorists *and* students) *specifically calibrated for* the concept I was struggling with. Through this carefully curated *diffraction grating*¹⁹⁵, I recalibrated my praxis where (after reading the students’ work in general before the diffraction) I felt I was relying on humanist habits. The *doing* was critical. As an embodied activity of pulling, copying, cutting, pasting, marking what *matters* as I read these texts through each other (diffracted), of writing-through my thoughts without editing or concern for linear transition/progression, in other words, as an intra-action, it was a deliberate sinking down *into* phenomenon to make meaning *with* instead of transcending above to observe or reflect on “*what is.*” The product of such intra-action, of the diffraction through this curated grating for the purpose of calibration is in fig. 4.4, though the doing involved actants not pictured.

¹⁹² *Modest_Mouse@Second_Millennium.FemaleMan©_Meets_OncoMouse™* 272-273

¹⁹³ *Meeting the Universe Halfway* 89-90

¹⁹⁴ *Going Beyond the Theory/Practice Divide* 88-89

¹⁹⁵ As with the “diffraction gratings” used in the light paradox to either produce light-as-particle or light-as-wave.

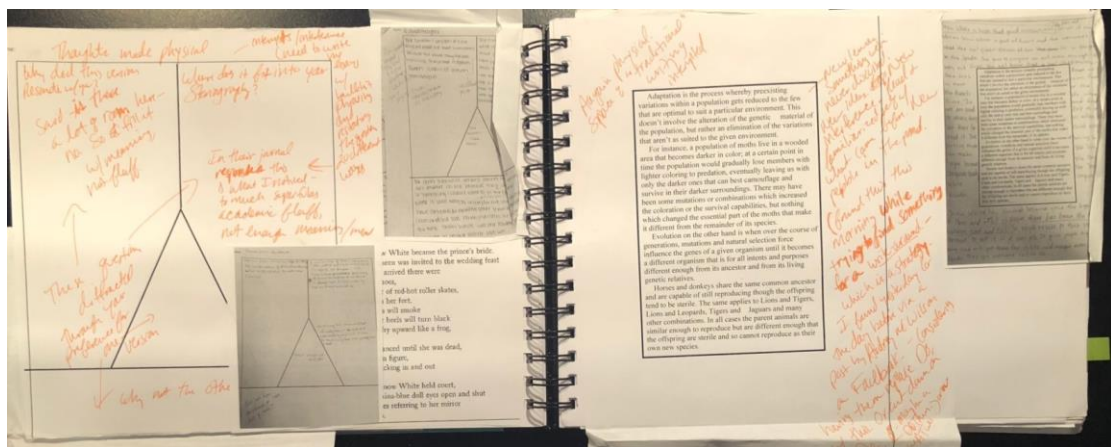
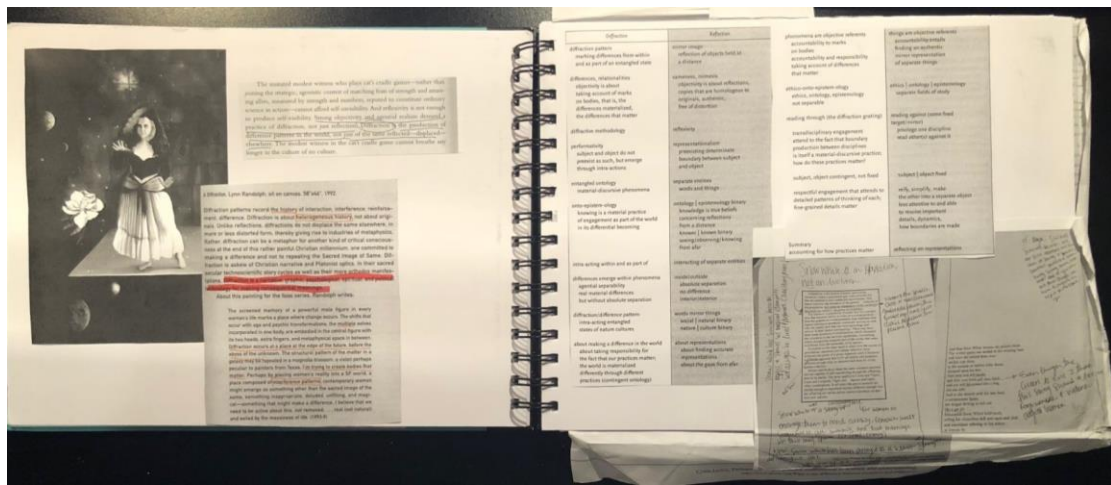
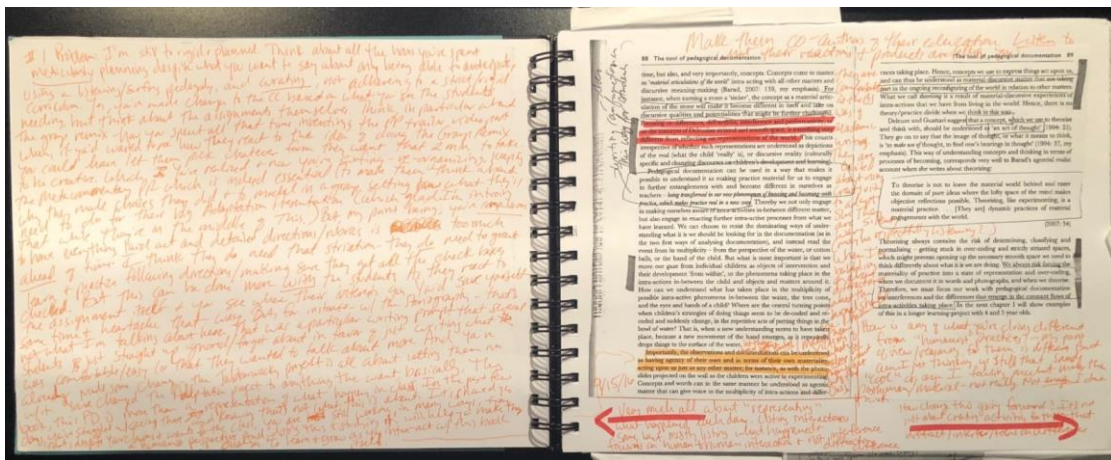


Fig. 4.4. RRR pedagogical documentation to write-through how diffraction might look as a student activity and planning versus curating.

The orange write-through reads (mistakes and all):

#1 Problem: I'm still too rigid & planned. Think about all the hours you've spent meticulously planning despite what you want to say about only being able to anticipate, using a listening/surfing pedagogy, and curating, not adhering to a strict/rigid curriculum. Yes, you've made changes to the CC¹⁹⁶ based on what you see the students needing, but think about the assignments themselves. Think in particular about the group remix—how you spent all that time inventing the PP¹⁹⁷ trailer video part when, if you'd waited to see how they react to the idea of doing the Group Remix you could have let them pick whatever form they want that 2 min. to take—to be creative. Which you've realized and now you're surfing—re-organizing, keeping the metacommentary PP—which is indeed essential (to make them think about why they made choices they did & to model in a group setting what they'll need to do for their big Adaptation Presentation (which glad I'm introing that while they're in the middle of this.) But my point being, your compulsion to have everything laid out and detailed directions/rubrics is too much ahead of time. I think they do need that striation¹⁹⁸—they do need to grow & learn & practice following directions/making sure they get all the check boxes checked. But this can be done with the students. As they react to the assignment itself & you see where their interests go. You'd save yourself some time & heartache that way. But for instance—with the Storiography—that's not what I'm talking about

¹⁹⁶ Course Calendar

¹⁹⁷ PowerPoint

¹⁹⁸ Lenz Taguhci uses Deleuze and Guattari's concept of smooth and striated space extensively. A classroom needs both planned (striated) and impromptu lessons or teachable moments (smooth). Learning to move back and forth between (and to go with smooth spaces when they pop up in what was meant to be striated) is part of a listening/surfing pedagogy and one reason she and her students use pedagogical documentation (*Going*).

here. That was a particular writing prompt that several students just straight up ignored/forgot about in favor of just writing what was comfortable/easy (or that they wanted to talk about more. And you've already made some changes—the Jabberwocky project is all about letting them run w/it. You've changed the Adaptation project to anything they want, basically. This book, this PD is more than a representation of what happens in class. In the past few days you've struggled w/seeing that [arrow pointing from “that” up to “representation”] and knowing that's not what this is about. It's showed you that, despite your claims and wants for the class, you are still working, in many ways, from a humanist perspective. And, doing this & studying it will help you make those changes. To learn & grow as you intra-act w/this book itself.

It was the *doing* of this particular diffraction/pedagogical documentation that made me examine my *compulsion*—an accurate self-assessment—to plan and, going forward, begin to cultivate the habit of *calling* it curating instead until, slowly, it *became* curation through a long, continual, bit-at-a-time calibration (that isn't “finished”). This would lead to change at the warm-up, assignment, and rubric level in RRR, but the broader curriculum strokes of the semester were set long before I got to know the students and intra-act with them and our classroom. The larger adjustment/recalibration came for AL where I waited until I'd been with the students for several weeks to choose most of the texts (see table 4.2 for a comparison of texts and when they were chosen) and continued to curate in other works and activities based on classroom dynamics and intra-actions/needs.

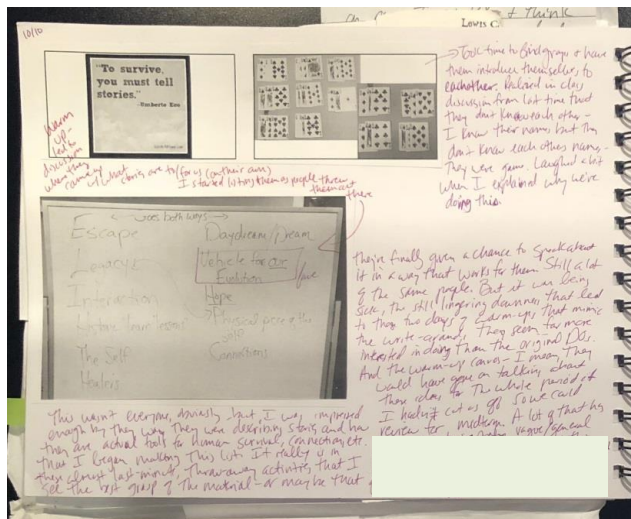
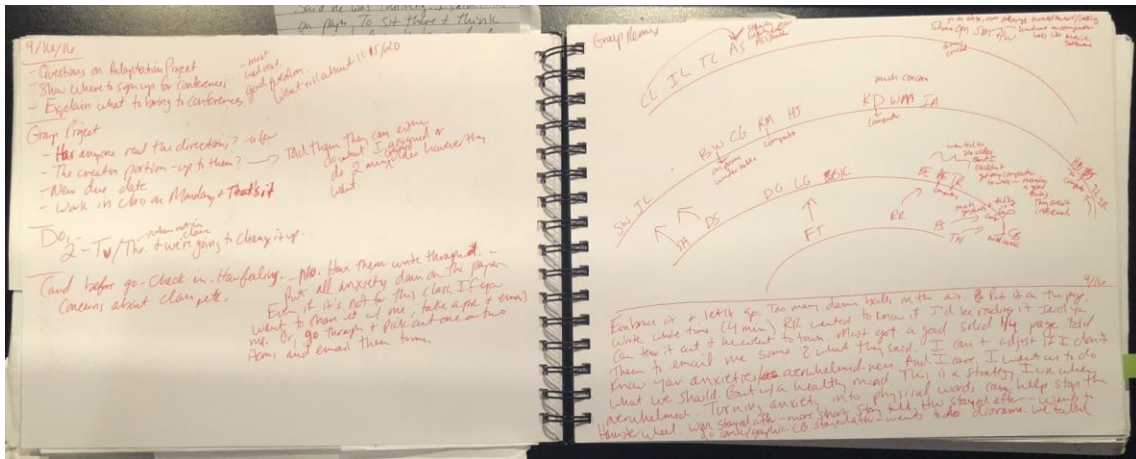
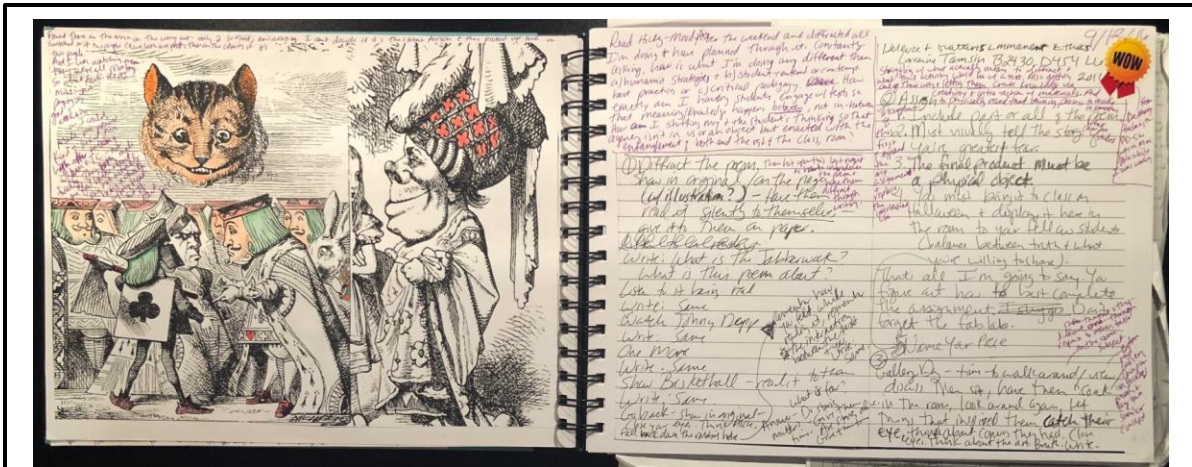


Fig. 4.5. Separate pedagogical documentations from RRR. Top picture incorporates student work thrown in the trash (illustration); middle is my first attempt at diagramming group work; bottom picture shows the beginning of incorporation of photos of whiteboards and other objects (here their playing cards) into the PD.

Fig. 4.5 shows a shift, also based on fig. 4.4's calibration, to include photos, particularly of the whiteboards and other objects in the room, such as the playing cards (one assigned to each student) we used to create, change, and move groups. But it's in AL, represented in figures 4.6 through 4.8 that I move to a more balanced visual and textual PD. Each of these figures shows the varying ways I worked through PD, from diagramming movement and object flow (fig. 4.7) as part of paying more attention to nonhuman actants in the room, to continuing check-in cards as a regular practice (fig. 4.8) as part of ensuring the students' observations of the classroom and our work intra-acted with my own to create a more layered, decentered, and calibrated archive to work from.

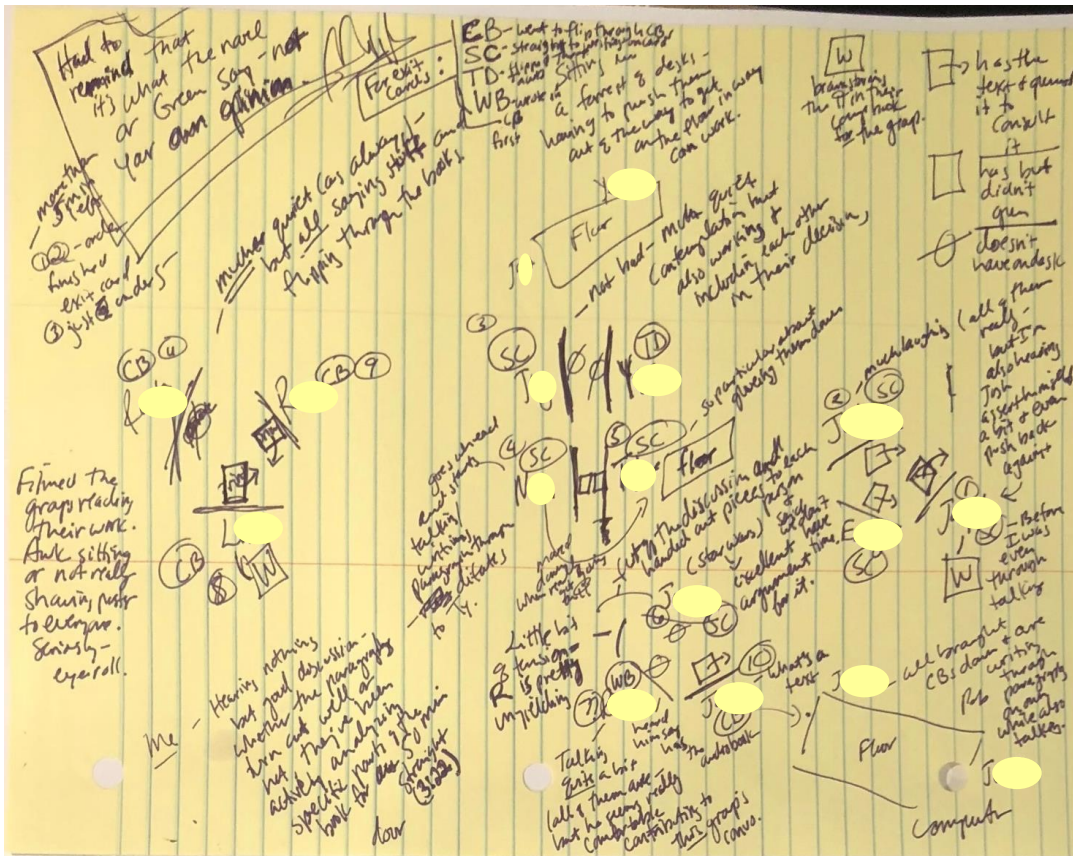
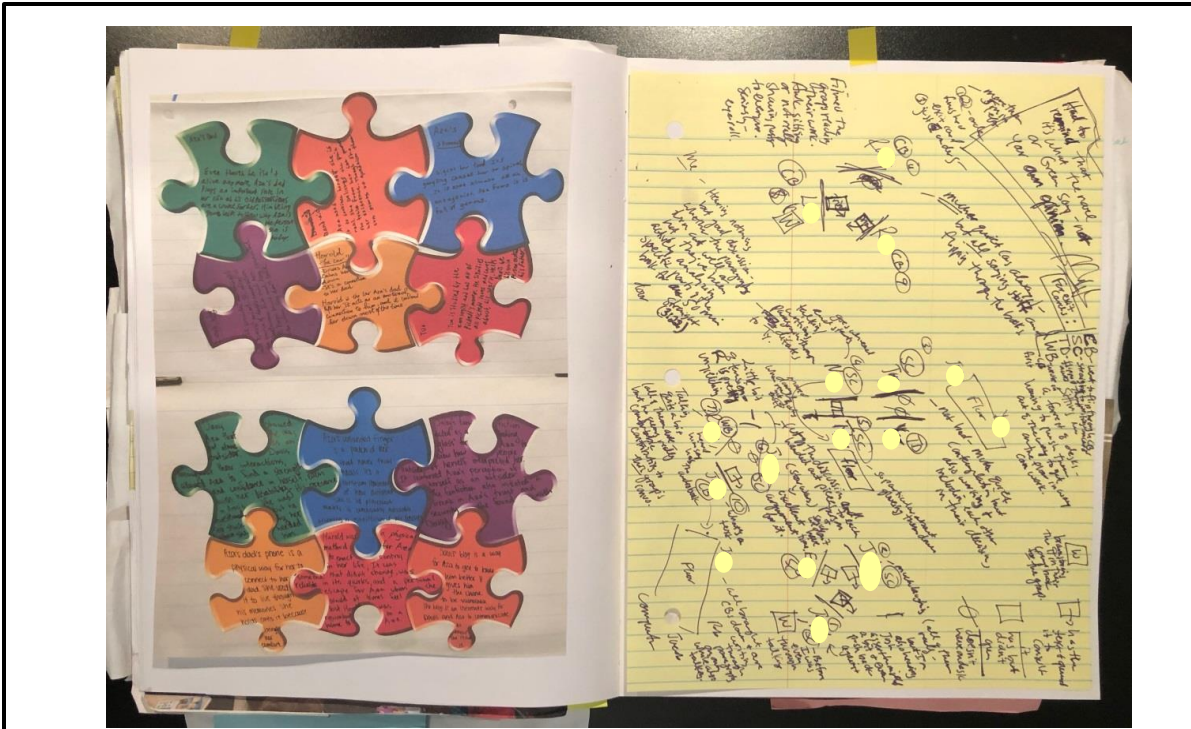


Fig. 4.7. In this pedagogical documentation for AL, pictures of the students' work for that day appear on the left of the top picture. I used the yellow legal pad paper to track student movement through space and use of texts—Composition Books (CB) and a copy of the novel *Turtles All the Way Down*—while they worked.

But what isn't shown in some of these pictures or in the actual sketchbook itself are all the ways in which the *doing*—the curating↔calibrating through PD and diffraction—is an embodied, emergent, and intra-*active* process that can shift the teacher (or other doer) from distant observer to entangled co-actant. For instance, in a video I created from three time-lapse captures of me working from pedagogical documentation and posted on my blog, we can see me intra-acting *with* the PD. Titled Spacetimemattering¹⁹⁹, [the video](#) shows *the doing* of pedagogical documentation and diffraction in ways the figures of its products shown so far can't. And yet that view of PD in action still loses all the little and large course corrections and creations built into the end products (such as the daily activity in the first clip or the Composition Book Final Analysis in the second) as they emerge through the curation being *enacted* in the classroom.

In the first clip from the desk in my campus office we see me flip back to green index cards in my sketchbook as I curate an in-class writing workshop from the feedback students gave on where they were in their projects and how working in a different location (the library) worked or didn't work for them the week before. The intra-actions with their comments led me to curate two options for class, the path I highlighted in red being my preference for our use of time, but the *actual* class running more like a mix of both options once I could see students working. In the second clip from my desk in my home office we see me curating an in-class Composition Book Final Analysis activity that was the first day in a three-class arc prepping to write (answer) their final exam questions. Of note in this clip is that we can see the variety of nonhuman actants that go into curating such an activity: texts, scissors, tape, PD sketchbooks, all the artifacts in the sketchbook, our Blackboard site, my Surface, markers, pen, coffee. All these things in the frame (and several out of it) contributed to the making of the assignment as they constituted the phenomenon with which I worked.

¹⁹⁹ <https://sarahashelton.com/2018/05/03/spacetimemattering/>

I actually made these videos for fun. I cut them together for my personal blog where I post about teaching and graduate studies but among other thoughts and workings with writing and, most especially, its materiality and intra-action. But watching them has been incredibly beneficial as a reminder that all such planning, writing, reading, teaching, etc. are indeed embodied and material-discursive acts and not the detached, cerebral doings of a mind that can produce *the same* no matter what “setting” its body is in. A posthumanist framework calibrated to agential realism sees in these videos a reminder that where and what we work with matters. All three of these spaces were integral to the spacetime-mattering that was the AL Spring 2018 classroom, and the PD sketchbook in the first two clips, as one of those actants served as a kind of wormhole or spacetime bridge that does what my human conception of linear time can’t and makes material and apparent the enfolding of spacetime. As I re-read or work with the PD sketchbook, I am back in relation to the classroom, in TH20, with my students and the nonhuman actants of the room. Table D.1 in *Diffraction #1* serves as diffraction grating here for this paragraph, a curation of others’ theories why it matters to push ourselves to add diffraction to our tools, to put ourselves back in the PD to diffract instead of just reflect or record.

Having such an archive, one curated from the phenomenon itself (i.e. with the students, with the rooms, with the objects), and in my case the PD and its artifacts, as actants in such situated, embodied, and, therefore *emergent onto-epistemological* acts as those shown in *Spacetime-mattering*, is, then, not just a good tool for observation (to course correct in the moment or to publish findings) but essential to curating↔calibrating as teaching↔as↔inquiry where larger studies (curations/diffractions) are part of a continual and purposeful calibration of praxis with and across classrooms, as we’ll see with the *Diffractions* following this chapter.

Pedagogical documentation is certainly a gathering of “data” in that it builds an archive of artifacts and observations. But it is also a doing to produce *more* doing rather than a collecting to represent or generalize.

The American story is also about _____.

The last clip in Spacetimemattering is of me tearing down after AL for the last time that semester after the Semester Story class day pictured in fig. 4.2 and discussed in Diffraction #2. Though I didn’t think of it in these terms at the time, much like the Crakers, I’d assembled from and with the students an array of objects that, on the whiteboard at the front served as our “storytelling” devices across classes. Though not always at the same time, they worked with us on the whiteboard to ask questions about what the American story is and who gets to tell it and why. For me, they were also a way to bring color into an otherwise stark white room without windows and to push back against—to quote one student—the “prison” feel of the space. However, I backed off doing a whole lot more than that when, through the continued use of check-in cards, I realized only about half of us disliked the room. The other half liked the lack of distractions and disliked it when we worked in other spaces like the library. This was an important check on my own biases, as the PD often was as it kept curation↔calibration running *from* the phenomenon instead of letting me fall back into my habit of “planning.” As we’ll see in Diffraction #1, the move to using the whiteboard as a collecting place (Sumara *Private*) and curating objects purposefully into the room as a way to leave traces of our work on the space came from the biggest shift across classes—pulling from RRR to be reconfigured for and by AL—to use more photos in PD and to do larger diffractions curated from the archive created.

story is also about _____,” which they’d also all used their presentation boards to answer visually based on the curation of texts they’d chosen to study for the last part of the semester (see table 4.2). They then explained their picture to their partner and then wrote-through their answer again around the circle after that intra-action. The different intra-actions, mediums (observation/notes, conversation, drawing, explanation, writing), and spaces on the page itself worked to continually diffract the meaning emerging through intra-action, to push for a more layered answer, and to highlight the constructed nature of *any* answer to this question we’d been asking and problematizing all semester. This particular day it also depended on the intra-action with the objects and presentation boards (see fig. 4.6) not normally a part of our classroom.

It’s also worth noting that such a “worksheet” as “diffraction grating” looks much like worksheets in general used for pre-writing, planning, analyzing (or other) activities. Part of the reason curation↔calibration is represented with the double arrows meant to convey entangled, nonlinear relation is that while we curate to help calibrate we also calibrate what we curate, pulling from a lifetime worth of work, techniques, strategies, sharings, and learnings (and others’ lifetimes) and remaking/calibrating through their use with each unique classroom-as-phenomenon. Such calibration is not always possible (at least not resulting in a form recognizable as the original), but in knowing it’s part of the process, we don’t curate in strategies/artifacts unquestioningly and, more importantly, without questioning *from* the phenomenon. In other words, we take into consideration not just what we (as teachers) need or want to achieve but how that particular, unique, and unrepeatable classroom intra-acts. This exercise was designed *from* this classroom to optimize activity progressions (dynamic flows) that, over a semester’s observation I knew “worked best” for *this* classroom—for AL Spring 2018 and all the many actants in it (working in smaller groups and drawing in particular). As we

see in my markings in fig. 4.6, this still didn't take *enough* into account the desks themselves—our most constant nonhuman companions for the semester. I realized in intra-acting with the images from that day that, despite thinking I was strongly calibrated to the desks' roles in our classroom, I still work mainly against them when I get excited about activities themselves and try to impose the activity on the room as if it will make way for our ideas. The desks did not make way. And the first ten minutes of class (including ten minutes of me and a few students moving things around before class) was spent figuring out how to get the boards to stand up and how to get the extra desks out of the way. The important question becomes, having done the PD from that class, what even more productive version of the Curation Project might have been possible if I took the desks as seriously as I like to theorize that I do? What would have happened if I had designed *with* them instead of planning over them? A lifetime of habits takes continual and deliberate “disentangling” (Taylor “Edu-crafting”).

Most of this was planned from the classroom-as-phenomenon: whiteboard as collecting space for our collective work, “objects” (nonhuman actants) brought in to interfere with the space and leave traces of work, backing off of more plans to work in different spaces after consulting check-in cards, activities built around students *doing* diffraction with apparatuses calibrated for our classroom. Whereas in RRR I planned the majority of assignments and curriculum ahead of time, the majority of these examples and the curriculum (texts and activities) came from intra-acting with the classroom and a far more purposeful and focused use of PD to both curate a varied archive *from* the classroom and to calibrate through further intra-action with (usually diffraction) that PD archive. Curation↔calibration, then, is not just the creation of curriculum or an experience or aesthetics by choosing texts or activities or objects to bring into the phenomenon and calibrate for elsewhere instead of anywhere, but it is also an

ethics via inquiry. It is a way to answer, as Barad puts it, the “questions of responsibility and accountability that present themselves with every possibility” (*Meeting* 182).

This use of curation↔calibration, driven by pedagogical documentation of each classroom and diffraction of such artifacts, is not about Research, then, but about becoming/emerging with classrooms ourselves: teaching↔as↔inquiry, inquiry↔as↔teaching, teaching from and with phenomenon, emerging with the classroom, all as the possibility for an ethics that also emerges from (and for) the phenomenon itself. In other words, if a posthumanist pedagogy is *teaching elsewhere*, it’s curating↔calibrating the classroom-as-elsewhere instead of anywhere, then a continual, sustained, purposeful inquiry is how curation↔calibration is kept in motion not at the (initial) observation level of the teacher-as-I (which can’t be totally avoided) but also at a flattened level (Lenz Taguchi *Going*) of classroom-as-phenomenon where “the flow of events thus becomes the collective responsibility on behalf of all organisms present, whether they are human or nonhuman” (Lenz Taguchi *Going* 176).

As Lenz Taguchi argues (through Barad, Deleuze, Colebrook, and Grosz):

Responsibility is thus built into the immanent relationship between all matter and organisms. ... In [using pedagogical documentation], we can relive and critically analyse what happened to such affect, forces and intensities at work in the intra-actions taking place ... so that we can ask ourselves what it is we can do *here and now* to affect something or someone in a different way in line with an affirmative thinking of unknown potentialities, rather than what we should do in line with the transcendent idea of a higher value to be strived for” (*Going* 176)(my emphasis).

Teaching elsewhere is about continually asking ourselves what we can do here and now, not in utopic spaces we’d rather hold class. At this moment, those are as Edenic and mythic as the

nowheres back-to-basics movements use to interfere with progressive movements. It's also not waiting for when we get the policies changed (though we work for that too). Teaching elsewhere is staying with our classrooms, to curate↔calibrate different stories *with* them and to use strategies like pedagogical documentation and diffraction as the double arrow that keeps that apparatus intra-acting instead of settling.

The Diffractions that follow are examples of the curation↔calibration that can be done to help answer such questions of responsibility and accountability. Without the archive curated through pedagogical documentation, they wouldn't have been possible.

Diffraction #1: Responsibility

<p>“I install myself in the data and imagine the intra-activity between the boy, the boat and the water in a relationship of non-hierarchical entangled intra-activities and co-dependences between human and nonhuman performative agents: the boat swaying, pulling and turning upside down...a transcorporeal imagining of this event....What emerges in this event of reading the data diffractively is an effect of being affected, where thinking and imagining exceed data and ourselves as researchers”</p> <p>(Lenz Taguchi, “A Diffractive and Deleuzian” 276-277)</p>	<p>“What a diffractive methodology does is to track the interference patterns, and discover from them the ongoing diffractive processes through which the world creates itself. A diffractive approach thus opens an onto-epistemological space of encounter ... Diffraction, as a concept for thinking about the generation of data or the analytic work with that data, does not try to fix those processes so that they can be turned into a methodic set of steps to be followed. Rather, it opens the possibility of seeing how something different comes to matter, not only in the world that we observe, but also in our research practice”</p> <p>(Bronwyn Davies, <i>Listening to Children</i>, 3).</p>	<p>“Such reading/thinking/seeing diffractively requires us to insert ourselves into the material production of texts, both ‘official’ and unofficial, by installing ‘ourselves in the event that emerges in our reading’ so that we might ‘ask ourselves how we are affected in our encounter with it’ ... A diffractive reading of data, then, is not an insertion into the context in an autoethnographic sense, nor is it a reflection that takes our own researcher subjectivity into account, but it is an installing of ourselves that attempts to make sense of blurring and viscous interactions ... If we are to flatten the data, then we insert ourselves not just in the data, but in the office, in an attempt to change our ‘perceptual style and habits of seeing.’ We can think of this process of changing our perceptual style as an act of diffraction that spreads knowledge differently, as in the example of ocean waves passing through an obstruction. As explained by Barad, ‘theorizing and experimenting are not about intervening (from outside) but about intra-acting from within, and as part of, the phenomena produced’”</p> <p>(Jackson and Mazzei <i>Thinking with Theory</i>, 131/134)</p>
<p>“The play here between the reflection/returning and diffraction/re-turning, separated only by the mere mark of a hyphen, is an important reminder that reflection and diffraction are not opposites, not mutually exclusive, but rather different optical intra-actions highlighting different patterns, optics, geometries that often overlap in practice”</p> <p>(Barad, “Diffracting Diffraction” 185)</p>	<p>“...[Diffraction] provides alternatives to ‘reflection’ as metaphor for our epistemologies; affirms our knowledge-practices as mattering here-and-now and not merely recording after-the-fact; and highlights the fundamental material relationality of a diffracted/-ing world at the turn of the this new millennium”</p> <p>(Kaiser and Thiele, “Diffraction: Onto-Epistemology” 166)</p>	
<p>“There is no ‘I’ that exists outside of the diffraction pattern, observing it, telling its story”</p> <p>(Barad, “Diffracting Diffraction” 181)</p>	<p>“The self is itself a multiplicity, a superposition of beings, becomings, here and there’s, now and then’s. Superpositions, not oppositions”</p> <p>(Barad, “Diffracting Diffraction” 176)</p>	
	<p>“I understand diffractive analysis as an embodied engagement with the materiality of research data: a becoming-with the data as researcher. Understanding the body as a space of transit, a series of open-minded systems in interaction with the material-discursive ‘environment,’ diffractive analysis constitute transcorporeal engagements with data ... This implies a reconceptualisation of the very act of thinking as a transcorporeal process of engagement, going beyond the idea of reflexivity and interpretation as inner mental activities taking place in the mind of the researcher understood as separated from the data”</p> <p>(Lenz Taguchi, “A Diffractive and Deleuzian” 265).</p>	
	<p>“...a diffractive methodology helps highlight ‘knowledge-ing’ as a messy multiplicity ... calling us to account in new ways for the choices we make by including <i>these</i> data and <i>these</i> incidents and not others ... In addition, it offers to be a creative methodology which opens ways of undoing traditional, humanist epistemic codes so we may do, present and write research differently”</p> <p>(Taylor, “Objects, Bodies, and Space” 691-692) (emphasis original)</p>	

Table. D.1. This curation of quotes from several of the texts that created Diffraction #1 is presented here in this format as a kind of diffraction grating for what follows. These were, in other words, some of the theories/thoughts/concepts intra-acting with me in the phenomenon that this Diffraction struggles to “capture” through the agential cut of a section for a dissertation.

Part I: Diffraction

From Reuse Remix Rewrite, Fall 2016

It's the afternoon of June 17, 2017 and I *was* reading the articles/texts in table D.1 (among others) to help me write up a definition of diffractive methodology, but now I'm wrapping up the diffraction below and adding this intro here to explain. I wrote the bolded text that tries to describe the *doing* of the diffraction (this same afternoon) and inserted them into the original sketch (the unbolded/more indented story) as well as adding to it while *doing* the bolded work (diffracting the "story"/data through/with my recent research) focused on and followed particular details to the exclusion of others. The italic type aligned to the left is even further in the past than either of these days.

↔

I read: "I begin my diffractive entanglements of stories..."²⁰⁰

↕

I think: "You're not wrong" ↔ "Her picture haunted me..."

↕

I move: drop the book, spin in my home-office chair away from my reading desk to my computer desk, open a blank word document, start typing, sketch out a story:

It's the morning after the 2016 US Presidential election and I'm set to teach a lesson on metacommentary that will help us prepare for writing our Signature Assignment—the standardizing essay that all sophomore lit students write no matter what class or section of sophomore lit they take.

²⁰⁰ Bronwyn Davies, *Listening to Children: Being and Becoming*, p. 37. From the same Routledge series as Lenz Taguchi's *Beyond the Theory* is from: *Contesting Early Childhood Education*.

I am uneasy. Drained.

The election didn't go as I expected or wanted. I don't feel safe and feel powerless in my larger life. And there is a question beating at the back of my head: do we talk about this in class? Followed by two conflicting questions that keep me hyped up on a continual up and down loop of uncertainty/certainty.

What's the point of bringing it up? How can you not bring it up?

I have visitors coming today. A member of my dissertation committee and the Director of First Year Writing, both observing my teaching for different reasons. I should do what I planned.

As I prep up at the front, I stay behind the teacher desk today. I'm hiding and I know it. I feel safer here, unsure yet what I'm going to do and "listening" to the room to see where we should go today. What we—not just *I*—need today. My emotions are fairly strong.

As I'm typing myself back into the "data" from well over half a year later my heart is actually pounding, my tongue is slightly numb and my forearms are colder than they were a second ago when I decided (felt compelled/inspired are more accurate descriptors) to turn away from what I was reading and type this up. I've learned from experience that these are recognizable physical markers of uncontrollable emotion (by uncontrollable I mean that, in *trying* to control them, my body ends up manifesting them physically) in me and, if they are manifesting now, I'm glad I can't fully remember what I felt that day. I'm acutely aware of sounding overly dramatic as I type this. I reread the sketch above and consider deleting it and this bolded section too (*is this how I'm going to format the whole thing?*). I don't delete.

We live in Texas, a red state, and, despite our campus being one of the most diverse in the nation, Arlington is not one of the state blueberries like Houston or Austin. There is indeed discussion of the election.

There was one statement loud and distinct enough that it enfolds me back into that room/that time even as I sit here. I hear it distinctly: “I’m tired of hearing about it.”

I don’t look when I hear K♠’s comments about not wanting to talk about the election anymore. I just keep moving, looking busy behind my desk, setting up for the “official lesson” worrying:

What’s the point of bringing it up? How can you not bring it up? What’s the point of bringing it up? How can you not bring it up?

In my home office, I *do* look over—envisioning the room in my mind, as clearly as if I am in there again—and consider the student who made this statement. K♠ is the oldest student in the class—my age, race, and gender (36, white, cis-female); we even both grew up here in Arlington. I don’t remember/hear exactly what else the student says to the younger female students who cluster around her.

It’s obvious from what else the student says that she voted the other way from me. I stay behind the desk...

This is not my usual practice.

...and listen. *What’s the point of bringing it up? Don’t be dramatic. Don’t push your fears on them.*

I realize that was the moment I almost gave up on the idea—that we have to talk about the election in some way—on the other curation calling out from beside the “official lesson” in my mind. So what changed?

I look up to see student 8♣ sitting in the front row, as always. *How can you not bring it up?* I'm surprised she's here considering her Jabberwocky Art Project which has been on my mind all morning...

I stop writing the story and decide to pull the student's uploaded picture of the project from Blackboard so I can be sure I'm being "accurate" and add more detail—residual habits/concerns of objective science and representationalism? Maybe. Either way I'm following the tangent and want to look at the photo. I've now spent thirtyish minutes searching for where I had the students turn them in only to realize (my stomach slowly dropping over all those minutes as I went from inkling to fact) that I deleted the column while factoring their final grades and their attached images are gone. Panic. Why? I don't trust my memory. This idea of "accuracy" has its teeth in me and won't let go. Knowing there was a "record" of the image, "data" not stored in my memory alone, an image that wasn't even the image...This hunt on the computer, clicking through screens, skimming through other projects I do still have images and records of, makes me pause. Sit back in my chair and stare into the space over my computer. *How is what you're doing here different from reflection? Are you trying to recreate the moment as if this page and these words are some mirror that can reflect what actually happened? This need—just like your need to plan and to contain chaos...stop.* I stop. Instead I curate from what I do have to do a pedagogical documentation of the class where students brought in artwork remixing Carroll's "Jabberwocky" with their own fears. There is a wide and close-up shot of the front whiteboard where several students had posted their art projects. I focus on 8♣'s project in the photo.

I look back at the whiteboard, about to write out the warm-up and stop. I see 8♣, a (self) portrait, titled “The Bandersnatch,” done in pencil on a standard piece of white printer paper, 8½ x 11. Her face, the mouth covered with a box that says “I can’t breath²⁰¹.” And two words that I remembered without having an actual copy in front of me: Trump. Racism. Her fear made material in an exercise for a class. Made more immediate, more “real,” by the election the night before. It’s not an exercise anymore. It’s not even in the room anymore, but it’s still *here*.

But I took the picture of the whiteboard with my iPhone and somewhere along the line, either when I took the pic or when I transferred it across devices via email the resolution was altered so that no matter how much I focus in on just 8♣’s portrait, I can’t read all the words. In fact, her work almost disappears into the whiteboard, drowned out by the more color-saturated projects it was posted with. And this difference catches me, spins me about in the spacetimemattering to a few days before we even brought our art together in the room, to an intra-action I’d forgotten and hadn’t documented anywhere:

8♣ approaches me with her Jabberwocky Art Project to ask if it is OK (that’s her word, but in the moment I understand her to mean “appropriate/permissible”). I see the project for the first time and my eyes are drawn to the word Trump, the block of words across the portrait’s mouth, the confederate flag and swastikas around the edges. The klansman.

This new “object”—a printed out picture of that original portrait that haunted the room—reminds me that the haunting and the meaning and the agency happened in relation, not contained in the art object itself. Because technology has blurred out the words, my attention must tune in to other details and the details that matter (are

²⁰¹ sic

productive) are those effects of difference emerging from the curating (by the students and randomly) of these particular projects on our everyday companion, the whiteboard. Surprising/strange agency²⁰².

I say something along the lines of, “Is it your fear?” She says something longer that I don’t remember but we can boil down to “Yes.” I make it clear that, if that’s the case, then of course it’s ok. I get her hesitation. We live in a red state and any number of students in the class could have any number of reactions. So far we’ve managed as a class to build a fairly safe space...I suppose we’ll see how that holds up when we all bring our fears made material via art into the room.

I see now that she needed to know that I had her back before she broke a silence. Having remembered this encounter, I flip through her Journal, losing myself for a quarter hour or so in 8♣’s words and class apparatus. I can see as I take time to read some of her more personal responses (which I won’t share here) that her art project was indeed a breaking of a particular silence. Despite raising her hand and entering class discussions with regularity, 8♣ had “things to say” that she wasn’t saying. She certainly said them with her art.

She tells me she’s going to color it—I get the impression she thinks I think she hasn’t “put enough effort in.” I tell her coloring it is a good idea.

She obviously didn’t color it. I remember thinking that was a shame as I walked around the room-turned-gallery on the day the projects were due. But today, as I sit here following threads, curating a pedagogical documentation, diffracting data through each other and myself, writing myself back into the spacetime mattering, I

²⁰² “Throughout Exposed, embedded onto-epistemologies, provisional knowledge practices, performances of exposure, and imaginative dissolves diverge from the predominant paradigm of sustainability by staying low, remaining open to the world, and becoming attuned to strange agencies” (Alaimo, Exposed, 173).

follow that particular detail and see how the materiality of her project and its interaction with the whiteboard and with the other projects around it actually magnified my notice. This particular meaning-mattering by me would never have happened if she had. That pencil sketch fading into the white haunted the board. It occurs to me that maybe she didn't trust me to have her back after all. Not enough to let her fear stand out. *It could also be artistic choice and/or a student doing just enough. It's not all about you, Shelton.*

I'm not sure what I'm going to do, but this isn't a decision I should make on my own. I tell the students we have two options for activities today and, once I outline them both, we'll vote. We can do the planned activity for the day or we can *diffract* the election through our class questions: do stories matter, are stories alive?, etc.. I make it clear that this will not devolve into politics; I won't let it.

I can tell by the look on 8♣'s face (and others) as I outline both plans that she's not exactly thrilled with the idea of talking about this. I'm surprised and then not. She just sat and listened to the same conversations I did while getting ready. If I'm feeling powerless, what on earth must she be feeling? Or is she, like the older student who is her opposite in every way, "tired of talking about it?" The students put their heads down and vote anonymously. By one student they pick the election. 8♣ participates.

↔

When I spun in my home-office chair to change directions/activities from reading the texts in table D.1 to writing about the post-election class and 8♣'s Jabberwocky Art Project , I had just finished Jackson and Mazzei's Barad chapter in *Thinking with Theory* and was flipping

through my annotations of Davies' *Listening to Children* to refresh my memory. I'm struggling—then and now and yet again—with doubt, thinking that I “didn't do diffraction right” with my students in the RRR class. Barad's “Diffracting Diffraction” has been cycling continuously through my thoughts even though I left that article behind hours ago—the physical cutting together-apart on the page of Haraway, Trinh Minh-ha, Barad herself, and Anzaldúa reminds me that, when I set out to think of ways to have my students “do diffraction” instead of reflection, this kind of text-through-text work Barad is doing in “Diffracting Diffraction” is exactly what I used as inspiration: *Maybe I'm not doing it/didn't do it wrong. Maybe there is no wrong. Of course there is some degree of wrong—it can't just be anything you feel like making it...* And so the thought cycle continued. Earlier this morning I was particularly struck by Barad's foray into hauntology in this same article. The word haunt, for lack of a better word, haunts (with a light touch but felt) my thoughts/work still this afternoon. Yesterday, I worked on the whiteboard section of this chapter²⁰³ which is still sharp in my mind—the realization of how much the whiteboards shaped my teaching over the semester has led me to consider how other “objects” might have had more impact than I realized at the time. A particular picture I looked at yesterday when writing about the room flashed in my mind and the glue sticks standing sentinel beside each student's elbow or hand as they write in their Journals struck me again—*there's something there. I don't have time to think about it now.* The word “haunt” snagged on these musings as I was still flipping through the Davies annotations and I saw (even while reading unrelated words) the students' Jabberwocky Art Projects posted around the room—*I need to read through their final diffractions on that project for this section*—and realized I could look around the room in my mind and see where each student's work was placed that day: *even when we took them down at the end of that day, those projects, the fears they communicated haunt the room,*

²⁰³ Still part of the original diffraction, this refers to a chapter plan for a previous version of the dissertation.

folding time so that then was always with us now and for the unknown future in the continual production of our class' spacetimemattering... Which led back to questions from yesterday: Did other “objects” have more impact than I first realized? Did these art objects—meant to give students a chance to *make* something (a technicity²⁰⁴ drawn from new materialist art pedagogy²⁰⁵)—re-constitute our spacetimemattering so that, even when they were “gone” from future curations and enactments of our class, our art still intra-acted with surprising agency²⁰⁶ in our meaning making? *8♣'s picture wouldn't let you not bring up the election in some way—that's pretty strong agency considering it caused you to curate a class on the fly, despite serious fears of it not going well.* And then, on a page in the book I held in my hand, an annotation turned apparatus—strange and strong—and all of the above diffracted through it.

²⁰⁴ Springgay

²⁰⁵ Particularly the reading of Hickey Moody and Page's *Arts Pedagogy and Cultural Resistance: New Materialisms*. Some of the curating/creating work for the Jabberwocky assignment and accompanying art project that this diffraction writes through (along with reference to this text) can be seen in fig. 4.5.

²⁰⁶ Also, as seen earlier, Alaimo's *Exposed* was part of the phenomenon too.

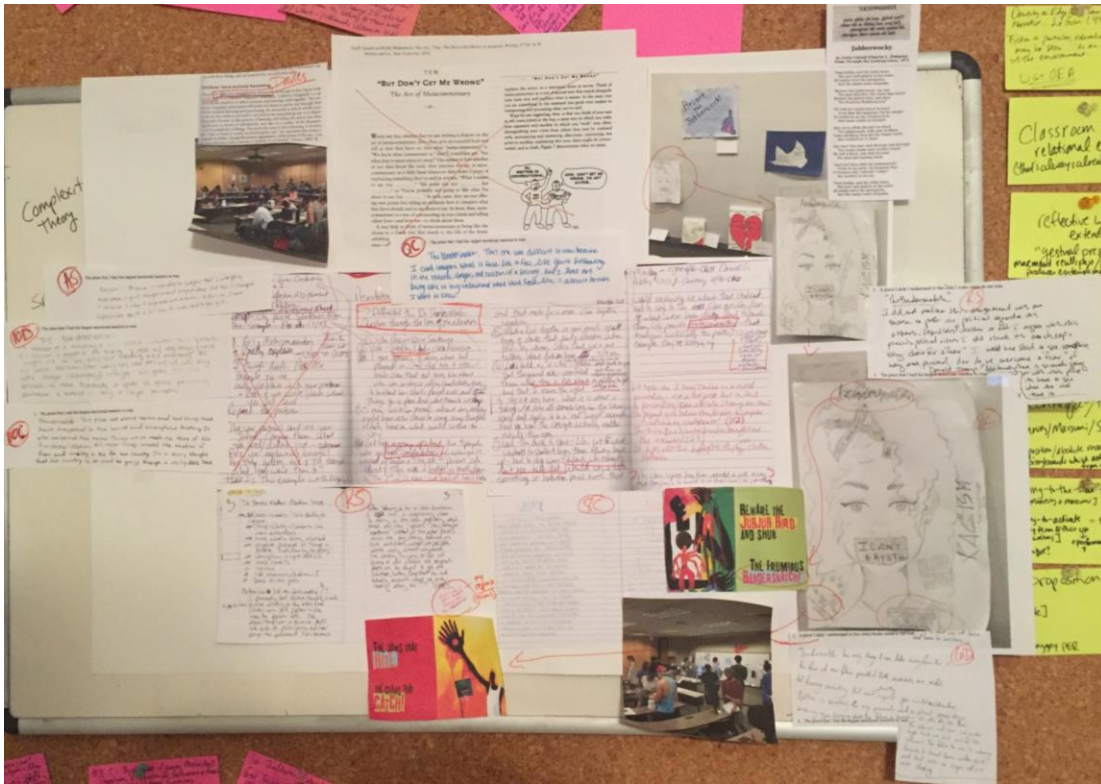


Fig. D.1. The larger pedagogical documentation that I put together after looking for and finding the whiteboard picture. It includes copies of the artwork from the Jabberwocky adaptation by Myers that we projected on the screen pulled down over the whiteboard 8♣'s work would be posted on, photocopies from 8♣'s Journal (and a couple other students) from the post-election class, responses to 8♣'s work by several students during the gallery walk on project day, photos of the gallery walk, and the handout from the assignment we didn't do. Working with this curation from my larger archive helped me create the diffraction above and the calibration in the section to follow.



Fig. D.2. 8♣'s Journal, its Storiography covers pictured here, was also part of this intra-action.



Fig. D.3. The whiteboard photo with 8♣'s project and the project itself.

A piece I didn't understand or that didn't make sense to me was:	
<p>Bandersnatch. The only thing I can take away from this is the fear of our future president. Both candidates are awful. But fearing something that won't directly impact you is a bit ridiculous. Politics is something I'm very passionate about so political pieces always catch my eye. Worrying about the future is something we all do. We fear the unknown and when we enter tough times we can't wait for the unknown. The future to me is calming because it hasn't been written yet and that we're in charge of our own destiny (6♦).</p>	<p>"The Bandersnatch" I didn't realize this assignment was an excuse to push our political agenda on others. Regardless of whether or not I agree with this person's political views I still think its (sic) a cheap and easy choice for a "fear." I would have liked to see something way more personal. How do we overcome a "fear" of Donald Trump? Additionally there is so much going on with this piece its (sic) hard to see what the real issue is (K♠).</p>
The piece I had the largest emotional reaction to was:	
<p>Bandersnatch: This piece was about racism and bad things that have happened in the world throughout history. It also contained the name Trump which made me think of this Presidential election. All these things created the emotion of fear and anxiety in me for our country. It's a scary thought that our country is or could be going through a really dark time (10♣).</p>	<p>"The Bandersnatch" As a member of a minority & as a black woman, this spoke to me. Racism and prejudice are things I deal w/ regularly & while it might not be the pitchfork wielding KKK members it's still there. Racism (the way the law defines it) was only made illegal (technically) maybe 60 years ago. It's impossible to erase hundreds of years of gross persecution, exploitation, and hatred in only a couple decades (10♦).</p>
<p>Racism—Because it was also the subject that I was going to do when I first thought about project ideas. But then I changed it because I wasn't comfortable with showing. So Racism. I have experienced quite a bit now to understand the fear of it (A♠).</p>	<p>The Bandersnatch. This one was difficult to view because I can't imagine what it feels like to feel like you're suffocating in the violence, danger, and racism of a society. And I think not being able to truly understand what that feels like is difficult because I want to know (Q♣).</p>
<p>Table D.2. Part of the Jabberwocky Art Project assignment was to answer questions as the students walked around looking at each other's work. I curated out all the answers that mentioned 8♣'s project and incorporated them into the pedagogical documentation in fig. D.1.</p>	

Part II: Calibration

Summer 2018

“The hardest task in thinking with theory was *writing linearly about something that is happening simultaneously* ... We were very cognizant of the need to ‘show’ rather than explain by opening up and distorting the data repeatedly.”

—Alecia Y. Jackson and Lisa A. Mazzei

Thinking with Theory in Qualitative Research: Viewing Data Across Multiple Perspectives
(139)(emphasis original)

“Taking up a diffractive methodology, I experience a shift from the desire to produce lucid documentation and analysis to the desire to listen intently to the multi-directional, minutely detailed patterns of interference. Interference is understood here not as an undesirable negative, but as the nature of existence.”

—Bronwyn Davies

Listening to Children: Being and Becoming (4)

“‘It seems very pretty,’ she said when she had finished it, ‘but rather hard to understand!’ (You see she didn’t like to confess, even to herself, that she couldn’t make it out at all.) ‘Somehow it seems to fill my head with ideas—only I don’t exactly know what they are!’”

—Lewis Carroll

Through the Looking-Glass and What Alice Found There (150)

Like Alice, and particularly in this diffraction, I often feel when reading in and applying posthumanist theory as if a lot of excellent and interesting things are filling my head, I’m just not sure what they are, or, more accurately, what they might mean *for* the classroom and my praxis. How do you listen to interference and how do you then explain what you hear when, as it’s theorized, it is indeed multi-directional in both time and space and a patterning of *superpositions* at that? Certainly these are things we have to learn through experience and trial and error, things we have to learn our own way of doing, just as we learn how to use any new framework to approach the world and/or texts. But a huge part of my frustration while curating↔calibrating my own practice in the beginning—and this particular diffraction was one of my first—was (and still is) the ratio of “play” (high) to sharing (low) what that play looks like for the player. Playing

with/in theory is a necessity in posthumanism which should resist being pinned down. But for a conversation that talks a lot about performativity, many articles and chapters tend to gloss actual performances in favor of theorizing them. Here, then, is another example of how I've tried out implementing such theory in my own praxis. In this case, a different sort of diffracting than shown so far in the earlier examples of pedagogical documentation, one done long after the RRR class was over but while calibrating my praxis through intra-actions with the work I'd done in the semester (and writing it up for the dissertation). Pedagogical documentation is for more than in-the-semester calibration and takes many forms. Like the videos of pedagogical documentation linked to earlier, this is a "capturing" of the doing though not the doing itself.

In its textuality, it mimics Barad's articles "Diffracting Diffraction" and "Quantum Entanglements" which both continually foreground lists of texts the articles' writings (becomings) are diffracted through as well as quotes cut-together on the pages. The double (vertical) arrows (as with curation↔calibration and other terms throughout this project) along with the differing formatting and positioning of the actual text on the page (screen) attempt to convey the sort of *simultaneity* Jackson and Mazzei allude to in their struggle to *show* rather than explain. In its content it works through many of the theories of diffraction curated together in the "diffraction grating" table that opens Part I with a particular reliance on the entanglement of hauntology and diffraction by Barad in the articles mentioned above. It's diffracted as well through my reading (at the same time) of Alaimo's *Exposed* and her concept of "thinking as the stuff of the world" as a way to think-as the "stuff of the classroom." In its storytelling format it reflects my own preference for using words and narrative strategies to work through my own inquiries, similar to what Richardson and St. Pierre call "writing as inquiry"²⁰⁷ (829). But none

²⁰⁷ As St. Pierre says, "I used writing as a method of data collection by gathering together, by collecting—in the writing—all sorts of data I had never read about in interpretive qualitative textbooks, some of which I have called

of the above would have been brought together without the phenomenon of Bandersnatch-and-whiteboard²⁰⁸. Despite the use of “I” in the storytelling, then, the diffraction works (consciously and deliberately) *from* that phenomenon, not necessarily trying to trace *my* actions (or the reasons for them) but to map the incredible contribution of these two (among many) entangled objects to the dynamic flow of agency through our classroom, specifically, as their quantum entanglement (haunting) embodies, their enfolding of past-present-future within classroom-as-phenomenon.

The writing of this diffraction—the *doing*—revealed that last part. This wasn’t something I, as separate observer, saw in the data but something that emerged in (writing-)(thinking-)intra-acting-with the vastly populated phenomenon of RRR as seen through the agential cut of the pedagogical documentation in fig. D.1 and the story/sketch that instigated and then developed from it. I would not have made this observation on my own (at least not then and certainly not exactly as it emerged above). Not part of the “story” sketched above but part of the pedagogical documentation poster seen in fig. D.1 were the student reactions to “Bandersnatch” that I pulled from their gallery walk worksheets. Gathered in table D.2 these quotes expand on the pieces’ agency that day, both “catching the eye” of my two poli-sci majors who both dismissed the fears despite being pulled in by a white page on a white board and also resonating with four other students who found the fear invoked all too “real” (for different reasons). These were all

dream data, sensual data, emotional data, response data, and memory data ... These data were neither in my interview transcripts nor in my fieldnotes where data are supposed to be, for how can one textualize everything one thinks and senses in the course of a study? But they were always already in my mind and body, and they cropped up unexpectedly and fittingly in my writing—fugitive, fleeting data that were excessive and out-of-category. My point here is that these data might have escaped entirely if I had not *written*; they were collected only *in the writing*. I used writing as a method of data analysis by using writing to think; that is, I wrote my way into particular spaces I could not have occupied by sorting data with a computer program or by analytic induction. This was rhizomatic working which I made accidental or fortuitous connections I could not foresee or control ... *Thought happened in the writing*. As I wrote, I watched word after word appear on the computer screen—ideas, theories—I had not thought before I wrote them” (“Writing” 829-830)(emphasis original).

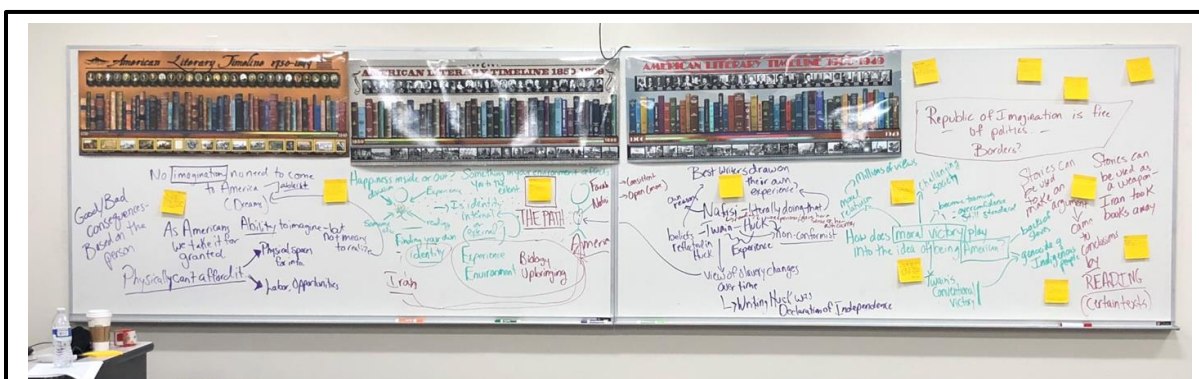
²⁰⁸ “Bandersnatch” was 8♣’s portrait’s title.

observations I failed to make in the moment but was able to work through in this later intra-action with my curated archive.

As a “piece of evidence” or “research report,” then, this diffraction isn’t going to win grants or (on its own right now) change policy. But those aren’t the reasons I’ve curated it in here or that I curated and wrote through them in the first place. As an artifact of a *doing*, the work in Part I is one example of the ways in which pedagogical documentation and diffraction together helped me develop my own method of curation↔calibration. Like much of the work in my students’ Composition Books it was a writing-through, a meaning making, a bringing into physical form (Lenz Taguchi *Going*) the relations, sedimentings, hauntings, agencies that it takes work to make visible (Barad “Quantum”). The *doing* was both for its own sake and for the opportunity to work with such artifacts again later.

Such later intra-actions contributed to the recalibration of my praxis in several areas. In order to have a stronger, more varied archive (and one more strongly calibrated to the nonhuman actants in the room), I decided to collect more visual data for pedagogical documentation going forward. The insights into 8♣’s silences versus writings and the dynamics I’d missed that were represented in the strong reactions to her piece contributed to two decisions for AL: to move to conferences instead of collecting/grading the Journals (to be known for that class as Field Notes and Composition Books) and to collecting check-in cards and making them part of my pedagogical documentation at least once a week. Those check in cards, as artifacts, were constantly in play in the PD sketchbook as I curated classes for AL. Student concerns, observations, and reactions intra-acted with me even when I wasn’t physically with students, opening up opportunities for them and their work to curate with me.

And, perhaps most importantly for AL, was the shift in my thinking about whiteboards from the standard passive canvas in a one-size-fits-all classroom to potential collecting place (Sumara) or carrier bag (Le Guin) for the class' shared work and curations, for our emergent meanings. As seen in fig. D.4, it became a deliberate goal in AL to do more work as a class on both the walls (through large paper) and the whiteboard so that, even though we couldn't leave it up in the shared space, the activity, meaning, objects, and so on involved *marked* our classroom and, even when erased or "gone" still "haunted" it with potential new intra-actions (See fig. D.10 in Diffraction #2 for a student interview that references this part of the phenomenon.)



D.4. This was a whiteboard for AL. We worked with/on the board most days to collect class thoughts/work. The yellow Post-its in this particular board were questions or arguments the students wrote about the text as they came in and stuck them on board. I read them out and the class worked through answering them together while I collected/mapped their intra-action/discussion on the board. In a previous class, I brought the posters in to do my one mini-lecture about the cannon and postmodern/posthuman deconstruction of its grand narrative. I put them back up most days after that as we worked as a group to create our own curations of American Literature and questioned who gets to tell "the American story." As actants curated into the room, the posters and other "objects" like Post-its became the fish/hat/watches (as in the Crakers' storytelling ritual) of our classroom. The purposeful use of the whiteboard as a collection place and the purposeful decision to introduce as much color and as many objects as possible through it stemmed directly from work with pedagogical documentations of RRR's whiteboards, particularly the story told in this Diffraction.

While a more "creative" or writing-based diffraction that plays off my own preferences, this type of diffraction may not work for some. Still, Diffraction #1 enters back into the

conversation through its inclusion here, not with the intention of closing down other possibilities. Instead, it opens up different possibilities and offers an example of the kind of materialized artifact I argue we should share more of (along with theory and fiction) for someone—myself or otherwise—to intra-act with (critique, mimic, remix, ignore...) as they continue to curate↔calibrate their own praxis.

Diffraction #2: Accountability

The room itself is underground which is why the room lacked any source of natural light. Despite that, TH20 was a efficient place to do work because the room was oversized for a class of only twenty and there was little distraction from the outside.

There were also no windows in class. I noticed things like that when Ms. Shelton would

lecture by drawing on the white board using colored markers because since the walls had no color, my mind would focus on what she wrote which then made it easier for me to write on my journal without having any distractions. By being in the classroom where the walls had nothing, but the neutrality of the color white made it easier to learn when information was presented in

an instrument that helped me come to this conclusion was my field notes which held my rambling thoughts from the entirety of those few months. As I looked back through my musings and sorted through the unreadable notes I could see the journey through my own mind unfold. Of course, I never thought the American story should only be told from the point of view of a few people but I never realized just how many stories there were to be told. Thus, I discovered the vastness of the American story. A story made up of immigrants, scoundrels, and

The times where the desks were in circles or where we were put into groups was nerve wracking at the beginning of the semester, but as the semester went on I found myself more and more comfortable in the discussions and found that I could learn a lot of things I never would have learned or thought about on my own from discussing my thoughts and hearing someone else's perspective on the same subject. That then lead me to work constantly in my journal and keep it with me wherever I would go. I was always writing my thoughts and other people's thoughts as well which has helped me to retain the ideas I have and to go back and refresh myself, which made me realize the need to write my thoughts and ideas because I don't remember all the little details about my thoughts later and being able to refer to them is very helpful in building on them.

I spent the most of my time at home and on the road. I didn't get a chance to draw this, but the road actually played role this semester. No matter which direction my day took me, the road was a constant reminder that I needed to keep my head straight and focus on the task at hand. At home I spent a lot of the time with my cows and sheep. We've had sheep for years, but we've only had cows for about two years. They are a bit more troublesome, so it was a little difficult trying to balance school, the commuting, and taking care of the cows.

This first happened with our personal object that we brought to class. By bringing something that expressed me, I was now known, on some level, by my professor and classmates.

Returning to class, I was allowed to bring some of my favorite stories to it. We already did this with our storiography, but this time I was allowed to talk about it with the class in the form of the puzzle person activity. I think it was at this point that I noticed exactly how my interest manifested in the classroom. While I wasn't as interested in Republic of Imagination as much as Firefly or The Alchemist, I could still do work around ROI because I was thinking about it more as a result of my interactions with things of actual interest.

I learned that when I was working on something like our Curation Project or Signature Assignment, I had already done the work, by being put in a circle in a plain room that made me focus, by being given a journal and following the directions of writing everything and taking it everywhere. I learned through a diagram on the board how bringing all the texts together and letting them speak for themselves is easier than taking an idea and finding texts to fit it. Through all the small things we built upon all semester, these are the big ideas I took away, and these are the things that I truly learned in class.

Of all the stories we read in class, *Turtles All The Way Down* was the most thought provoking one. It was the activities we did during class that made me think outside the box. The one where we had to setup an exhibit displaying what the whole book was telling us was the best one. We all interpreted the book in our own way, but at that moment we all had to come together and create a collective narrative of the book. The activity we had to do with *The Republic of Imagination* was the best one of all though. I never read that much before we got assigned that book, but after having to read chapters in various ways I had to keep reading. My mind opened up more after that book. Although the class we were in was rather depressing, it was what went on in that room that allowed me to stretch my mind and push through mental

The movie, my phone and the scissors and glue stick represent how the learning for this class was different from a normal English Literature class.

Finally, I drew a picture of a white board with post-its surrounding the word "perspective." This represent the activity we would do in class where we would write our opinion on something and stick it on the board. This taught me to realize that everyone in our class interprets and expresses information in many different ways. I began to understand how important it is to consider the perspectives of others.

As a class we were not only bounded by the actual allotted class time, but by a timer. Each writing activity was limited to a certain time. The timing was important because it forced thinking. While we were encouraged to write whatever we could think of, the timing was pressure added to create something, even if it wasn't particularly profound or sophisticated

Each curation project demonstrated to me how we each have our own creative ways of expressing what the American story is also about and our own unique ways of designing the board. It taught me to embrace each person's unique way of exploring, designing, and expressing themselves through the board. The curation project was a way of using my imagination of expressing myself without using any words just pictures which was a challenge, but really fun. This was one of the times were I let my creativity just flow and enjoyed a lot.

On this picture it's me writing on my composing book. I used a lot of creativity and imagination throughout the whole semester because of the composition book. It was an endless constant creativity from designing the composition book to designing the pages of the composition book. I was able to use my creativity through drawings and through my thoughts.

The classroom things had a more philosophical tone for me. I remember the ripple effect example Professor Shelton exposed us to. The ripple effect was the culmination of different ideas bashing at one another taking on a different form as one idea hits the other. It helped me out in my architecture class. Everyone would come in with their projects and everyone would immediately start talking about what else they could've done with it. We all shared our ideas about our models and drawings. Some would be taken into consideration while others were simply ignored. In fact I can say that the triangle method also translated into my architecture projects. I would have similar ideas I had for my projects, but I would need to find a way to put all of them into one cohesive idea.

I also drew a picture of the card I received at the beginning of the semester, the jack of hearts. The reason this is in my semester story is, this was used to get us to participate in the group discussions. Especially at the beginning of the semester, since everyone was still a little nervous to share in front of the class. Our cards were also used to form the groups in which we would participate in small group discussions and activities. This helped in our learning because after a while we began sharing our thoughts in the group discussions without having to be called on and by working in small groups we could share and gather new ideas, and sometimes the groups were the same so we were more comfortable talking to the same group of people which made it easier to talk to them.

The most common way that thinking was organized began with either a question or thought that would be individually produced on a post-it note. It was these post-it notes where a basis for ideas were created. After that, we would often use our composition books to further define and develop these ideas. It was after this where we would collaborate in groups to make connections between different ideas. These connections were presented several different ways including through pictures, putting physical

pieces together.

Our composition notebooks played the most integral role in our classroom and was the sole tool used every day in class. Through it, our thoughts, diaries, activities, ideas, research, and discussions were documented and archived to look back on and learn from. This semester, easy at sometimes and very challenging at others, showed me that learning is not confined to the space of a traditional classroom, medium, activity or utensil. There are countless ways which one can learn, and this course proved that through engagement, discussion, and collaboration with my peers.

During the first few days when we had to do show and tells, I was hesitant if I wanted to continue being in the class because I would become anxious when it came to presentations but little by little, it all seemed down because of that sense of connection I felt in the room another.

2329 taught me that you don't have to be in a classroom to learn.

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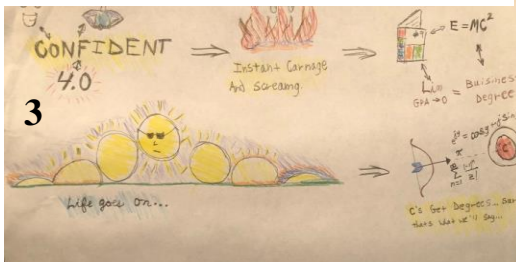
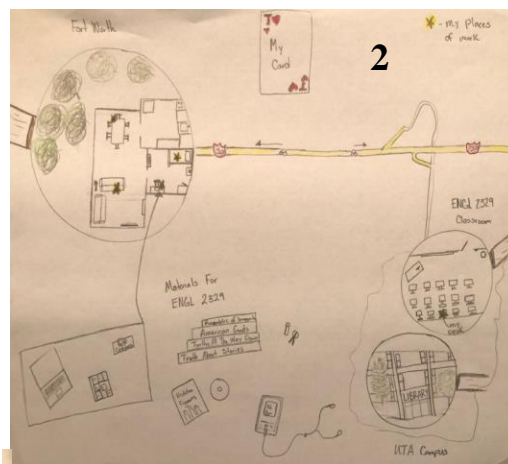
Fig. D.5. For their Semester Stories, students wrote an essay draft after the initial drawing draft (and talk-through with a partner). Here I pulled at least one sentence from each student's written draft and put them together in a "diffraction grating." As I sized the text boxes to fit them together, the computer software (Fireworks) adjusted word spacing to fit the "justified" format. This brought out interesting words and patterns when all put together, and I left it instead of adjusting the boxes to erase the spaces. Placed in the middle of the whiteboard (see video link in fig. D.8), this curation of student work diffracted the work later built (curated) around it.

Part I: Diffraction



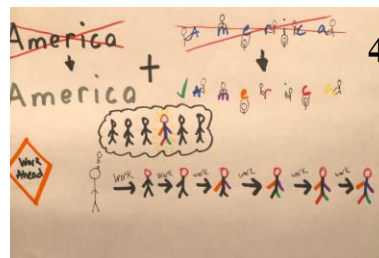
Fig. D.6. A sampling of student Semester Story drafts. In 1, 9♦ uses the spiral pattern from *Turtles All the Way Down* to distribute the story and its actants across time and the spaces of our classroom. Though some images are symbolic, many actants from our classroom appear along with many from his “outside life,” showing a promising calibration to the more-than-human. As a whole, the draft shows a diffraction of thought through life (personal), fiction, and classroom which I argue is an essential component of a posthumanist classroom.

In 2, J♥ is one of only two students to depict “the road” and a commute. Despite her attention to spaces and objects in this drawing, in her post-interview she still argued that the physical classroom had little impact on her learning. Her reasoning, however, was that she did most of her work at home. When I rephrased the question to ask if the physical rooms at home impacted her learning, she decided it did: she likes to do certain work in certain spots (read on the couch, work at the kitchen table, etc.). While the drawing shows some calibration to nonhuman actants, her interview reveals a strong calibration still to the idea of classroom-as-anywhere.



In 3, 9♠ draws the story of his whole semester (not necessarily our class). Though his Composition Book (complete with playing card on the cover) appears, all other images/objects are symbolic and meant to walk us through the theme of crash-and-burn to salvaged semester (in general). Even adjusting for the fact that 9♠ often (very) didn’t follow assignment directions, this use of mostly symbolic imagery draft shows little calibration to the more-than-human.

In 4, K♥ depicts bodies (but as symbols) and no other objects beyond a “work ahead” sign (which he described to me in his post-interview as a symbol for the work America has ahead of it). See fig. D.10 for an excerpt of that interview, Together, the verbal and drawn observations of the class hint at a weak (unconscious) instead of non-existent calibration to the more-than-human.



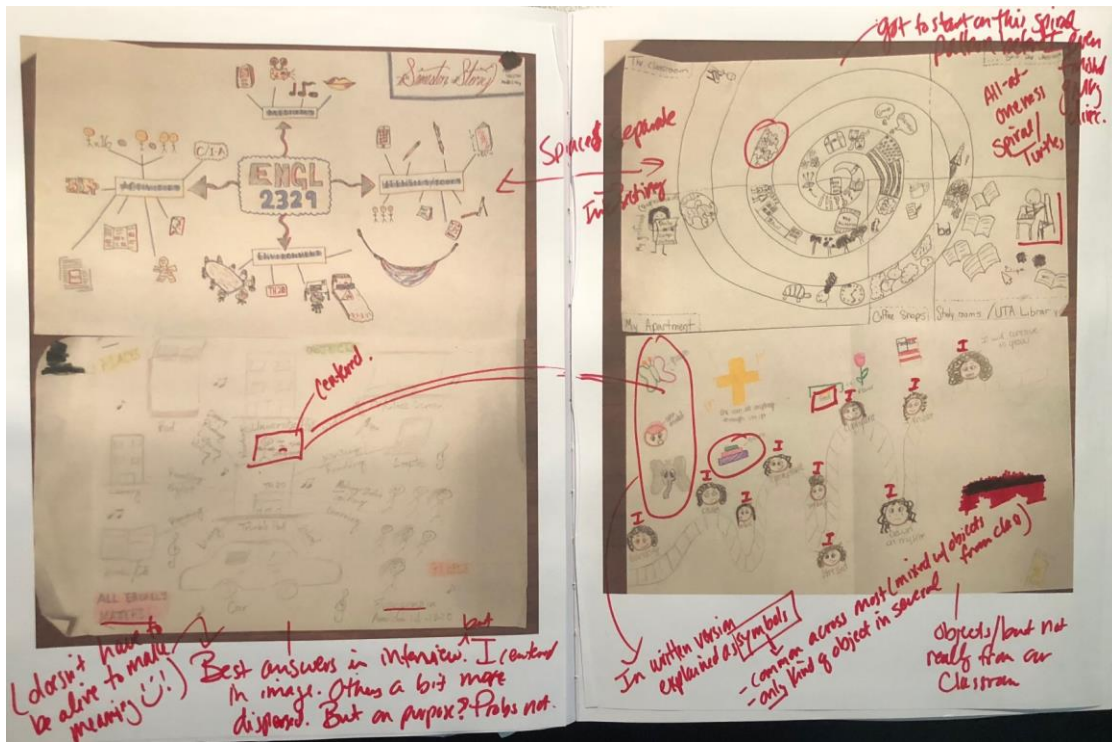
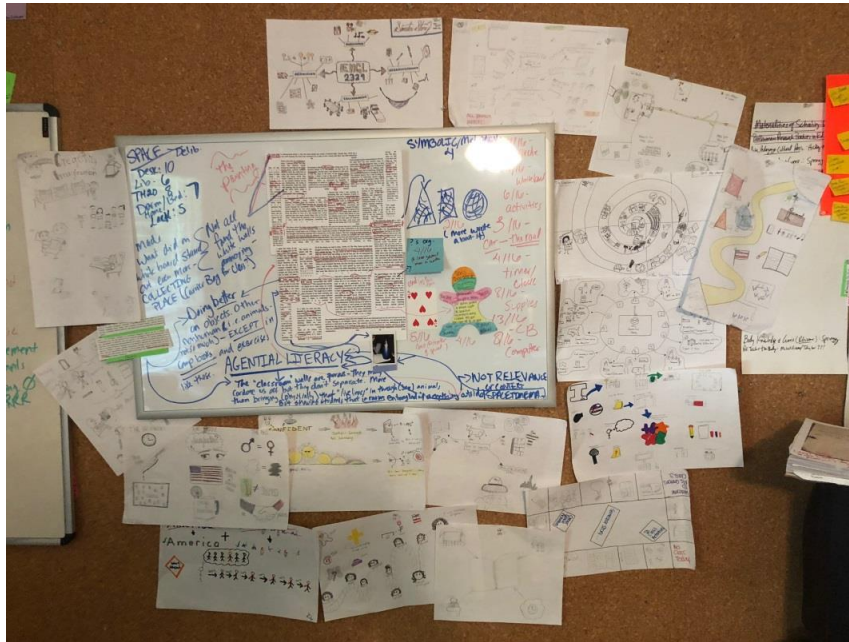


Fig. D.7. Top photo shows two pages in my sketchbook of original PD for the Semester Story, done when the drafts were turned in. Bottom photo shows a sampling of photos taken that day and also pasted into the sketchbook for PD. Here, I've curated in the originals instead of the PD pages to give a better view of students drawing and talking-through their drafts in class. In this diffraction (shown in the video link in fig. D.8), I curate in and consult these pictures through the sketchbook (seen on top of the TV about twenty seconds into the time-lapse).



“(Re)Calibrate” / Time-Lapse Video of Diffraction
<https://sarahashelton.com/2018/07/19/recalibrate/>

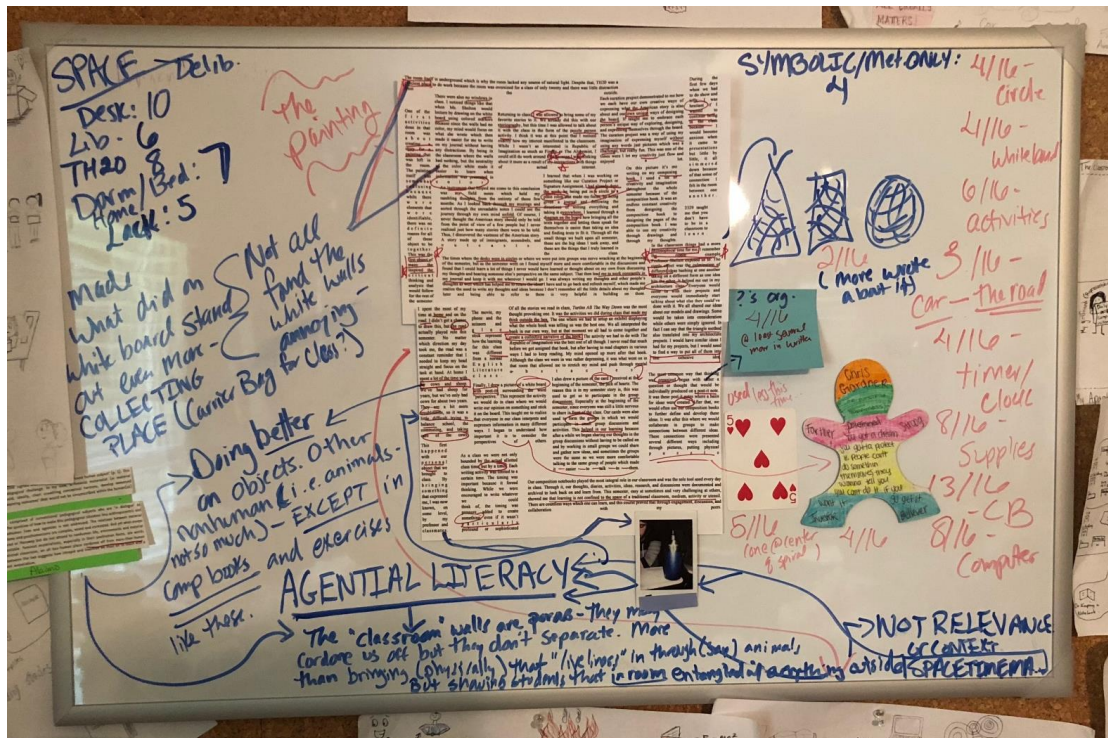
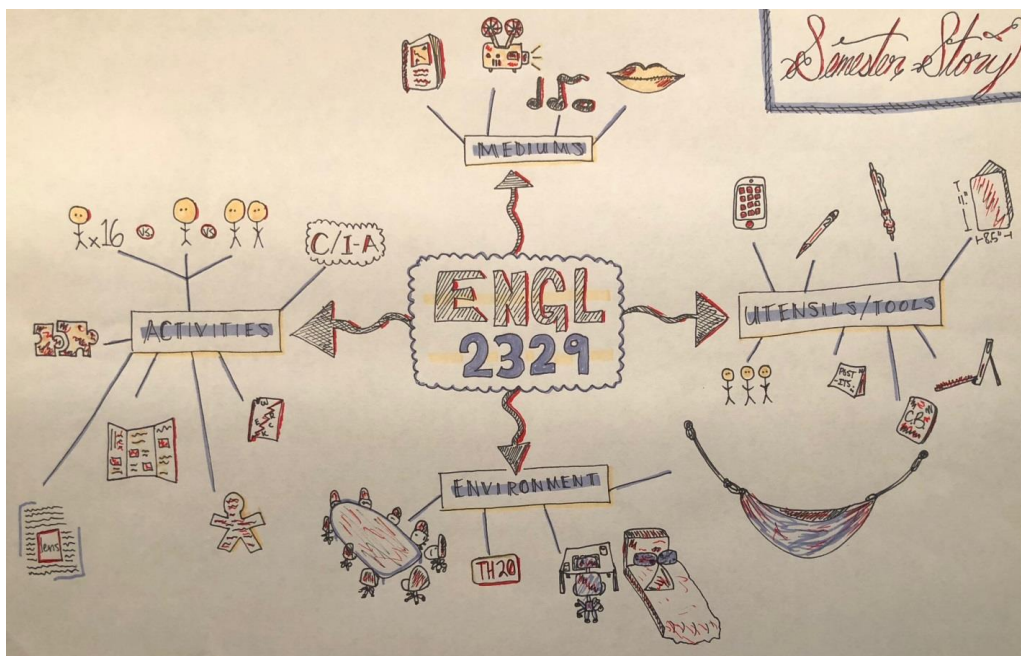


Fig. D.8. The “actual” diffraction, curated to help gauge the success of the larger calibrations between RRR and AL (i.e. attention to the more-than-human). The link in the middle is to a time-lapse video of the *doing* of the diffraction to better show the embodied, material, and emergent-with intra-action that produced the whiteboard work pictured here.



Once upon a time—NOT Neil Gaiman’s “Once upon a time”—in an American Literature class was an instructor named Ms. S. Her class ... wasn’t a traditional class with PowerPoints and intense note-taking, it was a class of constant wrestling with the materials. I like to think of it as navigating a ship, you let the current take you, but at the same time you steer the wheel to make sure you are going in the right direction, or at least in a direction that makes sense. Through that class, I learned that everything was material contributing to our learning, and by everything, I mean EVERYTHING: us the people in the class, the class itself, the paint on the wall, the smell in the air, the desks where we seated, the music we listened to, the texts we studied...you get my point, everything.

To get to that realization, Ms. S. made us do a variety of activities. We wrote a lot of what would be our best friend for the whole semester, a 200-pages Composition Notebook personally designed to reflect us, our stories. Thinking about it, I spent more time with that notebook than any other books or notebooks this semester; recording almost everything in it—reading, listening, living—staying in touch with everything. We had to write in it daily doing different types of things—write-arounds, making lists, writing our thoughts the way we were thinking them, pouring stuffs on it, gluing all matter of things in it—everything that would make you say, “That notebook has seen it all” after you’d seen it. Through the Reading Experiment, I learned how places, noises or lack of noises, book or screen affected how well we read, listened and visualized the text. Through small groups and big circle discussions, we learned each other’s perspectives on the texts; we clashed ideas thus expanding our views. We watched movies, read excerpts of books, we drew (a lot for a literature class), we also read a whole book that we had to visually represent. We took the central theme from that book and in small groups, we had to represent that theme with our bodies; we became statues! How many people can brag about having such fun doing weird things in class? I can! And as much as we had fun, we also learned about the importance and effect of visual representation on our understanding of things.

The central question we tried to answer in that class was “What is the American Story about?” but we also took a very close look at how the posthuman or nonhuman (animals, things, everything that cannot be defined as human) world influenced us. “Post-humanism,” Ms. S. would say “is the theory supports the idea that human and nonhuman, together help us create meaning, make sense of the world.” That theory wasn’t a dismissal of previous ones, it was only building on those that came before, a new way of looking at things. Anyway through the various activities I mentioned above, we came to understand the effect of posthumanism, and answered our question.

...For our final project, the curation project, we needed a different argument. After watching movies, reading poems, books and short texts, listening to music I made the argument that the American Story was about relying on other people to keep you going when you felt down. Others in the class made different arguments; for them it was about women empowerment, gaining new identity while keeping your old one, love, etc, and the best thing about it was that, just like mine, none of their claims were right or wrong, these were what they felt the American Story was about. I liked that because I think it was Ms. S. way of showing us that the American Story wasn’t one thing, that it was a combination of about 325.7 and growing million of tiny American stories.

After doing activities such as the drawing-through which consisted in drawing what, how and with what we had learned, and the talking-through which was about telling others of what we had drawn and listening about theirs, I realized that so many things had happened that I had to take some time to be able to recall them. I drew a lot of thing [list]... That’s what I explained in the talking-through, and while listening and looking at my group’s partners’ drawings, I saw roads, some moments of high confidence, some of doubts, but in the end there was a smile; a smile showing that we had come a long way, we had braved personal and academic life hardships, we had done it, we had told OUR AMERICAN STORIES.

THE END

Fig. D.9. The most “successful” of each type of Semester Story draft, Q♦’s drawn draft and A♥’s written draft demonstrate the strongest calibrations to nonhumans and the classroom as more than TH20.. Together, they offer a fairly complete “picture” of our semester and the actants and activities in it.

K♥ Oh, throwback. Posthumanism is, uh, it was part of the narrative. I remember that after a certain point, everything starts to...after Huck, the narrative starts to kind of get more voices and become more, more of like an incorporated story. I think posthumanism was right before it got super blurry and we can't have a definition for it. Right? I can't remember all of it though.

SS That's okay. That's, that's really good.

K♥ I only remember the, the narrative from old white guys...Huck, and Huck kind of changed the narrative. And then it was kind of just, now everybody's voices coming up and more, the more voices we had, the blurrier our American narrative got. And then at a certain point we couldn't define it any more. It's more just your definition which I think is like in the sixties.

SS Can I ask you what, cause you are, um, what are you doing in your head right now? What are you picturing?

K♥ I'm picturing the titles...

SS You were pointing to it.

K♥ ...like cause I can see like Huck right here and then I can see all the other ones because I was uh...I think I took a picture of it once but I didn't like go up to like look at him. But every time I did look at it, it was all the books that I could see on it and I could see Huck and I could see the ending. And before Huck was all the other ones. And inbetween, was all the different.

SS Yeah. So just for me for later, while KH was talking, he was pointing, basically looking forward and he was pointing to the board, like I had laid out for that lecture. I just wanted, it was really cool because his hands are moving around and he kept pointing to Huck right in the middle of the board, which is exactly where it was.

[both laugh]

K♥ I forget that, we haven't had that up in a long time.

SS I know. It's been a while, because we were out of the classroom for awhile and then started *Turtles*.

Fig. D.10: An excerpt from K♥'s Post-interview in which he answers the question "What is posthumanism?" In his Pre-interview he guessed it was "an after the fact" and "like the digital stuff and ... like the recordings and, and podcasts and all that other stuff."

Part II: Calibration

“...it is good for writers to see writing happen in infinite variety, modes, and locations ... how we picture writing matters. The writer is indeed no longer cloistered in the garret ... compositionists and writers can, through multimodal methods, upend this image of disembodied writing processes”

—Hannah J. Rule
“Writing’s Rooms” (428)

“Foucault refused to articulate tactics and strategies, leaving such questions to those directly involved ... Rather than ‘how to’ guidelines, what I have tried to ‘sum up’ here, instead, is the need for intellectuals with liberatory intentions to take responsibility for transforming our own practices so that our empirical and pedagogical work can be less toward positioning ourselves as masters of truth and justice and more toward creating a space where those directly involved can act and speak on their own behalf.”

—Patti Lather
Getting Smart: Feminist Research and Pedagogy with/in the Postmodern (163-164)

“It depends on who you ask. If you ask me, I would say yes because...uh. Huh...Oh wait, let me think...Okay. Uh, I want to say yes because I'm thinking that they kind of influenced us in doing stuff, shaping how we act and stuff, but at the same time, no, because as we studied during this semester, it doesn't have to be alive to influence us. So, I'm undecided.”

—A♥
American Literature, Post-Interview

When A♥ answered the question “Are stories alive?” with the last epigraph above, I sat in stunned silence for several seconds. With that delightful thinking-in-action response (those ellipses are quite a few seconds of him sitting in thought), he critiqued the anthropocentrism in the interview question (also a class question for both RRR and AL and a metaphor used often in many of our texts) at the same time that he demonstrated that my curations↔calibrations (with the intention of making students more aware of the impact of their environments on their meaning-making/learning or knowing-in-being) were, for at least one student, effective *enough* that he engaged in a critical analysis on his own when faced with such anthropocentrism and the question of matter mattering. No one yet had questioned the metaphor itself or brought up such a

point in class or their writing and, in comparison to his answer²⁰⁹ to the same question in the Pre-Interview, this stumbling over the word “alive” this time around showed actual calibration of thinking for nonhuman matter(ings)s. Taken in conjunction with the written version of his semester story in fig. D.9 and adjusted for the interesting (and prominent) centering of a triumphant “I” in his drawing draft (bottom-left of the top picture in fig. D.7) as well as the use of “influence,” it shows a better-than-average calibration to the idea that our learning happens with the classroom.

I curated Diffraction #2 (as seen in the video link in fig. D.8) using all of the above materials and the rest seen in the video with the intent of trying to gauge the “success” of the bigger calibrations moving from what I’d learned in RRR to applying that and reconfiguring it through AL’s unique spacetime mattering. As we saw with Diffraction #1, those big general-praxis-level (instead of in phenomenon for a specific class) calibrations were mostly centered around paying more attention myself to nonhuman actants in our classrooms and to curate↔calibrate curriculum/activities to make those agential flows more apparent to students. In other words, create more possibilities for *elsewhere* than *anywhere*.

To build an archive for such a curation, I deliberately designed the Semester Story assignment into the curriculum to give students a chance to tell the “story” of our semester from their points of view, to ensure they got to (not just for an anonymous survey) “speak on their own behalf,” as Lather argues for in the above epigraph (*Getting Smart* 164). On the syllabus it was a placeholder title for an assignment I wanted to curate as I got to know my students and that would give students the opportunity to evaluate the class and their work in it in a way that was *part* of the class, not as data for a “case study” or an approved survey for IRB. Through the

²⁰⁹ A fairly typical (here paraphrased) answer among the students who volunteered for interviews: yes, they come alive in our minds when we read.

different daily compositions in our Composition Books and our one-on-one conversations in conferences, I discovered that I had quite a few artists and some really strong doodlers who relished the chance to be creative and use images as well as words to express themselves.

I also read two articles that semester that I used to build the assignment:

- Hannah Rule’s “Writing’s Rooms,” looking at three older studies and her own case studies with graduate student writers which all focus on the materiality of writing spaces. She argues for focusing on “writing’s rooms” as a “figure for process-scaled study and theory” that can not only “emphasize the experience and *life of writing*,” (428-9) (emphasis original) but also, by using a multimodal approach that includes “non-alphabetic” research means, attune the conversation to “the periphery of writing’s rooms—the ‘extra stuff’ around and involved in the inventional, compositional action on which the researchers focus” (415). And her argument for multimodal observation methods—“combining . . . interview, photographs, drawings, and video recordings” (417)—adds another voice to the call for the kinds of intra-active observation, creation, and diffraction (though she doesn’t use that term) that Lenz Taguchi’s version of pedagogical documentation brings to teaching↔as↔inquiry.
- It also led me to Paul Prior and Judy Shipka’s work, “Chronotopic Lamination: Tracing the Contours of Literate Activity” which, using Bakhtin’s chronotope and the idea of lamination (similar to sedimentation as we’ve discussed) “...explores the chronotopic lamination of writers’ literate activity—the dispersed, fluid chains of places, times, people, and artifacts that come to be tied together in trajectories of literate action along with the ways multiple activity footings are held and

managed” (180). They consider their chronotopic lamination as a triangulation activity where they have subjects draw their writing space, explain the drawing to them in an interview, and then Prior and Shipka write through the differences/similarities between drawing and explanation. These three separate activities are meant to produce data that, taken together, can better get at the “truth” of what they consider subjective information. Post qualitative inquiry which I pull from troubles the idea of “triangulation” and focuses more on methods like diffraction where the three would be “read” through each other to see what patterning emerges. The idea, however, of three versions of the Semester Story in three different mediums diffracting together to give us a more layered and complex look at the student’s ideas worked well with the students’ love of drawing and (as I’d found through observation and conferences) their preference for working in pairs (talking).

The Semester Story Assignment, then, became part of a three class-day arc that led up to and included the final exam. On the first day, students spent time intra-acting with their Field Notes/Composition Books and analyzed their relationship with it over the semester. In doing so, they also prepped for the second and third day by compiling lists of activities, texts, etc. that we did/intra-acted with over the whole semester. In other words, they looked back over a semester’s worth of work done in their Composition Books to see what they’d done and who/what they’d intra-acted with. On that second day, they drew their first draft of their Semester Story in class (see fig. 4.2 as well as the figures in this above Diffraction for in-class work that day). The actual assignment asked them to depict the story of their semester in our class, including the range of activities, spaces, times, objects, and people they’d curated from their Composition Books the

day before (much like intra-actions I have with my PD sketchbook). Those were the directions—they had free reign on how to do this. They then explained their drawing to a partner in class and, for homework, typed up a “final draft” to be posted to Blackboard (completing a lamination of drawing, explaining, writing). Finally, I asked those students who’d volunteered to do pre and post interviews as part of my collecting more traditional data to also explain their pictures when they came in for their interview.

This activity, then, produced a rich variety of artifacts for pedagogical documentation and the later diffraction, but, more importantly gave students a voice and their work a place in that archive. It also let them spend two full class days doing, essentially, their own intra-active curation with/from their Composition Books to prep for the final exam which required them to use that archive of their work over the semester to answer new and old questions. And the assignment itself was curated *for them* to maximize what had been so far most productive for this class—adding drawing and talking in pairs. The assessment of “success” done in Diffraction #2, then, is based on their own layered observations of our classroom, not just mine, and was worked into the class in a way that made it *productive* for them and, essentially, an activity/lesson of its own. Also, approaching another problem of how to observe/intra-act with/assess students as “emergent subjectivities,” the Semester Story was more curated for and calibrated to such a problem as it became a record of how each emergent student-as-phenomena saw *their own* becoming-with the classroom that semester. This is an important addition to any assessment I made, particularly gradewise, that was more from *my* observation of the intra-action. Finding ways to balance “rigorous” grading that the university expects and my own standards for other assignments like traditional essays with the shift needed to see students as emergent actants in the classroom-as-phenomenon—the idea that students are *not* on a particular, linear, “pre-set”

and “normal” continuum of growth/learning but becoming-with the world in their own way—is not easy. Grades, unfortunately are still grades. But shifting percentages so that something like a Semester Story (graded on the *doing* of it) or Composition Books which are records of activity makes a difference in the final grade and is one option for impositions like traditional grades that calibrate us back to *anywheres* when they don’t take into consideration students-as-phenomenon.

As Lenz Taguchi says of this same problem in developing her ethics of immanence and potentialities with children she uses pedagogical documentation to observe in early childhood education classes:

If we believe that the child in learning is a process of transformation and becomes anew in intra-actions and inter-connectedness with the rest of the world, then it becomes impossible to exclusively adhere to pre-formulated stages of maturity or learning specific contents ... We should learn to look for how ... the intra-activities between the material conditions and the actions of the children alter their understanding and strategies. We should try to make ourselves aware of what happens in the events of the present and look for what *might* be possible, what emerges, and what *can* become. This way of addressing the child or student and our pedagogical practice constitutes, in my understanding, a fundamental shift when we think of ethics and justice in education” (*Going* 177)(emphasis original)

So not only does A♥ get to speak—make his own observations about the class—but he also gets to speak in several different voices—art, conversation, writing—that each diffract different observations and give us a more complex pattern to work with when doing a diffraction like the one above. For instance, K♥, whose drawn as well as written story wholly left out objects/spaces, etc. in favor of *only* themes and symbolism, *demonstrated* (not on purpose) the

role of objects in his knowing-in-being with our classroom (see fig. D.10). The Post-Interviews²¹⁰ took place in my campus office where he sat on a red futon facing a wall with pictures of my officemate's dogs on it (an integral seat in *our classroom* that all the students sat in multiple times throughout the semester), and yet he was also (enfolded) back in TH20, sitting in one of those chair-desk combos, facing the whiteboard²¹¹ covered with my multi-colored scribblings of my own thoughts and theirs, our Timeline of American Literature posters (the titles he's referring to), and J♠'s Huck Finn puzzle person.

For the actual Diffraction above, then, all of these materials made a varied archive to curate from. I'd already (see fig. D.7) done a pedagogical documentation shortly after the assignment: taken pictures the day of the Semester Story assignment, scanned in their drawings (drafts) an printed copies, pasted all of that into my sketchbook and marked my first observations on this visual data, including any thoughts I had having read, at that point, their written versions too. The larger Diffraction pictured and linked to in fig. D.8 started there and curated the work onto the corkboard and whiteboard for a new intra-action as can be seen in the video.

A more visual and "traditional" intra-action than Diffraction #1', Diffraction #2 as seen in the video offers another example of the kind of intra-active, putting the self back in the data that the theorists in the diffraction grating from Diffraction #1 called for. And, again, it shows

²¹⁰ For extra credit, students could volunteer to do a Pre and Post interview that asked similar questions in an attempt to compile a baseline to compare post answers to in order to see, as this diffraction also works to do, how much of my deliberate curation↔calibration to posthumanism actually "worked." In other words, were their answers more calibrated to posthumanist frameworks after? Or were they more attentive to their learning environment, etc.? While the interview data was helpful to pull from for activities like this and offered another layer to some of the Semester Stories and provided the cool moment with K♥ mentioned next, it was overall not as productive or helpful as activities like the Semester Story. For one thing, I'm not a good interviewer. For another, it's an impractical strategy to use if teaching↔as↔inquiry is part of your praxis. Strategies, to be sustainable, should be able to be worked into the already disproportionate labor demanded of us by the university in general. I had better conversations and could curate↔calibrate better from one on one Composition Book conferences than the IRB pre-approved-before-the-semester-and-I-met-the-students interview questions.

²¹¹ As a lovely example of hauntings, sedimentation, or, as Prior and Shipka would say, "chronotopic laminations," he's not referencing a single board/class, but several different class-workings on the same whiteboard (i.e., my "lecture" on posthumanism happened long before Huck and the other puzzle people made it on the board).

the immanent and entangled process that is missing from something like the write up above called “Calibration.” It puts me back into intra-action with the classroom in an effort to calibrate my praxis in anticipation of the next classroom. The conclusions I come to with this class can be used in this speculative stage—the conceptual territory of what-ifs between classes—and go in the archive as well, available for curation later even as they calibrate now. Regardless of success or failure, doing the Diffraction keeps us vigilant—makes us examine our praxis and goals, lets the classroom hold us accountable—even as it enfolds what we’ve learned *with* this now-past phenomenon back into the spacetimemattering of a lifetime’s continually emerging praxis.

Teaching Elsewhere

“Or, for that matter, what we need is something like an *ethico-onto-epistem-ology*—an appreciation of the intertwining of ethics, knowing, and being—since each intra-action matters, since the possibilities for what the world may become call out in the pause that precedes each breath before a moment comes into being and the world is remade again, because the becoming of the world is a deeply ethical place”

—Karen Barad
Meeting the Universe Halfway (185)

“We’re stuck with us, imperfect as we are; but we should make the most of us. Which is about as far as I myself am prepared to go, in real life, along the road to ustopia.”

—Margaret Atwood
“Dire Cartographies: The Roads to Ustopia” (95)

“As Daisy switched the song to a romantic ballad that she and Mychal were singing, I started thinking about turtles all the way down. I was thinking that maybe the old lady and the scientist were both right. Like, the world is billions of years old, and life is a product of nucleotide mutation and everything. But the world is also the stories we tell about it.”

—John Green
Turtles all the Way Down (257)(read with AL)

“The problem with a quantum universe, neither random nor determined, is that we who are the intervention don’t know what we are doing.”

—Jeanette Winterson
The Stone Gods (183)(read with RRR)

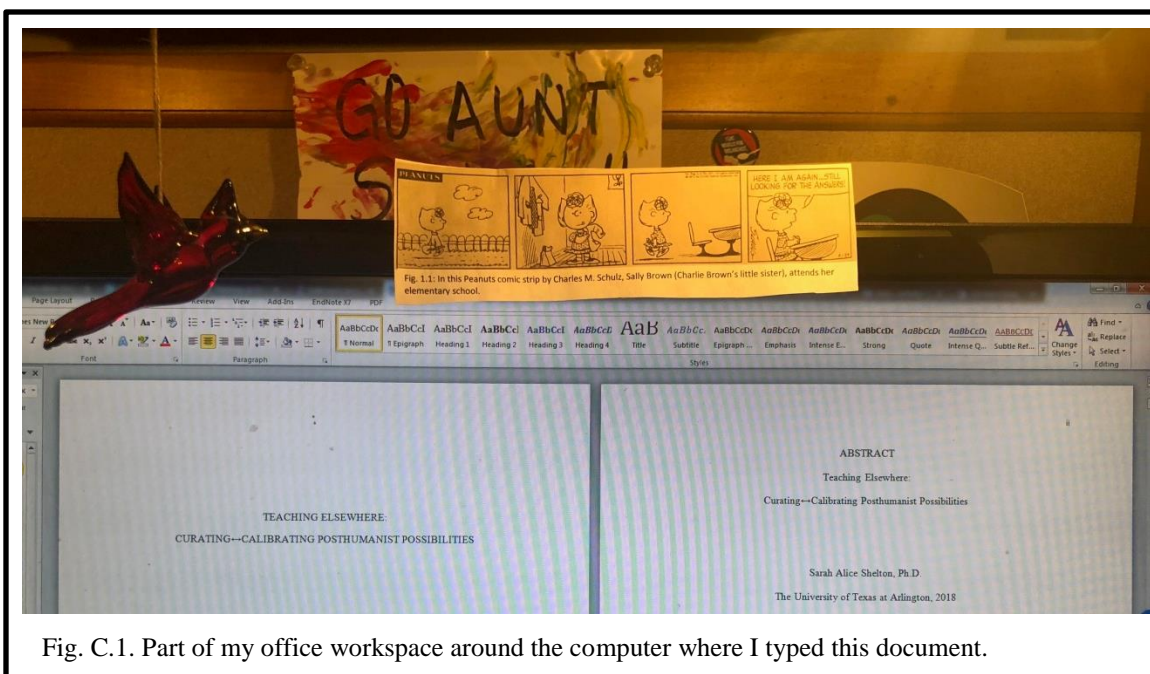


Fig. C.1. Part of my office workspace around the computer where I typed this document.

I curate Sally (Schulz), who can be seen taped above my computer in fig. C.1, in here now because she's been an important apparatus in this journey (this curation↔calibration of my praxis) which is taking, as Barad says, a breath here in writing and diffracting through what I've curated so far—theory, fiction, teaching, life—to say *this is what teaching elsewhere is*, before enfolding back into that pause of possibility and becoming something—even just a little bit—else. Sally's been helping me do different work at different times but always helping me curate↔calibrate a more posthumanist praxis. Regardless, she's been taped above my computer for months now, right in my eye line where I stare when I can't figure out what to say. An “object,” she is one among many nonhuman actants at my desk and in my office that create together the larger apparatus this document is written through. She's earned an epigraph.

I originally used her in a presentation to demonstrate the humanist view of education. Knowing her creator Charles Schulz was famous for his use of whitespace and sparsely detailed

frames that had “nothing extraneous, no waste. *Only what’s necessary*” (Kinney 15)(my emphasis), I argued she was a visual embodiment of the Cartesian-I. Learning against a whitespace (a static, neutral world), all she needs—all that’s necessary—is her mind, her questions, and a desk that holds her passive and still. She’s ready, we can assume, to receive the knowledge a disembodied teacher will deposit in her. Drawn as she is, she tells the humanist education story of any student, anywhere, of being slotted into desk after desk to meet benchmark after benchmark, year after year until she’s “human” enough, as Snaza put it, to graduate. This is where I first applied Haraway’s elsewhere and (not quite accurately) Bohr’s light paradox, arguing that the objects of the schoolroom that Schulz deemed unnecessary for the frame *were* necessary in Sally’s quest for answers, her knowing-in-being with the world, and that we could curate↔calibrate apparatuses to help us bring them back into focus in the frame.

But as we’ve seen through the arguments presented here (after the teaching of RRR and AL and the writing-through of all the readings/doings curated here), curation↔calibration is *not* about focusing or tuning to a different frequency but about *making differences* (light-as-particle or light-as-wave)—altering the phenomenon that constitutes our apparatuses. Different actants in the pool create different waves together. They create, not (at)tune. Curate↔calibrate is entangled as one term, one apparatus, because we gather to build and rebuild and adjust, but each change makes a difference “precisely for a particular function” (*Merriam-Webster*).

Because, in the college classroom, it’s not about an artist leaving something out of the frame, but about university literally assigning us rooms that look like Sally’s but with a whiteboard, a projector, and a computer usually thrown in as well (among other combinations). It’s about rooms that, as they’re built, tell us we’re anyones and can learn the same thing anywhere. Working with her pedagogical documentation in *Early Childhood Education*, Lenz

Taguchi has spaces to observe her students learning where bowls of water and cotton balls and rocks are the norm, not a once-a-semester project day a professor can work in to a jam-packed survey course in a room that isn't his/her own. What exactly are we supposed to observe interacting there over a semester? The student and the desk?

Yes.

Because there *is* intra-action there, between Sally and the desk. It might not be exciting or “lively” but it “teaches” Sally how to sit and where and that she should, to fold her hands and wait even when the answers aren't there. It *matters*. As we've also seen through agential realism, what's missing matters as well. In this case, it's what's missing that both tells the Cartesian and Newtonian story and what's there that keeps us, like Sally, sitting in regimented rows ready to receive knowledge.

In observing this in class after class—intentionally taking pictures and putting them side by side and seeing how things seem not to change even when they do—the phenomenon *does* call out, or it does to me. It belies stories of inertia; it makes (for example) the desk's role in the dynamic flow of agency visible. It holds those of us who assume such humanist narratives (still) need to be interrupted responsible and accountable for creating different waves, interference patterns. And it does so in a way that goes beyond theoretical or hopeful to *immediate*. I don't say this as someone who thinks she's gotten something right (we never will) or has achieved some moral high ground, but as an always progressive teacher who's tried being creative, active, student-centered, subversive (list it, I've probably tried it) and was *surprised* by how much *motivation* and difference could come from doing pedagogical documentation in such rooms. It came from noting how 8♣ picture haunted the whiteboard. It came from using the random

painting left in the AL room from the semester before as a warm-up exercise and conversation starter the first week because I now saw it as an unexpected actant instead of random trash.

The lacks as well as the presences pushed me to do more when curating than just (as I had in the past) try to make a difference with who (e.g. authors, speakers, filmmakers, playwrights, speakers, etc.) and how (e.g. group work, movies, acting out scenes as statues). It pushed me to also curate from and with “what”: things that we could make (puzzle people); things that got us to move (playing cards); things that marked the space with us (via superpositions) and made our meaning making *part* of the room even when that thing was gone (presentation paper and markers); things from “outside” like a dandelion (see fig. C.2) that made me think of a student comment from a class before; things that go in and out of the room with each student and make more visible the links between learning and life outside those four walls (Composition Books).

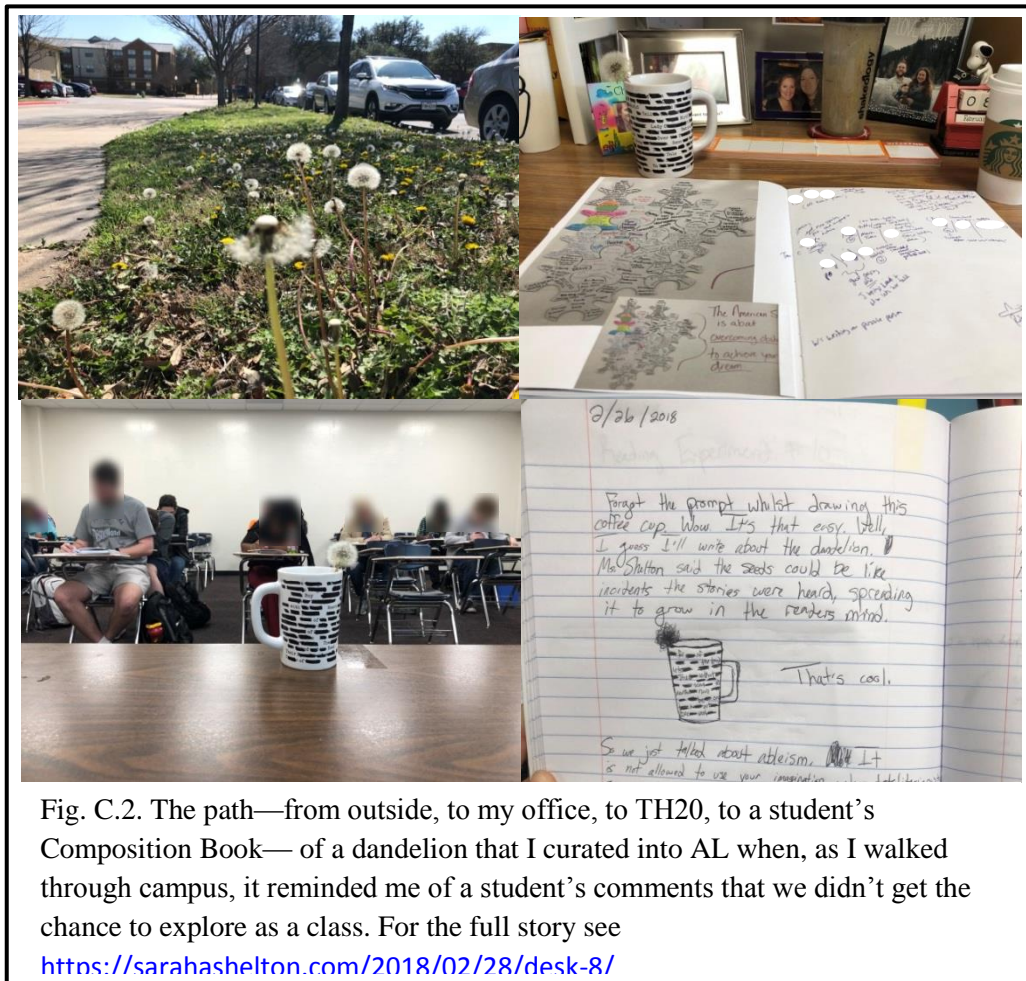


Fig. C.2. The path—from outside, to my office, to TH20, to a student's Composition Book— of a dandelion that I curated into AL when, as I walked through campus, it reminded me of a student's comments that we didn't get the chance to explore as a class. For the full story see <https://sarahashelton.com/2018/02/28/desk-8/>

It's a subtle shift, one that moves from creating an assignment that needs markers to saying, "We need some markers in here, some color for these artists who like to doodle in their Composition Books. And maybe some of that big paper we can tape to the walls so we get out of the desks and so our work haunts the space." It's a shift to building an assignment from such a curation of objects (actants), with the phenomenon as a whole in mind, and, as always, with the intention of resisting the supple, insistent narratives of anywhere.

Such resistance is tiring, and not just because, as Mirtz says of the all-purpose rooms themselves, their "imposed design wears us down" (22). Teaching elsewhere is not easy or straightforward but messy and particular. Teaching↔as↔inquiry is time consuming. Using curation↔calibration means plans are even more fluid than normal, sometimes not made until hours before class, sometimes changed in class, and oftentimes not transferable to other classes. Policies like a state requirement for a syllabus posted by the first day of class with—at minimum—topics for each class day force us to make plans we'll adjust again and again. When course caps for literature classes are at 42, strategies curated for and that worked so well with AL and 18 students—including conferencing three times for Composition Books and two for traditional essays—will not (I know from RRR) work for larger classes or teaching more than a two-course load. Professional development requirements or paperwork (online or off) drain the life and time out of semester.

I know, then, that there will be classrooms going forward where, for instance, I either can't use Composition Books or can't use them to their full potential as in the past. But this is what curation↔calibration is for and this is why it depends on the classroom as a whole, because, though we can curate particular objects or activities or doings (like moving desks), we inherit many actants that we *can't* change. For instance, we can't change course caps, some

furniture can't be moved, and, since we share such spaces, they can't be altered beyond our time in them. And that's why this document mentions strategies, assignments, actants, etc. but isn't *about* them. Instead, it argues that it's critical to begin finding ways to work intentional, teaching↔as↔inquiry and curation↔calibration—in whatever forms might work best for each of us within our own mix of preferences and impositions—into our praxis.

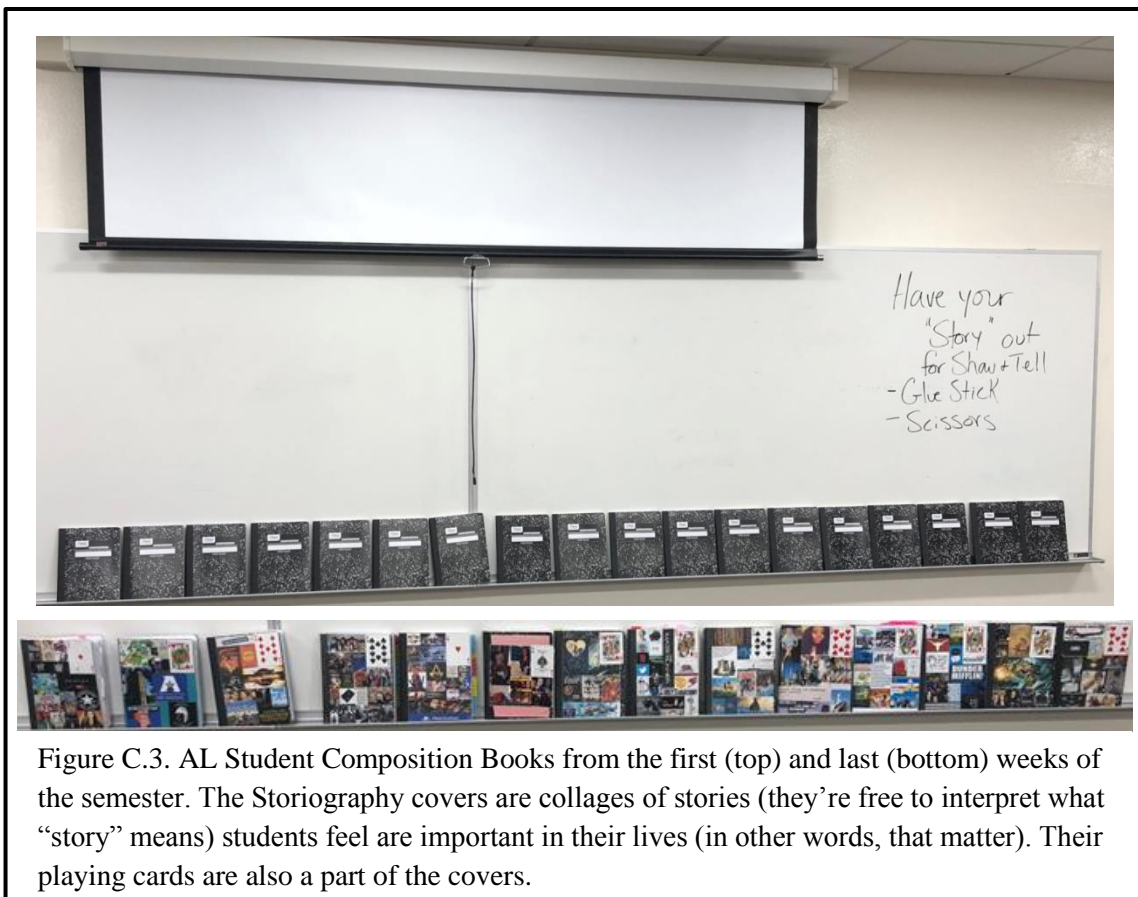
Teaching elsewhere, then, is from a posthumanist viewpoint in that it starts from the deconstruction of the human/nonhuman binary and *seriously* considers the contribution nonhuman actants, as phenomena as well, do and can make to a phenomenon's becoming and knowing-in-being. Using agential realism, it sees a problem with that last frame where Sally has left the world and her things behind to sit alone at a desk. But it also, through concepts of spacetime mattering and superpositions and iterative intra-activity argues that Sally, like our students, is not a Cartesian-I but is continually becoming-with the classroom and the world. She is a phenomenon that includes all the frames of the comic strip (and more). Because of the way each frame is drawn and our educational structures are built, it appears, as Alaimo argues of conventional classrooms, that she is “cordoned off from [the] more-than-human liveliness” (“Book” 179) of the larger world. Teaching elsewhere, then, is also about making more visible such entanglements that Sally brings with her and that her work with the classroom, considering such quantum entanglements, is not wholly cordoned off from. Curation↔calibration has pushed me to develop activities and projects like those listed so far and in table 4.1 from Chapter 4 (e.g. the Reading Experiment) that create possibilities for students to see how their learning is entangled and created with their surroundings and the world. Such activities work to make this more apparent when the room and its lack of a diverse range of actants—including animals, plants, and other, more “lively” actants—tells another story entirely (that we are and should

remain separate from that world). So far this has translated to curating↔calibrating to more purposefully bring objects/texts/activities into the room to intra-act with that can, as Barad argues, do the “work” of making such past or not-then or quantum entanglements visible (“Quantum” 261).

As one student said in his Semester Story, “I was allowed to bring some of my favorite stories to it. We already did this with our storiography, but this time I was allowed to talk about it with the class in the form of the puzzle person activity. I think it was at this point that I noticed exactly how my interest manifested in the classroom.” Both of these activities only existed (created such possibilities for this student) because I was determined to bring different actants into the room than the ones we inherited or that were imposed on us. We would have still discussed students’ intra-actions with stories in the past, but in their Storiographies (the covers of their Composition Books as seen in fig. C.3), they took “out” into the world and back into the room with them an apparatus (Composition Book) that they did all their work in—including daily compositions about their lives, the world, and what they noticed and how they intra-acted with it—and that was enclosed in a constant visual reminder that they come to *this* class with knowledge of their own. It reinforced that, in our discussion of stories and their role in creating the world we live in, these students already had much to work with and say after a lifetime of intra-action with stories on their own. In the case of the Storiographies and Composition Books specifically, then, their learning became more about becoming-with the classroom and coming to it as phenomena of their own.

This learning, then, included writing-through their intra-actions with the classroom *and* their life outside the classroom so that they had an archive of their own that they could later study (intra-act with) to better see/work with the meaning they’d already made *with* the

classroom. In other words, as I mentioned before, through the Composition Books, a large percentage of their grades were about intra-acting with the classroom (texts, students, inside the room and out) and also allowed me to get to know them and better understand them as emergent. This is a benefit over, as in a traditional classroom, being measured *solely* against university and professor expectations for “normal” student development at particular levels and takes into account their growth and the material conditions it was made with even if that growth isn’t on the expected developmental continuum. And again, it’s an emergent project itself. One that changed from RRR to AL and will for each class but that, in both cases, interrupted the idea that students are, like Sally, cut off from the world and wholly unaffected by the material conditions of the room itself. In other words, they learn differently with the addition or absence of the Composition Book (or other objects/texts/activities) to the classroom.



In writing-through the two classes I taught and such observations from students, I've found that they benefited from this posthumanist curation↔calibration *from* the classroom for the classroom in general, because, unlike in a traditional classroom where we leave the story of Cartesian-Sally learning *anywhere* wholly intact or unlike in classrooms that work through curriculum to challenge such narratives but assume the spaces are inert or unchangeable, this sustained curation of many different kinds of actants offered consistently varied intra-actions that disrupted the humanist narrative that the students were anyone learning anything anywhere. In other words, whereas in the past, as a best practice, I'd created assignments or projects that were multi-modal, active, student-centered, etc. in order to get us "out of our desks" or "more invested in our learning," observing the classroom as phenomenon and curating↔calibrating for different possibilities drove me to create that *daily* and diversely so that we layered meaning-making into the space (superpositions) not just through stories/texts and activities but through "things" which (like the whiteboard and Huck puzzle person from K♥'s post-interview) could be used to make that work more visible for us. In other words, *together* we created possibilities for the classroom-as-elsewhere.

I also drew a picture of the card I received at the beginning of the semester, the jack of hearts. The reason this is in my semester story is, this was used to get us to participate in the group discussions. Especially at the beginning of the semester, since everyone was still a little nervous to share in front of the class. Our cards were also used to form the groups in which we would participate in small group discussions and activities. This helped in our learning because after a while we began sharing our thoughts in the group discussions without having to be called on and by working in small groups we could share and gather new ideas, and sometimes the groups were the same so we were more comfortable talking to the same group of people which made it easier to talk to them.

In both of these cases, “things”/actants (phenomena themselves) that we brought into the classroom created connections and movement that made learning not just student-centered but also highly (intra-)active. They also built a productive process for *our* classroom over time (and through much error). The “show and tell” the first student talks about took large chunks out of our meeting time those three classes, taking us into week three without having covered more than the texts we were working with to prep our Composition Books. Talking to colleagues who were already on their third short reading or well into class discussions with their first big reading, I felt the anxiety of not just “sticking” to a more traditional schedule that, as in RRR, would have had us on text three by then. But, in observing the intra-actions in those show and tells, I began to understand the human dynamics in the room better—who these students in particular were and how they “performed” in a classroom setting. And this waiting and seeing set curation↔calibration for the particularly quiet group I had in motion and made such anxieties worth it. As one student said in his Semester Story, “during the first few days when we had to do

show and tells, I was hesitant if I wanted to continue being in the class because I would become anxious when it came to presentations but little by little, it all simmered down because of that sense of connection I felt in the room between one another.” The sense of connection this student talks about was critical to building a classroom of discussion instead of lecture or reading/writing alone. I truly believe it was the use of the objects, the students having something of *theirs* in the room to talk about three different times before we got into more complex work with unfamiliar actants like texts, that broke up the initial spell of the regimented and assimilating room. And, therefore, the show and tells helped set the precedent for working with and through more than texts and other actants later.

I’ve actually never had students, this consistently, tell me that one thing they got out of the class was that they eventually felt comfortable expressing themselves with their classmates in different kinds of situations. I attribute this not to anything I did in “teaching” them better communication or “forcing them to participate,” because we quickly abandoned large circle discussions where I was trying to get them comfortable with discussion which—not lecture—was the core of the class. Those circles, which had worked well in past classes and that are considered by many a best practice, were excruciating in AL. I have also never had that high a percentage of reserved/shy/introverted students in one class. That percentage is where the large “quiet” comes from in the word map about our class (see fig. C. 4). Instead, it was giving them the opportunity to move through multiple different *groupings*—not just groups, but a continual range of group sizes and members—with multiple groupings *every* class that made them more comfortable with each other and more willing to enter discussion. The playing cards made that possible. Having them on their Composition Books meant they always had them and quickly memorized their card and could quickly move through different configurations as I “reshuffled”

the class for different activities in the same day. It was in observing those random groupings while they worked that I eventually found solid, compatible matches that were based on sustained observation through pedagogical documentation. From such PD, I was able to create more permanent groups for the big projects like the writing workshop pictured in fig. C.5. This particular group of students, while silent when on their own in other groups, was a dynamic, smiling, intra-active group together. Such small-group circle work, then, created a space within the larger classroom for these students to work through (navigate the anxiety of) more traditional writing assignments together.

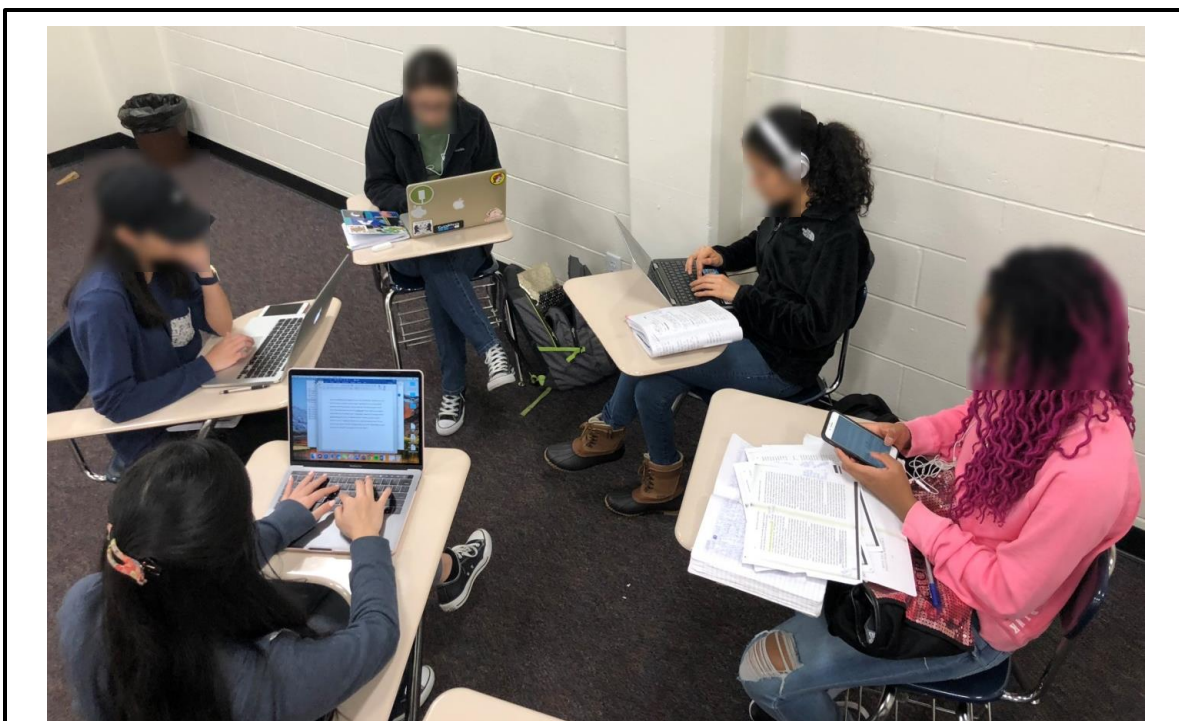


Fig. C.5. Students in their more permanent writing group toward the end of the semester. While students worked on their own drafts, we would pause at intervals to talk-through frustrations, confusions, etc. and to read each other's work.

These are just a few examples, but all of them came from and were developed with use in (were reconfigured by) the classroom. Instead of best practices in general, they became better intra-actions for *that* phenomenon. The work we did with the classroom interfered again and

again with narratives written into it, sending out waves created with our unique phenomenon. Our classroom diffracted patterns that remained, haunting our spacetime mattering even when the actants that created them with us were gone. I believe that the AL students' comfort with working with each other came from the fact that, after a while, despite physically resembling the room TH20, that space during class time became more our classroom than the university's. Our intra-actions created an environment where students didn't feel separate and where "reading" became discussion and students came to class consistently. It was "fun" and "enjoyable" as the students said, but, also "hard."

Finally, I want to note that, rather than a set of practices meant "to teach" students that they should intra-act responsibly with the world (as in Barad's agential literacy), teaching elsewhere is largely an adjustment of *my* praxis, a decision entered into and developed of my own volition to curate↔calibrate, to use pedagogical documentation and diffraction, with the specific purpose of opening up different possibilities in the classroom. It follows Barad's argument in that I believe that rooms such as the one Sally's in with her desk are far removed from how we live and how we tell stories and, so, need to be rethought to teach our students in ways that actually resemble how we live. Teaching elsewhere also interferes with humanist narratives, creates posthumanist possibilities, gives students a voice in such changes, and decenters me, as Lenz Taguchi and Barad argued in the last chapter, by holding me accountable for the choices that do or do not facilitate all of the above.

However, in its continual disentangling of my own habits, check-ins with students, and curation↔calibration made from observations of the phenomenon, it also works to be critical of my own (not just the university's) possibility for "imposition" which is "of prime importance in

understanding what happens in our classrooms in the name of empowering, liberatory education” (Lather, *Getting Smart* 76). As Lather says of her own work developing research as praxis:

I use empowerment to mean analyzing ideas about the causes of powerlessness, recognizing systemic oppressive forces, and acting both individually and collectively to change the conditions of our lives ... It is important to note that, in such a view, empowerment is a process one undertakes for oneself; it is not something done ‘to’ or ‘for’ someone (*Getting Smart* 4).

In other words, posthumanism is only one way to view, to be, to become with, to know the world. Though I work to bring it into our class conversations as I push back against the humanist stories written into the room itself (to offer other stories, other possibilities), it is not a way of knowing-in-being that I can or should impose on students. And to assume they need such imposition—for their false consciousness of humanism to be swept away—is to risk reinscribing the humanist narrative of students as raw materials that need molding into the “right” shape (Lather *Getting Smart*).

Also then, teaching elsewhere is not a particular curriculum but a pedagogical praxis. In other words, though I personally use posthumanist terminology and concepts (e.g. diffraction or intra-action) while teaching my students, I am not, necessarily, “teaching them posthumanism,” either the theory or the way of being. If we assume that, in order for a classroom to “be” posthuman it should be teaching eco-criticism, animal studies, or other posthumanist conversations as we would gender studies or feminism, then we miss the point of teaching elsewhere which is as much a curation↔calibration (an unlearning and recreating) of our pedagogical praxis as it is each unrepeatably classroom-as-phenomenon. Curriculum and content are actants in each phenomenon but not “the” way to calibrate for posthumanist possibilities.

Indeed, without a purposefully observant and vigilant praxis like the one argued for here to facilitate such curriculums, teaching posthuman content or curriculum while leaving the humanist system, spaces, and assumptions/expectations for student learning wholly unchallenged can become its own form of indoctrination and persuasion that still sees students as raw material that can be molded one way or another.

Teaching elsewhere, then, should endeavor to remain about possibilities, about opening up the space for different stories without assuming the onto-epistemology I work from is the only way of being/knowing. It requires vigilance and recognizes that some students don't need to be "taught" how to, as Barad puts it, intra-act responsibly with the world and, in fact, might better teach *us* how to do so. Teaching elsewhere interrupts such assumptions by necessitating that we intra-act with each unique classroom as its own phenomenon including students-as-phenomenon. This is an old concern, one often brought up (i.e. Elizabeth Ellsworth's infamous critique of critical emancipatory pedagogy in the 80s) in reference to the democratizing goal of critical pedagogy and the concern of "freeing" students so that they can become our way, the "right" way. I let an actual indigenous person and scholar speak for herself here:

While it is evident that revolutionary critical theory holds great promise, because it also retains core Western assumptions, it also stands in tension with those central to indigenous pedagogies. Specifically, the radical notion of 'democratization' does not theorize the difference of indigenous sovereignty; revolutionary constructs of subjectivity remain tied to Western notions of citizenship, and insofar as the discourse of revolutionary critical pedagogy is informed by Marxist theory, it retains a measure of anthropocentrism that belies indigenous views of land and 'nature'. (Grande "Red" 235)

Indeed, as I mentioned with the Crakers and resisting using them as a metaphor for indigenous people, posthumanism is not synonymous with indigenous (which are multiple as well) or many other more agential onto-epistemologies. They share similar views on the nonhuman world, but the real productive power I see in using agential realism in particular is that curating↔calibrating creates possibilities, not agendas, and can, through continual, careful, and responsive observation help us build an elsewhere that disrupts the single humanist story with *all* of the stories moving through a diverse and unique classroom, not just the one I want to write. In other words, particularly if we build in ways for students to speak in our archives, teaching elsewhere requires “developing the skills of self-critique ... which will keep us from becoming impositional and reifiers ourselves” while critically examining our praxis to “look for the tensions and contradictions they might entail” (*Getting Smart* 80).

Elsewhere, then, is not a utopia. As Atwood says of her own work like *MaddAddam* which she calls “ustopia” (with possibilities of utopia and dystopia within the other), “it is a place to do maintenance work and minor improvements on whatever *we actually have*” (“Dire” 95)(my emphasis). And, as she points out using Crake and his attempt to “edit” a utopic human in the form of the Crakers, trying to “make things perfect” leads to Waterless Floods in speculative worlds and has led humans down many similar roads in the “real” one too (“Dire” 95). We can’t build perfect posthumanist classrooms. I tried with RRR and, while not a total failure, it was indeed a lesson in how supple humanism and how imposing the university and *I* can be.

Though I *set out* to be perfect—to “make” the classroom posthumanist through extensive research into the conversation and precise planning of how to apply the methods I gleaned—I’ve come through the teaching of two classes, the reading of a cacophony of theories, the sharing of

stages of thought through presentations that received both pushback and productive questions, swimming in my parent's pool, working the ruins with Toby, refusing to become a Spawn from Hell, now believing that what matters *is* the messy uncertainty. What matters is continually becoming-with what, as Atwood said, what *we actually have*. Even if we can't change policy this year or (ever) convince administration to build us sole-purpose rooms open to the outdoors and specifically outfitted for our subject's needs, we can make immediate differences for our students by proliferating the posthumanist possibilities within each classroom, by endeavoring to teach elsewhere even when anywhere is a supple and powerful story.

This means, that despite more traditional connotations of the word, "elsewhere"—as we've used it in this project—is about staying *with* the classroom we're given. And, as Lenz Taguchi and Barad argued in the last chapter, elsewhere is about figuring out ways to teach ethically *from* each phenomenon instead of imposing on it. And while we still work toward systemic change, we also can't get lost in the despair of stories of nightmare futures like *Oryx and Crake's* EduCompounds or leave stories of inert furniture untroubled because a space isn't changeable or lively. We can make a difference here and now, even small ones, even if their possibilities go untapped. As Haraway puts it about "staying with the trouble":

Staying with the trouble does not require such a relationship to times called the future. In fact, staying with the trouble requires learning to be truly present, not as a vanishing pivot between awful or edenic (sic) pasts and apocalyptic or salvific futures, but as mortal critters²¹² entwined in myriad unfinished configurations of places, times, matters, meanings (*Staying* 1).

²¹² Though I've referenced *Staying with the Trouble* in using the term "staying with" the classroom, I've avoided quoting it at length so far because the text and I are unsure how we feel about each other. As I mentioned earlier, in this book, Haraway recalibrates her particular elsewhere to become Terrapolis or the Chthulucene which is not for the posthuman but for compost. And "critters" as used throughout are more lively in general than desks or

And teaching elsewhere is also about being entwined so that our praxis is entangled with life. Praxis is not distinct and separate realms of “teaching” or “theory” or “research” or “practice” but all of the above and more.

In other words, teaching↔as↔inquiry and curation↔calibration *from the classroom for the classroom* follows arguments in post qualitative inquiry that we do some of our best theoretical and speculative work

... washing the car and weeding the garden (the physicality of theorizing), making charts and webs, talking with friends, writing, listening to music, reading transcripts, reading more theory, dozing on the couch, and so forth. The positivism imbedded in qualitative research quickly fails—audit trails can’t capture that work, it can’t be triangulated, and it’s never saturated. (St. Pierre, “Post Qualitative Research” 622)

It involves being and becoming-with the world just as we become-with the classroom. And it believes that sharing the stories of such curation↔calibrations (of staying with the classroom), whether on [a blog](#)²¹³ or in a dissertation or conversation and so on, *matters*.

Though such stories, at this moment of positivist science’s influence in setting educational policy, probably won’t win grants or fundamentally alter university policies, that’s not the point of teaching elsewhere. Teaching↔as↔inquiry and curation↔calibration are about—despite such systems, structures, and policies—making differences in the here and now for each of our classrooms. Teaching elsewhere is about seeing our students as becoming-with

projectors. She doesn’t explicitly leave them out but prefers to work with pigeons, etc., where there are more lively relations. This isn’t a critique but yet another example of the cacophony and the importance of calibration. In this case, I, as I said, respect her wishes and, not ready to leave posthumanism behind, stick with “elsewhere” which, in its beginning, was all about a place made of diffraction patterns that we could build here and now through a more subtle vision. Plus it works with anywhere and nowhere which Terrapolis certainly does not.

²¹³ sarahashelton.com/2018/02/28/desk-8/

the world *and* our classrooms instead of on a pre-determined, civilizing path to becoming human, to stepping through Davidson's portal and losing that last bit of "animal" about them. It's about seeing the classrooms we teach with as intra-active phenomenon where what is and isn't in the assemblage *matters* and changes what is possible. It's about disrupting the humanist narratives written into our classrooms as nowheres and anywheres. It's about trying something different and, therefore, building our own archives like the one begun here that can help us tell better, richer, more complex stories about how students learn when we proliferate the posthumanist possibilities, when we curate↔calibrate elsewhere.

Through putting agential realism as explained in Chapter I into practice and navigating the cacophony of theories on posthumanist education as discussed in Chapter II, we can see several implications from the above conclusions, this project in general, and for future work developing posthumanist pedagogies. First, the use of agential realism allows for a shift in the teacher/professor's thinking that is necessary for opening up posthumanist possibilities and for undoing humanist (pedagogical) habits. That shift is from seeing the classroom as a fully inert, imposed, and cordoned-off space where stable knowledge can be traded between humans to seeing the classroom as a phenomenon of human and nonhuman actants—chosen and imposed—brought together into intra-action (not interaction). This shift allows us to see the classroom as a spacetime-mattering where different actants create different intra-actions and, therefore, different meanings (knowledge-in-being) than another phenomenon and *its* particular actants will create. In other words, in the teacher herself making this shift in how she views both the classroom and how it produces meaning—not as only an epistemological concern (interaction) but as an onto-epistemological doing (intra-action)—she can create, within humanist spaces, the opportunity

(elsewhere) for students to learn as they live: entangled with the world in a continual and emergent becoming-with.

Second, such a shift, particularly while still working in systems and spaces built as humanist anywheres, necessitates that we use some sort of teaching↔as↔inquiry or other observational tool. Such inquiry can make the dynamic flow of agency that is a part of the classroom-as-phenomenon more visible for us. Though I outline my own development and use of curation↔calibration through this project, as well as my use of pedagogical documentation and diffraction, a posthumanist praxis also demands that we work with possibilities and uncertainty and, therefore, that we not try to pin down a generalizable “getting it right.” Teachers/professors should then, through extensive reading and enacting of the kinds of theories discussed throughout this project (and in the larger cacophony) find strategies that resonate with them but that, critically, allow them to see their classrooms and those classrooms’ doings in new/different ways (i.e., the shift mentioned above). Such intentional, sustained, careful, and responsive observation (not only for the collection of data but also for the curation↔calibration of an ethical pedagogy that is responsible for and accountable to *each* individual classroom) builds an archive that we can intra-act with ourselves and, therefore, keeps us moving and adjusting for the classroom instead of wholly stuck in our own plans/goals (or those imposed on us by the larger system).

Third, that movement allows us as teachers to continually question, trouble, and undo humanist habits that have been trained into us and that seem necessary or impossible to change since they are imposed on us from administration or policy. Developing a posthumanist praxis, then, is about unlearning much of what we think about and do with the classroom. Such unlearning takes time and repetition and will never, just like *learning*, be “done.” The shift in

thinking, in other words, is not a onetime move but a continual questioning of and resistance to the supple humanist system, science, policy, society, etc. that creates so many of the possibilities that seem set in stone, or, rather, into the walls of our classrooms. But in making the shift in our own thinking—in developing a posthumanist praxis that considers all actants from curriculum to desks as *matter*ing—and carefully and responsively observing the agential flows/reality this shift allows us to see, we can disrupt those humanist impositions with posthumanist possibilities. This means that, more than adopting a specific metaphor or strategy from those mentioned in Chapter II or in the larger posthumanist education conversation, such doings and undoings, shiftings and inquiries, are critical for developing a teacher's/professor's posthumanist praxis. While we can implement a particular curriculum or think of our students as zombies or ourselves as Spawns from Hell or as Tobys, such content, theories and metaphors can still create and support a humanist praxis and possibilities if an underlying *doing*—praxis—doesn't also work to make a difference, to interfere with the humanist stories of anywhere the university tells our students every day. As teaching elsewhere, this shift and inquiry, this curation↔calibration *does* work to make such a difference. It also helps us to productively defer certainty in a way that allows habits and thinking to emerge, entangled with subjectivity, from phenomena *while* still allowing us to get *something* done here and now. In other words, it entangles theory and practice together in a way that resists humanism's suppleness (settling/certainty) without trying to clean up the "mess" or to harmonize that cacophony that posthumanism depends on.

I come, then, to this particular curation↔calibration of my own praxis and to each (future) classroom (entangled with the past) with humility, uncertainty, skepticism, *vigilance*. In the cacophony, I often (almost always), as Winterson says in the epigraph above, *don't know* what I'm doing, but *with* the classroom we might imagine (and thereby create possibilities for)

better ways to *do now*²¹⁴. Like Toby, I continue to stay with the trouble and work the ruins, and, like Sally, I show up even knowing that I'll always "still" be looking for answers.

²¹⁴ As Lenz Taguchi says, "This makes us aware of the forces of what we call responsibility, so that we can ask ourselves what it is we can do here and now to affect something or someone in a different way in line with an affirmative thinking of unknown potentialities, rather than what we should do in line with the transcendent idea of a higher value to be strived for" (*Going* 176)

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