CHILDREN, AMONG OTHER THINGS: ENTANGLED CARTOGRAPHIES OF THE MORE-THAN-HUMAN KINDERGARTEN CLASSROOM

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CHILDREN, AMONG OTHER THINGS: ENTANGLED CARTOGRAPHIES OF THE MORE-THAN-HUMAN KINDERGARTEN CLASSROOM (338 pp.)

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Although new materialisms are emerging as a force within early childhood studies internationally, there are few studies that blend this onto-epistemology with a reconceptualist, participatory model of inquiry with young children in the U.S. context. This is partially due to the dominance of constructivist worldviews and partially due to the paradox of attempting to blend fundamentally humanistic, "child-centered" practices with a posthuman onto-epistemology that decenters the human from the construction of knowledge. The current study attempted to "make room" (Haraway, 1991) for both a rights-based approach to researching with young children and a radical material agency – specifically Barad's (2003, 2007) notion of *entanglement*.

A post-qualitative method assemblage was activated to attend to the more-than-human entanglements that comprised the classroom relationships of 16 kindergarten children. Through children's and researcher's ways of "being with", "doing photos" and "becoming (with) cameras" within the classroom, they engaged with/in layers of material-discursive data events, constructing visual and narrative cuts of their daily entanglements. A rhizoanalysis was employed to attend to both the delightful and disturbing transformations that emerged between children and "things". These data events are re-presented through four interconnected and multimodal cartographies that highlight the children's perspectives on the workings of popular media, weather, bodies,

toys, nonhuman species, and more. The potentialities for this research are discussed in terms of "being-becoming, knowing, getting along well together, and living well" (Barad, 2014), specifically questioning notions of consumption, self-regulation, research practices, and quality within early childhood classroom settings.

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PREFACE

> I take the posthuman predicament as an opportunity to empower the pursuit of alternative schemes of thought, knowledge, and self-representation. The posthuman condition urges us to think critically and creatively about who and what we are actually in the process of becoming.
>
> – Rosi Braidotti, The Posthuman

Three years ago, I began reading about the *posthumanities* – the exploration of being "without the solace of human exceptionalism" (Haraway, 2010, n.p.) and, in various ways, acknowledging material agency, wherein "agency" is reconceptualized, not as a human trait, but as a flow of intensities or "an entanglement of constitutive human and non-human elements" (Jackson, 2013, p. 743). It was a term I had heard at the conferences I attended, mostly in the field of early childhood education. It was relegated to the margins, sometimes associated with feminisms or technoscience studies or emerging methodologies, like multi-species ethnography. I had heard enough to become intrigued. I subsequently familiarized myself with seminal texts and felt especially drawn to feminist, new materialist philosophers who were theorizing the posthuman. From Donna Haraway's cyborg (1991) to Rosi Braidotti's metamorphoses (2002), the claims being laid to new subjectivities, affirmations of difference, and entanglements were challenging, thrilling even.

As I became more and more invested in the ways in which posthumanist thought could inform my own work with young children and qualitative methodologies, I began to see scholars in early childhood studies putting forth more and more scholarship that

was grounded in posthumanities. Though I owe a tremendous debt to many early adopters of the posthuman perspective in early childhood studies, Hillevi Lenz Taguchi, a childhood studies scholar from Sweden, leveled pedagogical critique that utilized several of Physicist Karen Barad's notions of radical material agency (2003, 2007), alongside many other complex theoretical and philosophical concepts, in a way that made so much sense, yet also made me question almost everything I had previously taken for granted about the interplay between the social and material world of the early years classroom. In the chapters ahead, I follow suit in that I bring Barad's entangled, radical material-discursivity together with select Deleuze-Guattari (1987) philosophical figurations to enact research with young children around everyday materiality in the classroom. In other words, I am positioning myself within the particular posthuman, early childhood landscape that Lenz Taguchi helped me to locate. I am taking Barad's notions material-discursive entanglement as a given. And Deleuze-Guattari helps me to activate these ways of knowing and relating to the world within an ethical, reconceptualized methodological framework with young children.

As I mentioned previously, there were many posthuman ideas that inspired this dissertation, as well as my current theoretical and practical orientations that extend beyond this project. Bruno Latour's (2005) contributions to Actor-Network-Theory gave me different ways to think about connectivity in the social sphere. Donna Haraway's (2003) naturecultures helped me to queer ecology and move toward a more multi-scalar way of thinking. While all of these concepts (and more!) inform my ways of knowing and being, they are just beyond the scope of this work. Many posthuman theorists will

receive brief mentions in the reviews of literature, but their concepts are included in service to the larger goal of contextualizing and/or rationalizing my coupling of Barad and Deleuze-Guattari.

What lies ahead is a different kind of text; it breaks some "rules" in order to engage the reader or re-present data in ways that align with its theoretical framing. And so as a preface to this dissertation, there is one posthuman notion that I will briefly bring to light for the purposes of setting the appropriate tone for the reader. Andrew Pickering, a sociologist of science practices, described what he called *the mangle* (1993, 1995). The mangle is an image of science practice "as an evolving field of human and material agencies reciprocally engaged in the play of resistance and accommodation" (Pickering, 1993, p. 567). In the mangle, human and material agency are temporally emergent and as such how these agencies will be enacted can't fully be predicted ahead of time. We can only cope with the interplay of resistance and accommodation that emerges in real time.

Feminist philosopher Susan Hekman (2010) applies the metaphor of the mangle beyond science practices to the ways in which the political/social/cultural and the material are inextricably bound up together in everyday doings. For Hekman, the metaphor of the mangle entails the kind of emergence, inseparability, and mutual constitution that have come to characterize material feminist approaches to knowing-being within a posthuman sphere. "We are, all of us, every day, in the mangle" as resistance and accommodation – the push-pull between material bodies and discourses – (re)shapes "what we know and how we know it" (p. 26).

Recently, Alecia Youngblood Jackson, a scholar in curriculum studies and

research practices, articulated the quandaries that the mangle – as a metaphor for the kind of onto-epistemological encounter that Hekman describes – brings to bear upon qualitative research:

> If both human and non-human agency is temporally emergent in real time, in real practice, then what exactly happens in the mangle? How do we go about analyzing the play of "resistance and accommodation?" In a postcoding, post-qualitative frame, how does the mangle move us into a different way of thinking about social inquiry, mutually constitutive practices, and posthumanist ontology? (2013, p. 744)

While I don't lean on the metaphor of Pickering's mangle in the chapters that follow, keeping "resistance and accommodation" in mind will be helpful for the reader moving forward in this text. The reciprocity between resistances and accommodations – from the theoretical and philosophical grounding, to the ethical considerations, to the everyday enactments in the field, to the analysis and re-presentation of data – typify researching and dissertating within a posthuman space. For example, locating myself in the posthumanities and assuming a radical materiality pushes me toward a decidedly anthropocentric endeavor, but working towards an equitable and ethical research frame with young children also makes for what some might call "child centered" practice. Indeed, in the process of carrying out the research for this dissertation, I was asked on more than one occasion some version of the following: *But are you really interested in children or things?* Without an understanding of the inseparability of the material and social world, my usual answer of "*yes!*" could be seen as vague. But when all ways of

knowing, all practices of research, and any and all becomings are understood as/in *the mangle*, it becomes reasonable to settle into these spaces of seeming contradiction. At its core, the work that follows seeks to locate and embrace these omnipresent, often messy resistances and accommodations so what lies ahead can be about both children *and* things, about theory *and* practice, as the contours are "all reconfigured at once" (Pickering, 1993, p. 585).

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CHAPTER I

INTRODUCTION

The field of early childhood tends to be conceptualized though different philosophical or theoretical lenses and these lenses set the constraints and possibilities for conceptualizations of a social, emotional, cognitive and/or material classroom world. Within educational contexts specifically, dominant theoretical frames impose an ontological and epistemological gap between subjects and objects that limits conceptions of the material to mere "objects for human utility, onto which humans project meaning or symbolic value" (Tipper, 2011, p. 149). Within both cognitive constructivist curricular approaches (e.g., DeVries, 2002; DeVries & Zan, 1994; DeVries, Zan, Edmiaston, & Sales, 2002; Shapiro, 1994; Zan & Geiken, 2010) and more socio-cultural constructivist approaches (e.g., Edwards, Gandini & Forman, 1993, 1998, 2012; Wurm, 2005), non-human matter exists in service to particular conceptions of learning, explicit curricular priorities, and pedagogical purposes as an object and tool (Lenz Taguchi, 2010). The learner-object or learner-tool interaction is not necessarily a relationship, as only one agent (the child) is capable of exerting constitutive force while the other remains a passive recipient.

When the focus is broadened to include the role of the material in child development more generally, children having "relations" with non-human organisms and things/objects have typically been examined with regard to psychological development and/or psychosocial competencies/pathologies. Studies have primarily focused on the links between children's attachments to non-humans, usually preferred objects and pets.

Connections are made between this attachment and characteristics of mental health, familial relations, and parenting practices, and/or individual personality traits (e.g., Bachar, Canetti, Galilee-Weisstub, Kaplan-DeNour, & Shalev, 1998; Boniface & Graham, 1979; Green, Groves, & Tegano, 2004; Lehman, Holtz, & Aikey, 1995; Litt, 1981, 1986; Markt & Johnson, 1993; Passman, 1987; Passman & Weisberg, 1975; Steir & Lehman, 2000; Triebenbacher, 1998; Winnicot, 1953). These studies are rooted in various psychological theories of attachment and self-actualization, in which children are theorized to form attachments to *transition objects* as an essential part of maturation (Litt, 1986; Winnicot, 1953). The transition object is considered a "developmental facilitator, which may acquire different qualities and serve different psychological functions as the child moves toward physical and emotional independence" (Litt, 1986, p. 383). Thus, within these perspectives, material attachments are seen as facilitating development of self, but children's intense and intimate relations with non-humans are something they (should) outgrow, lest normal development be impeded. Matter is conceptualized as affecting children only insofar as it is inscribed with a temporary, psychosocial meaning (James, Jenks, & Prout, 1998; Prout & James 1997; Tipper, 2011).

Can Matter Matter?

Within in the past three decades, philosophical and political shifts largely outside of the early childhood realm have afforded new conceptions of human-material relations. The material turn has moved toward theorizing matter, not as a passive thing merely constructed or represented by social processes, but as an agential, mutually constitutive force (Alaimo & Hekman, 2008; Barad, 2003, 2007, 2008; Braidotti, 2002; Bennett,

2004, 2010; Coole & Frost, 2010; Hekman, 2010). *New materialisms* are a range of posthuman, meta-disciplinary perspectives that engage with the onto-epistemology of matter, which re-fuse these matter/discourse, nature/culture, and human/non-human binaries. These ways of thinking and doing animate "a world that is much bigger than us (humans) and about more than our (human) concerns" (Taylor & Giugni, 2013, p. 48). That is, humans alone do not create the world or the relationships and meanings therein and so space is opened for matter to matter in different and often confounding ways. All material bodies — human and more-than-human alike — are phenomena-in-relation emerging through a kind of intra-action that is both *material* and *discursive* in nature (Barad, 2003, 2007, 2008). There is no longer a hierarchy between the meaning-making subject and the passive object, as all being and knowing is *entangled.* Karen Barad (2007) defines entanglement thusly:

> To be entangled is not simply to be intertwined with another, as in the joining of separate entities, but to lack an independent, self-contained existence. Existence is not an individual affair. Individuals do not preexist their interactions; rather, individuals emerge through and as part of their entangled intra-relating. (p. ix)

A reality that takes material-discursive entanglement as a given decenters particularly privileged notions of knowledge and agency; it is no longer adequate to theorize a social world made of, by, and for humans alone.

This reappraisal of the material world has given scholars novel possibilities for thinking and doing differently, most especially with regard to articulating the mutual influence and agency of the material and the social (Alaimo & Hekman, 2008). Because

of this agential conception of the material and the onto-epistemological focus on relationality over hierarchy, the world of matter, objects, and things is not conceptualized as less-than-or non-human, but as *more-than-human* (Haraway, 2008). This purposeful rhetorical move recognizes both the constitutive power of discourse (i.e., the labels we give to concepts have power) and an intellectual departure from conceptualizing discourse as the *only* constitutive force (i.e., humans aren't the center of things and, so, the human/non-human binary and the implicated hierarchy doesn't hold). New materialisms recognize that matter *matters* (Barad, 2003).

Research that exists at the intersection of these new materialisms and early childhood education is emerging, but not plentiful due to several factors including the paradoxes present in merging the two perspectives due to the pervasive nature of a constructivist worldview within the field early childhood (Lenz Taguchi, 2010). It is a challenge to see children de-centered from meaning making and doing. It is a challenge to see the blocks, paint, clay, and all of the other "things" of early childhood education as more than tools whose doing is that of human construction alone. Within this challenge, though, lies an opportunity to see things differently and to gain "access to unanticipated relations of power, opportunities for connection, and ways of knowing and becoming" (Bradley, Sumison, Stratigos, & Elwick, 2012, p. 151). Indeed, it has been argued that it is "timely for early childhood scholars to make a greater contribution to broader 'more-than-human' or post-humanist conversations that have been gathering momentum in the social sciences over the last couple of decades" (Taylor, Pacini-Ketchabaw, & Blaise, 2012, p. 81).

Purpose of the Study

This dissertation is representative of a turning towards a radically different philosophical, theoretical (and, thus, ethical and methodological) landscape wherein the material of children's classroom worlds is active and agential and children's relations with "things" are mutually constitutive. Informed by a new materialist onto-epistemology that works to dissolve dichotomies that have traditionally relegated the non-human elements of school experience to mere learning objects, material tools, or social constructions (Hultman & Lenz Taguchi, 2010; Lenz Taguchi, 2010), a post-qualitative methodology (Pierre, 2011, 2013; Lather & St. Pierre, 2013) was enacted. The research re-presented herein worked to both mobilize and map more-than-human relations within one kindergarten classroom over the course of one school year in a way that both carefully considered children's own participation and perspectives *and* worked to resist ***anthropocentrism*** – "the view that human beings are primary and central in the order of things" (Steiner, 2005, p. 1), especially the creation of knowledge and the possession of agency.

From conceptualization to actualization, the fundamental consideration of this research was how the human and more-than-human make themselves known to each other through various material-discursive events and how each emerge differently over time through these acts of mutual intelligibility (Barad, 2007). In order to notice the possible ways in which these processes were situated within a particular classroom, I asked myself and the children, in various ways:

- What are young children's perspectives on their more-than-human relationships within their particular early childhood classroom context?
- How do these relations emerge and change over time as children and the material engage each other?

But even as these "research questions" narrowed the scope of inquiry, I acknowledge that is an impossible task to "to fully understand, organize or capture the essence of these material-discursive intra-activities" (Hultman & Lenz Taguchi, 2010, p. 540) and, so, the goal was only to attend to emergent events that both comfort and contradict, and in so doing make new lines of connection, move toward unthought-of possibilities for relations within an early childhood classroom.

A Guide to the Chapters

Chapter Two presents a review of selected literature related to the ways in which the material is conceptualized within early childhood education. It should be noted that in this chapter and beyond, *the material* includes but is not limited to the body, nature, matter/objects, things, and the otherwise "real", which have been conceived by humanist or Cartesian logic to be lesser than, apart from, or otherwise inferior to human subjectivity/construction (Alaimo & Hekman, 2008; Coole & Frost, 2010; van der Tuin & Dolphijn, 2010). Although this initial definition of terms is necessary, positioning the material as polar to the knowing subject, to the mind, to the human, to the discursive, and to the cultural, reveals a paradox: to think or write about matter using available terms immediately defines it as something it is not. Coole and Frost (2010) state:

> As soon as we think about matter, we distance ourselves from it, and within the space that opens up, a host of immaterial things seem to emerge: language, consciousness, subjectivity, agency, mind, soul; also imagination, emotions, values, meaning and so on. These have typically been presented as idealities fundamentally different from matter and valorized as superior to the baser desires of biological material or the inertia of physical stuff. (p. 2)

However unavoidable this paradox, it is rhetorically useful in demonstrating the stubborn humanist binaries that sever body from mind, nature from culture, being from knowing, and matter from discourse. Reaffirming or resisting these binaries is central to the literature explored in this chapter; Dominant constructivist educational perspectives in early childhood education tend to implicitly and explicitly reaffirm them, while new materialist perspectives in early childhood studies work to resist them.

Chapter Three presents an overview of the post-qualitative methodology that was put to work in this study. Inherent to this post-qualitative mode was working through/with various tensions and contradictions between the posthuman ontological assumptions that ground this project and the humanist epistemological assumptions that typically guide qualitative research methods. For example, this work is informed by reconceptualized understandings of children's participation in research (Farrell, 2005; MacNaughton & Smith, 2005; MacNaughton, Smith, & Davis, 2007; Clark, Kjørholt, & Moss, 2008; Jipson, 2000; Rinaldi, 2005, 2008; Soto & Swadener, 2005), as well traditions in visual ethnography (Collier & Collier, 1986; Pink, 2013; Rose, 2007). At the same time, my posthuman, post-qualitative perspective requires that I interrogate the

very notions that my methodological informants hold dear (e.g., voice, subjectivity, seeing, reflexivity, documentation, data, and interviewing, to name a few). This chapter provides a review of these contentious intersections, as well as an explanation how "plugging in to" Deleuzian philosophy can produce "new ways of theorizing and performing" research both with new materialisms and young children in mind (Lenz Taguchi, 2012, p. 268). Specifically, the Deleuze-Guattari (1987) philosophical figurations of the *rhizome* – the unruly mass of connections without beginning or end – and the *assemblage* – the context in which multiplicities emerge in functional relation – afforded a research performance that was generative, flexible, and fluctuating.

Chapter Four animates my continued "dabbling and playing in the pool" (Honan, 2014, p.12) of this post-qualitative moment where there's no prescription for what re-presentations of data should look like, sound like, feel like, or be like. I have chosen to subvert the expectation for a fourth chapter that simply presents "analysis" or "results" with a series of interrelated *cartographies*. Recently, cartographies have been used for both genealogies of new materialist theory formation and praxis (Dolphijn & van der Tuin, 2012) and Deleuzian accounts of educational becoming (Masny, 2013). Rather than labeling and categorizing data segments into a static, hierarchical structure, cartographic formations are suggestive of movement and give shape to "how the event unfolds according to the in-between, according to intra-action" (Dolphijn & van der Tuin, 2012, p.113).

The cartographies re-presented in this chapter are formed from an assemblage of data events and were partially produced in conjunction with children during fieldwork,

and partially produced in assembling of this dissertation after the fieldwork had concluded. They outline the contours of relational, material-discursive classroom encounters, mapping connections and disruptions that emerged between young children and the material. Inherent to cartography is an expectation that one must "start in the middle to look for what emerges in the connections among these different fields and flows" (Lenz Taguchi, 2013, p.714). There are no Truths to be uncovered in these cartographies – only movements and doings that emerge between children, the material, myself, the apparatuses of the research, the re-presentation of the data, and, now, the reader. To this end, the cartographies themselves are presented in no particular order and reader is encouraged to explore these cartographies however she is moved to do so.

Chapter 5, rather than conclude with any prescriptions for theory, research, or practice, outlines the *potentialities* that were/are activated within these research enactments with regard to what Barad (2014) claims are the ethical and onto-epistemological questions at stake: being-becoming, knowing, getting along well together and living well. Conceptualizing the possibility of research through these particular potentialities draws upon the major influences of this work – Barad, Deleuze-Guattari, and Lenz Taguchi. Instead of making claims to what "should" be done in response to this research, this final chapter articulates possibilities for how we might live in the afterward.

CHAPTER II

LITERATURE REVIEW

Material Relations in Different Theoretical Planes

In common educational parlance, materials can be taken to mean matter and objects, including everything from learning materials (e.g., blocks, paints, musical instruments, etc.) to physical characteristics of the educational environments (tables, chairs, plants, etc.). How are children's relations with these "things" conceptualized within early childhood education? The answer is not simple because, to paraphrase Bennett (2010), the way these "things" figure into learning processes and practices is at once philosophical and political. That is, while philosophy explicitly articulates concepts, it also implies the suitable and intelligent uses of those concepts. We can think of the material as one such concept, with underlying philosophical implications about what is real and what is knowable, as well as political aspirations about what is best and what is sensible. As such, the particular ontologies and epistemologies of early childhood education have outlined possibilities and constraints for conceptualizations of the material and child-material relations. In the sections that follow, how materials are explicitly conceptualized and implicitly valued within early childhood curricular approaches, and, thus, in the epistemological and ontological insights that inform them, will be examined.

Although the field of early childhood education is diverse and the perspectives therein are multiple, *constructivism* can be identified as a dominant worldview within early childhood education within the United States, as various learning theories grounded

in constructivism comprise educational applications that have come to be designated as early childhood best practices (e.g., Copple & Bredecamp, 2009). How material relations are conceived within constructivist approaches will be discussed in depth, along with an examination of the underlying (and less often articulated) ontology that grounds these material notions, as well as the limitations this ontological grounding imposes. Material notions within constructivist approaches will be contrasted with the role of material in an emerging intra-active early childhood pedagogy (Lenz Taguchi, 2010) that is grounded in a new materialist onto-epistemology.

Child-Material Relations: Constructivism

These days we do not believe that individuals come into the world with their 'cognitive data banks' already pre-stocked with empirical knowledge, or with pre-embedded epistemological criteria or methodological rules. Nor do we believe that most of our knowledge is acquired, ready-formed, by some sort of direct perception or absorption.

What is Constructivism?

According to Phillips (1995):

> Undoubtedly humans are born with some cognitive or epistemological equipment or potentialities (the nature and degree of which the experts in developmental psychology still dispute) but by and large human knowledge, and the criteria and methods we use in our inquiries, are all constructed. Furthermore, the bodies of knowledge available to the growing learner are themselves human constructs-physics, biology, sociology, and even philosophy are not disciplines the content of

> which was handed down, ready formed, from on high; scholars have labored mightily over the generations to construct the content of these fields, and no doubt 'internal politics' has played some role. Thus, in sum, human knowledge — whether it be the bodies of public knowledge known as the various disciplines, or the cognitive structures of individual knowers or learners is constructed. (p. 5)

The passage above presents a general view of epistemological positions that reside under the rubric of "constructivism". Constructivism is a worldview that considers knowledge, whether it is in the mind of the individual learner, or whether it is a shared, public knowledge, to be a process influenced by "the minds or creative intelligence of the knower or knowers, together perhaps with the 'sociopolitical' factors that are present when knowers interact in a community." (Phillips, 1995, p. 7)

Constructivism in Early Childhood Education

It is from this epistemological origin that theories about how one comes to know (e.g., learning processes) have been developed and then translated into educational practices or curricular approaches (i.e., constructivist practice or constructivist approaches). Drawing broadly from constructivist learning theories of Piaget and Vygotsky, Brooks and Brooks (1999) and Windschitl (2002) posit that "constructivist" classrooms adhere to the following universal principles:

- Curriculum is presented whole to part with an emphasis on "big ideas".
- Students pursue questions/investigation, or other meaningful problem-based activities.
- Active engagement in both individual and social realms is promoted through

dialogue, reflection, and collaboration.

• The teacher is placed in a guiding role, mediating learning with a variety of conceptual and material tools.

• New knowledge is constructed by elaborating upon or restructuring prior knowledge.

• Both teachers' and students' thinking processes are made explicit through dialogue, writing, drawings, or other symbolic representations.

• Predetermined "right" answers are not a focus; reasoning, predictions, and explanations based on evidence are valued.

• Assessment of understanding involves a variety of authentic strategies, including feedback on thinking processes and products.

It is important to note that within constructivist classrooms teachers are responsible for creating the context for inquiry, collaboration, and understanding through acts of social and material mediation (Brooks & Brooks, 1999).

In order to elaborate on constructivist applications to childhood curricular approaches more specifically, I offer a brief visual organization of some basic constructivist tenets regarding human development and learning and their contributing theorists, as well as examples of educational applications within early childhood education (see Figure 1). The purpose is not to provide an exhaustive account of the theoretical and practical considerations that comprise varying conceptions of "constructivism", as constructivist learning theories have had a considerable impact on the field of early childhood education. As any brief review does, this inevitably

overlooks some nuances of constructivist theories and applications, but the goal in presenting information in Figure 1 is three-fold. The first purpose is to succinctly identify fundamental tenets about learning that many "constructivists" would endorse and that have broadly influenced early childhood educational practices. The second is to point out that constructivist epistemology encompasses theories of learning and development, but does not necessarily prescribe pedagogical craft. That is, constructivist theories must be applied to teaching/educational practices. The third is to illustrate that, for the purposes of this paper, constructivism is conceptualized as a rubric under which a continuum of theoretical positions exist.

Indeed, as Figure 1 illustrates, different "poles" of constructivism do have different emphases, with one focusing on the individual's constructions of increasingly complex knowledge and the other focusing on participatory learning relationships/communities (Packer & Goicoechea, 2000). Despite these differences, many have argued that understanding sociocultural constructivism and cognitive-developmental constructivism as oppositional perspectives is not a helpful endeavor (Cole & Wertsch, 1996; Greeno, 1997). To them, Piaget and Vygotsky are not opponents, as each had considerable interest in both individual and social aspects of learning. van der Veer and Valsiner (1994) state:

> As a consequence of both their reciprocal interests and their metatheoretical closeness, Piaget and Vygotsky can reasonably be offered as alternative poles of a broadly unified approach to developmental inquiry: Piaget's intrapsychic inquiry functions in the context of the Vygotskian interpersonal action, as Vygotsky's

interpersonal inquiry functions in the context of the Piagetian intrapsychic action. (p. 6)

Perhaps most importantly for the purposes of the proposed study, when an analysis of material conceptions and uses within constructivist applications in early childhood curriculum is rendered, the different poles of the epistemological continuum are more alike than not. Despite how points along the continuum are translated into different curricular approaches, they share many beliefs and practices with regard to the material. As will be explored in the following sections, there are differences in emphasis and vocabulary, but a psychological/socio-cultural dichotomy does not necessarily hold for materiality in terms of ontology.

For the purposes of this review, both cognitive-developmental constructivist curriculum, as conceptualized largely by the joint and individual scholarship of Rheta DeVries and Betty Zan and exemplified under the rubric of Developmentally Appropriate Practice (DAP) (Copple & Bredecamp, 2009) in the United States, and socio-cultural constructivist curriculum, as implemented in the municipal schools of Reggio Emilia (Gandini, 1993, 2004; Malaguzzi, 1993) and interpreted and applied increasingly to early childhood programs in the United States (Grieshaber & Hatch, 2003), will be described with regard to children's interactions with materials in the context of learning or knowing. This discussion will be organized into two dimensions: material environments/spaces and learning objects/materials. Finally, these curricular approaches will be examined in terms of how their often-implicit *ontology,* or claims made to the nature of *being* (Heidegger, 2000)*,* imposes limitations for materiality in early childhood

Continuum of "Constructivism"	Learning Theorists	Main contributions	ECED Applications	Curricular Emphases
A **Cognitive Learning Theory** concerned with the internal structure of concepts. Learning is *individual*, yet *contextually influenced*. The unit of analysis is individual *knowing* (Cobb, 1995; Smith, 1995).	Piaget (1923/1962,1952, 1954/1981, 1971)	Children are both mentally and physically active in the construction of knowledge. Knowledge is attained though dynamic processes of assimilation, accommodation, and equilibration, and the construction and internalization of action schemas. Play and experimentation allow for the assimilation of intellectual realities. Self-governance/moral autonomy and cognitive development develop in concert.	Intellectual, affective, and sociomoral development are integrated in educational programs informed by ethical and cognitive universals. Methodological principles include: action, interest, play, experimentation, appropriate work, autonomy, and cooperation. (DeVries & Kohlberg, 1990; DeVries & Zan, 1994; DeVries, Zan, Hildebrant, Edmiaston & Sales, 2002) ,	Play Guided Discovery Problem Solving Cooperative Learning Critical Thinking Intrinsic Motivation Collaboration Reciprocity Metacognition Authentic Tasks Community of Learners Cultural Relevance School-Family Partnership
	von Glasersfeld (1989, 1990,1995)	Cognitive effort of the individual results in the construction of knowledge. Knowledge is the result of a learner's activity rather than that of the passive reception of information.		
	Kelley (1955, 1963)	Within a child's personal construct system, experience is continually reconstructed through language or "talk" about the experience and about him/herself in relation to the events.	Accepting and valuing what children have to say acknowledges relativity. Listening, not just observing, will contribute significantly to adults' understanding of children's thinking and actions. (Shapiro, 1994; Katz & Chard, 2000).	
	Bruner (1960, 1978) Wood, Bruner, & Ross (1976)	Children can access more complex meanings through cognitive support or "scaffolding"—the steps taken to temporarily reduce the degrees of freedom for error in a cognitive task.	Mediated, *reciprocal* teaching methods wherein teachers assist children in learning the material, then guide them in teaching the material to others while slowly fading assistance (Brown & Palinscar, 1989). Increased attention paid to teacher role in mediation, facilitation, posing problems, and structuring of environment (Berk & Winsler, 1995; Wertsch, 1991). Teachers 'arm' young children with 'tools of the mind' through scaffolded language/literacy activities and contexts meant to facilitate self-regulation and dramatic play (Bordrova & Leong, 1996; Mercer, 1994)	
	Vygotsky (1930/1978, 1931/1966, 1933//1978, 1934/1986, 1935/1978)	Learning is a culturally and historically situated activity of socially mediated meaning making. Mastering the culture's symbolic and metacognitive tools for thinking (e.g., language) drives development of higher mental functions. Learning with assistance is necessary and the limits of one's problem solving or learning can be expanded if provided cognitive support by a more knowledgeable/experienced other (e.g., zone of proximal development (ZPD) as relational learning context.		
A **Socio-Cultural Learning Theory** concerned with the context of concept acquisition. Learning is s*ocial*, and *contextually based*. The unit of analysis is activity in context and shared (or taken-as-shared) *knowledge* (Cobb, 1995; Smith, 1995)	Neo-Vygotskians: Rogoff (1991, 1993, 1995,1998) Rogoff & Lave (1984) Rogoff & Wertsch (1984) Lave (1988) Lave & Wenger (1991) Scribner (1997)	Knowledge is shaped by micro-and macro-cultural influences. Learning exists in dialogue with culture and evolves through participation, construction of identities, and apprenticeship within different communities of practice. Development and learning occurs within three planes of interaction (e.g., interpersonal, the intrapersonal and the community/institutional).	Educational contexts and practices should align with children's communities of practice and/or build on prior knowledge (Moll & Greenberg, 1990). Classrooms-as-communities facilitate understanding and motivate students to learn (Brophy, 1998). Pedagogical decisions are informed by teacher's knowledge of particular children and the school context, and with input from family and community members (Fleer, 2002; New, 1999)	

Figure 1. Continuum of constructivist applications to early childhood education.

classrooms.

Material in Constructivist Approaches

Constructivism broadly states that children construct knowledge and values from interactions with the social world and actions upon the physical world. The following descriptions of material conceptions and uses from key texts are intended to be accurate portraits of how matter matters in constructivist classrooms as children are engaged in "building their own theories and constructing their own knowledge through interaction with a knowledgeable adult and other children" (Chaillé, 2008, p. 5).

Material environments and spaces. Although *environment* can have multiple meanings, in the descriptions that follow I will use the word to mean physical surroundings within classrooms, including a) physical structure (e.g., size, walls, flooring, windows, lighting, doors, colors, and texture); b) objects within the space (e.g., children's works, moveable furniture, plants, and décor) or; c) arrangement of these structures, objects, and activities within the space (e.g., spatial relations and proximities) (Katz & Inan, 2007). Depending on how they are conceptualized, these constructivist environments can also encompass immaterial attributes, such as emotions, values, and identities. For example, a toy shelf that is neatly organized is inscribed with a certain sense of human care for the objects, as someone has taken the time and thought to create a careful arrangement. For the purposes of this paper, *spaces* can be generally taken to mean a physical environment that is inscribed with these more intangible qualities.

Cognitive-developmental approaches. Within cognitive-developmental constructivist curricular approaches, the particular environment of the classroom is

viewed as corresponding to research on children's stages of development, as a prerequisite for establishing the broader learning context, and as an arrangement that can facilitate particular competencies (DeVries, 2002; DeVries & Zan, 1994; DeVries, Zan, Hildebrandt, Edmiaston, & Sales, 2002; Copple & Bredecamp, 2009). A major consideration in the developmental-cognitive approach is that the environment be appropriate for the developmental stage of the children who will be utilizing it. Even though they recognize that individual children of the same age will have somewhat differing capacities, teachers adopting a cognitive-developmental approach are expected to make informed choices about how to prepare the environment based on the notion that physical, cognitive, and socio-emotional development generally proceed in a predictable sequence (DeVries & Zan, 1994; Copple & Bredecamp, 2009) and, thus, some materials are more appropriate than others for children of particular ages. For example, scale is considered for material selection both in terms of size relative to children's bodies (e.g., child-sized chairs and tables) and size of material parts relative to children's developing skills and knowledge (e.g., thicker writing implements or puzzles with larger pieces). Different environments entirely may be chosen for different children depending on developmental stage, such as providing play mats and tunnels for infants, as opposed to providing higher climbing structures and balancing beams for older toddlers and preschool-aged children. In these ways, the developmentally appropriate environment provided by adults is also "characterized by physical comfort" and safety (DeVries & Zan, 1994, p. 59), a basic human need that, when met, allows children to advance in interrelated but higher-order domains for emotion and cognition (DeVries & Kohlberg,

1990; DeVries & Zan, 1994).

The material environment also facilitates certain socio-moral and intellectual competencies through the specific ways in which children are able to act upon it. The physical organization of a classroom environment should promote social interaction and communication, but reduce unnecessary conflicts (DeVries & Zan, 1994). In an ideal classroom, children should also feel ownership over its physical attributes — from the décor (e.g., children's writings, projects, and drawings) to the objects within the classroom. This serves two interrelated purposes. First, it encourages children to see the classroom as their own, making it more likely that they will use objects within in the room as learning tools for their own purposes and experimentations. Second, when children use particular materials frequently, they develop feelings of responsibility for the organization, distribution, and care of materials, which, in turn, facilitates a cooperative community atmosphere (DeVries & Zan, 1994).

Although it might seem that the environment is given some agency here in that it influences the children's development, the physical environment is seen more a static prerequisite or as tools that set the literal scene for learning. It is implied that the environment is able to impact the children in both tangible and intangible ways, yet the ways in which children act upon the environment directly and indirectly in order to advance skills and competency are the focus. Physical surroundings are seen a means to establishing a proper atmosphere or as a tool through which to develop particular autonomous competencies (DeVries & Zan, 1994).

Reggio approaches. Gandini (1998) states that it is "though shared activity,

communication, and cooperation, and even conflict, that children co-construct their knowledge of the world, using one child's ideas to develop another's or to explore a path yet unexplored" (p. 167). Like cognitive-developmental approaches, material environments within the more sociocultural approach of Reggio schools are designed and modified to promote quality human interactions that are seen as essential to knowledge construction and cognitive development. In addition, the Reggio approach is similar to more developmental-cognitive constructivist approaches in that the organization and scale of the physical environment ideally reflects the particular life stage of the children who will utilize it. For example, when designing environments for infants who spend much of their time lying or crawling, greater attention must be paid to floors, lower portions of walls, and even ceilings (Rinaldi, 1998b). However, in the Reggio approach, there is a greater focus on the conceptualizing of environments not just as functional, developmentally appropriate places, but also as cultural spaces that communicate values and meanings through the social relations they facilitate (Ellis, 2002, 2003, 2004, 2005).

Space as cultural communication. Gandini (1998) describes the material characteristics of classrooms as reflecting "(the children's) personal lives, the history of their schools, the many layers of culture" (p. 175). For example, values of the particular school are represented through particular functional aesthetics – design elements that pay attention to both comfort and beauty (e.g., natural light sources, high ceilings that afford installation of hanging sculptures, etc.). The cultural practices and products of the Emilia Romagna region are represented materially not only through locally sourced goods and foods that are utilized daily, but also through the design elements that reflect priorities of

urban Italian culture, such as common meeting spaces or piazzas. In addition, the particular social histories of the children and families in the school are represented though displays of paintings, sculptures, or collections. Gandini (1998) states:

> With these principles in mind, they have found many ways to make the space more than just a useful and safe place in which to spend active hours. Rather, they have created spaces in their infant-toddler centers and preprimary schools that reflect their culture in general and the histories of each center in particular. (p.163)

In these ways the space carries an evolving message of value of both individual contributions and group processes (Gandini, 1998; Malaguzzi, 1993; Vichy, 1998). The physical space can be defined as a language that speaks these cultural values by way of a physical code that we interpret through a multisensory comprehension and utilize in the construction of knowledge or formation of thought (Rinaldi, 1998b).

Space as teacher. Educational spaces are conceptualized the "third teacher" in Reggio, along with the teacher and the children (Edwards, Gandini, & Foreman, 1998). The idea of the environment as a teacher draws on the notion of space as conceived of both as a container and as content (Gandini, 1993, 1998). Educational spaces are planned and arranged in accordance with specific cultural values and are simultaneously inscribed with and capable of communicating those values. In other words, it is another way of conceptualizing the environment as cultural communication.

Although it is not apparent that the phrase is meant figuratively, Reggio's logic of space described in the previous section can't allow "environment as third teacher" to be

much more than a metaphor. For example, when natural light from a window passes through a grouping of clay sculptures arranged by shape on the sill to create a pattern of shadows on the floor, the space is seen as potentially "teaching" the children several things about the physical properties of light and clay, as well as serving as a provocation for imagining countless other investigations. However, because no part of the physical environment is considered marginal (Gandini, 1998), nearly every aspect of the material environment within the school is seen as a purposefully arranged expressive medium, communicating a "nexus of well thought out decisions" on the part of (human) teachers (Gandini, 1998, p. 175). That is, what the environment teaches is a byproduct of careful environmental planning on the part of adults, from the installation of the windows to the choices made in arranging the sculptures in a pleasing way on the sill. The environment doesn't literally teach because it cannot intentionally make reflective and critical pedagogical decisions about itself. The material surroundings don't communicate their *own* values. It is more accurate to say that the human teacher utilizes the environment as a communicative medium for a "combination of meanings and values" (New, 2007, p. 52). Thus, it is able to communicate messages and values symbolically much in the way language adopts words and gestures as symbolic communicative vehicles. The material environment plays a critical role in "determining what is feasible, desirable, and preferable" (New, 2007, p. 52) because it is inscribed with values and communicates them through a kind of cultural performativity.

Learning objects and materials. Again, the semantic preferences of cognitive-developmental approaches and the Reggio approach can give initial insight into the ways

in which learning objects/materials are conceptualized. When describing the role of physical stuff in children's learning, the term *objects* seems to be preferred by cognitive-developmental approaches. The physical aspects of learning objects are viewed as being acted on or experimented with, with a set of predictable attributes that allow children, the subjects, to (re)construct reasoning. The term *materials* is more frequently used in the Reggio approach, alluding to the ways in which these physical substances yield to children's intentions and to the ways in which teachers build understanding of children's learning through interpretations of artifacts. They are seen as tools, as the raw fibers that children use to weave knowledge and that teachers use to construct relational context, effectively becoming a part of that knowledge in the transformation.

Cognitive-developmental approaches. The roles of learning objects can are multiple within this approach. For the purposes of this paper, they will be organized through Piaget's (1954/1981) principles of *cooperation, interest, and experimentation*.

Cooperation. A cooperative socio-moral atmosphere in the classroom provides the ideal milieu for children to act upon "the object world" (DeVries, 2002) or "the world of objects" (DeVries & Zan, 1994) in ways that advance cognitive development. Even though the socio-moral atmosphere is not the focus of this paper per se, it is important to point out the connection between the socio-moral atmosphere and children's understanding of the world of objects within this constructivist approach. From this perspective, understanding — whether it be about self and others or material things — is a matter of developing and asserting particular types of reasoning. This reasoning cannot be developed without sustained interest, learner experimentation, and an atmosphere of

cooperation that facilitates both (DeVries & Zan, 1994; DeVries & Sales, 2011). A cooperative atmosphere permits children and teachers to act upon objects and materials in various ways and this enables construction of the systematic, classificatory knowledge that underlies all perception, conceptualization, decision-making, and inferencing (Bruner, Goodnow, & Austin, 2009).

Interest. DeVries and Kohlberg (1990) describe interest as a condition that "performs a regulatory function, freeing up or stopping the investment of energy in an object, person, or event" (p. 25). Drawing from Piaget's (1954/1981, 1969/70) theories of mental activity that place learner interest as "the fuel that drives the motor… much like gasoline powers an engine" (Zan & Geiken, 2010, p. 14), cognitive-developmental constructivist approaches value materials for their ability to invite and sustain a child's interest. Whether or not an activity will be interesting is difficult to predict and depends on a variety of factors (DeVries & Kohlberg, 1990). For example, a child's interest in a particular activity is influenced by his/her individual stage of development and disposition — the "relatively enduring habits of mind or action, or tendencies to respond to categories of experience across classes of situations" (Katz, 1985) that are influenced by positive and negative experiences as well as individual competencies and preferences (Bruner, 1996; Smith, 1990).

As "most young children lack the self-regulation to pay attention when they are not interested in something" (DeVries & Sales, 2011, p. 14) the role of the teacher is crucial in fashioning an interesting material context. A teacher must be aware of a particular child's disposition in order to present objects that propose "intriguing

situations", thus appealing to the child's "need and desire to figure something out" (DeVries & Kohlberg, 1990, p. 25). Objects are said to suggest actions or uses when they are presented alone or in groups and teachers can constrain these suggestions through mediation (Chaillé, 2008). By understanding the properties of objects and the actions those properties might suggest, teachers can arrange material contexts so that they "suggest wonderful ideas to the children" (DeVries, Kwak, & Sales, 2002, p. 163), thus inviting and sustaining learner interest.

It is important to note that, upon a deeper reading of the ways in which objects can "suggest" actions and ideas, the materials are not viewed as agents that literally communicate, but rather as inert possessors of pre-existing properties. While the verb "suggest" is used, the action/activity rests with the learning subject, because they discover the qualities that are a property of the object in order to (re)construct knowledge through experimentation (DeVries & Kohlberg, 1990). For example, a series of stacking rings, each slightly larger in diameter and a different color than the last, could "suggest" several actions or uses for its physical properties (e.g., grouping and ordering, stacking, organizing by color) and these suggestions could change in relation to other physical properties of other objects (e.g., if the rings were placed near lengths of string, they could become large beads). However, any (re)construction of knowledge is the result of the child making constructive effort to make sense of his/her experience with the rings (DeVries & Kohlberg, 1990).

Experimentation. Kamii and DeVries (1993) use the term *physical-knowledge activities* to define those activities in which children learn properties of objects and

develop causal reasoning by experimenting (i.e., acting upon materials and observing reactions). Teachers wishing to use this approach are asked to consider the following criteria for creating "good physical knowledge activities": the child must be able to produce the phenomenon by his or her own action, the child must be able to vary his or her own action in order to mentally construct the relationships between his or her action and the reaction of the object, and the reaction of the object must be observable and immediate (DeVries, 2002; Kamii & DeVries, 1993).

Several types of materials are recommended for use in physical knowledge activities, such as foods, blocks, balls, musical instruments, and light sources. For example, shadow puppet investigations are recommended to increase "know-how" (p. 98), a kind of practical intelligence and reasoning about relationships between material screens and light projection (DeVries, 1986; DeVries, Zan, Edmiaston, & Wohlwend, 2002). The patterning, sorting, and stacking of blocks have been utilized to develop reasoning that is necessary for both physics and geometry (Sales & Hildebrandt, 2002). Manipulating the movement of a marble via connected inclined planes allows children to construct the Newtonian principles of motion on a practical level (Zan & Geiken, 2010; DeVries & Sales, 2011).

With regard to foods, Zan, Edmiaston, and Sales (2002) claim that cooking should be a part of every constructivist classroom because, "children are almost universally interested in cooking, and cooking provides them rich opportunities to be experimental" (p. 139). Children's scientific reasoning, self-regulation, and cooperation, as well as advancements in literacy, math, and social studies skills, are developed through working

together to follow a recipe, learning the properties of different ingredients, and theorizing the chemical changes that occur during the cooking processes.

In experimentation with musical instruments, Hildebrandt and Zan (2002) suggest the following principles for interactions with sound materials: limit materials available so children can focus on cause-and-effect relationships, allow children to experiment, ask questions that draw children's attention to sound, lead children to make predictions about sound, and be prepared for and be willing to tolerate a lot of noise. The goals are for children to increase awareness of sonic properties (pitch, duration, resonance, and loudness), to become aware of regularities in sounds as they relate to material sources, and construct cause and effect relations between actions, materials, and various sounds.

It is important to take note of how "experimentation" is conceptualized as a particular way of acting upon physical objects. Experimentation is used interchangeably with a typically child-initiated investigation, wherein "children can correct their preconceptions through acting on objects and observing the results of their actions" (Zan & Geiken, 2010). For example, experimenting with musical instruments is conceptualized as an investigation into sonic properties, not an act of musical experimentation that places emphasis on the more affective acts of creation or improvisation. The spontaneous becoming that is often associated with (re)presentation of self in young children's music making is not a focus (Woodward, 2005). Experimentation with materials is an act of discovery, linked directly to children's emerging theories of individual or relational physical properties that comprise objects (Hildebrandt & Zan, 2002; DeVries & Kohlberg, 1990).

Other than the socio-emotional experience of interacting with others around objects, very little is said of the emotional or affective experience of interacting with materials themselves. Any emotional or visceral impact made by the material itself is said to be infantile "exercise play" — when a young child bounces a ball first to adapt to it and understand it, then to experience functional pleasure in causing an effect upon matter and confirming his or her skill with dribbling the ball (DeVries & Kohlberg, 1990). Save this rudimentary form of intellectual experimentation, no space is claimed for the impact that objects could have on children affectively in these experimentations. The ways in which the material plays an active role is not theorized; there is no talk of material interaction per se, only human actions/actors.

Reggio approaches. As noted above, the physical elements that children engage with in their learning are more often referred to as *materials*, rather than *objects*. This is not to say that children in a Reggio classroom would not engage in experiments to gain physical knowledge of objects or that these are not seen as valuable ways to construct particular kinds of knowledge. However, as a curricular approach there is an overall shift away from scientific reasoning afforded by objects, and thus the more prescriptive uses for those objects, and toward an emphasis on aesthetics and symbolic expression afforded by materials.

Materials as aesthetic provocation. Like more developmental-cognitive approaches, materials are valued for possessing characteristics that can potentially interest and engage children. A main focus of this engagement is for children to theorize solutions and take multiple perspectives, but interest isn't only framed in terms of

intellectual stimulation or the child's desire to solve a problem. Loris Malaguzzi, the first pedagogical director in Reggio, drew heavily upon Dewey's (1934) notion of art as experience in order to conceive of an aesthetic dimension that accompanies the intellectual aspects of children's exploration. As a result, the Reggio approach promotes an ethic of beauty (Vecchi, 2010) wherein "scientific thought and imagination are not separate mental operations but are different points within the complexity of human intelligence that work to build out knowing of the universe, as well as the identity and meaning of our lives" (Cooper, 2012, p. 298). Thus, materials are presented to children in order to provoke an aesthetic experience.

Materials are carefully selected and arranged by teachers with special consideration for their aesthetic appeal. Beautiful colors, textures, and shapes arranged in creative and pleasing ways are often presented as a *provocation* (Caldwell, 2003; Gandini, Hill, Caldwell, & Schwall, 2005). Provocation is used to describe individual objects or objects-in-relation which are introduced by the teacher in order to initiate discussion or interrogation. These material provocations are an essential part of a negotiated, *emergent curriculum* that characterizes the Reggio approach. In Reggio's emergent curriculum, the content and sequence of educational activities originate from children's interests and questions, often sparked by a teacher-initiated provocation, and are framed through the processes of documentation and flexible planning, or *progettazione* (Forman & Fyfe, 1998; Fraser, 2006; Gandini, 2004).

Materials as expressive tools. Crucial to the role of materials as expressive tools are two interrelated concepts, the image of the child, and the hundred languages of

children. Both were conceived of by Malaguzzi (1994; see also, Edwards, Gandini, & Forman, 1998) and continue to be a point of origin for curriculum theorizing in Reggio. The Reggio approach defines the image of the child as "above all a cultural (and therefore social and political) convention that makes it possible to recognize (or not) certain qualities and potential in children" (Rinaldi, 1998b, p. 116). Reggio educators hold an image of the child as "a producer of culture, values, and rights, competent in living and learning" (Rinaldi, 1998b, p. 117). Children are intentional, communicative, "rich in resources, strong, and competent" (Rinaldi, 1998a, p. 114).

Within this image of the child, the "human need to interpret and express our individual and shared experience" (New, 2007, p. 50) is not only limited to adults who are capable of relating those experiences in conventional oral or written forms. Viewing children as capable and communicative participants in and creators of culture shifts the image of children as pre-literate to multi-lingual. Children are capable of representing what they know, what they value, what they fear, what they love, and what they question through multiple symbolic systems, termed "the hundred languages".

Edwards, Gandini, and Forman (2012) describe the ways in which this conception of the multilingual, competent child comes into practice as follows:

> The emphasis falls more on making meaning by inventing symbols in many media rather than translating print, math notation, or a music score into spoken words, correctly executed algorithms, or a violin performance. Children 'write' in many ways, including movement, painting, sculpture, and computer animations. Although in Reggio, there is emphasis on technical ability to control these media,

> this is not done for the sake of adult-like performance in observational drawing or playing a music composition but rather to give the children a number of ways to make their own meaning visible. (p. xvii)

Thus, materials like paints, pens, clay, and wire are viewed as expressive language tools. Drawing, painting, and sculpture are visual languages that "explore understandings, reconstruct revisited understandings of the topics investigated" (Katz, 1993, p. 20). Materials afford personal expression of concepts through multiple symbolic systems (Edwards, Gandini, & Forman, 1993, 1998) and this expression helps children study their own ways of making and negotiating meaning (Forman, 1994; Forman & Fyfe, 1998; Gandini, Hill, Cadwell, & Schwall, 2005; New, 2004). Visual art specialists, or *atelieristas*, in the Reggio schools aid children and their teachers in selecting appropriate tools and media in their work and in gaining proficiency in their use (Vecchi, 1993). Under this guidance, materials are considered based on their usefulness to children's expression of ideas, not necessarily on their alignment with a predetermined developmental stage; young children utilize materials that might otherwise be considered developmentally inappropriate or even unsafe, such as sharp wires, glass pieces, or tiny beads (Tarr, 2003).

The Ontology of Things: Constructivist Approaches

Constructivism is generally taken to be a continuum of epistemological positions, and epistemological concerns of constructivists at all points on the continuum tend to be explicit in the foci of their learning theories. In turn, the ways in which these learning theories are applied pedagogically designate the role of the material in children's

educational contexts. What tends to be largely ignored are matters of ontology – "the consideration of being: what is, what exists, what it means for something – or somebody – to be" (Packer & Goicoechea, 2000). To paraphrase Packer and Goicoechea (2000), both cognitive and social accounts of knowledge/learning have underlying ontological assumptions, but these are often hidden. They state that, "this is due in part to their relatively unarticulated character and in part to a lingering anxiety, traceable to the logical positivists, that discussion of ontology is merely 'metaphysical,' untestable, and therefore unscientific or even meaningless" (pp. 227-28). I would further argue that the particular ontological positions of both perspectives actually render discussions of ontology as less important than examinations of epistemology. That is, what is real either cannot be known directly (only through representation), or is constructed socially and discursively and, thus, it is of greater importance how we come to know or construct understandings.

Despite this lack of attention, the foundational ontological notions of constructivism are identifiable (see Figure 2). And as Figure 2 demonstrates, although there are ontological differences and these differences are brought to bear upon epistemologies, the material holds a relatively static position in both. For example, in both ontological frames, the human subject transcends the material either through cognitive construction or through a social discursive construction. In cognitive-developmental constructivism, the individual mind is granted ontological power in determining what is known to be real. In socio-cultural constructivism, what is not dependent upon the mind alone, but upon the socio-historical context of the human

	Cognitive-Developmental Constructivism	Socio-Cultural Constructivism
Ontological concerns	Rooted in Kantian and Cartesian philosophies Dualism Subjectivity and cognitive activity constitute being/activity Human being is universal, product of the mind Individual mind constitutes self Objects are discovered through knowledge constructed about them Self is individual, ego is whole and contained	Rooted in Hegelian philosophy Dialectics Self and social activity are mutually constitutive Human being is historical, cultural product Objects are made objects by the subject's production (artifacts are construction of human discourse) Self seeks recognition, is mediated by discourses and practices
Epistemological concerns	Primarily rooted in Piagetian learning theories Learning is predictable, sequential Learning is measured by knowledge and understanding Schemata Identity is individual-as-such Social participation affects cognition	Primarily rooted in Vygotskian and Neo-Vygotskian learning theories Learning is situated Learning is part of a larger process transformation Praxis Identity is individual-in-action Social participation presents costs and benefits to individual and community

Figure 2. Relative ontological and epistemological concerns across the constructivist continuum. Adapted from Packer and Goicoechea (2000).

processes and practices that make meaning. Whether the self and the social are envisioned as separate (dualism) or mutually constitutive (dialectics), the material is rendered passive. Its being or existence, to the extent that we are capable of verifying, is subject to either cognitive or socio-cultural forces.

Under constructivist ontology, the human, either through subjectivity or through collective practices, transcends the material world. Whether knowledge and learning are conceptualized in relation to human transformation as dualistic or dialectic, material substance is acted upon, represented, constructed, and/or used as a cognitive or cultural tool. The "non-dualistic ontology" that Packer and Goicoechea (2000) describe as emerging within the socio-cultural constructivist perspective impacts human endeavors (i.e., it dissolves the dualism between individual-social or individual-culture), but it still

upholds the dualism between human and non-human that is the hallmark of transcendental ontology (May, 2005).

These ontological perspectives manifest themselves in the application of constructivist learning theories to early childhood curriculum. For example, in cognitive-developmental approaches, the learner is presented to the pre-existing material world in order to discover it for him/herself. The learner understands the material world gradually and progressively through his/her natural curiosity and in accordance with his/her maturity/cognitive ability/skills of abstraction. In socio-cultural constructivist approaches, children take part in the collaborative construction of meaning and languages, which mediate what can be known. Although the child is seen as an active agent and "language" is reconceptualized to mean various configurations of communicative signs and symbols, "it is still only human languages that posses valid agency" (Lenz Taguchi, 2010, p. 46). Discursive context constitutes and is constituted by the learner, but it is still separated from a passive, material world. In both perspectives the intellectual human or cultural human subject transcends the material world; material matters only insofar as objects facilitate construction and expression of human knowledge or serve as tools in the negotiation of practices and identities (Lenz Taguchi, 2010).

Constructivist Concerns

These ontological informants of constructivism set limits for the ways in which materials can be imagined as a concept and valued in their various uses. The material is an object, an environment, an expressive tool, a visible record, or a cultural inscription,

because that is all it is permitted to be ontologically. To return to the framework of the material as environment/space or learning object/material following questions are not adequately answered within constructivist applications:

1. With regard to environments or spaces, how does the material make itself known to children in ways that are not merely social or intellectual? Do material environments or spaces impact children and their school experiences in ways that are not only culturally inscribed?

2. With regard to learning objects/materials, what are the ways in which we could understand children's often-intense relations with nonhumans without resorting to perceiving children's thinking as faulty or fantastic (e.g., supernatural, animist or anthropomorphic)? Are there other ways of viewing children's relations to materials beyond notions of passive learning objects or expressive tools?

It should be noted that all of these questions require a conceptualization of the material as more than a passive or symbolic object, which cannot be accounted for in cognitive or socio-cultural ontologies as they are applied to early childhood curricula. Edwards (2006) states:

> Early childhood education is enacted in practice by the educators responsible for the day-to- day implementation of the curriculum. How these educators understand, interpret, and respond to varying theoretical informants to early childhood education is crucial to the ultimate form an early childhood curriculum will take. (pp. 240-241)

Early childhood professionals who enact or otherwise influence curriculum are endowed

with the intellectual and ethical responsibility of exploring ontological groundings that allow them to imagine the material otherwise.

Child-Material Relations: New Materialisms

Like constructivism, new materialisms comprise an ontological and epistemological project that has applications in the field of early childhood education and consequences for the conceptualization of the relationships between children and materials in educational contexts.

What are New Materialisms?

In contrast to the dominant constructivist paradigm reviewed in the previous sections, new materialisms are explicit their ontological grounding. Indeed, it has been argued that is "new" about new materialisms is the willingness to theorize a posthuman onto-epistemology wherein the human subject is decentered in the relationship between matter and meaning (Dolphijn & van der Tuin, 2012; Lenz Taguchi, 2013). Unlike the in the previous section, a discussion of ontology cannot be separated from epistemology within this theoretical plane.

These theorizations of the "real" are central to a "radical break with both universalism and dualism, as they theorize the co-consitutiveness of cultural discourse and materiality" (Lenz Taguchi, 2013, p. 707). The theoretical landscape of new materialisms is vast; I cannot claim to summarize its workings here. There are two major facets of new materialisms that will be explored in the sections that follow: the disruption of binaries and boundaries and the redefinition of agency. These elements present a stark contrast to constructivism both as a worldview and as it is applied to early childhood

practice.

Re-fusing binaries and boundaries. During the latter half of the 20th century, social science and its philosophical informants had focused on social or linguistic constructionism in order to analyze the "interconnections between power, knowledge, subjectivity, and language" (Alaimo & Hekman, 2008, p. 1). This privileging of social construction has come to be problematized, especially by those working within feminist strands of science studies (e.g., Barad, 1996, 1999, 2001, 2003, 2007; Haraway, 1988, 1989, 1991, 1994, 2008a, 2008b; Kirby, 1997, 2008a, 2008b; Tuana, 1983, 1996, 2001) and corporeal feminisms (e.g., Bordo, 1990; Colebrook, 2000a, 2000b, 2004; Grosz, 1994), as not only problematic, but also symptomatic of postmodernism's failure to truly move beyond the coded dualisms of humanism (e.g., human/non-human, discourse/matter, culture/nature).

This dissatisfaction, though until recently considered a "minor" rather than a mainstream perspective, has illuminated the popular positioning of the material within the postmodern (van der Tuin & Dolphijn, 2010). More specifically, there has been a neglect of material phenomena or processes in favor of language, power, culture, and identity, and theorizations of the world have also "problematized any straightforward overture toward matter or material experience as naively representational or naturalistic" (Coole and Frost, 2010, p. 3). That is, the problem is not simply the ignoring of the material, but also its polar positioning to the discursive, as the material had become a "tainted realm" (Alaimo & Hekman, 2008, p. 1) that had come to signify the supposed rationality and objectivity of modernism or positivism. While it is recognized that discourses and power

relations are present in any and all attempts to represent reality (Hekman, 2008, 2010), a new materialist perspective maintains that the discursive can no longer fruitfully be put in *opposition* to the material and the socio-cultural can no longer be the *polar* of the real. Thus, "reworking and eventually breaking through dualism appears to be key" to an account of the material which neither rejects postmodernism completely nor returns to the supposed objectivity of modernism (van der Tuin & Dolphijn, p. 2010).

This movement away from binary thought not only influences theories, scholarly projects, and political endeavors, but also how this particular material turn is itself conceptualized. In the name of re-fusing dualisms, new materialist thought does not return to modern materialism nor does it reject the legitimate insights of the linguistic turn in postmodernism. Thus, new materialist thought can be understood as inhabiting what Latour (1999) calls a "new settlement" (p. 81). Within this posthuman landscape, philosophical moves are neither a symptom of a previous paradigm nor the next linear move in an orderly temporality of thought, but they chart a qualitatively different terrain (Hekman, 2010; van der Tuin & Dolphijn, 2010). These movements, termed "transversalities" by van der Tuin and Dolphijn (2010), generally work to dissolve entrenched divides paradigmatically, disciplinarily, and spacio-temporally. Not only are the dualisms of postmodernism or humanism rejected, but new materialist theorists also tend to re-fuse disciplinary divides by blending, for example, feminist, cultural geography, and critical technoscience studies approaches.

The concept of *re-fusing* (Tuana, 1983) is helpful in thinking-doing new materialisms, as the goal is to resist binaries by theorizing how heretofore oppositional or

hierarchical arrangements are mutually constituted. This blurring of boundaries has resulted in novel conceptual vocabulary that attempts to highlight "the distinctive efficacy of a working whole" (Bennett, 2005, p.447). Ideas such as *more-than-human* and *natureculutres* (Haraway, 2003), *material-discursivity* (Barad, 2007), and *matter-realities* (Braidotti, 2013) rest on an onto-epistemology of relationality. Moving away from theorizing that simply "policies the boundaries" to theorizing that examines the "traffic" (Haraway, 1989, p. 377) between matter and meaning comprises the new materialist perspective.

(Re)configuring agency. Because of this posthuman, relational onto-epistemology**,** new materialisms also entail a major reworking of concepts that more traditionally thought of as singular, individual or independent. One such concept is agency, of which Barad says the following:

> Agency is not held, it is not a property of persons or things; rather, agency is an enactment, a matter of possibilities for reconfiguring entanglements. So agency is not about choice in any liberal humanist sense; rather, it is about the possibilities and accountability entailed in reconfiguring material-discursive apparatuses of bodily production, including the boundary articulations and exclusions that are marked by those practices. (in Dolphijn & van der Tuin, 2012, p. 54)

Agency is typically thought of as a subject-centered characteristic or "the autonomous will of a person" (Bennett, 2010, p.29), but, as Barad claims, outlining a posthuman or more-than-human agency is central to new materialisms. Agency is "neither a direct nor an incidental outgrowth of human intentionality but rather one with

its own impetus and trajectory" (Frost, 2011, p. 70). In other words, all matter (e.g., human and more-than-human bodies) exists not as discrete identities, but emerges as phenomena-in-relation and, as such, agency is not something to be *possessed*, but something that *arises* from the intra-connections between bodies as they make themselves known to each other. Agency is an action, or the collectivity actions, rather than a characteristic of any one human, being, or thing.

New Materialist Approaches in ECED: Foregrounding Intra-activity

Although new materialisms could in no way be described as a dominant perspective in early childhood education or childhood studies, the past five years have brought about a small wave of scholarship that has put new materialist theorizations to work. Internationally, a collective of scholars have put utilized new materialisms' approach to disrupting boundaries and retheorizing agency in their efforts to reconfigure multiple dimensions of childhood, including relationships and encounters with other species (e.g., Rautio, 2013a; Taylor, 2013a, 2014), with everyday materials and objects (e.g., Clark, Pacini-Ketchabaw, & Hodges, 2014; Kind, 2013; MacRae, 2012; Rautio, 2013b, 2014) and with/in places and environments (e.g., Duhn, 2012; Pacini-Ketchabaw, 2013; Taylor, 2013b; Pacini-Ketchabaw & Taylor, in press).

Of primary importance to this study is Swedish scholar Hillevi Lenz Taguchi's (2010) alternative to constructivist orientations to classroom practices – what she terms an *intra-active pedagogy* – wherein both human and non-human "perform actions, produce effects, and alter situations" (Bennett, 2004, p. 355). She positions "early childhood pedagogy as an intra-active material-discursive practice, in which agency,

meaning, and thus potential transformation, are produced in the intra-actions between children and the material 'things' with which they are engaged" (Taylor, Pacini-Ketchabaw, & Blaise, 2012, p. 82). Her radical reappraisal of the potential role of the material in young children's educational experiences draws upon a variety of theorists within the material turn (e.g., Bennett, 2004, 2010; Braidotti, 2002; Colebrook, 2004; Alaimo & Hekman, 2008; Hekman, 2010), and most specifically feminist physicist Karen Barad (2003, 2007).

At the heart of an intra-active pedagogical orientation is a posthuman relationality – that of mutual constitution and intelligibility. Through this *intra-activity*, "part of the world becomes determinately bounded and propertied in its emergent intelligibility to another part of the world" (p. 149) and "with each intra-action, the manifold of entangled relations is reconfigured" (pp. 393-94). It is in these (re)configurings that being-knowing are produced simultaneously through a more-than-human responsiveness; as there are no discrete and independent beings (humans included), everything is relational and all relations are thoroughly entangled. Educational practices — from children's interactions to teachers' documentation — then, are not linear processes of human discursive inscription upon passive objects, but are a "dense mixture of material-discursive events that are folded upon each other" (Lenz Taguchi, 2010, p. 22).

A central pedagogical consequence of this onto-epistemological entanglement is that, unlike the universal principals articulated under constructivism, there is no recognition of one way to learn or of best practices through which to teach. There are

Cognitive-Developmental Constructivism		Socio-Cultural Constructivism	New Materialisms	
Ontological concerns	Rooted in Kantian and Cartesian philosophies Dualism Subjectivity and cognitive activity constitute being/activity Human being is universal, product of the mind Individual mind constitutes self Objects are discovered through knowledge constructed about them Self is individual, ego is whole and contained	Rooted in Hegelian philosophy Dialectics Self and social activity are mutually constitutive Human being is historical, cultural product Objects are made objects by the subject's production (artifacts are construction of human discourse) Self seeks recognition, is mediated by discourses and practices	Onto-epistemological concerns	Assembled as Post-humanities with Deleuze, Latour, Braidotti, Haraway, Barad, and others Entanglement The matter and discourse are mutually constitutive Human being is a material-discursive territory Human subjectivity is not transcendent No objects or "things" as such, only phenomena-in-relation, assemblages, bodies in in flows of mutual force All bodies are agential in that they make themselves intelligible to others in the assemblage Knowing is material-discursive, multi-scalar Learning comprises constitutive habits tied to material-discursive conditions Being-becoming Rejection of categories of individual difference in favor of individual-in-assemblage (what we are is what we do in relation)
Epistemological concerns	Primarily rooted in Piagetian learning theories Learning is predictable, sequential Learning is measured by knowledge and understanding Schemata Identity is individual-as-such Social participation affects cognition	Primarily rooted in Vygotskian and Neo-Vygotskian learning theories Learning is situated Learning is part of a larger process transformation Praxis Identity is individual-in-action Social participation presents costs and benefits to individual and community		

Figure 3. Relative ontological and epistemological concerns of constructivism and new materialisms

only constitutive habits that are tied to material-discursive conditions of things and matter, and socio-culturally and historically situated ideas of learning and teaching. Knowledge not considered a result of representation or social, discursive construction alone, but a condition of being-becoming wherein human and non-human bodies make

themselves known to one another in assemblage (Lenz Taguchi, 2010). This presents a stark departure from constructivist epistemology, wherein only the human is agential in the construction of knowledge (see Figure 3).

Within her work, Lenz Taguchi provides numerous examples of the ways in which everyday learning events can be reconceptualized through within a material-discursive plane in order to position the construction of knowledge as the result of more-than-human agency. I've chosen to summarize two particularly powerful examples here that draw a stark contrast to the ways in which a constructivist perspective might understand "learning" events. The first illustrates a learning event that could be conceptualized as overtly objective — the discovery of physical properties through the use of a microscope. The second illustrates and example that could be conceptualized as overtly relative — the socialization of a child.

The case of the microscope. Drawing on Barad's critiques of objective science, Lenz Taguchi (2010) explains how even learning events that seem quite objective, such as studying a slide through a microscope, can be reconceptualized as complex material-discursive events. In the case of the microscope, "observing" is a result of the intra-actions between the biologically-constituted eye and all of the psychological and neurological systems engaged therein, the quality of the microscopic apparatus (e.g., lens integrity, cleanliness of the working parts, etc.), the material on the slide and its unique response to the energy sources and environmental conditions of the particular time and space of observation, our discursively inscribed thinking (e.g., notions, theories, and assumptions connected to science, language, education, culture, etc.), and our previous

experience, which can affect how handily our body interacts with the microscope. What we are able to "know" by looking through a microscope is more than a matter of simply looking to see what is there; knowing is "an achievement that requires a set of complex accomplishments" (Barad, 2007, p. 51) that are both material and discursive in nature.

The case of the "good" girl. Learning events that would typically be characterized as socio-cultural or discursive in nature, such as a child being regulated through a teacher's creation and negotiation of classroom rules, can also be reconceptualized as an equally material phenomenon. The common occurrence of teaching a young child to control their body can be viewed through a discursive lens that illuminates power and identity production, but ignores the possibility of material agency. For example, when the teacher tells a child that, in order to be a "good girl", she must sit on her bottom on a specific color circle on the carpet, learning can be viewed as an inscription of normalizing discourse (e.g., self-regulation) upon the child's body and the pedagogization of arbitrary values (Cannella, 1997; MacNaughton, 2005; Nespor, 1997; Rose, 1989). However, if we view "materialization as an ongoing flow of agency, through which a part of the world makes itself intelligible to another part of the world" (Barad, 2007, p. 140), this event is no longer constituted only by discourse. "Good girl" is a phenomenon that emerges through a temporal child-teacher-carpet assemblage wherein the carpet is an agent in the construction of knowledge. In this case, the circles on the carpet "actively make themselves intelligible to the child by keeping the child in place on the floor and signaling when a child is out of place by becoming visible to (the teacher)" (Lenz Taguchi, 2010, p. 29). Within those acts of intelligibility, discursive

constructions/inscriptions, bodily senses, and material properties engage each other to materialize difference (Barad, 2007). Thus, the event is a complex intra-action between the child's body, the carpet, and a situated set of beliefs, values, and expectations, that, in the moment of differentially being-becoming "good girl", cannot be teased apart.

In both the cases of the microscopic observation and the child socialization, viewing knowledge construction through the optics of material-discursive intra-activity renders an entangled reality wherein all actors emerge through phenomena-in-relation. Barad (2007) explains these relations as follows:

> 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. (p. 152)

As illustrated in the two examples above, every learning event, whether the knowledge constructed would typically be categorized as "scientific", "social", "linguistic", or "mathematical", can be reconceptualized as entanglements– imbroglios of material and discursive relations that emerge in-between more-than-human forces at various intensities.

New Material(ist) Possibilities

This notion of knowledge as mutually constructed by human and non-human actors presents a radical departure from the hierarchical subject-object reading of

relations found in constructivism. New materialism as Lenz Taguchi applies it to early childhood education can be conceptualized, to paraphrase Donna Haraway (2008a), as both a *topos* — a rhetorical common place of inhabitation — and *trópos* — a fruitful encounter or a turning toward possible encounters. In other words, this new terrain affords a way of thinking, while simultaneously giving possibilities for becoming. Entanglement is an innovative way of conceptualizing how meaning materializes that also claims space for further possibilities within the field of early childhood. Specifically commenting on the yet-to-be realized potential for new materialisms in early childhood research, Hultman and Lenz Taguchi (2010) state:

> (I)t might, for example, increase our attentiveness to children's strong relations to the things, artefacts and spaces in pre-schools and schools that are often overlooked in favour of the social or interpersonal relations…This is an attentiveness that might give us the possibilities to be affectively engaged with and moved by that which seems to enchant and move the children. (p. 540)

However, adults readily dismiss these understandings because they contradict what has become a kind of constructivist commonsense – hierarchical views of subject and object. When children do comment on the agency of the material within their learning assemblages, it is commonly attributed to a humanizing or fantasizing of the material or as a symbolism for the human relationships and discourses within the child's context (Lenz Taguchi, 2010, 2011). In these cases, children are often conceptualized as making sense of their world through a humanizing, anthropomorphic grammar, rather than articulating "an increasingly complex, mixed-up, boundary blurring, heterogeneous,

interdependent and ethically confronting world" (Taylor, Pacini-Ketchabaw, & Blaise, 2012, p. 81). From this perspective, what is needed is not only examination of the ways in which children and the material of their educational context intra-act, but also research that is willing to listen to children's perspectives on these relations in ways that "do not foreclose the actions, significance, and value of the more-than-human world" (Alaimo, 2008, p. 251).

One possibility, then, is for researchers to engage in a different kind of "listening" in an effort to notice how children themselves experience and affectively and productively engage with the entangled nature of their everyday classroom lives. Lenz Taguchi (2010) claims that "if we would listen better, we would be able to 'hear' and observe other organisms, objects, and things around us 'speak' and see them transform, as they intra-act with the children and their thinking in handling and interacting with them" (2010, p. 66). What if research could work to recognize children's *own* perspectives on relations with the material — perhaps with clay and paint, with intimate more-than-human familiars, such as "blankies" or pets, or even with seemingly mundane classroom matter, such as flooring or chairs? What if what is commonly taken as a humanizing grammar could be viewed as a conceptual grammar of entanglement? What if the kind of pedagogical listening that holds an image of the child as competent and communicative (Rinaldi, 2005, 2008) also entertained the possibility of the child as materially aware? By moving within the landscapes of new materialism, early childhood scholars could inhabit the terrain that affords these very questions and in doing so, early childhood research has the potential of being-becoming something radically different.

CHAPTER III

POST-QUALITATIVE METHODOLOGY

> For some scholars, methodology is a tool through which to achieve research findings. And for them, it is the latter that are most important as a contribution to knowledge. Yet for others...methodology is something that should be critically reflected on as a crucial component in the processes through which we produce knowledge. From this latter perspective the research process and the methodology that informs it cannot be separated from the findings of the research, right from the research design to its representation.
>
> —Sarah Pink, Advances in Visual Methodology

Sarah Pink (2012) claims that the methodology-minded researcher must work the connections between all elements of the research process, from conceptualization to actualization. The purpose of this chapter is to make those connections. Meeting the call for research concerning how young children and the material are mutually constituted within the early years' classroom requires not only a collection of practical moves, but an articulation of the ways in which those moves are borne out of the very onto-epistemological terrain that allows for material-discursive entanglement. This research is about material-discursivity not only as a theory, but also as a way of being-becoming and, thus, material entanglements that work to dissolve binaries – between subject and object, human and non-human, discourse and matter – must be acknowledged in even the practical or seemingly obvious steps.

With Barad's onto-epistemology of entanglement in mind, working towards a

post-qualitative (Pierre, 2011, 2013; Lather & St. Pierre, 2013) methodology allowed me to carry through the non-binary positions that radical materiality demanded. Both Elizabeth St. Pierre (2011, 2013, 2015) and Patti Lather (2013, 2015) have played a major role critiquing the conventions of humanist qualitative research methodology in order to imagine what this new culture of post-qualitative inquiry might comprise. In general, the post-qualitative inquiry contained in this work strives to challenge the notions often taken for granted when the humanistic "I"/"eye" is the grounding force of inquiry (e.g., image, voice, subjectivity, data, coding, interpretation, representation, etc.). Dismantling these "settled places in our work" allows for an exploration of "a new culture of method of breaking methodological routine by savoring our critical edges, aporias, and discontents" (Lather, 2013, p.642). In other words, by disrupting common methodological practices there is potential for knowledge to emerge from places of contradiction rather than of certainty, of trouble rather than ease.

Like others who have taken up the post-qualitative project (e.g., Honan, 2014; Lenz Taguchi, 2013; MacLure, 2013), plugging into Deleuze-Guattari philosophy affords critique of methodological orientations and practices that come into conflict with an onto-epistemology of entanglement and allows for a re-imagining of what qualitative research can become. To Deleuze, "being in every sense is entangled, connected, indefinite, impersonal, shifting into different multiplicities and assemblages" (St. Pierre, 2013, p. 653). And so, in a Deleuzian, post-qualitative fashion, I work from/within certain perspectives while also taking them apart in order to produce something new. As such, I outline a multimodal, participatory method that emerged from a particular landscape:

where reconceptualized notions of children's rights/roles in research merge with critical visual ethnographic practices. But I also claim space for serious interrogations of the humanist ideals that surround the notions of voice, representation, interpretation, and data traditionally contained therein so as to *make room* (Haraway, 1991) for the posthuman.

Putting the Deleuzian notions of assemblages and rhizomes to work in this space allows me to engage positively with the disparities or paradoxes that emerge when one attempts to make research about both "listening" to children *and* decentering the human, about both children *and* things. This entangled way of conceptualizing and doing research also necessitates a reworking of the ways in which research with children is conceptualized as an ethical endeavor, favoring research practices as embedded within "irreducible relations of responsibility" on multiple scales (Barad, in Dolphijn & van der Tuin, 2012, p. 265). This kind of productive re-imagining teeters on the edge of dismantling the idea(l)s qualitative research completely (Greene, 2013; MacLure, 2013). But once again I lean on Lather and St. Pierre (2013), as they urge us not to forget that qualitative research is, in fact, something that we "made up". It is okay to engage in the messiness of thinking-doing it anew. Indeed, if I am taking entanglement as my onto-epistemological point of departure, this is required.

In the following sections of this chapter, I further elaborate on the post-qualitative research landscape described above: the space where reconceptualized notions of children and critical visual ethnography merge in a posthuman space. Next, the project will be contextualized through descriptions of the participants and research context, as well as the specific methods enacted for generating, analyzing, and rendering data in ways that

align with the post-qualitative framing outlined above. I also examine ethical issues that were considered prior to engaging in the field and those that arose within the enactment of these methods. In outlining these methodological events, I rework several concepts using Deleuze-Guattari tools in order to allow for the onto-epistemological imperative of material-discursive entanglement.

Reconceptualizing Childhood, Reconceptualizing Research

The reconceptualization movement in early childhood emerged in the latter half of the 20th Century as a critical interrogation of the dominant figurations of children and childhood. The modernist/positivist assumptions that have framed the knowledge base of the field, in particular the grand narratives of child development and psychology that have traditionally provided a foundation for early education practices, have been at the center of this deconstruction both in the United States and internationally (Bloch, 1992; Cannella, 1997, 2005; Genishi, Ryan, Ochsner, & Yarnall, 2001; Grieshaber & Ryan, 2006; Lubeck, 1998a, 1998b, 2000; Swadener, Cannella, & Che, 2007; Soto & Swadener, 2002). Strands of critical scholarship within the reconceptualist community often integrate sociology and critical geography and generally include, but are not limited to, interrogations of:

- Linear, predetermined goals and outcomes for children, especially as they relate to notions of a universal child/hood (e.g., Cannella, 1997; Lubeck, 1998a, 1998b; Walkerdine, 1984).
- Classificatory systems that serve to evaluate and normalize children and childhood. Of particular focus have been the grand narratives of psychology and

developmentalism that construct children as weak, innocent, natural, defective, deficient, dependent, and immature, and thus in need of particular kinds of regulation (e.g., Dahlberg & Moss, 2005; Penn, 2004, Swadener & Lubeck, 1995; Rose, 1989).

- Economic and socio-political contexts (e.g., neoliberalism, capitalism, globalism etc.) surrounding (e)valuations of particular educational practices, policies, and provisions as appropriate, equitable, and/or effective (e.g., Bloch, 1987; Jipson, 1991; Lubeck, 1994, 1995a, 1995b; Penn, 2004; Swadener & Lubeck, 1995).

Reconceptualists argued that these theoretical perspectives have led to several practical consequences for educational research, policy, and practice, including the promotion of development over rights and participation, the privileging of the verbal and written languages of adults, the valuing of childhood only as a means to adulthood, and the validating and standardizing of practices that benefit the adults' constructions of children or global economic imperatives (Cannella, 1997; Clark, Kjørholt, & Moss, 2008). Thus, reconceptualists proposed views of children as protagonists in the knowledge-building process (Rinaldi, 2005), of childhood identities as fluid and situated within a larger network of socio-historical relations (Penn, 2004; Soto, 2000), and of childhood as a valued state of being, rather than simply a means to becoming an adult (Dahlberg & Moss, 2005).

This reconceptualization of childhood as a sociological and cultural field of study also led to a renegotiation of what "counts" as early childhood research. Instead of, "*What should we do for children?"* and *"What do children need from us?"* questions

such as, "*What does it mean to be a child in a particular time and space?" and "Who has the right to speak for children?*" moved to the forefront of reconceptualist research (Graue & Walsh, 1998; Hatch, 2006). No longer limited in its reliance on positivist research traditions that "tended to obscure the possibilities for newly evolving critical orientations and research" (Soto & Swadener, 2002, p. 38), avenues were opened for "more personal, liberating, democratic, humanizing, participatory, action-driven, political, feminist, critically multicultural, decolonizing perspectives" (p. 51), especially with regard to researching children's lived experiences (Dahlberg & Moss, 2005; Yelland & Kilderry, 2005).

Giving Voice Through Listening

The reconceptualist focus on children's rights rather than development has also problematized research frameworks in terms of the potential crises of representation and participation these present for young children. As such, those who aim to include children's voices in research have attended to how knowledge-power relations operate at all stages of the research process (e.g., Farrell, 2005; Jipson, 2000; MacNaughton & Smith, 2005; MacNaughton, Smith & Davis, 2007). Methods of giving voice to children through research becomes especially problematic when one considers the ethical and methodological issues unique to studying the lives of children, including unequal power relations between adults and children in designing and implementing research and the privileging of adult/academic discourses and literacies (Cannella, 1997; Soto & Swadener, 2005). To paraphrase Holdsworth (2000), the challenge is not to simply

recognize that children have something to say and are capable of doing so, but to shift the traditional adult-child relationship in a way that affords ethical listening.

Recently, scholars within the international reconceptualist community have specifically taken up this challenge of ethical listening by developing methods for researching children's lives that break away from the interrelated practices of adults interpreting what children mean by describing their lives for them and of privileging adult literacies and academic discourses. These listening methodologies being undertaken by researchers in the UK (Bertram & Pascal, 2007, 2008; Clark & Moss, 2001; Clark, 2008), Scandinavia (Eide &Winger, 2008; Kjørholt, 2008) and Italy (Rinaldi, 2005, 2008) aim to listen to the perspectives and experiences of children.

An example of this is *The Mosaic Approach* (TMA) (Clark, 2008; Clark & Moss, 2001, 2005). Developed and implemented over the past decade as an approach to garner young children's input on their educational services (Clark & Moss, 2001) and their outdoor play environments (Clark & Moss, 2005), TMA is founded on the reconceptualized perspective on childhood that considers young children to be both competent in making meaning of their lived experiences and entitled to ethical participation in researching those experiences. In addition, TMA utilizes a variety of visual processes, including children's photographs, drawings, videos and other symbolic compositions such as sculpture, along with more traditional ethnographic methods of long-term participant observation and interviews (see Figure 4). It is argued that these drawings, videos, and photographs enable children to explore the ways in which they perceive their own experiences and communicate their ideas in ways that are meaningful

Methods	Description
Observation	Qualitative observation accounts of children's relations to and interactions within the space/environment
Child interviews/conferencing	Short, structured interviews with individuals or small groups related to their experiences of and/or relations to school spaces/environments
Photography and book making	Children are given cameras in order to photograph important people, places, and things. Children create photo books that are representative of their school experiences.
Tours	Children direct and document a tour of the space/environment.
Map making	Children's create 2D representations of the site using their own photographs and drawings.
Magic carpet	Children view a slide show of familiar and different places in order to elicit broader conversation.

Figure 4. Methods of The Mosaic Approach. Adapted from Clark (2008).

to them (Clark, 2008).

Although it is not articulated explicitly, TMA's visual approach incorporates many elements typical of critical visual ethnography (e.g., Collier & Collier, 1987; Pink, 2013; Rose, 2007), wherein methods typically include one or more of the following processes: "making visual representations (studying society by producing images); examining pre-existing visual representations (studying images for information about society); collaborating with social actors in the production of visual representations" (Banks, n.d., in Pink, 2013, p. 49). Engaging in meaning making in relation to images is meant to "reveal aspects of experience which are often unspoken, embodied, and sensual" (Fenge, Jones, & Read, 2010, p. 325). As the purpose of TMA, and other reconceptualist approaches to listening, is to listen to perspectives that might otherwise not be spoken/heard, visual methods are given priority as a communication tool.

Claiming Space, Making Room: Ethical Listening and Radical Materiality

The new materialisms that inform this study call for a destabilization and decentering of the human subject in order to acknowledge the agential properties of matter and to recognize the entangled, material-discursive nature of relations (i.e., intra-action in assemblage). The reconceptualist ethos of research participation that also informs this study calls for a renegotiation of research roles through ethical relationships between adults and children. The merging of these two perspectives does reveal paradoxes that need to be identified and negotiated if both are to inform a practical research endeavor that takes material entanglement seriously.

Writing on the new sociologies of childhood, Prout (2005) gives a comprehensive critique of rights-based discourses from a posthuman perspective. In doing so, he outlines one potentially major point of contention between the reconceptualized ethics of listening in research and a radical materiality – the notion of children's rights as a humanist endeavor. He claims that the rejection of the reductionist discourse of child psychology has been beneficial. This rejection, which is foundational to the reconceptualist movement, has also caused the metaphorical pendulum to swing too far in the other direction, creating a reverse discourse that unnecessarily privileges the social and discursive over the material. Prout (2005) states:

> In the short term, there are benefits to be gained from this reverse discourse. It created what appeared to be very strong defenses against biological reductionism in the study of children. It allowed free reign to the intellectual imagination, as long as it did not stray beyond the boundary of culture. It promoted further

> exploration of the social, cultural, and historical construction of childhood, opening up new areas of questioning and illuminating new aspects of children's lives. However, it did so at the cost of bracketing out or expelling biology, the body, and even materiality as such from its accounts of childhood. In the longer-term perspective, especially if we are to move childhood studies as a distinct field, this is not a tenable or viable option. (p. 84)

With regard to the ethical listening perspective outlined in the previous section and the visual ethnographic traditions from which they draw many of their methods, this aversion to the material manifests itself as a persistent knowledge hierarchy. Listening as an ethical encounter conceptualizes meanings as emerging equitably between children and adults. The adult's position as the sole producer of knowledge is deprivleged, as children's own experiences and meanings are made central. However, this approach is still hierarchical in that it assumes a foundational, anthropocentric perspective (Colebrook, 2002). There is no space claimed for the knowledge that emerges between human and more-than-human wherein the material is positioned as active participant. From this perspective, relations between children and the material entail children's inscription of meaning upon objects or on the inscription of broader sociocultural meanings upon objects and environments.

This binary subject-object relationship is evident in the multi-method focus of listening approaches. These approaches operate under the assumption that the making and sharing meaning is through a "voicing" of experience and this essentialized voice of the participant yields a certain transparency in its representation (Flax, 1990; St. Pierre,

2000). Drawing on the concept of the *Hundred Languages of Children* as proposed by the municipal early childhood centers in Reggio Emilia, Italy (e.g., Edwards, Gandini, & Forman, 1993, 1998, 2012), the perspective is that children's voices can be better heard when symbolic constructions other than oral language (drawing, painting, sculpting, photographs, etc.) are considered valid (Clark, Kjørholt, & Moss, 2008). But these interactions with materials are nevertheless conceptualized as symbolic processes. Instead of examining the ways in which children and materials intra-act, both emerging differently through the construction meaning, these approaches primarily focus on the ways in which children act *upon* materials in order to represent ideas or communicate meanings symbolically.

The relatively small numbers of researchers who have engaged simultaneously with both new materialist and participatory perspectives have noted tensions that arise in aiming to both displace human subjectivities and ethically engage children's perspectives. Though the foci of their studies are diverse, these scholars note that children's participation in research is often predicated upon the notion that children's "true" voice be not only audible/visible, but also central. This presents a challenge to giving both human and more-than-human equal agency in the creation of knowledge, as both centering and decentering the child seems paradoxical (Bradley, Sumison, Stratigos, & Elwick, 2012; Clark, 2012; Lenz Taguchi, 2010; MacRae, 2012; Pacini-Ketchabaw, 2012; Rautio, 2013b).

To different extents, these researchers have been in successful in merging perspectives by taking up the feminist tradition of "making room" (Haraway, 1991, p. 99)

ontologically and epistemologically for the possibility of material agency within a participatory framework. This possibility is brought into being by engaging in research methods that garner children's perspectives through thoughtful and ethical listening practices and then situating those perspectives as but one force within an assemblage of interconnected forces. The material, the child, and the researcher become conceptualized as "emergent in a relational field" (Olsson, 2009, p. 32). In addition, because of the agency granted to the material, it must be acknowledged that the material apparatuses of the research process itself (notes, photos, drawings, etc.) are not merely representing or accessing the lived reality of the participants in context, but are actively implicated in the creation of a new layer of material-discursive relations. Thus, any data produced is "a multiplicity of co-occurring agencies or elements, including adult and (child) desires, research methodologies, ideas and technologies, fashions, temporalities, bodies, relationships, and things" (Bradley, Sumison, Stratigos, & Elwick, 2012, p. 142).

The current project emerged from this complex and contradictory space – the "room" made for children and things and myself to engage, contend with, notice, and listen to each other wherein the both ethical participation of children and the radical agency of the material are taken seriously. Plugging-in to the Deleuzian concepts of *assemblage* and *rhizome* were/are of primary importance in undoing and rethinking the more traditional methods of "listening" to children that initially informed the my research design, as they allowed me to conceptualize the generation and analysis of data as processes that were fraught with connections, movements, and becomings, rather than orderly, predictable procedures (St. Pierre, 2013, 2015) so that the practical research

enactments were held accountable and onto-epistemology of entanglement and vice versa. In the following sections, I explain how these post-qualitative research relations played out over the nine months I spent engaged in the field, including renegotiations of participation and methods, rethinking of ethical commitments, reconceptualizations of data, and rendering/ representation in order to honor children's perspectives and an onto-epistemological focus on material-discursive entanglement.

Fieldwork-in-Context

This research took place within one kindergarten classroom over a nine-month period, from September 2013 to May 2014, at a University-affiliated laboratory early childcare and education enter in Northeastern Ohio. This site was purposefully selected based on (1) administration and teacher willingness to engage in a long-term research project wherein children will have extended and flexible access to the researcher and (2) a curriculum that invited children's exploration and engagement across school contexts (e.g., play, outdoor recreation and exploration, varied teacher-constructed learning experiences, etc.). I had previous experience engaging in research at this site (see, Myers & Kroeger, 2011) and also had previous professional relationships with both Kindergarten teachers. In addition to gaining approval from my university's Institutional Review Board to conduct the study, I was also required to gain informal approval from the classroom teachers, as well as a formal acceptance from the laboratory school's internal research review committee before being able to conduct research in the classroom.

The classroom context itself contained a multitude of interconnected research sites – places and spaces through which actors on all scales related to and emerged with each other, including The Lockers, The Snack Table, The Writers' Center, The Platform, The LEGO Loft, The Carpet, The Block Area, The Big Windows, The Courtyard, and The Playground. These spaces/places will be described in fuller detail as they emerge through the data re-presented in Chapter Four.

Research Questions

As noted in Chapter One, the following questions were posed within this context in order to examine children's classroom relations as situated material-discursive processes through which human and more-than-human agents emerge differently:

- What are young children's perspectives on their more-than-human relationships within their particular early childhood classroom context?
- How do these relations emerge and change over time as children and materials engage each other?

The articulation of these questions are not meant to insinuate that the emergence of these relations could ever be described fully, as the onto-epistemological imperatives that drive my post-qualitative orientation to research situate the research field as an "agentic assemblage of diverse elements that are constantly intra-acting, never stable, never the same" (Lather & St. Pierre, 2013, p. 630). However, as a novice researcher these questions were useful to me in setting the scope of my inquiry and returning to these questions throughout my fieldwork served a dual purpose – reminding me that this project had to be equally about children and things and what emerged between them.

Children were entitled to have their perspectives accounted for and I had to make attempts to understand what children wanted me to understand, but there must also be space made for emergences that were more-than-human in that they were not immediately accessible or comprehensible to either myself or the children.

Participants

A total of 19 girls and five boys (24 families) were enrolled in the Kindergarten program at this laboratory school. All children were invited to participate in the study though an initial meeting with their families at the beginning of the school year wherein the aims, underlying philosophy, and general procedures of the study were presented, followed by a general question and answer period. At that time consent forms were distributed and 16 families gave consent for their children to be asked to participate in the study. I then spent a six-week introductory period within the classroom so that children could become familiar with me and the various apparatuses of the research process (e.g., camera, notebook, etc.). During this period, I visited the classroom for three days each week and participated in the daily rituals of the classroom, played with the children, assisted the teachers during work time, allowed the children to explore my camera, and took photos of children and their work if they asked me to do so. At the end of this introductory period, I asked the 16 children whose families had given consent for participation for assent to participate in the study, explaining that I was interested in knowing more about the things that kindergarteners do in the classroom and that I wanted them to help me make photographs of "important things". I also explained that, later in the school year, I'd like to talk with them about these photographs and give them the

Elizabeth: Well, I have a brother, a dog, a cat, a mommy, and a daddy. I really like to draw.

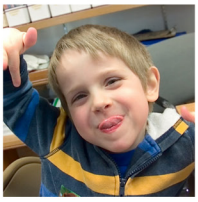
Bella: I really love my mom. I like to draw and sing *Frozen.*

Petal: I really like cheerleading and drawing. I love Matar and Bella.

Matar: I go to Arabic school and love the monkey bars. I like to draw with markers. I love Petal.

Paige: I like to build and cook. I have one brother and I am about to have another baby!

Clara: Did you know I'm Nia's sister? In a kind of way it is also true. But not really.



Michael: I like dance class and making the ramps at school. I have a sister.

Lotta: I have two guinea pigs and I like playing with Nia.

Irina: I have a brother and this summer I am going to move to Portugal.

Margaret: I have a brother and a sister and a little sister who is actually at this school. I like the LEGO loft.

Jackson: I have a sister and I am a really good hockey player and builder.

Krissa: I really like the (nonfiction) books by the platform and making LEGO structures.

Lauren: I am about to be a big sister and I really like to dance. I do dance competitions and dance.

Nia: I have a brand new puppy. And I was bitten by a snake. And I love to play outside.

Ginger: My best friend is Margaret and I work at the Writer's Center and make love notes.

Rosa: I like blue and purple and playing outside. My mom is a scientist and I have a cat.

Figure 5. Participants' autobiographies and self-selected photos.

the chance to take photographs of their own. All 16 children (see Figure 5) agreed to participate in the study and were told that they could change their mind, withdraw their assent, or alter the terms of their participation at any time. All of the children continued to participate in the research project throughout the school year, though as described in the methods sections that follow, all children chose to interact with me, to let me "be with" them, to "do" photos, and to "become (with) cameras" in different ways.

Data Generation

The practices that were activated to generate the data for this study relied specifically upon Deleuze and Guattari's (1987) notion of *assemblage*, defined thusly:

> An assemblage comprises two segments, one of content, the other of expression. On the one hand it is a machinic assemblage of bodies, of actions and passions, an intermingling of bodies reacting to one another; on the other hand it is a collective assemblage of enunciation, of acts and statements, of incorporeal transformations attributed to bodies. (p.88)

In other words, an assemblage is comprised of human and non-human bodies that work together to become something different than what they were in isolation. These bodies work as a *machine*, meaning that they are what they do/perform in their relational context. Within any assemblage, this (em)bodied machine works in collective relation to semiotic/discursive forces and each/all impact the other.

Method (Assemblage)

Of particular interest here is John Law's (2004) conceptualization of *method assemblage*, wherein research methods are conceptualized as "a tentative and hesitant

unfolding, that is at most only very partially under any deliberate form of control"(p. 41), rather than a systematized, linear progress wherein each step is cleanly divided from the next. According to Law, not only are the methods themselves contingent upon each other, but they are also constantly disrupted by the assemblages already at work in the research context that are, too, shifting from moment to moment. Mazzei (2013) claims that when research methods are actualized as a method assemblage:

> There can no longer be a division between a field of reality (what we ask, what our participants tell us, and the places we inhabit), a field of representation (research narratives constructed after the interview), and a field of subjectivity (participants and researchers). (p. 735)

Within these more flexible boundaries, the goal of inquiry shifts from "knowing" social realities by systematically separating their components to "relating to" multiple material-discursive realities by being part of the machine that *produces* them.

Using *The Mosaic Approach* (TMA) as initial inspiration, a nested arrangement of multi-modal methods was activated once initial assent was gained from children. In what I describe below, I first turn to the traditional, humanist ways in which these methods might be described (indeed, how I myself described them when I first proposed this research) when *essentialism* is the founding premise for qualitative inquiry. Jackson (2013) posits that, "essentialism imposes itself on qualitative methodology by assuming that people (authentic, stable subjects of research) who speak (from a conscious center) give us (the researchers, also authentic) rational, coherent truths that serve as foundation (data) for data analysis and interpretation" (p. 742). I then juxtapose these essentialized

methods with description of the messier, Deleuzian-inspired assemblage of methods that we activated to "make room" for material entanglements.

~~Participant observation~~ "Be(ing) with us." The first method in this assemblage was originally conceptualized in my research proposal as a form of classroom participant observation wherein the primary role of the researcher would be to gain general familiarity and build rapport with children, families, and teachers, as well as experience firsthand the naturally occurring events of interest (Wolcott, 2008). In this case, the events of interest were the material-discursive entanglements of significance to the children in the classroom. Conceptualizing the field experience in this way, from a post-qualitative perspective, places the researcher's subjectivity as an entity outside of the relational field of the classroom; the researcher can come to know what the research participants know through observing and experiencing their social realities. During this phase, the researcher would use a camera and notebook to capture images and construct narratives to represent these events and catalog them for later analysis. This participant observation would continue throughout the 9-month period of the study as a means to construct increasingly complex knowledge of the participants-in-context.

The ways in which I engaged in the field as a post-qualitative classroom researcher were quite different. During my second week of playing the role of "participant observer" in the classroom, the following interaction occurred as I sat to the side of The Platform during morning free play.

Paige: *Are you going to watch us or are you going to be with us?*

Casey: *Do you...*[I pause and think of how to get to the meaning of her question.]

Paige: *Well, some teachers only walk around and some teachers play with you.*

Casey: *Would you rather me watch you or be with you?*

Paige: [She gestures to her and Petal's arrangement of plastic horses on The Platform.] *You could be with us...we need someone to hold all the babies.*

Petal: *Yeah, the babies are crying all the time and they won't listen!*

Casey: *Okay, what should I do?*

Paige: *Look out! Here comes this baby and he is after you!* [Begins talking in a horsebaby voice as she walks a small zebra figure over and on to my leg.] *Mama! Mama! Take a picture of me before I fall into the cave!*

Casey: *Nooo! My baby! My baby!* [I take a photo and as I reach for "my baby" Paige slides the figure down the side of my leg and into the "cave" between my ankles.]

Paige: (*Laughing) Oh, bother! He's really gonna need a mama now!*

Here, Paige defined the practice of "Be(ing) with us" as engaging in the flow of people and materials at play. In this particular moment of being, I became part horse mother, while the space between my lower legs became the walls of a cave that threatened to swallow my baby. My willingness to accept her invitation to "be with us" was an important moment in the trajectory of this project, as it set the tone for the ways in which I would participate in the classroom as " participant observer" afterward. Once children knew that I was willing to be a "player", children expected me to "be with" them and requested as such. I didn't limit my interactions to the 16 children who were participating in the study (I simply refrained from generating official "data" with other

children), so at any given time there would be multiple children asking for me to "be with" them. As I took up Paige's language and repeated the practice of "being with", children also began to ask, "When will you be with us again?" or "Can you be with me and Clara at snack tomorrow?" This entangled way of "being with" as a mode of data generation continued throughout the school year, with some children consistently requesting my presence, and others moving in and out of "being with" me.

When the conception of "participant observer" was actualized as "being with us", there was no clear division between building rapport and familiarity with children and witnessing "naturally" occurring events. According to the children, an appropriate way of "being with" them was often to engage in whatever events were occurring. Though I did take cues from the children in their play (e.g., obtaining permission to "be with" or waiting to be asked, asking permission to photograph, noticing and acting on behalf of play schemes already in motion, etc.), once I "be(came) with" them the flow of events and relationalities were always altered, so the boundary between our subjectivities and the field of relations was constantly in flux. In these assemblages, we produced something different than we could have if we were not becoming *together*.

The data I generated during these events was not an objective or representational record of children engaging with/being engaged by the material, but rather "constructed cuts" (Barad, 2003) of the ongoing intra-actions between children and other "things" (e.g., various objects, materials, animals, or otherwise environmental elements of the classroom) and myself. According to Barad (2003), a constructed cut is something that is produced in the in-between of material-discursive entanglement. These constructed cuts

were mostly photographs, but also comprised short video clips, narratives, and ink sketches depending on what the children requested (e.g., “take a picture of this”, “write down what I say”) and what mechanisms I felt were most appropriate or feasible for the task depending on what my own “being with” them entailed. For example, I constructed photos with the intention of making images of what the children requested or making images of events wherein the material seemed to play a surprising, disruptive, subversive or otherwise important role. However, what actually emerged was a combination of our intentions, my physical location through which to frame the image, my own knowledge and experience in operating my camera, the mechanism of my camera and lens in relation to the light available, the movement of actors within the event and their focal distances, and the availability of my arms/hands/fingers/eyes in relation to whatever “being with” the children entailed (e.g., if my dominant hand was needed to cradle a baby horse, I operated the camera with my non-dominant hand, which affected the quality of the image).

In some circumstances, I forewent the generation of a photographic image in favor of constructing quick ink sketches in my field notebook, to which I later often added watercolor paint and/or the children themselves would modify with marker or colored pencil. These drawings typically emerged when I found myself without my camera (e.g., I was pulled away to “be with” a child, leaving my camera behind in another part of the classroom), when the children requested that I/we draw something in my field notebook, or when I was ruminating on a particular event after it had occurred (e.g., I would often initially draw memos from my “being with” experiences, rather than

writing them). Although the use of visual field notes is not novel, it should be noted that typically they are conceptualized as a means of *indexing*, to "point to, form relations with, and suggest different features of the context from which they come" (p. 125) or a means of generating knowledge on the page, between the *exterior* world (the social context being studied) and the *interior* world (the mind of the researcher) (Hendrickson, 2008). In the case of my "being with" the children, however, the construction of hand-drawn images, like the construction of photographic images, was not simply conceptualized as visual record of the physical world or of the interaction between social contexts. What emerged on the page was an imbroglio of social, discursive contexts *as well as* various material contexts –what I both actively and subconsciously chose to "see", my own abilities to render those events onto the page with a combination of lines, shapes, colors, and textures, the tremor of my right hand due to a newly diagnosed thyroid condition, the precision (or lack thereof) afforded to me by the media I selected (notebook paper, ink pens, thick markers, and student-grade paints), etc.

~~Child-researcher conferences~~ "Doing photos." The second method was adapted from TMA's semi-structured interviews/conferences (Clark & Moss, 2001) and were initially proposed to be short conferences that would take place weekly in either individual or small groups, depending on the comfort level of the children, serving two purposes: to allow the researcher to ask open-ended questions regarding the emerging material relations in the classroom, and to allow children to critically engage with the researcher's initial documentation and general participant observation approach (e.g., viewing my photographs on a tablet computer, confirming or critiquing my interpretation

of events, questioning my practices as a researcher, suggesting alternative trajectories, etc.). When conceptualizing and proposing this research, I intended to ask the following questions, if necessary, in order to "listen to how the children identify the agency of different organisms and objects around them in their learning processes" (Lenz Taguchi, 2010, p. 66):

1. Can you tell me/show me what is happening in this photo?
2. Tell me/show me the most important part?
3. Tell me/show me why you took this photo?

As the data-generation sequence progressed to include children's own photos (see next section), I had posited that these conferences would primarily focus on children's multimodal expression of questions, assertions, and/or theories during engagement with their own documentation.

Despite my initial planning, these conferences did not resemble interviews wherein I would pose questions and receive answers that could simply be recorded and transcribed in order to "hear" the voice my participants. The idea(l) of the ethnographic interview, a traditional qualitative method "heavily invested in language practices" (MacLure, 2013, p.664) as a means through which to gain access to what research participants know (or what they (do not) want you to know), did not emerge when the children, myself, my notes and questions, and our constructed images were gathered together and operated in assemblage.

After several weeks of "being with" children in the classroom and generating constructed cuts of events, I approached my 16 participants individually and asked them

if they would like to interact with and talk about some of the photos and videos I had taken in the classroom. I also gave them the choice of attending these conferences, which would be held a few doors down from their classroom in various small meeting rooms, alone or they could select from a list of classmates (the other 15 participants) to join them. At the outset of this process, I had created a tidy schedule so that each child would be able to participate in at least one conference every other week and had the schedule approved by the lead teachers. I expected that some children would want to participate in this way, and others might decline. However, when engaging with the children to gain assent, I received a variety of responses that made equal participation and systematic scheduling much more difficult. Lauren, Matar, Elizabeth, Petal, and Paige affirmed that they would like to do it "every day" or "whenever" had the opportunity. Bella, Nia, and Rosa wanted to participate in conferences, but only if I asked the day before or several hours before to give enough time for each to think about it. In addition, Nia wanted to talk about and look at photos, but only if she was "not already doing something important." Krissa said she would like to "do it sometimes, but not all the time." Lotta said, "Yes, but probably not a lot...maybe just once." Margaret and Irina only wanted to do it if they could do it together. Ginger said, "No, I don't think I want to but maybe I will sometime." Michael said he would like to do it, but "not soon." Jackson said he did not want to conference at all, but it was fine for me to continue taking photos of his "interesting work" and "being with" him. Clara wanted to do it "a few times", and she wanted to be the first one. Attempting to "listen" to children and abide by their requests in these circumstances was difficult. For those that were uncertain, I told them they

could come to me when they were ready and I would check back with them every few weeks at which time they could agree or decline. Every child agreed to participate in a conference at least once, except for Jackson who never showed interest. For those who wanted to conference more often, I tried to give them as many opportunities as possible, typically once per week, though there were times when even the typically eager would say, "Not right now, Casey." There were also times when children came to me to schedule a conference and there were times when children wanted to have a conference, but for various reasons, I had to deny them (another child was already scheduled to come and they wanted to do it alone, etc.). This resulted in some children attending these "conferences" more than others, so equal participation was subverted in pursuit of a more flexible and equitable model of conferencing.

As mentioned above, Clara was the first to engage in a conference with me and with our documentation. After leaving the classroom, we found an empty meeting room and sat at the table with a notebook, camera, and a tablet computer. I showed her on the tablet computer how to find photos and videos that I had taken and how to use the face recognition feature in the media library to search for photos of herself or any other children. She looked quietly at the photos for several minutes. When she began zooming in and out on one particular photo of herself, I began to "interview" her with my predetermined, "child-friendly" question.

Casey: *Can you tell me or show me what is happening in this photo?*

Clara didn't respond, but began to hum a tune. She gradually added lyrics.

Clara: [Singing] *Ho-ho, he-he. Diddily-deet-do-do. Following the leader, the leader, the leader, following the leader wherever she may go. He-he, ho-ho…*[sighing heavily] *I don't really to talk about anything. I just thought I would be doing photos.*

Casey: *What does 'doing photos' mean?*

Clara: [Making the pinching gesture on the touch screen that performs the zoom in and out function] *Like, wa-hoo, wa-hoo, look at that dark part of my eyeball! Yi-yi-yi-yikes!* She makes an animated, surprised expression as she looks closely at the image of her pupil.

Casey: *Okay, you can do that.*

I begin to take some notes in my notepad about her not wanting to answer questions and I spend a few minutes watching her with the tablet – scrolling, gesturing, laughing, humming, putting her face close to the screen and pulling it away.

Clara: *Hey, where's MY notebook?*

Casey: *Do you need one? I have paper…but I don't have a notebook just for you today, but you can use mine until I can get one.*

Clara: *Will it be for kids?*

Casey: *I can get a notebook just for kids, sure.*

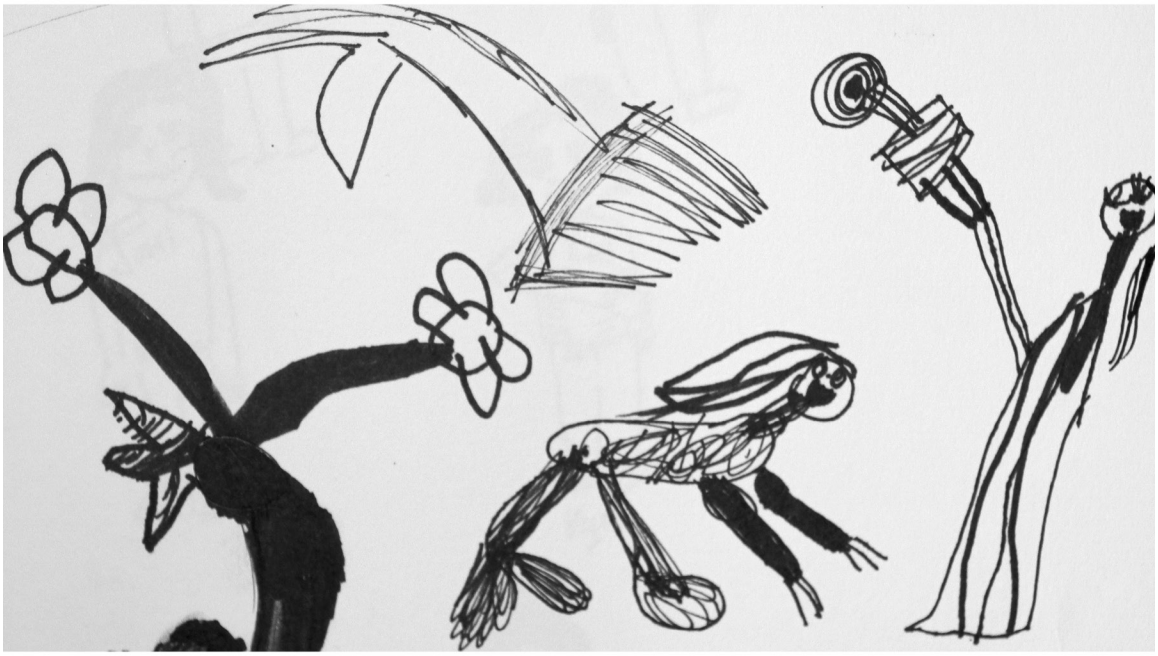
I pass my notebook to her and she takes a black marker from the table and begins to draw, zooming in and out of the photo, watching related videos, coming back to the original photo, drawing again. After several minutes, she holds up what is a re-construction of one of the images she had been intra-acting with in which she was playing "animals" on The Carpet. I had constructed the event though an image that only

showed her face. She pointed out to me the people, things, and events she included in her reconstruction of the event.

Clara: [Pointing to the figure she's drawn holding a camera] *Look how scared you are of my animal noises, Casey Myers!* [Referencing the humanoid animal with long claws] *My hands are coming into claws I'm meowing so real! Meow!*

This event with Clara recast my initial, more humanist idea of what might happen in these "conferences". Framing our meetings as "doing photos" rather than as a semi-structured ethnographic interview afforded a powerful shift in my own thinking and doing. For example, "doing photos" became less about me asking questions in relation to a piece of documentation (i.e., using the photo as an interview prompt) and more about what was emerging between the child, the images, and myself (i.e., what the photos were doing to us, what we were doing with/to the photos). My conception of a semi-structured interview or conference was subverted in favor of an assemblage of more-than-human movements, doings, affects, materializations, and articulations.

After engaging with Clara in this way, I stopped using the term conferences or interviews and instead asked children if they wanted to "do photos" and told them that doing photos only meant that they could "have a notebook, markers, and photos and videos on the tablet to do what they wanted" and that we could talk if they wanted to. The other children quickly adopted the idea that what we were "doing" was "photos". They would ask, "Can I do photos today?" or "Can Lotta do photos with me after lunch?" Within these assemblages of "doing", images were not treated as simply symbolic



artifacts that might aid discussion. Instead, they functioned as a site of productive entanglement (Lenz Taguchi, 2010). Although children did remark on the agency of the material world of their classroom and the force of the more-than-human actors with which they engaged in the events that were constructed in the documentation, they did so not by simply over-coding images with meaning, but by engaging in the complex material-discursive "doing" of/with photos.

~~Children's documentation~~ "Becoming (with) cameras". As the research methods of "being with (us)" and "doing photos" continued throughout the school year, a new means of constructing images was introduced to the children. Starting in February, children were asked to photograph "important things" throughout their day using Lytro™ cameras. These cameras use light field technology, meaning that the camera is capable of capturing all of the light within the camera's field of vision. Instead of a static image, the camera produces an interactive, digital vector image wherein the depth of field can be manipulated repeatedly after capture. What this means pragmatically is that there is only a viewfinder and a shutter button. The images can be composed instantly and can be focused after they are captured via the touch screen on the camera itself or by using simple software on a secondary device, such as a tablet or personal computer.

Although Lytro™ cameras have not been utilized previously in research with children, the ease of use seemed a natural fit for this research project. They are small, light, and simple to operate. (Re)focusing the images was intuitive and as simple as touching the part of the image one wanted to bring into focus. Not simply a static representation, the image is in and of itself a site of material-discursive intra-action. My

initial thinking was that the affordance to intra-act with the image differently than a traditional photo had the potential to produce new and different material relations, which would add to the complexity of the data generated.

The children were given time initially to explore and gain familiarity with the features and functions of the cameras in small groups outside of the classroom. During this time, I gave the children three general guidelines for use of the cameras:

1. There were only three cameras, so they would need to think of a way to share them that was fair to everyone.
2. They should treat the cameras gently, just as they would treat any other piece of electronic equipment (e.g., a laptop, a smartphone, etc.). I advised them to use the wrist-strap. I told them that accidents might happen, though if the cameras were to break I might not have the ability to purchase new ones.
3. They should take photos of important things. What was "important" was up to them and they did not need to ask me for permission to make a photograph.

During this exploration period, I asked them to think about the guidelines while figuring out how to use the cameras and if they had any new ideas they could either talk about them with the group or draw/write about them using large sheets of paper and pens that I provided. Other than receiving some gentle reminders not to grab the cameras from each other, much of this small group time was spent working the cameras in various ways. I sat to the side as they moved around the room, quickly taking hundreds of photos of the tables, chairs, items on shelves and wall décor. Some children would review the photos that they had taken, scrolling quickly through the camera's display screen. Others

seemed to enjoy taking the photos more than viewing the resulting image. Almost every child spent a portion of the time making many photos of "silly faces", clicking the shutter over and over again, and laughing raucously at the results. During these improvisational engagements with the cameras, they would often share ideas with each other and discuss ways to solve potential problems, such as whether or not the grey cameras took different kinds of photos than the blue one (they did not), whether or not they should wear the wrist strap (they should), and whether or not someone should delete a photo that they didn't take (they shouldn't). As they moved from taking photos to rendering these initial camera engagements with paper and pens, the children grappled not only with the ways in which the cameras worked to capture images, but also with the ways in which the cameras might impact classroom relationships and their being-knowing as kindergarten children.

Clara: *Is there a sound that it makes when it's working? I can hear the button. Is that how it's working in there?*

She sets the camera down and begins to draw several figures.

If you argue and just grab the cameras then they are going to fall on the floor and break. So it's important that you just say, "Hey, can I see that camera?" and not just, like, take it from someone. That's rude. See how everyone is crying? A camera could do that.

She continues drawing, rendering piles of shattered camera pieces at the feet of the crying figures.

Irina: *This is like a telescope…I can see what the camera is actually doing.*

After drawing herself, she adds tiny squares to her arms and legs. She carefully draws tiny circles within the squares and a star on each of her legs.

I'm looking at the picture on the little screen and turning into a photographer! Those are my photographer pants, but now my whole body is turning into a camera! My arms are cameras! My whole tummy is becoming little cameras that eat my food!

She draws and arrow from her hand to a rendering of the camera's display screen. She then carefully draws her own face on the display.

After this initial exploration session, the cameras were hung on the classroom wall near The Platform, within easy reach of the children. For the next three months, all of the children in the class had access to the cameras three days per week and typically followed the safety and care guidelines that I set forth and that they themselves had generated. Some children used the cameras frequently, others only sporadically, as there were no requirements for using the cameras other than a desire to do so.

I originally intended for the images that children constructed with the Lytro™ cameras to be reexamined through the "doing photos" method noted above – the children would be able to "do" their own photos instead of the photos I constructed for/of them. Although the children did engage with the images that they constructed while "doing photos", they engaged with them in many of the same ways that they did with my more traditional photos. In addition, they wanted to move freely between my photos and their own depending on our conversations and the ways in which their photo-doings unfolded.


Diego

Despite my original intentions, using the Lytro™ cameras in *real-time*, rather than engaging with the vector images after the fact, became the more disruptive and provocative material-discursive entanglement. Similarly to how Irina had rendered in their initial drawing with/about the cameras, children tended to use the cameras to incite new becomings, such as stopping the action, entering into another child's play space, transgressing the limits placed by another child, or otherwise working the boundaries of bodies and discourses as cameras were put to work. Children's becoming (with) cameras produced new sites of material-discursivity that were not always about constructing a particular image, but were more about making something *happen* (Kind, 2013). The camera's presence as a material agent was entangled with children in producing new events; many events of importance to the children weren't *captured* with the camera but *incited* by it.

Bella: *I really needed Petal to play with me. I just thought it was not fair that she was just partners with Elizabeth…I wanted us to be three. So I got in there!*

She runs her fingers over the screen where Elizabeth and Petal faces meet, then over the screen where their hands are clasped together and sighs.

Bella: *That makes me sad.*

Ginger: *Nia was supposed to be Margaret's partner for the lights but Nia was absent so I really wanted Margaret to pick me. She had to pick somebody for that job, so I went over and got her! And she picked me! [Poking at the screen*, her finger touching the image of Margaret's] *I'm picking YOU!*

Methods and Ethical Matters

> Deeply embedded in the new ontology are ethical concerns that acknowledge the destruction of the world humanism and its science projects encourage with their man/nature, human/nonhuman binaries. Refusing that binary logic which pervades our language and thus our living is a priority, because if we see ourselves as always already entangled with, not separate from or superior to matter, our responsibility to being becomes urgent and constant.
>
> —Elizabeth St. Pierre, The Posts Continue: Becoming

In previous sections, some of the ethical implications of reconceptualized research with children, in both the abstract and the practical sense, have been discussed. In addition to complying with approved research procedures and stipulations for consent/assent from the minor participants and their parent(s)/legal guardian(s) by the university's Institutional Review Board (IRB) and the particular school site, I attempted to afford children the position to communicate perspectives and direct the research trajectory through different modalities and the reconfiguration of specific methods of data generation. But choosing to frame research with the ideals of ethical listening and attempting to conduct research through the subversion of methodological traditional hierarchies does not necessarily make the research ethical. A particular theoretical framing and its associated methods can only entail "a pretense of equality" (Coady, 2010, p. 81). What I had designed and proposed carried this pretense of equality that satisfied institutional requirements and methodological constraints. But as St. Pierre suggests, the ethics of onto-epistemological entanglement entails the responsibility of being, and that

being is implicated in the (re)making of the world. In further considering the ethicality of this research, I can offer insight into the ways in which these responsibilities and remakings were entangled in the ways in which the research actually happened during our everyday doing of inquiry.

Our method assemblage, as an inquiry into and an expression of entangled knowing-being, entailed an on-going, "rigorous critique" of "we" (Zylinska, 2011, p. 219) as the researcher, the children, the data, and various yet-to-be-known events continually shaped one another in ways that could have not have been predicted beforehand. To this end, I attempted to make my relationships with the children and their families and all of the research practices as transparent as possible. This included sending examples of the images we were constructing home along with newsletters updating families on the general progress of the project and on their particular child's participation. This also meant communicating honestly with the children that some of what "we" were producing would end up in a "book about kindergarten" (i.e., a dissertation) and answering questions and honoring reservations that they might have about that process. We had many discussions regarding the rights to and limits of privacy with regard to participating in research. For example, children could eliminate "data" from consideration in the book by asking that it be "secret" or "not shared", regardless of how innocuous or interesting I imagined the analytic productions and re-presentations around that piece of data might be. They also decided for themselves if the use of a pseudonym was appropriate or not, with many creating their own "privacy names" and others choosing to be identified by their given name.

When qualitative inquiry is employed as an enactment of one's "responsibility to being", it becomes more difficult to determine from moment to moment whether the research happenings are simply "ethical" or "unethical". Try as I might have to remain open to how the children were unfolding within the research and responsive to the ways in which the children and material were entangled, and how those entanglements produced everything anew, my own limitations as a researcher surely impeded becomings at multiple points throughout the process. One ethical quandary of this sort was my interaction with the children who were not officially participating in the study. In an effort to reduce the possibility of coercion, to be minimally disruptive to children, and, simply because it is my preferred way of working, I spent multiple days in the classroom per week. The thinking behind this is that I build positive relationships with the children and the children do not see me as a "special visitor" whose attention they receive only if they agree to perform research tasks. To this end, I made efforts to interact with all the children as I activated these research methods, choosing to let interesting or disruptive events guide my documentation and "being with" practices, rather than generating data only with particular children. However, being only one person in relation with two teachers and 24 children often presented me with dilemmas on how to allocate my time and attention so that I was being maximally equitable to everyone. For example, when children asked to "do photos" while I was engaged in the act of "being with" other children who were not participating in the study, I often felt the pull to generate more data guiding my decision to tell one group of children to wait and not another. I felt a sense of urgency with the children who had agreed to participate in the research project,

and yet my way of working within the classroom community had implications for *all* of the children. The best I could do, in any given moment, was to consider the potential impact of my choices on the relationships I had developed with each child whether they were "participants" or not. In these moments, reflexively determining whether I had been unethical and resolving to change that practice "next time" was not really an option, as relations and events would never emerge in the same way twice. With these understandings in mind, I cannot claim that this project was ethical, but only that I worked to respond to this constant sense of responsibility to the ways in which the ethical conditions were continually being (re)made and I worked with genuine intention to act with fairness in mind (although what it meant to be fair was always changing).

Barad (1999) claims that all research practices, whether explicitly taking an activist stance or not, are enactments of relations with real consequences. Hultman and Lenz Taguchi (2010) respond to this idea of the real consequences of research agendas as follows:

> What we do as researchers *intervenes* with the world and creates new possibilities but also evokes responsibilities. If we think in this way, we might not just *live differently*… but do our research and analysis differently, in order to perhaps make it possible for others (humans and non-humans) to live differently in realities yet to come. (p. 540)

Our method assemblage and the choices and ways of being entailed were employed in this spirit – to "listen" to children differently, to "document" differently, to "participate" differently, to conceive of relations between human and material, between researcher and

child differently. Because of the ways in which my research intervened in the classroom world with this particular assemblage of children and things, I cannot claim that it was singularly ethical. I can only lay claim to working towards the goal of enacting research differently and intervening responsibly, knowing that matters of ethics were entangled into every movement.

Data Analysis

Both the theoretical conceptualization and enactment of this research focused on the entangled, in-between, immanent nature of knowing, being, and doing – what *emerged* between child-material-researcher within a posthuman space. Because of our particular method assemblage, the ways and means of generating data *about* the material-discursive entanglements within the classroom were actually implicated *within* the entanglements themselves. In determining how these data events, which comprised nearly 7,000 photographs, 60 hours of video clips, over 200 drawings, and several notebooks filled with handwritten notes, fell together (or apart) in order to highlight both entanglement and transformation, analyses that focused discrete, stable, or hierarchical categorizations was not appropriate. Plugging-in to Deleuzian philosophy once again – this time through the concept of the *rhizome* – allowed me to make analytical moves that aligned with my theoretical commitments and methodological enactments: attending to emergent events, making new lines of connection and moving toward possibilities, uncertainties, and transformations.

Deleuze and Guattari (1983, 1987) developed the philosophical figuration of the rhizome in relation to the biological rhizome, an underground, asexual mass of roots and

shoots that grows out from the middle in a flattened, lateral structure. Deleuze and Guattari (1987) described the rhizome as follows:

> Unlike trees or their roots, the rhizome connects any point to any other point, and its traits are not necessarily linked to traits of the same nature…It has neither beginning nor end, but always a middle (milieu) from which it grows and which it overspills ... the rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines of flight. (p. 21)

As a philosophical figuration, the rhizome articulates both the uncertainty and the possibility inherent in examining connections between complex, heterogeneous events. The rhizome is characterized by interconnections of varying intensities and by a precocious, invasive pattern of growth. Lather (1993) describes rhizomatics as "a journey among intersections, nodes, and regionalizations through a multi-centered complexity" (p. 680). *Rhizoanalysis,* then, is a process that "enacts what it means to let contradictions remain in tension, to unsettle from within, to dissolve interpretations by marking them as temporary, partial, invested" (Lather, 1993), thereby forming its own, albeit necessarily paradoxical, validity. Rhizoanalysis acknowledges not only the complexity and interconnected nature of the research focus, but also the necessarily tentative and potentially contradictory nature of the connections to be mapped; at best, provisional linkages can be mapped in order to provide a plausible reading of the meanings and doings that emerge within the rhizome (Honan, 2007).

For the purposes of this study, thinking and working rhizomatically allowed me to attend to the emergence of relations and differences by shifting the "attention away from fixed meanings and toward action and new becomings" (Leander & Rowe, 2006, p. 428). In order to think about what the data were "doing" – how the events were connected and what transformations arose – I also drew heavily on MacLure's (2010, 2013a, 2013b) post-qualitative notion of *coding*. Although coding practices vary among qualitative frameworks, coding can be defined generally as follows:

> (a) A body of data (interviews, field notes, responses to questions, documents, personal narratives, 'naturally occurring interactions', visual images, etc.); (b) a search for recurrence and pattern, through (c) naming and collecting (categorizing); and (d) reduction of complexity through the assembly of data into superordinate categories or concepts. (MacLure, 2013b, p.165)

MacLure (2013b) critiques the ways in which traditional qualitative coding practices neutralize difference through categorization, fix movement within a logical, hierarchical structure, and force everything to make sense or mean *something else*. At the same time, she acknowledges that abandoning coding altogether in the writing up of research is impossible, as "all language in its representational dimension shares the fixative ambitions of coding" (MacLure, 2013b, p. 174).

With these understandings in mind, I worked to push against the notion of the knowing subject who stands apart from her data in order to reduce information into broad thematic units in favor of conceptualizing the data and the researcher as inhabiting one another. For the purposes of this project, data was conceptualized as actively "gathering

our attention" through it's intensity, movement, interrelationality, or "glow" (MacLure, 2010, p. 282). I worked to inhabit/become inhabited by the glow of the data to resist "a reductive process of coding" (Jackson, 2013, p.746), while also recognizing that coding and sorting of information on some level is inevitable. Recognizing data as an event, or an effect of becoming, allowed me to push against my own "appetite for meaning" that might otherwise reduce the complexity of the data into a hierarchical set of codes. Becoming attuned to the ways in which the data *worked* as "something not under our conscious or intentional control as analysts" (MacLure, 2013a, p.662) also aligned with the onto-epistemological conditions of entanglement and radical agency that drove the study. This work has all along been about attending to what material-discursive entanglements *do*, not about questioning their existence. The "data" that will be featured in the next chapter is, quite simply, meant to give shape to the events that moved us, that delighted, confused, or frustrated us most.

Rendering and Re-presentation

Engaging with the "data" – the narrative, visual, and embodied modes of becoming – in a rhizomatic fashion afforded the freedom to attend to disruptive, contradicting, and confounding events, as well as experiment with the ways in which the data, itself a material-discursive entanglement, moved us toward new becomings. Rendering what emerged from this generative process with children was no easy task, as post-qualitative inquiry is often informed by a materialist critique of representation as it relates to data (MacLure, 2013a). In continuing to claim a post-qualitative framework, I am not suggesting I am "beyond" representation. I can only claim that I aimed to trouble

it as I attempt to give shape to the contours of the entangled material-discursive events through which both children and "things" emerged differently**,** highlighting "complex elements of both human and material transformation" (Jackson, 2013).

As other researchers have done, the rhizoanalytic engagements are rendered through a series of entangled *cartographies* (e.g., Alvermann, 2000; Dolphijn & van der Tuin, 2012; Martin & Kamberelis, 2013). Cartography is an approach that "affords opportunities to read data as complex, connected networks rather than as sets of discrete relations between and among variables" (Martin & Kamberelis, 2013, p. 676). These cartographies were formed through a rhizomatic analysis of the assemblage of data events and were partially produced in conjunction with children during fieldwork, and partially produced in the writing of this dissertation after the fieldwork had concluded. Within each cartographic rendering, the data are rendered as becoming through narrations of child-material assemblages, vignettes of classroom events, literature links, conceptual connections, images and/or other collaborative multimodal expressions. The cartographic renderings serve as a material-discursive expression of the conditions driving the methods of inquiry described in this chapter: the ways in which material and human emerge differently though their mutual relations.

The cartographies re-presented in Chapter Four are conceptualized as actualizing and unfolding a multitude of perspectives on an event, not by operating as an accurate linguistic or visual representation of what happened, but by "complicating what we know about our practices to put ourselves in motion to be in a process of change and invention, not knowing the end state" (Lenz Taguchi, 2010, p. 91). The documenting of children's

material-discursive relations embodies a circular and horizontal flux as time-space-place-material relations are analyzed and mapped, as un-thought possibilities are articulated, and also as concepts developed from documentation come to matter as new "material articulations of the world" (Barad, 2007, p. 137). In these acts of mapping, "child", "researcher", and "data" emerge differently and are (re)made "not only by human discursive practices and their material effects, but also by non-human forces, and, most importantly, by the mutually enmeshed relations between humans and non-human others" (Taylor, 2013, p. 65).

The cartographies that follow are an expression of the momentum of these data events; they re-present the various ways in which layers upon layers of data engaged us, moved us to wonder, kept our attention, and forged connections. There are no Truths to be uncovered. There are only movements and doings that emerged between children, particular material-discursive contexts, myself, the re-presentation of the data, and, now, the reader. Children's perspectives are re-presented through their own words, drawings, and photos (square) and are woven into my own narratives, drawings, and photos (rectangular), as well as understandings constructed collaboratively between the children and myself and the apparatuses of research (photos, cameras, drawings, etc.). Some short vignettes are presented without much in the way of traditional interpretation, but their placement in relation to other constructed cuts of data is, from my and/or the children's perspectives, thoughtful and necessary. Some constructions are connected to various literatures – both scholarly and popular – when necessary to advance either the children's or my own perspectives or both. It is important to note, however, that both the "data" and

our “perspectives” were mutually constitutive. We shaped the data as it shaped us.

The physical arrangement of these cartographies – with text and images on opposite sides of each page spread – is meant to mirror both literally and figuratively this kind of in-between emergence of meaning and allow for the reader’s continued movement between what is traditionally conceived as the “material” and the “discursive”. In this way, the cartographies re-represent data events and, yet, are themselves a new layer of material-discursive events that the reader will navigate. In keeping with a posthuman, new materialist orientation, the meanings that a reader might glean from these cartographies will emerge somewhere within “the traffic” (Haraway, 1989, p. 377) – the paths readers take between what are perceived to be the “material” and “discursive” elements of the data and the ways in which these elements make themselves known to the reader. As I have already begun to do in this chapter, the images are not presented as supplemental figures; they are embedded in and inseparable from the traditional text. In arranging the cartographies in this way, the images are not merely present as artifacts or in-service of illustrating or verifying the narrative elements. Images and written text emerge as equal forces of re-presentation.

CHAPTER IV

ENTANGLED CARTOGRAPHIES

Starting in the Middle

Inherent to cartography is an expectation that one must "start in the middle to look for what emerges in the connections among these different fields and flows" (Lenz Taguchi, 2013, p.714). As such, the following "data event" can be conceptualized a middle place. This is an opening that creates space to wonder, giving texture to an event that refuses to be codified as simply meaning one thing or another (MacLure, 2013b).

I haven't seen the pavement on The Playground for many weeks; a thick layer of ice and drifting snow has covered much of the outdoor space. A few days ago, the temperatures rose suddenly causing what Clara called "A Big Melt". The water run-off from the roof overwhelmed the gutters and spilled over onto the pavement. This morning, a frozen puddle remained near the downspout. Elizabeth approached the ice first, slowly shuffling across its surface. She stops for a moment and seems to be looking at her shadow. Paige arrives and slides across the ice, bumping her from behind.

Elizabeth: [Singing a song from Disney's *Frozen*, hands outstretched] *Do you want to build a snowman?*

They laugh, holding onto each other or the corrugated tube around the downspout. As they hold on, they move their feet quickly so as to run in place on the surface of the ice. They call to me.

Paige: *We're going coo-coo!*

Elizabeth: *Coo-coo crazy! Take a picture of this!*

I take a few photos in between jotting notes and sketching.

Paige: *Make a movie of this, Casey!*

I turn my video camera on. As they laugh harder, they lose their balance. They squeal. Paige snorts. She almost falls but Elizabeth catches her before her knees touch the ground. Laughing harder now, they both slip and fall on their bottoms.

Paige: *This crazy ice bashed us!*

As Elizabeth and I are "doing photos" she asks if I have a video of her and Paige "skating around on the ice". I confirm that I do and she asks to watch it. She watches it five times, narrating the video and drawing.

Elizabeth: *Paige is going to laugh so hard when she watches this. We'll crack up. Cracking up is when you are laughing so hard that your heart is beating...so much! Like when the ice cracks and you think, "Oh my god, I'm gonna fall over and get a head bash." Like Anna from Frozen. That's cracking up.*

She draws Paige. She adds a braid to her hair as well as a few snowflakes in the sky, none of which "exist" in the video documentation. She directs my attention to a small animal she draws in her place beside Paige.

Elizabeth: [Giggles] *When I turn Coo-Coo, I have a tail! Little Coo-Coo is like, "Paige! Paige! I'm gonna grab you with my taaaail!" And then Paige says, "Maaaah! My tooth!" and all her little teeth come out all over the place. And the Coo-Coo will eat them up!*


RW

She draws teeth falling from Paige's open mouth. She adds some sharp marks above Coo-Coo's tail, but doesn't elaborate on them. She makes the outline of the ice puddle before finishing her drawing.

Elizabeth: *And, now, a jagged-y ice. It's so slippery, it's like... grabbing onto your feet and we're like, "Noooo!"* [Laughing, then sighing] *Okay, what's next?*

I acknowledge that by setting up an encounter with this particular data "event" in the start of this chapter, I run the risk of the reader interpreting this as the single point where the all the "meaning" in the data converges. This is not my intention. This is merely an excerpt from the middle (which I have chosen to place at the beginning) wherein multiple lines of connection overlap and diverge again. This materialization of ice, snow, hair, animals, noises, loose teeth, and injury (among other things) connects in various ways with each of the cartographies that follow. These cartographies exist simultaneously, exposing and making connections, without presupposing that the full geographies of events could ever be outlined, that territories can ever be definitively identified, or that the scope of the events could ever be accurately defined as having orderly beginnings and endings. To assume as such would be to claim a tracing, rather than cartography (Martin & Kamberelis, 2013). What follows is an "investigation of forces and intensities in the events as the different lines connect, intersect, or traverse each other" (Lenz Taguchi, 2013, p. 713), rather than an attempt to come to a single point of convergence, overarching theme, or set of principles. These are presented in no particular order and the reader is encouraged to explore these cartographies however she

is moved to do so. The structural confines of written research present challenges to the inherent connectivity of cartographies; in order to satisfy convention, I do present the following chapter in sequentially numbered pages. However, since " a line of becoming only has a middle" (Deleuze & Guattari, 1987, p. 293), the major sections within each cartography can be read in various ways, as well. It is important to note though, once again, that the reader is meant to engage with Chapter Four as a two-page spread or in side-by-side view.

Continuing with/in the Cartographies

Below is a brief description of each of the cartographies that follow. At the end of each abstract there is an alphabetic key that corresponds to the physical locations through which the cartography emerged within the classroom. A visual guide to each location follows the abstracts (see Figures 6, 7, 8, and 9). For example, (L) refers to The Lockers and a photo of that location can be found at the end of this section in Figure 6. Although these locations are not static – they exist in relation to the events re-presented in the cartographies – these reference photos are simply intended to aid the reader in making thoughtful choices regarding how to move through this work. Where the reader chooses to move from this point is her prerogative.

The cartography titled **"But *Frozen* comes fast!": Materializations of "good" kindergarten work** charts the entanglements of (un)acceptable performances of kindergarten "work", engagement with classroom materials and the discourses that surround these engagements, and the materialization of popular media within the classroom, namely Disney's animated film *Frozen* (Buck & Lee, 2013). My intention

here is to re-present mutually constitutive, material-discursive phenomena by outlining the relational contours of how *Frozen* emerged and was enacted in the classroom, how classroom materials engaged children for various purposes, and the ways in which discourses about "good" work simultaneously created these materialities and were produced by them. This is an attempt to visualize and narrate this particular *Frozen* landscape. (SD) (BW) (P) (WC) (PL) (L)

The cartography titled **"I don't know what's gotten in to me, but I'm guessing it's snake germs": Becoming beasts** maps the various ways in which children were entangled with the process of becoming more-than-human animals within their classroom spaces. Specifically, it charts the ways in which children and acts of becoming-animal were mobilized within what Paige referred to as "the Beast" – an imbroglio of physical transformations, environmental limitations, adult expectations, material affordances and children's conceptions of and relationships to certain animals. This is an attempt to visualize and narrate the complexities of the (im)proper more-than-human animal as it emerged within and through particular material-discursive circumstances. (P) (ST) (C) (PL) (CD)

The cartography **"A real special occasion": The recalcitrance of tinythings** explores the doings of seemingly small, mundane entities within classroom spaces. The children experienced these *tinythings*, as they would be termed by Clara, as uncooperative, disruptive, delightful, and sometimes overpowering agents, and this material agency complicated children's relations in their everyday classroom lives. The entanglement of desires, materials, social expectations in which these tinythings emerged

was noted as major events in the children's classroom lives, as "real special" occasions. (C) (LL) (CD) (P)

The cartography titled **"Take this baby to the disability center": Limbless figures, disability plays** attempts to give shape to the ways in which classroom discourses about and enactments of (dis)ability were entangled with the physical characteristics of a collection of plastic animal figures with which the children frequently played. This cartography explores the various ways in which a certain kind of socio-dramatic and constructive play came to be possible through the particular material-discursivity of (dis)ability that emerged from/around these limbless figures. (PL) (BA) (C) (CY) (SD)

Figure 6. The Lockers (L), The Carpet (C) and The Block Area (BA)

Figure 7. The Snack Table (ST), The Writers' Center (WC)

Figure 8. The Platform (PL) and Big Windows (BW), The LEGO Loft (LL)

Figure 9. The Side Door (SD) leading to The Courtyard (CD), The Playground (P)

"But *Frozen* Comes Fast": Materializations of "Good" Kindergarten Work

This cartography maps the entanglements of (un)acceptable performances of kindergarten "work", engagements with classroom materials and the discourses that surround them, and the materialization of Disney's animated film *Frozen* (Buck & Lee, 2013). Although it is certainly worthwhile to do so, the purpose of this cartography is not to critically theorize young children's engagement with popular culture through lenses of class or gender nor is it to criticize Disney's commodification/corporatization of childhood. Indeed, several scholars have engaged with these purposes already (Canella & Kincheloe, 2002; Giroux, 2000; Steinberg & Kincheloe, 2004). My intention here is to re-present mutually constitutive, material-discursive phenomena by outlining the relational contours of how *Frozen* emerged and was enacted in the classroom, how classroom materials engaged children for various purposes, and the ways in which discourses about "good" work simultaneously created these materialities and were also (re)produced by them. Being engaged with particular classroom materials and the quickness or speed of these engagements figure prominently throughout this cartography.

Kindergarten Becomes *Frozen*

On November 27, 2013, The Disney Corporation released the animated feature *Frozen* (Buck & Lee, 2013). Inspired by the traditional tale, *The Snow Queen* (1845/2014) by Hans Christian Anderson, the Internet Movie Database provides the following synopsis:

Fearless optimist Anna teams up with Kristoff in an epic journey, encountering Everest-like conditions, and a hilarious snowman named Olaf in a race to find Anna's sister Elsa, whose icy powers have trapped the kingdom in eternal winter. To date, the film is the top-grossing animated feature of all time, earning over one billion dollars at box offices worldwide (Steadman, 2014). When released for purchase, Frozen became both the fastest-selling children's disc and fastest-selling digital download of all time (Borys, 2014; McLean, 2014).

The film introduced the two new Disney princesses – Nordic sisters Elsa and Anna – who also sing the majority of the songs on the film's record-selling soundtrack. Of importance to this mapping is the best-selling anthem, *Let it Go* (Anderson-Lopez & Lopez, 2013). The song was nominated for numerous film industry awards, winning the Academy Award for Best Song. Bolstered by the popularity of the Frozen soundtrack, Disney crafted a sing-along version of the film for limited release on January 31, 2014, wherein the audience was presented with "on-screen lyrics with a magical bouncing snowflake to follow along" (Alexander, 2014, np).

In the days leading up to and immediately after the November release, discussions about and enactments of *Frozen* were evident in the classroom. Character-related merchandise appeared on a regular basis, either adorning female kindergarten bodies (e.g., Frozen™ shirts and headbands) or remaining on the fringes of the classroom (i.e., Frozen™ coloring and activity books tucked away in The Lockers). Informal discussions with the children revealed that most were familiar enough with *Frozen* to name characters, and sing a few lines from *Let it Go*. By January, all but a few of them had

seen the movie in the theater and those who hadn't owned the soundtrack and/or had experienced various features of the *Frozen* world through the film's web presence, including video excerpts and character-related games. By March, many of the children reported seeing the movie three or more times and some reported that they were expecting to watch it to pass the time during upcoming Spring Break travels by plane or car.

Throughout the Winter and Spring, different groups of children could be heard singing *Let it Go* multiple times per day. For several weeks, the children invariably choose to sing and dance to the CD during their weekly music class. Wanting to support their interest and enjoyment in the song, the lead classroom teachers would often honor requests to play the song during the morning sing-along. Although adults generally honored their interest in the song/movie, there were several instances each week of children being told to stop singing *Let it Go* in order to "focus" on other work or reduce the overall noise-level in the classroom.

Children's enactments of *Let it Go*, in particular, became an expanding site of material-discursive entanglements. Bella, Petal, and Margaret coined the phrase "doing *Frozen*", which meant singing lines from *Let it Go*, playing the Elsa character in various ways, and performing various elements from the movie scenes in which the song was featured. This four-minute musical sequence within the larger movie became the thematic site for the emergence of *Frozen* within the classroom. What follows is a re-presentation of how this sequence unfolds within the movie and comprises children's

drawings that emerged as they sang particular lines from the song and my own commentary on the progression of the scene from a material-discursive perspective: After years of being kept prisoner away from the prying eyes of the public, Elsa loses her temper. Her special powers overwhelm her and, losing control, she freezes everything in her path. Banished from the kingdom that now knows her terrible secret, she is alone, wandering on the snowy mountain.

The snow glows white on the mountain tonight, not a footprint to be seen.

A kingdom of isolation,

And it looks like I'm the queen.

The wind is howling like this swirling storm inside.

Couldn't keep it in.

Heaven knows I've tried.

She wears a turquoise bodice with long black sleeves and a purple cape. She removes her remaining glove and the magical ice rushes from her fingertips.

Let it go,

Let it go!

Can't hold it back anymore!

Small snowflakes rise from her fingers, then icy winds, and then a snowman materializes. As she pushes gusts of wind and snow right and left, she smiles. In the isolated context of the mountain, her powers of ice and snow are no longer destructive, but productive.

Let the storm rage on...

The cold never bothered me anyway.

Elsa unfastens her purple cape and the icy wind blows it out of site. She no longer fears the cold nor the isolation that the winter brings. She is working with her powers, rather than against them, and does not see them as a threat. The tempo becomes jaunty and urgent as Elsa smiles through the lyrics of the new verse.

It's time to see what I can do.

Test the limits and break through...

She begins to build a palace of ice, harnessing the wind and snow. The ice crystals latch onto each other, spreading to form an icy staircase that leads high into the mountain air.

No rules for me...

I'm free!

Let it go,

Let it go!

I am one with the wind and sky!

Elsa races to the stop of the staircase. As she plants her foot triumphantly on the mountaintop, a giant crystalline snowflake forms and spreads to create the icy floor of her palace. She raises her arms and twirls to direct the icy winds into gleaming walls, then a prismatic ceiling with an ice chandelier. The ice spreads quickly in realistic crystalline formations, covering every surface in sight – similar to what one would see if she were to watch ice form under a microscope.

And one thought crystallizes like an icy blast...

I'm never going back.

The past is in the past!

She throws her tiny crown from her head, shaking neatly kept hair out to reveal a thick side-swept braid and tousled bangs that swirl in the wind. As she continues into the final chorus, the ice forms glimmering blue gown with a translucent train that attaches at her shoulders. She's a queen of her own ice kingdom. She creates with ice and has been created by it.

And I'll rise like the break of dawn!

Let it go,

Let it go!

That perfect girl is gone!

She spreads her arms wide as she sashays down a runway of ice and onto the balcony of her newly fashioned ice palace. She swings her hips and spreads her arms wide as she surveys her new ice kingdom.

Here I stand

In the light of day

Let the storm rage on...

The camera pulls back to reveal the ice palace in context. It is gleaming; shades of pink and blue that have formed in the dawn sky are refracted through millions of frozen angles on the palace exterior. The camera then pulls in tightly to Elsa's face. She smirks defiantly with newly red lips, raising one eyebrow over lavender lids.

The cold never bothered me anyway!

Twirling away from the camera, her train and braid swing behind her with a flourish. The door of her palace slams and she marches into the opaque crystalline castle.

The transformation of Elsa's physical appearance and the creation of the ice palace during the *Let it Go* sequence is important to note because the mutually constitutive forces of ice and wind, of transformed hair and clothing, and of exhibitions of power and creation were identified as essential elements of "doing *Frozen*" and these mirror the material-discursive entanglements that emerged as children engaged in "doing Frozen" in various ways in the classroom. Elizabeth, who had seen the movie "a hundred times" and was considered a "*Frozen* Expert" by Petal, Bella, and Paige, explained that enacting *Let it Go* was essential to "doing *Frozen*" because it had the essential elements of "Elsa, the ice power, her braid, and the singing." These elements of "doing *Frozen*" materialized across the classroom landscape, each pushing against and ultimately shaping the ways in which the children's "work" within the classroom was enacted and assessed.

Window Work, Ice Power, and The Polar Vortex

At this same time, the Midwestern and Eastern United States was gripped with an artic blast of air, termed *The Polar Vortex*. From December 2013 to April 2014, the community in which this particular school was located experienced record cold and snowfall, with temperatures 20 to 40 degrees below average and high temperatures often remaining around zero degrees (Freedman, 2014). Per school policy, children could only play outdoors when the temperature remained above 20 degrees Fahrenheit and, as a result, there were many days in which the children were not permitted to play outdoors in the mornings or afternoons as they were used to. In the absence of afternoon outdoors time, teaching assistants often engaged with the snowy landscape through various teacher-led arts projects. One arts and crafts activity that emerged several times

throughout the Winter and Spring was the making and displaying of white paper "snowflakes". With varying amounts of teacher assistance in the planning of the design, children would fold and cut coffee filters to resemble a magnified snowflake and hang them with tape on the windows of The Side Door. Adult presentations of arts media in efforts to engage children in interpretation and representation of the outdoor landscape were also present in a week-long watercolor provocation in which small groups of children were given blue, grey, gold and green paints and challenged to paint something they saw through the windows of the school. Children were encouraged to observe carefully, paint slowly, consider their color choices and have a plan in mind before they began in order to do their "best work".

In these cases, the ways in which weather, windows, classroom materials, and children came together were accompanied by either replacing direct interaction with the cold weather as a means for children to engage with higher-order thinking (e.g., planning and executing a painting) or utilizing materials and weather together to plan an indoor activity (e.g., making snowflakes). However, classroom windows were also sites of engagement between the children and "*Frozen*" weather in ways that occurred outside of teachers' planned activities. For example, during morning exploration time, Paige and Petal often went to The Big Windows to see gusts of snowy air move across the drifts on The Playground and then proclaim, "We're *Frozen*!" as they moved their hands back and forth, attempting to follow the direction of the gusts of air "like *Frozen* does when she's on the mountain." These gusts of air would often move them into a duet rendition of *Let it Go* while they watched the snowy wind through the window. When "doing photos",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Paige and Petal often requested to view photos of the windows so they could (re)enact "playing ice power".

Petal*: Ah! Look at your arms, Paige! You're doing Elsa like...so fast!*

They take turns drawing "twisty turns of snow" on the page of the notebook while they talk and recall the movements of their bodies in response to the wind and snow.

Paige*: I know, I know. It's really tricky. Like...the wind was going all over the place and it was making me exhausted.*

Petal*: Oh, you need to take a little nap!* [In high-pitched voice] *Paige, you're going to dream about being a Frozen baby in a big blue dress.*

Paige: *No way! I'll wake up and ice you!*

She sticks out her arms and points them at Petal, mimicking the motions they made when they were being directed by the wind. They both laugh raucously, with Paige nearly falling out of her chair before returning to make more twisty marks on the paper.

This particular snow-wind-window-child enactment of *Frozen*, complicated the notion of "doing work". Unlike the coffee filter snowflakes or the watercolor paintings, the ways in which weather materialized on paper was not just about child (or adult) planning and thinking prior to working. *Ice power* could be conceptualized as both the children's embodied performances of Elsa's power of moving the wind and snow and forming ice (e.g., *ice power* as an enactment of the children), as well as the ways in which the unpredictable movements of the wind and drifting snow outside of the big

windows had the power to move the children in various ways (e.g., *ice power* as an enactment of the weather). In these ways, children were not the only ones at work.

Among the children there was disagreement about the acceptability of the physical manifestations of these more-than-human workings – uncontrolled bodies and chaotic, swirling lines drawn without "much thinking".

Margaret: *Well, it's just... not so good to do that in Kindergarten. It doesn't even really look like snow and if your name isn't on it then it is just like you don't care about it so much.*

Clara: *No. It's not so nice to not say their drawing isn't good, Margaret! Paige can do what she wants and the snow is going to do what it wants anyway so she can't help it!*

Margaret: *Well, it's not a work choice. It's just what you do for fun.*

Paige: *I agree, actually. When you have ice powers, it just comes out and it's not really much thinking and oh well! Your best kindergarten work is something that takes a long time to do.*

Elizabeth: *But Frozen comes fast!*

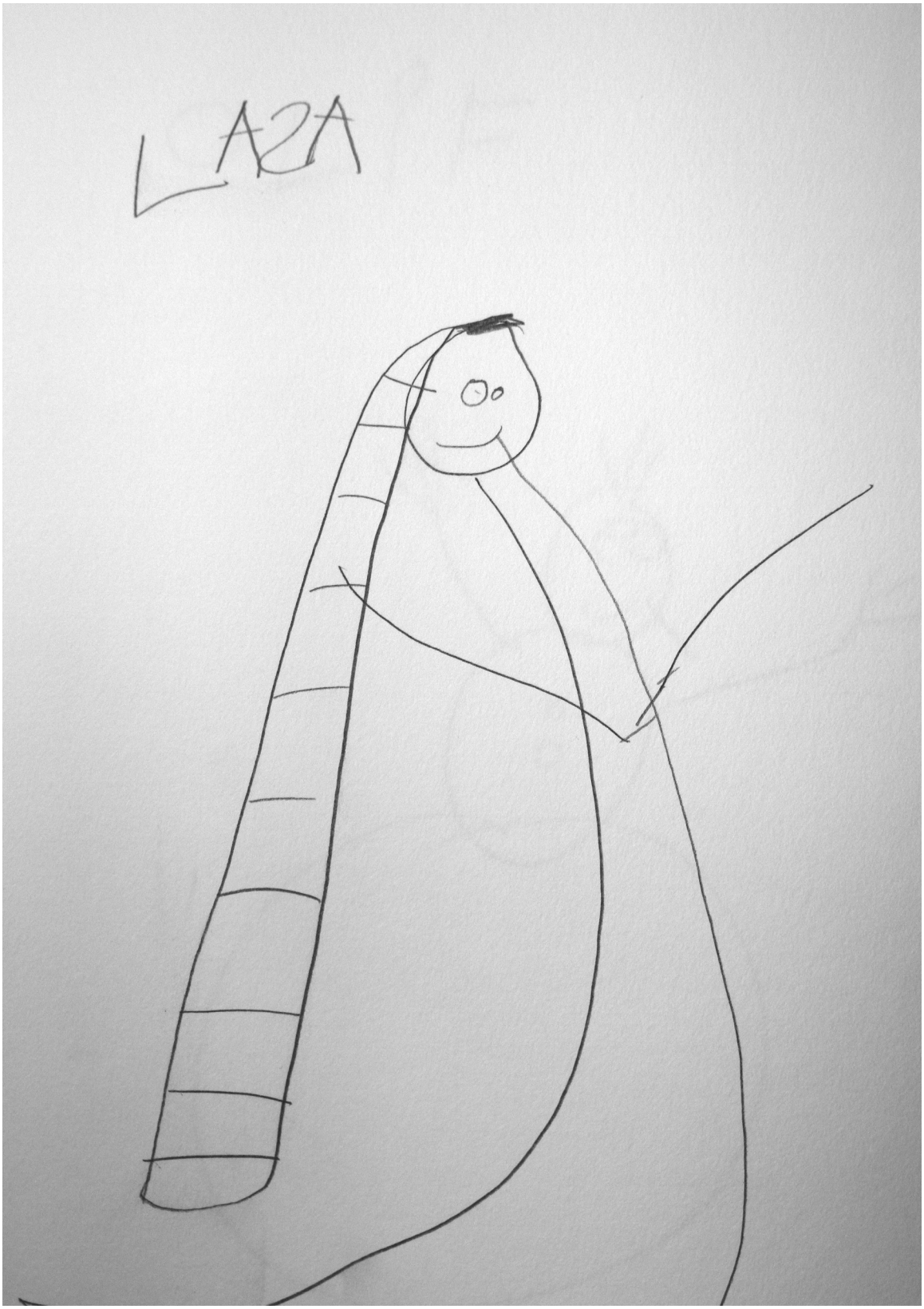
Paige was willing to accept that it was not her "best" work, but acknowledged that there wasn't much she could do about it because, as Clara put it, "the snow is going to do what it wants anyway." There would always be an element of "playing ice power" that was not under anyone's control because the speed and movement of the marks on the page were mutually constituted by child and snowy wind.

This quick, uncontrolled emergence of events not only influenced children's perceptions of "good" work, but also intersected with adults' perceptions whether or not "doing *Frozen*" was a worthwhile activity. Adults' idea(l)s about the amount of time and thought "good" or "best kindergarten work" required resulted in a rationing of the classroom materials necessary for various *Frozen* performances, such as paper, markers, or tape. This entanglement of classroom materials, speed, idea(l)s of "good" kindergarten work, and *Frozen* was especially apparent in the ways in which "braids happened" across the classroom landscape.

Braid-Tape-Paper Happenings

> Referring to the *Let it Go* musical sequence from the film, Petal said:
>
> *She sings and her hair just goes free and then it's*...[splays arms out and over her head in wave-like motions] *Let it go! Let it go! Can't hold it back anymore! Couldn't keep it in…heaven knows I tried! Her braid happens and you can tell Elsa is Frozen!*

When her "braid happens", Elsa is transformed into her more powerful, beautiful self. The act of singing frees the braid and the braid transforms Elsa. Once the braid "happens" Elsa's hair is as much a gestural, expressive appendage as her hands or eyebrows, both embodying and communicating Elsa's coming-into-being as a powerful and beautiful new character, who the children often simply referred to "Frozen". In addition to being an impactful symbolic and material transformation, Elsa's braid was indeed a multiscalar "happening" – gathering and generating forces of various intensities. Disney Animation Studios created new computer graphics software program – a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grooming tool called *Tonic* – in order to "direct" the over 400,000 individual computer-generated strands on her head. Elsa's hair was designed to both move like individual strands and to behave like a sculptural entity (e.g., one voluminous braid) (Simmons &Whited, 2014). Although Disney's interpretation of fairy tales in general and its rendering of princesses in particular have drawn criticism for privileging White beauty ideals and their potential negative impact on the self-identity of children of color (Hurley, 2005; Bordo, 2008), the sculptural component of the Elsa's hair was brought to the fore by the children in ways that gave Black girls a distinct advantage in making "braids happen". Bella's soft, textured hair, which was often neatly gathered into braids or twists, emerged in many of the children's photos and would be used as the rubric by which to compare whether children did or did not have "*Frozen* kind of hair".

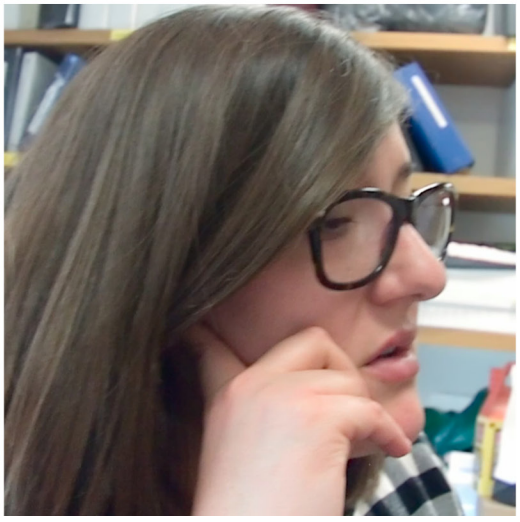
Krissa: *Bella's is like a more braided kind of hair. Mine is more...it isn't like Frozen because it doesn't go into a braid by itself... doesn't want to stay that way. See the little pieces coming out?*

Petal: *My hair is sometimes Frozen...like my bands and a little braid in the back, but it doesn't stay like Bella's does. It's just a different kind of hair because it's not a dark brown hair so it's can't be Frozen all the time.*

Krissa: [To me] *Yours is not Frozen at all. You can't get it to stay in braids can you?*

Casey: *Well, I don't really try, but, you're right…it wouldn't stay in braids like Bella's.*

Krissa: *Her hair is just a Frozen kind of hair, for sure. That's really good. It's so nice.*



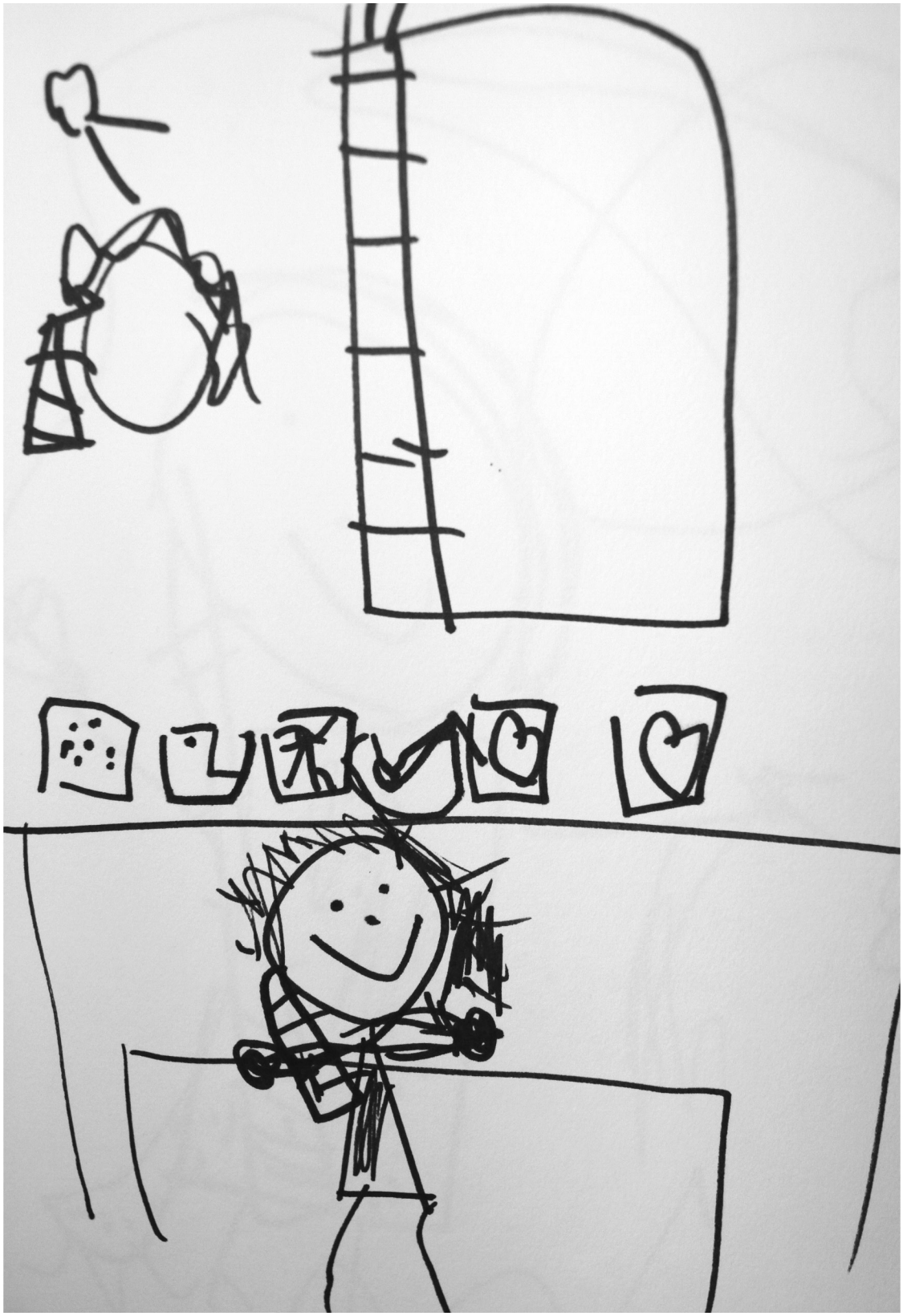
On several occasions during morning free time, Bella could be seen attempting to fashion other girls' hair into braids with varying amounts of success. As her own hair had emerged as the desired "*Frozen* kind of hair", she came to be seen as a braid expert. Although she knew "the moves" necessary to make a beautiful braid, hair lacking the appropriate texture simply would not "stay" plaited. Children's assessment and engagement with their own hair and the hair of others can be conceptualized as an entanglement of material-discursive agents – the computer code that rendered Elsa's hair just so, the fluctuating ideals of princess hair, the textures of hair that did or did not cooperate with children's intentions, Bella's knowing hands.

The uncooperative nature of hair often led children to making braids happen in other ways. For example, the construction and affixing of paper braids to their own hair and face with clear tape emerged as a force in children's enactments of *Let it Go* at and around The Writers' Center. Paper braids were fashioned repeatedly from strips of paper, about 2-inches wide, taped end-to-end to achieve maximum length, quickly colored with markers, and/or adorned with small blue snowflakes. Some children would make "blue paper" by scribbling over white paper with blue markers. According to Bella, the blue paper was to be used to make *Frozen* dresses, but they either always ended up becoming braids or would end up unused, crumpled in the children's lockers. The children would then tape each braid to their own hair or to the sides of their face while singing portions of the song. Once their braids had fully "happened", they would twirl around the classroom, flipping their paper braids over their shoulders as Elsa did in the *Let it Go* sequence of the film.

"Doing *Frozen*" through making paper braids happen, though engaged in frequently during morning exploration by Bella, Petal, Elizabeth, Matar, Paige, and Krissa, tended to be perceived negatively by teachers, classmates, and even the braidmakers themselves. Margaret and Ginger often scolded the girls for their messy work, while teachers instructed them to not "waste" the tape and to use recycled paper from the bin if they wanted to make paper braids. As the making and taping of braids continued over several weeks, children were quick to put them away in their lockers or backpacks. Instead of wearing them around the classroom, Bella and Petal would tape their braids and go quickly to the hallway to stow them away. Having to keep braids a secret in order to not be chastised for lack of "good work" disappointed Elizabeth in particular, as she felt this impinged on one of the more important aspects of "doing *Frozen*".

Elizabeth: *This is Bella's braid. This is the piece of paper…see the one I put the lines at? Where she cut out the long strip. This in the middle is tape. And she's at the bench, at the table. Bella has her own braids that are her own brown hair and then this paper goes on top. She gets a paper and the scissors and cuts a long strip. Makes lines. The gets the tape and puts in on her own brown hair. And then when she's a queen...walk around like...check me out! She's checking everyone out and everyone knows.* [Singing] *And now they know! Let it Go! Let it Go! And I rise like the great daw-aw-awn! See, here's Bella doing Frozen. And she's like...I'm just checking you out! Like a sample.*

Casey: *What's a sample?*



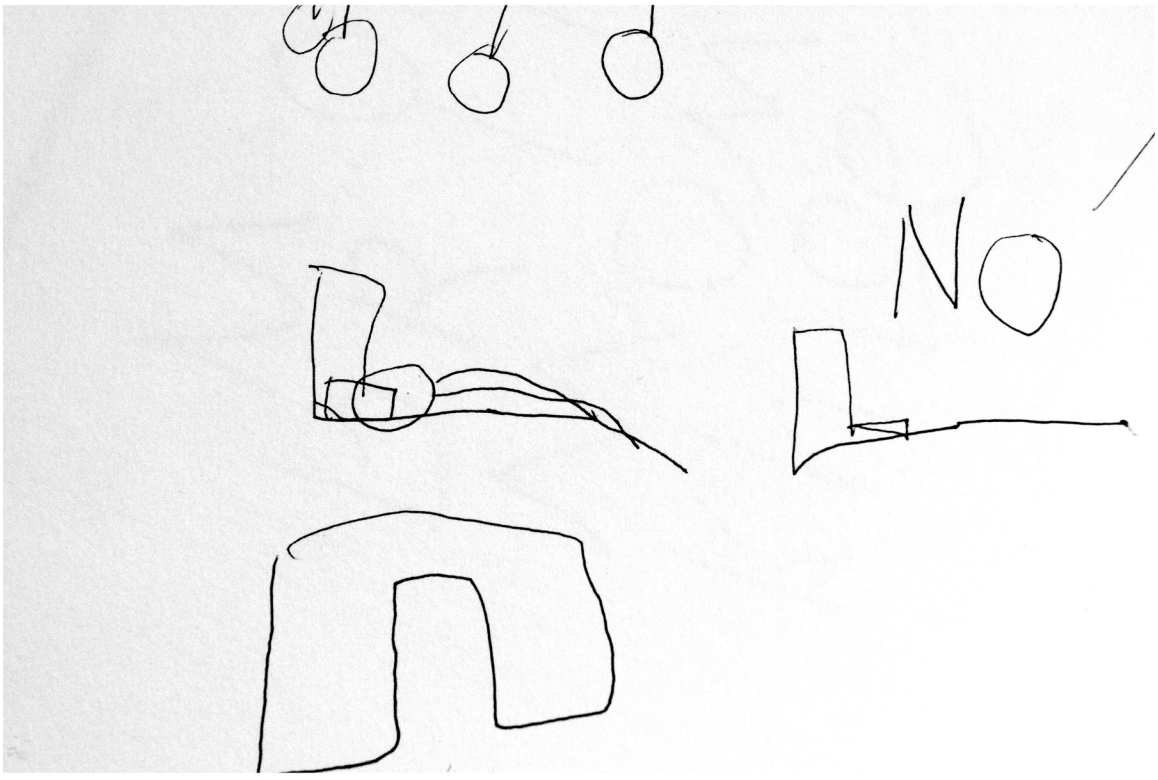
Elizabeth: *Like...have you been to the mall?* [Standing up straight and putting one hand on her hip] *Well, they have samples on like a statue. Like a boy or girl...statue with clothes that you can buy?*

Casey: *Oh, yes, I've seen those at the mall.*

Elizabeth: *Well, that's what you do. You walk around like a sample. Like, check me out!*

According to Elizabeth, "doing *Frozen*" meant that braids needed to happen, and an essential part of that happening was *the sample* – being able to have your paper braids admired by others as a visible display of your powers and to watch others' reaction to your transformation. Just as happened in Elizabeth's re-animation of Bella's paper-tape-braid happening, the movement to song, the engagement with paper, markers, and the taping of the braids were entangled together in these public performances.

While doing photos, Elizabeth, Paige, and Bella juxtaposed these braid happenings with the more acceptable tape-paper events that emerged differently within the classroom. An example of a "better" type of tape-paper event was something that children referred to as *big work*. Big works were often photographed by the lead teachers and were not given the same kinds of resource-related limitations – children did not feel the need to use tape secretively. According to the girls, this signified that big works were considered "best kindergarten work." The biggest of these works, which was often drawn on as an example, was a mural that Jackson and several other classmates had worked on for several days that depicted "rollercoasters, dynamite, bombs, bad guys, robbers, explosions, and other scary stuff."


NO

Elizabeth: *I don't really think it's fair that Jackson's big work got to use so much tape and Frozen doesn't get to.*

Paige: *Well, with big work, you have an idea. Like, you make a rainbow and then you get a piece of tape and you think about what you are going to add and then you go and go and go until you know it's finished and then you take it home and not just shove it in your locker or something. It takes a really long time.*

Elizabeth*:* [Crossing her arms] *Not fair.*

At this point in their conversation, Bella took on the role of "teacher". She picked up a pen and tapped it on the table to call attention to herself. Her voice was stern and loud.

Bella: *Okay, pay attention, everyone. See how I'm doing this?* [She draws tape dispensers and writes "NO"]. *It means: Can't use this! Tape is not to stick things to your own clothes or your own face! It's for only your best kindergarten work!*

Frozen Emerges in Good Work or Goes Underground

In response to adults' regulation of "doing *Frozen*" through the limiting of classroom resources, Margaret and Krissa developed methods by which to "make *Frozen* longer": using markers to cover all of the paper.

Margaret: *If you spend a lot of time on your Frozen...like, I just take a blue marker for the snow and I make some snowflakes. I do all round with ice. And then I take more (blue) and write all the numbers I can and words. I fill up the whole page with blue like it's covered with snow.*

Krissa: *When you can't do tape for Frozen you have to do blue markers. Just blue ones though because they mean ice. I get the whole blue cup (of markers)...and take usually three. You have to get them before everyone else does so you can make sure...you have to have enough. And try to fill (the paper) all up with blue so it really takes a longer time and it can be your best work.*

Casey: *So...is this longer work still Frozen?*

Krissa: *Well, it's like making some Frozen in your work.*

Similarly to Krissa and Margaret's "longer" work, *Frozen* elements materialized within the more confined spaces of adult-sanctioned activities, such as the birthday cards children were required to create each month for classmates. After writing birthday greetings, many of the girls would flip the card over and carefully draw snowflakes and the princess sisters Anna and Elsa in their blue dresses. Sometimes these representations of Frozen were at the birthday child's request and sometimes they occurred spontaneously. In both situations, children were doing "good" work if they added enough detail to their drawings. Even though "doing *Frozen*" was not considered good kindergarten work in and of itself, good kindergarten work was permitted to *represent* Frozen if done well and within an acceptable time frame.

By the end of the school year, most enactments of "doing *Frozen*" had shifted to resemble the work described above – the materialization of *Frozen* representations within the boundaries of "good work." The speedy, uncontrollable engagements that characterized many children's enactments of Frozen throughout the Winter gave way to "making some Frozen in your work" in the Spring, as the necessary weather for playing

ice powers was gone and braidmaking became more and more associated with the wrong kinds of kindergarten work. However, Bella and Petal's ways of "doing *Frozen*" continued to push the boundaries of "good kindergarten work" and this meant that they had to devise ways to operate with both secrecy and speed. The making of braids no longer figured prominently, but the illicit use of tape still played a major role. In this new, stealthier version of "doing *Frozen*" one child would draw blue snowflakes and quickly tape them to the other's locker as a signal that "something Frozen" had been created for her and stashed inside her backpack. These Frozen somethings – typically drawings made with blue marker, portraits of Elsa or Anna, smaller snowflakes, or scraps of paper on which the names of *Frozen* characters had been written – were created with great care during morning exploration time, folded, and taken right away to the recipient's locker. Although the performance element that Elizabeth had commented on earlier was largely missing, this system allowed Frozen to materialize in ways that were both public and private, both fast and slow, and within both "good" and "not good" ways of working.

While doing photos, I asked the girls how their version of "doing *Frozen*" had changed since the wintertime and they remarked that both braidmaking and singing *Let it Go* were less important than they used to be.

Petal: *Well, some people are sick of Frozen. Margaret always says, "Stop that song!"*

Casey: *So some people don't want to hear Let it Go anymore?*

Petal: *No. It's because it was just too many times...over and over and over.*

She rolls her eyes and feigns sleeping, snoring loudly.

Bella: *And braids...no! You can't tape anything to your face or to your outfit...that will be bad. But if you do it quick, you can put it on your locker. Like, really fast.*

Petal: *Yeah and we still say that's no fair!*

Bella: *You can't do Frozen without tape. Even though it will get you in trouble...you have to have the snow with you and the tape makes it like that.*

Even though the ways in which "doing Frozen" had changed to be less offensive to both other children and to teachers, for Petal and Bella there remained the essential elements of speed and tape. Various materializations of Frozen and tape helped one to stay Frozen, to "have the snow with you". At our last meeting of the school year, I asked both girls if they had any additional thoughts on how the story of "doing Frozen" would be told in this "book", the asked me transcribe the following list as they spoke:

Important Things to Know About Tape:

1. Sticks things together.
2. It could stick your fingers together.
3. Gets stuck to you.
4. It costs money.
5. It is made from glue and something else.
6. It helps Frozen parts stick on.
7. Tape is what you need to attach two or three parts.
8. The parts should be paper so you don't get caught.

9. Tape gets tangled up to itself.
10. It's important and that's the end.

"I Don't Know What's Gotten Into Me, but I'm Guessing It's Snake Germs": Becoming Beasts

Like many early childhood classrooms, non-human animals populated this particular classroom landscape and were intended by adults to be subjects of study or tools for discovery (Bone, 2010). For example, live spiders or worms were temporarily held in glass and examined with magnifiers, several dried specimens (e.g., a mummified toad, a mouse carcass, a cicada shell) resided in small plastic jars in the "science area", and animals that were encountered on field trips or walks outdoors often became the subject of journal entries or classroom discussions. More abstractly, non-human animals were often present as plastic toys, in the illustrated pages of picture books, as line drawings on worksheets, or in photographs in the reference books in the science area. However, different more-than-human animals emerged *between* children and these more "official" non-human elements of curriculum. This cartography re-presents the various emergences and doings of what Paige would term *beasts* – child-animal hybrids that would cooperate and confound, delight and disturb.

Children's animality and/or affinity with animals has been the subject of educational research (for review, see Selly, 2014), as well as research within the domains of developmental and social psychology, often exploring the contrasts and connections between human and non-human animals through various ideological and theoretical lenses and at various stages of development (for a review, see Myers, 2006). Analyzing

how relationships with animals intersect with children's psychological self-actualization or development of higher order emotional, social, moral, or intellectual competences, is not a focus of this cartography. However, it is worth mentioning that a strand of psychological research in which human-animal subjectivities are explored does share some similarities with more posthuman inquiries in that it acknowledges that children and non-human animals share elements of affect, attention, and intention (Myers, 2006). One such posthuman inquiry is Jane Bone's (2010) work on children's acts of becoming animal through play. Bone theorizes that a spiritual kind of intersubjectivity drives the metamorphoses of children into animal others. That is, she interprets children's animal play as collapsing the human/non-human animal binary through children's spiritual, ethical, and emotional attunement to animals – what she calls "deep empathy" (Bone, 2010, p. 411). Her work and the relational becomings explored in this cartography are similar, as both give shape to the ways in which children were entangled in acts of becoming "more than one but less than two" (Haraway, 2008, p. 244). However, the current work differs in that it attends to how "matter makes itself felt" (Barad, in Dolphijn & van der Tuin, 2012, p.59) in children's animal becomings. It maps the ways in which children's acts of becoming animal were mobilized within an imbroglio of physical transformations, environmental affordances, adult expectations, animal knowledges, *and* the various ways in which "matter feels, converses, suffers, desires, yearns and remembers" (Barad, in Dolphijn & van der Tuin, 2012, p.59). This is an attempt to visualize and narrate the complexities of the (im)proper animal – the more-than-human beast – as it emerged within and through particular material-discursive

circumstances of this classroom.

Becoming Crab/Beast

Several times while doing photos, Paige re-narrated and re-represented what she called The Crab Story. The Crab Story had taken place some weeks earlier after she had meticulously chewed two pretzels into the shape of a turtle and a crab, respectively, one morning at The Snack Table. During the construction of the final version of The Crab Story, Paige articulated what it meant to become a *beast* and how these beastly, more-than-human ways of knowing and being might emerge and retreat.

Paige: *Once there was a turtle named Shelby. And he found a big island and he had it all to himself. But there was also a crab. And they fighted. And the crab said, "This is my island!" and Shelby said, "This is my island! I saw it with my own huge eyes before you were even a crab." Paige came and said, "I'm going to stop this argument right now!" So she chomped the crab and he went right into her tummy. But then she had a spell on her and she turned into a little crab and walked all around the sand. And then a giant wave came and BOOM…washed away.*

Casey: *Did you…I mean, the crab…get washed away?*

Paige: *I did, but…I'm not a real crab, like for real.*

Casey: *You were a crab in the story or…?*

Paige: *Because I just know…you can't turn into a whole animal. Like, when I was a crab, I was just being a crab with a spell. Not all the way.*

Casey: *So, just walking like a crab?*

Paige: *Well…you know Beauty and the Beast? Beast is a man inside and it's a spell.*

Casey: *Didn't a witch cast a spell on him or something?*

Paige: *Something… so he is a man and then a beast and then a man. But he was still a man while he was the Beast…because he would talk and wear clothes.*

Casey: *So he just looked like a beast?*

Paige: *I don't know…he did beast stuff. He was mean and I think he ate people...because he had really sharp teeth. He did some beast stuff and some man stuff at the same time because he remembered being a man. But he had to turn back into a whole man because the spell was broken. That's a beast.*

Casey: *So…were you…a beast?*

Paige: *I'm pretty sure I was because I was still a girl, but I was moving like a crab after I ate him up. I was like a crab but not a WHOLE crab. Like…I knew how to be a crab and how to be a human. At the same time.*

When we returned to the classroom, the rest of the children were outside on The Playground. With the classroom to herself, Paige took the opportunity to show me how she could become a beast – part crab, part girl. She sat down on The Carpet and lifted herself off the ground with her hands and feet. As she "crab-walked" around The Carpet, I took her photo and she asked me to come closer. As I approached her she raised one arm like a pincer and reached for my ankle, grasping at me with her "claw" and making a chomping sound with her mouth. I let out a yelp and I jumped back; Paige giggled, collapsed out of her crab posture onto her back, and called to me. "Case-Case! Get over here!" She crawled over to me on all fours and pinched me playfully on my leg. At that

moment two children arrived in the classroom through The Side Door and invited her outside to play chase. She got up quickly and followed them outside (on two legs).

Paige's explanation and demonstration of becoming crab indeed mirrored Disney's animated version of *Beauty and the Beast* (Trousdale & Wise, 1991) that she had referenced during our photo-doings. When the specific material-discursive conditions are right for a *spell* – be it ingesting a crab-shaped pretzel or having an empty classroom in order to play on The Carpet – she was able to become a *beast*, doing both Paige stuff and crab stuff. Although other children did not use this exact term to discuss their animal becomings, it is a helpful way to conceptualize the many lines of connection that emerge throughout this cartography – the material-discursive entanglements from which these beastly spells emerge, what child and animal "stuff" makes itself known therein, and the conditions under which these hybrid beasts retreat.

Becoming Butterfly

The first time Rosa and I "did photos" together, she closely examined several series of photos I had taken of her engaged with plastic insect figures. I noticed she frequently chose to play with the basket of plastic insects during morning exploration time; I had taken several photos that (re)constructed her engagement with a particular blue and purple butterfly. While examining these photos closely, she gave the following account:

Rosa: *That's my butterfly…my favorite one. There is another purple and blue (butterfly) that looks like mine, but it has little spots on it. I don't like that one as much.*

Casey: *Why not?*

Rosa: *Um…I just like this one better. I think I actually rubbed the spots off because I like to hold it and rub it. Purple and blue are my favorite colors. Do you know why? My blanket that I've had since I was a baby is purple and white and it smells like cotton candy. It is made with holes in every spot. Do you know that kind?*

Casey: Crochet? Is it made of yarn?

Rosa: Yes, I think. But it smells so good! I rub, rub, rub and then wait a little bit.

Casey: *What are you waiting for?*

Rosa: *I'm just thinking…about cotton candy, actually, and my blanket and my mom and dad. Then I jump! And fly over to the next thing I'm going to do. You didn't take a picture of that part. See how...I land in the plant for a while and rest. I put my butterfly in the branches and get inside. And do like...a butterfly rest*. [Zooming in to examine the leaves of the plant more closely on the screen] *I can't see my butterfly in there...I did put her in there though. Butterflies are really fragile so they need to rest*. [Laughing] *I look just like a butterfly in that plant! That's funny to me.*

Casey: *I remember that you asked me to take that photo.*

Rosa: *I wanted to see if I really looked like a butterfly.*

Casey*: Because you're resting?*

Rosa*: Yes, but...you know what? You didn't even notice me flying! I can flap really fast and go pretty far, actually.*

Casey: *I need to watch more carefully. Are you going to fly again sometime soon?*

Rosa: [Spreading her arms wide] *This is how butterflies say, "yes."*

After our first discussion about becoming a butterfly, I did notice instances of Rosa "flying" around the classroom, usually during the morning exploration period. Becoming butterfly began with a search for "her" purple and blue butterfly. If her butterfly was used for "decoration" on another child's structure in The Block Area, as many insect figures often were, she would broker a trade or switch her butterfly out without notice. Once she had her butterfly in hand, she held it tight for a few minutes and then allowed it to rest in one of the sturdier leaves of the classroom plant. Next, she would step onto the building platform and launch herself into the air.

In an effort to document her flight patterns, Rosa-as-butterfly would tug gently on my shirt or tap my shoulder to let me know she was about to fly. I'd feel the familiar tap or tug and turn around to just in time to snap a photo of her in flight. When viewing these photographs, she delighted in the blurred image she imparted upon the screen, as well as narrated the ways in which her flight patterns were influenced.

Rosa: *I'm so fast! I'm flying...you can barely see!*

Casey: *You're blurry...The camera has a hard time making a clear photo when you fly that fast.*

Rosa: *Well, the platform is the best spot. I like to take off from the platform mostly because it is just the right size. It's my...a butterfly surface. If I tried to fly from on top of the table or The LEGO Loft or something it wouldn't be...you could get in trouble.*

Casey: *Why?*

Rosa: *I just try to fly really fast so no one sees me. You aren't allowed to run around the*

classroom, but I know how to fly so I won't get hurt. And I don't really want to touch the actual ground, so I fly from surface to surface if I can, but some blocks you can't land on or they will break. But I don't even think [other people] can see me...I'm so blurry.

Rosa-as-butterfly's flight was entangled, not only with the plastic butterfly figure, the sense memories it imparted, her knowledge of butterflies and the classroom plants, but also with classroom spaces and materials, the rules for their use, and my camera's ability to re-construct the flight visually. Her patterns of flight were further complicated when a basket of fabrics was introduced to the classroom. These fabrics, particularly ones with blue and purple patterns, allowed Rosa to become more butterfly than before, thus presenting challenges to the human classroom space.

Rosa: *I like this one because I have butterfly wings on.*

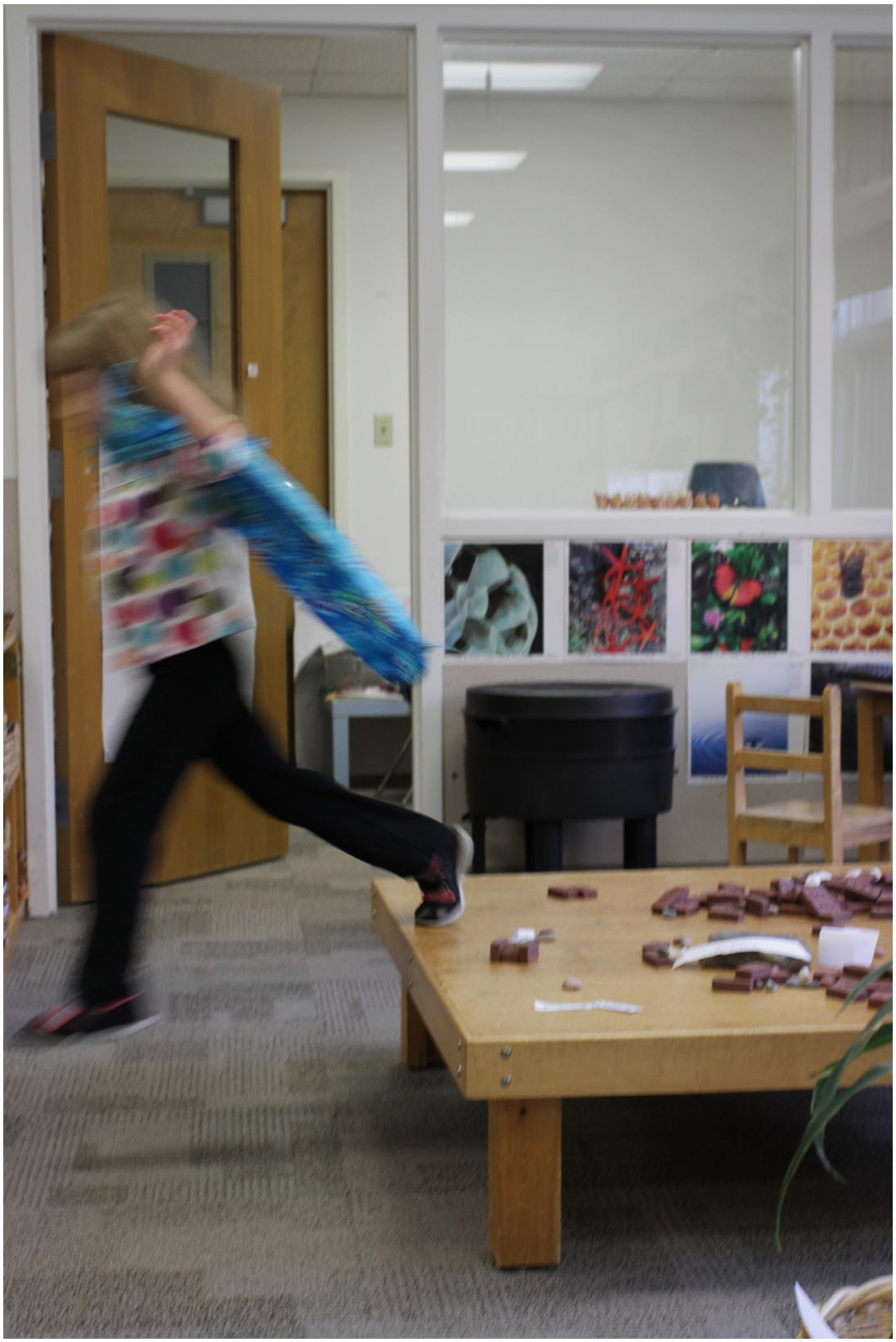
Casey*: What do those do?*

Rosa: *Well, I usually try to get this blue one... or one with blue and purple when I am ready to do butterfly, um, flying.*

Casey*: And then what?*

Rosa: *I tie it around like this [motions around her neck with her hands] and, well, sometimes I need a teacher to help with that part and then I flutter...and that means move like...the wing part. It makes it like a fan almost. Like...*[fanning me with her hands]

Casey: *Oh, right. I can feel a little breeze from you right now. That's how your wings work?*



Rosa: *The wings make a breeze and that helps you to fly. My mom even told me.*

Casey: *So fabrics make your wings and that helps with your flying.*

Rosa: *It makes me faster, but sometimes I have to wait if someone else is using it. Or if someone wants what you have...your fabric...then it can be a disagreement because I just want these ones for the butterfly.*

Casey*: What happens if there is a disagreement?*

Rosa: *The fabrics get put away in the office and then no one gets to use them. Or if someone says, "You can jump off of there!" then I have to stop...just take off the fabric and make a good choice.*

Casey: *Being a butterfly isn't a good choice? Or flying isn't...*

Rosa: *Not really. It's fine for me, but that's why I have to be really fast. So no one can say, "stop!"*

The fabric wings not only allowed her to become more butterfly in color, but also in movement ("flutter") and effect ("breeze"). But there were instances that I observed in which Rosa was told to stop flying, either by other children or adults. As she said, having to stop flying was often the result of either a disagreement between children or when she wasn't fast enough to not be seen by adults who disapproved of her using the wooden platform as a launch pad. In these instances, taking off the fabric and, thus, becoming less butterfly was positioned as the better choice.

Given constraints of space, material resources, and adult idea(l)s about movement, Rosa would sometimes fly without the plastic figure, her plant resting place,

the wooden platform launch pad, or the fabric wings. For example, several large boulders were partially buried in a small grassy slope on The Playground. Rosa would often ask me watch her while she "flew" from rock to rock during the morning outdoors time. While engaged with these photos later, she commented on what was lost and gained when flying in this different way.

Rosa: *Going from rock to rock is...a better choice.*
You don't get in trouble for the flying part. But it's not really...it's less good.
Casey: *Why less good?*
Rosa: *I can't go high and land on the wood. See how my hands are wrapped up?*
Casey: *Inside your sleeves.*
Rosa: In case I fall on a rock. And you can't take the [plastic] butterflies outside or the fabrics!
Rosa: *And there isn't a tree rest. But there are flowers for butterflies outside, but not for a long time. You can fly, but it's not so real, actually.*

Jumping from rock to rock was a more proper way to become butterfly, at least according to adults. But this "better choice" for a student was "less good" for a butterfly. Rosa was a "less good" version of her butterfly-self without the smell of cotton candy, the press of he plastic figure in her hand, the flutter of fabric around her shoulders, and the wooden platform under her feet.

Becoming Snake

Two distinct ways of becoming snake emerged within the classroom. Although each of these child-snakes emerged through quite different material-discursive events, each would be understood through movements toward and enactments of inhabitation – of something or someone getting *inside*.

Nia becomes snake. I arrived in the classroom one morning in Mid-September to news that a small snake had bitten Nia while the she played on The Playground the day before. Nia was quick to show me the oval pattern of marks the snake's jaws had left on her skin and allowed me to photograph her wrist with my camera. For several weeks afterward, many children engaged in various retellings of the events leading up to the moment of the snakebite and Nia often corrected their version of the story. While doing photos Nia offered this retelling of what happened when she engaged with the snake**:**

Nia: *This is how the story goes: I was on The Playground and I saw this baby snake. I picked him up and I wasn't even afraid. I've known how to hold a snake since I was three because I've done it before. And then some kids came over. I held the snake out for them to see they all started screaming. And I said, "Stop! Be quiet!" But they didn't stop. The snake put his head up in the air and opened his mouth three times. And then another time. He dove down and put his mouth right onto my wrist. I shook and shook and shook him off and everyone was still screaming and the snake crawled away. I don't know if I cried or not. I washed it and put a Band-Aid on it. And I don't know what's gotten into me, but I'm guessing it's snake germs. That snakebite...I am part snake.*

Casey: *Part snake? Why?*

Nia: *Because at night, when my parents think I'm sleeping I get down... lay one the floor. And then I* [makes a hissing sound] *all around until I'm done. Because, look* [holding out her arms]*...those two dots are scar dots. It, like, irritated my veins. See how they are green?*

Nia's transformation into a human-snake hybrid not only urged her to behave in a certain way, but also imparted her with a certain fund of expertise – a kind of snake wisdom – that others would call upon for various purposes. For example, she was asked by the outdoor education teacher to talk with children from other classrooms about "what happened with the snake." The purpose of these meetings was two-fold: to give other children advice on keeping their distance from wild animals, both for their own safety and the safety of the animal, and to instruct children on how to properly hold a snake should the opportunity arise. During these meetings, Nia's expertise was framed as the result of her social history (e.g., the *choices* she made that allowed her to be bitten and the *lessons* she had since learned). In less structured human-snake engagements, such as when a small group of children encountered a small lifeless snake during an excursion just outside The Playground fence, Nia's peers called upon her to touch the snake first because "she knew about snakes".

However, in our photo doings, Nia noted that her previous social experiences as a child-among-snakes couldn't be separated from her current child-snake self that was inhabited by snake germs. She also didn't simply see her expertise as a consequence of

interacting with the snake incorrectly and, thus, learning important lessons about snake handling, nor did she view her familial relationship to snakes as uniformly positive.

Nia: *You know what? This bite made me remember that when I was three, I found a snake egg on The Playground and I carried it all over. And then I put a bunch of, like, sticks and grass on it to keep it warm and then I hid it. I think maybe (the snake that bit me) was that snake just as a grown up. And I think it remembered me. I didn't want him to bite me, but he didn't listen to me because I wasn't even a snake then. And he was afraid. And I was afraid because everyone was screaming. So it was both of us. This is making my wrist itch from the inside!*

Casey: Where the snake bit you?

Nia: Oh, yeah...like you know when we found the little dead snake? I poked with the stick and flipped it over. And Matar and Petal were scared and I wasn't scared because it was dead and just laying there. But, like…my wrist was itching and itching and that can be a…little problem.

Casey: *The itching is the problem?*

Nia: *It does itch…but, like, I have snake on the inside, so whenever I see snakes, think about snakes, it keeps itching*

According to Nia, becoming part snake endowed her with abilities, sensations, and memories, and both she and the snake were responsible for these things in various ways. While Nia was seen as some kind of snake expert, the snake continued to make

itself known to Nia through physical sensations. To Nia, these sensations meant not that she was simply constructing knowledge from the outside in, but, since she now had "snake on the inside", she was becoming more snake from the inside out.

Elizabeth becomes snake. I often photographed the children engaging with baskets of fabrics during morning exploration time. A group of children would typically call me over, not only to allow me photograph their engagements with the fabrics, but also to request my help in their efforts to tie fabrics around their waists or shoulders if their play necessitated it. With these particular animal-printed fabrics tied around their shoulders and waists or draped around their heads, Elizabeth, Lauren, Petal, Krissa, Clara, and Paige engaged in various animal enactments, such as growling, crawling on all fours, mooing, meowing, oinking, hissing, etc. Children who wanted to engage in this play but found themselves without a fabric to wear would often take on roles of humans, specifically the "pet owners" of the various fabric-clad animals.

Elizabeth in particular created elaborate animal plays with these fabrics, often becoming more animal than Kindergartener – spending the entire morning exploration period in her "pet" role. When she examined images of these fabric-animal events later, she remarked on the ways in which she emerged as a snake.

Elizabeth: *See what I'm doing with that fabric? Ssss! That's how they smell. They don't have a nose, so that's how they smell.*

Casey: *By hissing?*

Elizabeth: Yeah. I can do that really good. Really good because of these missing teeth...[She slides her tongue in and out of the space where her primary teeth used to be.]

Casey: *I've seen snakes do that with their tongue.*

Elizabeth: *And they...like, they have a tail that, like, shatters.*

Casey: *What's shatter?*

Elizabeth: *That means when they are scared they shatter their tail to say, "Get away from me!" They have a special shatter tail* [moving hand back and forth to simulate a rattling motion]. *And I could just do that.*

Casey: *Shatter like a snake tail?*

Elizabeth: *Well, we were playing a game and I became the pet with that fabric...*[Laughing] *and I was the worst pet they ever had! I shattered my tail all over...I was very scary. I would not like a pet snake or a pet alligator but being one is okay. I would not like to have a lake house, but I don't even do so it's not really a problem. But anyway, the fabric...it flattens out very easily and silky, so it's a...I love that it feels like a snake on my body. I could actually sleep with it.*

Casey: *Sleep with a snake?*

Elizabeth: *Not a sleep with a snake... be a snake and sleep IN it. Like, when stuff is so soft, I love it so much. And I could curl up, stay asleep...it's so cozy. But if you slept with a snake it would always be "Sss!" and it would be waking me up all the time. But if you were a snake it wouldn't even matter to you. Like, do you have a pet?*

Casey: *I have a dog and a cat.*

Elizabeth: *Well, then sometimes you know if you have a crack in your door your cat will*

come in, and just bother you? Or, like, scratching at the door?

Casey: *Oh, yeah! My cat does that a lot at night.*

Elizabeth: *That's how pets can bother you. If you are a snake you don't care because you're just "Ssss!" all night long and you love it!*

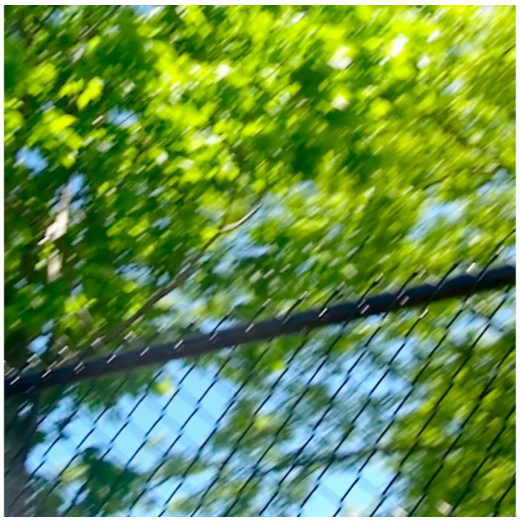
Casey: *You love being a snake...*

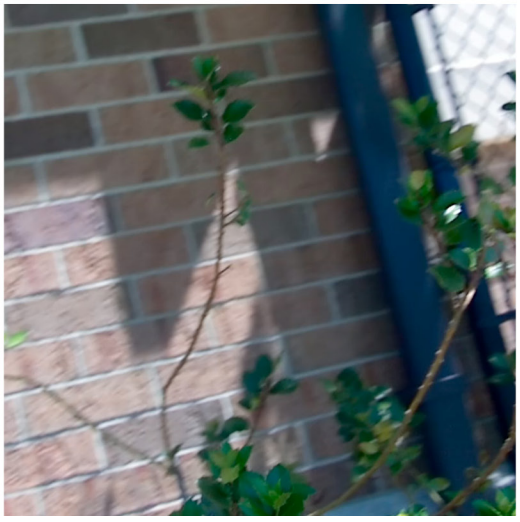
Elizabeth: *I do not! Just inside a fabric. A snake fabric is like being a snake inside a snakeskin that's a cozy feeling to a snake. I could shatter my tail and just get really cozy!*

For Elizabeth, becoming more snake than human was the key tolerating snake behavior. Elizabeth didn't particularly want to be in the company of a snake and recognized that Elizabeth-snake was the "worst" kind of pet, but she did enjoy *being* a snake in many ways. Becoming cozy inside the fabric snakeskin afforded a kind of comfort with snake behavior – hissing without feeling annoyed, shattering one's tail – that would otherwise be impossible. Just as Nia had become a snake "from the inside" due to "germs", Elizabeth also became a snake when the introduction of animal-print fabrics to the classroom allowed a kind of *interiority* to materialize. In this case, the properties of the fabric gave Elizabeth the opportunity to "get inside" and feel "cozy", which mobilized her snake becomings.

Becoming Bunny

One morning in April, I heard several shrieks and unintelligible, hurried talking coming from The Courtyard. As Lauren rushed inside to grab the cameras, she told me





there were two baby bunnies in the flowers. As I exited through The Side Door, several children were in crouched positions near the beds, lifting the layers of dead leaves and carefully peeking to see if baby bunnies were hiding underneath, while others were talking loudly, either trying to tell others to come and see the bunnies or warning younger children to stay away. One tan bunny about the size of a teacup darted away through The Courtyard, across the grassy area, and under the perimeter fence. A few children chased after, pointing their cameras wildly and clicking the shutters over and over again, trying to "catch" the bunny's image as it disappeared from sight. The other remained – wide-eyed and still in the leaves of the flowerbed.

As adults calmly convinced most children to keep their distance so as not to stress the animal any further, Matar and Nia returned to the beds several times to take photos of the remaining bunny, despite the warnings. Each time, they would squat low to the ground and approach the flowerbed as quietly as possible, shuffling on all fours; it struck me in that moment how much the tiny bunny impacted the girls' motion and how their movements. They had emerged somewhere in-between "girl" and "bunny" and this had a dual effect. They were less likely to be noticed by teachers as they defied the orders that the other children had to obey and they were also less likely to scare the bunny into fleeing the flowerbed as the other children had done.

While other children were given warnings and chastised for getting too close or being too loud near the frightened animal, Matar and Nia moved stealthily in and out of the bunny's territory – taking photos, avoiding adults' verbal corrections. I sketched them quickly in my notebook until they were called inside several minutes later.

A few days later, while Matar and I were "doing" the photos that had been taken during the bunny event, I showed her the drawings in my notebook.

Matar: *What? Is that me? Why?*

Casey: *Yes…I was really trying to notice how you moved toward the bunny. You're crouching …it seemed like that was a good way to move.*

Matar: *Move how?*

Casey: *Like, crouching…*

I try to make myself smaller in my seat, ducking my head and pulling my arms and legs to midline.

Matar: *Crouching...*w*hen you… crouching, you are more small to the ground, so the bunny is not so scared because you are not such a scary person to him. Like, so you won't kill him, you won't hurt him, he's not scared.*

Casey: *You were being very careful and quiet.*

Matar: *A bunny is so quiet, so you can be quiet.*

She giggles and pulls her hands up near her face, mimicking the ways bunnies clean their faces and ears with their paws.

Casey: *Ah! A little bunny! I've seen them move just like that.*

She takes a soft lead pencil and adds ears and paws to the drawing in my notebook and holds it up for me to see.

Matar: *You say, "Are you a little bunny now?" and I say* [putting her hands on her head, fingers up, mimicking the small ears of a bunny, laughing]…o*kay, that's it.*


SAVE

Just as Matar had done, Lauren and Nia explored bunny-movement in our photo-doings. During one particular event, Nia and Lauren had created lists of important classroom events and were debating with each other whether or not those events were represented within the many photos that the children had taken with their cameras and how these might be arranged within the cartographies of the "kindergarten book". As they began to discuss the morning on The Playground that the bunnies appeared and the images that were constructed of that event, they grappled with the ways in which bunny-movement was constructed in/as images.

Nia: *LEGO WeDo is important and we have lots of photos of LEGO, so I think that's good. Here's one of us! Look, Lauren. Casey, put that (photo) in the book.*

Lauren: *There are a lot of "save" sign photos because those are important for saving your structures so no one knocks them over. Nia, write "Yes Save Signs" so we know that other kids are taking lots of photos of those. Just put one photo of those in (the book), okay?*

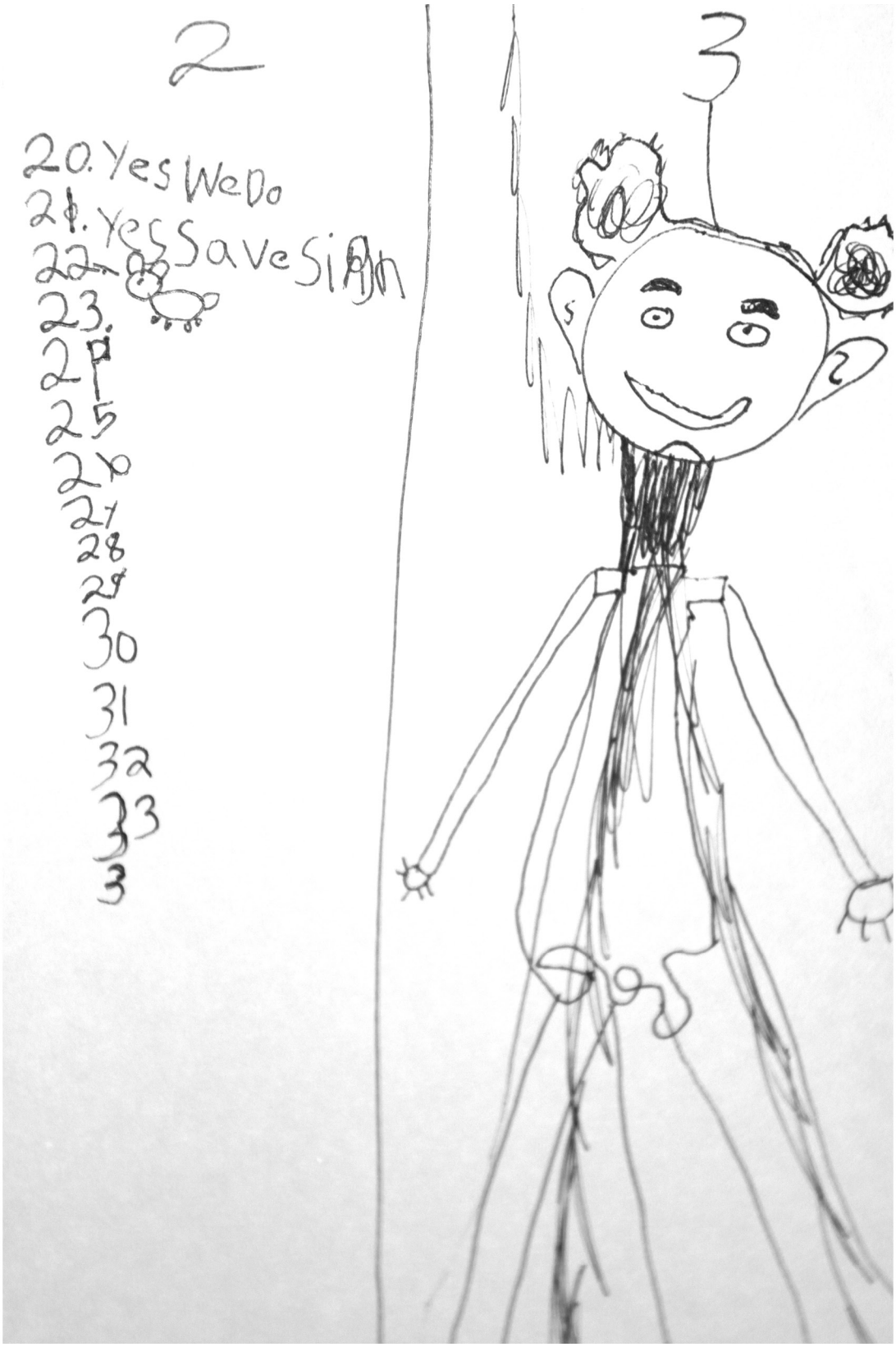
Casey: *Sure.*

Nia: [Writing] *Yes…save…sign. Okay, now, the most important thing to me lately is the baby bunny. I can't write that so I am just going to…*

Nia draws a tiny bunny on her list.

Casey: *That was important to Matar, too.*

Nia*: It was so cute. I think it was really scared of us, so it was just afraid to move even though we were trying to be quiet.*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20. Yes We Do
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Casey: *We talked about that…how it was important to stay very quiet around the bunny.*

Nia: *It was like…froze.*

Lauren: *But the cool thing is…it didn't even move. Bunnies never do that!*

Casey: *Do you think it was because you were moving so slowly and quietly?*

Lauren: *I think that the thing…what's important is that it was staying still and not hopping around so I could even take that photo. Because I tried to get a photo of the other one and all I got was like blurry…like grass.*

Nia: *Well, look at it now…it's going to hop all over our list!*

She draws some jagged lines at the top of the paper. Her hand bounces up and down wildly, mimicking the quick and unpredictable movements of the baby bunny.

Nia: *I'm making you, Lauren, and you're a little…little bunny.*

She draws Lauren and then continues the jagged lines into her body and down her legs. Both girls begin to laugh.

Lauren: *Ah! Why did you do that? That's weird!*

Nia: [Crossing her arms, smirking] *Well, if you're going to be a bunny, you are going to hop around on your legs!*

After we finished doing-photos, the girls and I walked back to the classroom and arrived just in time for the daily patterning activity. Each morning, one or two children would assist the teacher in leading the class through a sequence of movements while counting up to the present day of the month. For example, if the date was the 15th, the children might choose a "two pattern" of "clap, jump" and then proceed to see if the

pattern could fit evenly into the number 15. On this particular day, the child who was creating the pattern with the teacher was having trouble deciding on which movements to choose. Eager to begin, many children shouted suggestions.

Margaret: *Spin!*

Rosa: *Stomp!*

Nia: *Bunny hop! Bunny hop!*

Some of the children laugh and then join in her request, until "bunny hop" is chosen as the third movement in the pattern. The children count aloud, bunny hopping in unison.

Nia: [To me] *Make sure you take a picture of this.*

After the morning meeting had ended, Nia asked to view the photos I had taken of the bunny hop. As she viewed them on the camera's screen, we engaged in an impromptu event of photo-doing while the other children were busying themselves with transitioning to their morning work choices. While engaging with the images, Nia remarked on the limitations of our methods – the difficulties of constructing and critiquing static images of these kindergarten "beasts" when movement was a crucial way being-becoming – as well as the ways in which these more-than-human animals emerged within a variety of bodily desires, material forces, curricular constraints, and social expectations.

Nia: *It's blurry…this one, not so much.*

Casey: *You were moving pretty fast, so it's hard for the camera to make a clear photo.*

Nia: *I was trying to really hop like a bunny because never had a picture of that part.*

Casey: *Right – you said the bunny being able to hop was important, so…*

Nia: *But actually… if we wanted to really be a bunny, we shouldn't have been up so much*. [She crouches, pulling her arms and legs in] *But you can't crawl around in the classroom because that's not okay to do. That would be too…crazy. But it's more down.*

Casey: *It didn't feel like a bunny to do it that way? Up?*

Nia: [Popping up to a standing position] *It really felt like a bunny to hop like that…but it doesn't look like it. You can't really see it on there.*

Being-becoming bunnies – and all Kindergarten beasts – was paradoxical in this way. Our means of rendering beasts visible was never adequate, as the kindergarten beast was always somewhere in-between, never still nor static, as classroom forces, in various ways, caused beasts to emerge and retreat.

"A Real Special Occasion": The Recalcitrance of Tinythings

This cartography that maps the doings of seemingly small, mundane things – such as grains of salt, seeds, plastic toy components, the spaces left by baby teeth – within the complex arrangements of relations in the children's school spaces. The children experienced these *tinythings*, as both fantastic and disruptive agents, and this material agency complicated children's experiences in their everyday classroom lives. The ways in which *things* play a role in classrooms specifically or in communities more generally, has been a topic of study within various academic disciplines. For example, there is

substantial research in the realm of educational psychology regarding the so-called *structural* (e.g., lighting, furnishings, temperature, etc.) and *symbolic* (e.g., decor, artwork, maps, etc.) elements of classroom environments that may either serve to distract young children from instruction and thereby negatively impact student achievement or, conversely, foster attention to academic tasks and positively impact performance (e.g., Fisher, Goodwin, & Seltman, 2014; Cheryan, Ziegler, Plaut, & Meltzoff, 2014). There is also much theoretical and practical work within Material Culture Studies – the making of a *cultural biography of things* (Kopytoff, 1986) – which positions "things" as embodying various qualities of commodification and production within communities of practice (Lemonnier, 2012).

This cartography, however, is not concerned with realizing which objects or physical environments may or may not facilitate children's access to the official curriculum nor their performance on standardized or experimental metrics of attention, retention, and the like. It is also not merely concerned with the ways in which culture – defined as a solely human endeavor – comes to be inscribed upon particular non-human things. It does work to maintain a decidedly posthuman orientation wherein the material and the cultural are mutually, inextricably implicated and wherein the material is an intractable force. In this way, this cartography owes much to the materialist political theorist Jane Bennett, as her provocative work on the vibrancy of everyday things-in-assemblage inspired me to engage with the children in "following the scent of a non-human, thingly power" (Bennett, 2010, p.xiii).

"It's Not a Choice To Pick at the Salt"

Clara: *Are you recording?*

Casey: *Yes – go ahead. What did you want to tell everyone about the salt?*

Clara: *It's not a choice to pick at the salt...it's just everywhere on The Carpet.*

Casey: *I noticed that the salt is all over, too.*

Clara: *And you move and it flings up and over your shoe like jumping. And it's stuck in (your shoe) from the sidewalk.* [She mimics a teacher's tone.] *"Make a good choice ... don't play with the salt."*

Casey*: Is that hard…to not play with it?*

Clara: *Well*, *I know you can't eat it because it's a...chemical? For snow? You shouldn't touch it, but it's really cool…like a tiny gem, like a tiny…thing.*

Casey: *So these small things…*

Clara: *No, tinythings…tinythings make you…*

She begins fidgeting in her seat exaggeratedly and feigns falling over. We both laugh at this demonstration.

Clara: *I'm going crazy!*

Casey: *Is it because they are small…tiny?*

Clara: *They are tiny but they are really everywhere these days.*

Casey: *Tinythings are…tiny and everywhere?*

She begins to draw several small figures and numbers each one.

Clara: *Okay, there could be one, two, three, four, five, six, seven tinythings all at once. And they really bother you!*

Much in the way academic papers outline special vocabulary or professional jargon in their introduction (or, conversely, as a possible conclusion, depending on how the reader approaches this text) it seems fitting here to give specific attention to context and parameters of the term *tinythings*. In the discussion above, Clara was specifically talking about the rock salt that had been scattered on the sidewalks and parking lot of the school in efforts to melt the seemingly ever-present snow and ice during the winter months and the difficulty it was causing as it made its way into the classroom. Her use of this term was not only intriguing to me, but also appealing to the other children, as they were quick to identify tinythings within their classroom spaces and articulate their complex stories during our many photo-doings. When discussing the possible events to include in this cartography of tinythings, the children were very particular about what qualities were essential:

1. They are literally tiny. Because they are so tiny, others (usually adults) can disregard their importance and/or agential force. Tinythings are sometimes not perceived visually, even when they are "felt", because of this physical smallness.
2. They are "everywhere", but how this is determined varies. Sometimes tinythings are literally everywhere, meaning that they are common and multiple, as in the case of the salt. Sometimes a tinything might be rare, but the impact of said tinything is such that its *effects* are widespread and multiple. Just as a small stone dropped into a body of water creates far-reaching ripples, a tinything can have an effect disproportionate to its size. In either case, the effects of tinythings are sometimes inescapable.

3. They are contradictory. Great joy can be taken in engaging with tinythings because of their specific material properties (color, texture, size, etc.). However, these engagements are not uniformly positive because tinythings are also entangled within a complicated set of more-than-human agents/events.

In the vignettes that follow, these different, albeit interrelated, dimensions of tinythings will be brought to the fore by re-presenting the situations through which they emerged. In this way, shape will be given to the many ways in which a tinything is not merely an inert object onto which human values were inscribed, but an active agent in the production of a more-than-human event, or what Elizabeth would call "a real special occasion".

"Milkweeds Know How To Fly!"

Just outside of The Big Windows, there was a flowerbed in The Courtyard that primarily contained *milkweed* – a perennial native to the Eastern United States. The flat, brown seeds of the milkweed are attached to a silky filament, or *floss*, and these are housed in large pods along the stalk of the plant. Like many other plants, milkweeds proliferate via the parachute method of wind dispersal as the fluffy, white floss allows the seed to become airborne easily (Eastman, 2014). Because the floss is both waterproof and buoyant, it has also served various domestic and commercial purposes throughout history, from stuffing mattresses to filling personal floatation devices. During World War II, young children in the Midwest and Eastern regions of the United States were recruited to collect milkweed pods, as the floss was needed for production of military life preservers and flight jackets (Eastman, 2014; Kemp, 2007).

Milkweeds are also a primary source of food for many nectar-seeking insects, such as bees, wasps, and beetles. The endangered Monarch Butterfly, well known for its impossibly long migrations, depends on these plants for much of its life cycle. The queen uses the milkweed exclusively for laying her eggs; the larvae feed upon the noxious leaves, which endow them with a bitterness that protects them from predation (Opler, 1998). On The Playground, these particular milkweed plants had been permitted to grow in spaces that might otherwise be reserved for ornamental plants due to their potential to support the fragile ecosystem of this butterfly.

Having shed their blooms in the summer, the pods of the milkweeds had begun to dry and split by the time the school year had started. The opening of the pods made the floss available to the children in various ways and, thus, it began to insert itself into daily engagements on The Playground. Sometimes children would pick strands of floss through the split in the seedpod, over and over, until they had a small handful. Because of the nested arrangement of the seeds within the pod, the floss would arise through the opening as facial tissues do from a dispenser, one after another, making it easy to collect a lot quite quickly. As the pods opened more and more, the floss was increasingly exposed to both the wind and to the children's picking fingers and, as a result, there seemed to be an abundance of it on The Playground. It could be found tangled within small piles of dried leaves and twigs that had blown into the inside corners of The Courtyard, as well as frequently seen floating through the air.

The material properties of the floss – its silken texture and lightweight arrangement of fibers that allowed it to hang in midair like a parachute – made

themselves known to the children in ways both pleasing and troublesome. For example, holding onto the downy floss was tactilely pleasing and also quite tricky, as the slightest breeze could carry it away. If the intention was to let the floss "fly", however, this could be accomplished easily. When the floss was in flight, it might be caught again with ease or it might disappear. Sometimes small tufts of floating floss would appear seemingly out of nowhere, even within the confines indoor classroom spaces, and these appearances could delight and/or disrupt depending on the circumstances.

Petal in particular was vocal about complexities of contending with the floss's ability to comfort, to fly, and to insert itself into children's activities. One morning in October, Nia and Lotta discovered several "baby milkweed hatchlings" on the ground by The Side Door. These hatchlings were the small orange nymphs of the larger milkweed beetles that were commonly seen often clustered on the pods, eating the plant's milky sap. As Lotta held a few of the motionless hatchlings in her hand, the children decided that they needed some sort of shelter now that the milkweeds were turning from green to brown and the larger beetle "families" were no longer clustered on the pods. Nia, Lotta, Lauren, Jackson, Clara, Petal, and Bella hurriedly began to gather handfuls of floss and place it in the small, bowl-shaped depression in a boulder that was on The Playground. These "comfy beds" were difficult to keep from blowing away, resulting in Petal and Jackson scrambling to replace the floss every few minutes. Nia and Lotta told the other children to add sand, fallen leaves, and gravel on top of the beds to keep the floss in place. As many children rushed to layer these heavier materials among the floss, Petal

added a small shovel full of water to the hatchling bed. The children immediately shouted at her that her addition of water she had "ruined" the beds by soaking them and forbid her to continue playing with them.

Petal and I discussed these events while doing photos several weeks later. She swiped the tablet screen left and right as she engaged with several photos from that morning on The Playground. As she zoomed in and out of the photos of the hatchling beds, she laughed nervously.

Petal: *Oh my god. Ugh.*

Casey: *Is something wrong?*

Petal: *No…*

Casey: *We don't have to do these photos*.

Petal: *No, I want to.* [She takes a long pause and a deep breath.] *Well, that's the beds. Milkweed hatchlings love milkweed. And with the different parts…*

Casey: *The sand, the rocks, the leaves…*

Petal: *This is when it gets…not good.* [She zooms in to inspect a photo of the wet hatchling bed.]

Casey: *The water wasn't good for the bed?*

Petal: *Um…it might have been…okay…but it was too much. And I said, "I didn't know! I didn't know!"*

Casey: *You didn't know that…*

Petal: *I thought I could fill it all the way up and it would help that the milkweed would not get away and the babies could have some water.*

Casey: *So you weren't trying to ruin it.*

Petal: Well, I'm sick of it anyway!

Casey: *Sick of making the beds? Or sick of…talking about it?*

Petal: *Milkweed! It's too hard to do.*

Casey: *It can be tricky…*

Petal: *Yeah…it's so soft but it's too hard to make (the bed) stick and everyone gets mad and then you have to stop. It's just too hard to do.*

Casey: *Why did you have to stop after you added the water?*

Petal: *Well, it was supposed to be a bed. And then Nia said the water ruined it. But the water…fixed it…but not so good because then it was too wet. But I didn't know!*

According to Petal, milkweed floss played a divisive and contradictory role– what made the milkweed floss great bedding also made it bad bedding. That is, the hatchling bed needed to be cozy and dry, but it also needed to stay in one place. The material properties of the floss, however, made those two requirements mutually exclusive. When Petal used the purple shovel to add water to the bed, she both "fixed" it and "ruined" it. Petal's exasperation was not entirely directed towards her classmates, but at the fact that the milkweed floss was so "hard to do". The ways in which the floss reacted to the wind and the water had created an untenable situation wherein conflict seemed unavoidable.

But just as the milkweed floss played a role in inciting conflict, Petal and Bella also experienced the ways in which it united them. One morning as the children lined up to transition into the classroom from morning recess, several tufts of floss could be seen floating through The Courtyard. As the line snaked into the building, a few children reached out from their place in line, attempting to snatch the milkweed out of the air. Out of view of the teacher, Bella jumped out of line to catch a single strand of floss. Petal followed.

Bella: [Presenting the floss to Petal] *Will you marry me, Petal*?
Petal: [Gasps, throws arms in the air] *Yes!*
Bella: [To me, holding each other] *Take a picture of our wedding!*

They giggled and hugged each other as the morning Teaching Assistant reminded them to not let the milkweed distract them, to stay in line, and quiet down. While doing photos, Petal and Bella asked to see their "wedding"; they talked excitedly and drew quickly as they browsed their photos.

Petal: *Milkweeds are like a little wing, so it flies all over. Milkweeds know how to fly!*
Bella: *I saw one and then more came and more and I reached up. On my tiptoe. Grabbed one and then we got married. Watch…I'm going to draw Petal in a little dress.*
Bella: *Because we love each other. We're best friends. B.F.F.*
Petal: *B.F.F.*

Petal: *I'm drawing Bella and then she's a pony with a dress. And high heels! Gonna gallop you all around…to catch the milkweed for me*. [Singing] *It's a wed-ding!*

Bella: *We're B.F.F.s! Best friends forever! It's not, like, an appropriate word, it's just something. B.F.F. And…Love! Love you! Forever! I'm going to finish making you. You look pretty, Petal. And you're like, "Oh my god! Bella loves me!" B.F.F.* [Singing] *Best friends forever, Petal! Kisses!*

Petal: [Singing] *B.F.F.! B.F.F.F.F.!*

Bella: [Sighing] *We love each other. We really do. I'm going to give you one hundred milkweeds.*

Bella: [Singing] *I gotta jump up out of the line! I gotta jump out of line for it! Get out of the l-i-i-ine and then, "NO!"*

Casey: *No?*

Bella: *You shouldn't let a milkweed get you out of the line but it's so soft that you want to…*

Petal: *That's trouble.*

Petal: *It's hard to catch them…well…but you don't want to stop catching them. It's so soft. Because you have to get one for your B.F.F. but you might get in trouble.*

Bella: *Because we love each other – we have to have a wedding, right?*

Petal: *Right*!

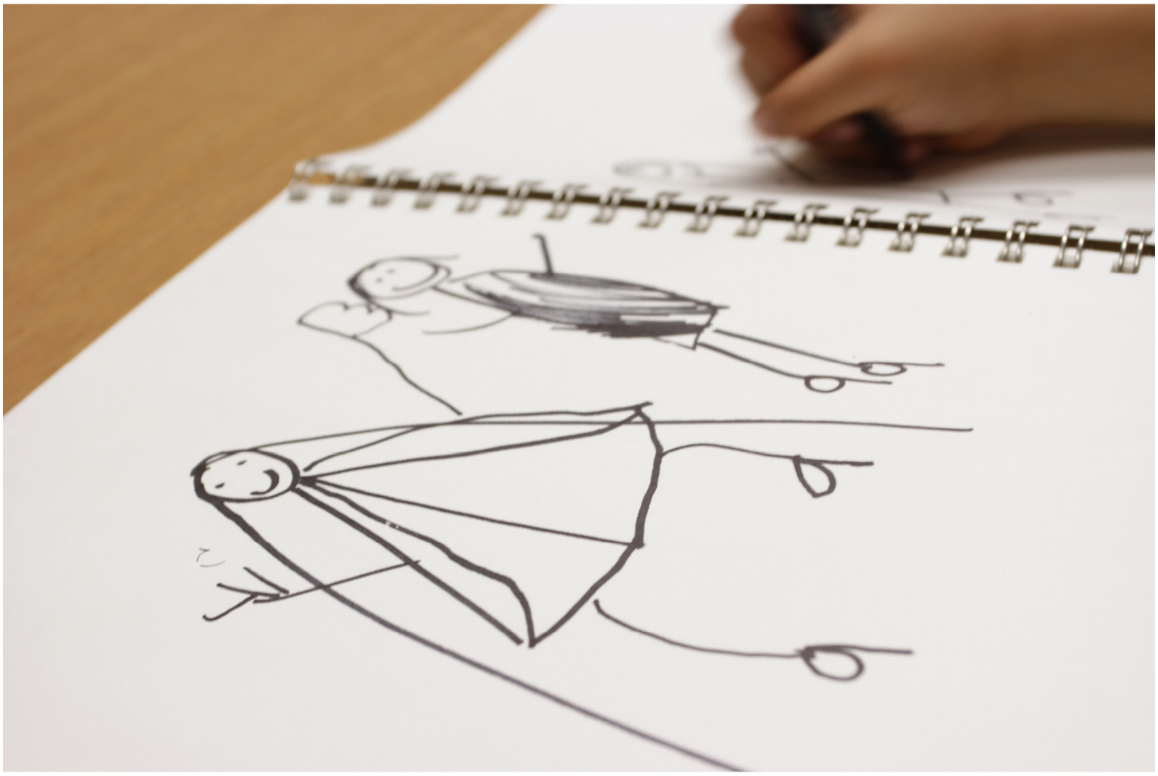
They continue jointly illustrating their wedding, adding a giraffe as a guest and some milkweed pods with dotted seeds inside, as well as an entire page of party foods and many inscriptions of "B.F.F."


ABCDEFGHiTK
BFF
BFF
BFF

As Bella and Petal drew themselves as the two ponies, galloping around in high heels to catch milkweed floss, they articulated the complex material-discursive arrangement through which their commitment to each other was mobilized. The floss, as it was given during Bella's proposal to Petal, *could* be interpreted as mere token of their "forever" relationship, a stand-in for a traditional engagement ring. But according to the girls the floss was not merely symbolic – the material attributes of the milkweed played a crucial role. That is, their wedding could not be separated from was the ways in which the milkweed floss made itself known. As multiple tufts of floss appeared in the air, its soft fibers lifted Bella onto her "tiptoe" and caused her to jump out of the adult-sanctioned line. The possibility of getting in "trouble" was entangled with Bella's dedication to Petal and, thus, the need to have a wedding, as well as the physical challenge and sensation that the soft floss presented.

In the weeks that followed, the milkweed's ability to take flight would continue to impact how re-presentations of the wedding would materialize in Bella's drawings. In our photo-doings, she would return again and again to the photo wherein she was holding Petal's arm as she held up the milkweed floss.

Bella: *Let me show you something about this wedding, okay? I'm going to draw it…*
She draws a fan-shaped tuft of floss, then Petal, and then herself. She uses a pinching gesture to zoom in on a portion of the photo, so that only their hands and the floss are visible. She gestures to the photo.



Bella: *This is Petal and she is holding it. And I have...I'm holding …her arm. And we have to hold on really tight or it will fly away and then the wedding will be over. But I'm going to just show you something* [gestures to her drawing]. *So here is the feather and we're going to hold it.*

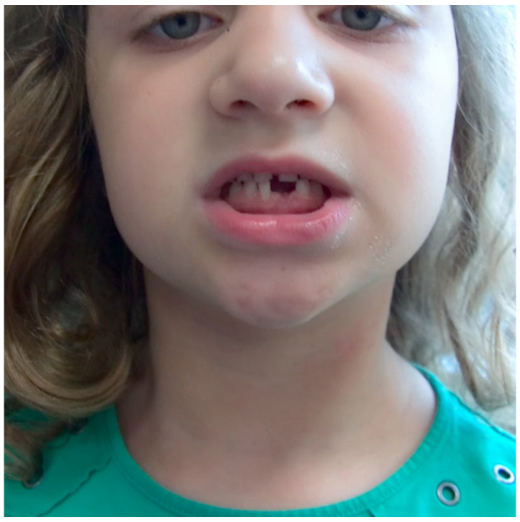
Casey: *What's…which part is the feather?*

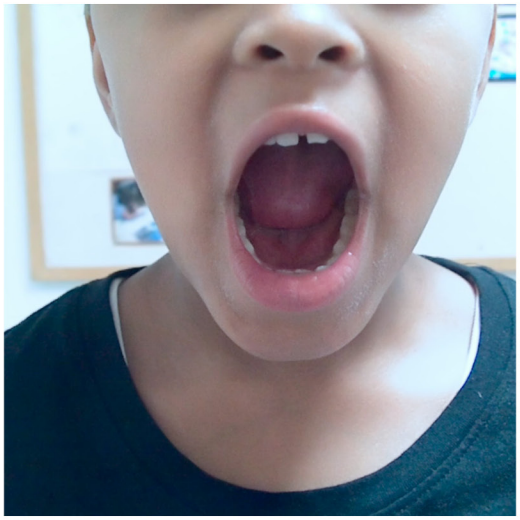
Bella: *It's like a feather because it flies around. So we hold it or it's going to…fly away. So I give it to Petal and I'm like, "Marry me!" But we don't kiss for real, I just have to reach for her arm and HOLD it. Holding…that's when we have to have a wedding. For love. And we held it very tight and then we had to be quick and get back in line.*

Casey: *What happened to the feather when you had to get back in line?*

Bella: *We just let it fly away so we wouldn't get in trouble. And then…the end!*

The wedding – as Bella would define it – comprised many human and non-human forces, all of which would culminate in their joint act of "holding". Because the floss was so feather-like, it needed to be held "very tight". The act of holding on to the floss and to each other replaced the ritual of a traditional wedding kiss, but it had to be done quickly so as not to get into trouble for being out of line. Just as it had in the case of the hatchling beds, the floss played a contradictory role. In this case, it had to be held *and* be released and both acts were entangled in the social expectations of the moment (getting married and getting back in line).





"This Toothhole Won't Leave Me Alone!"

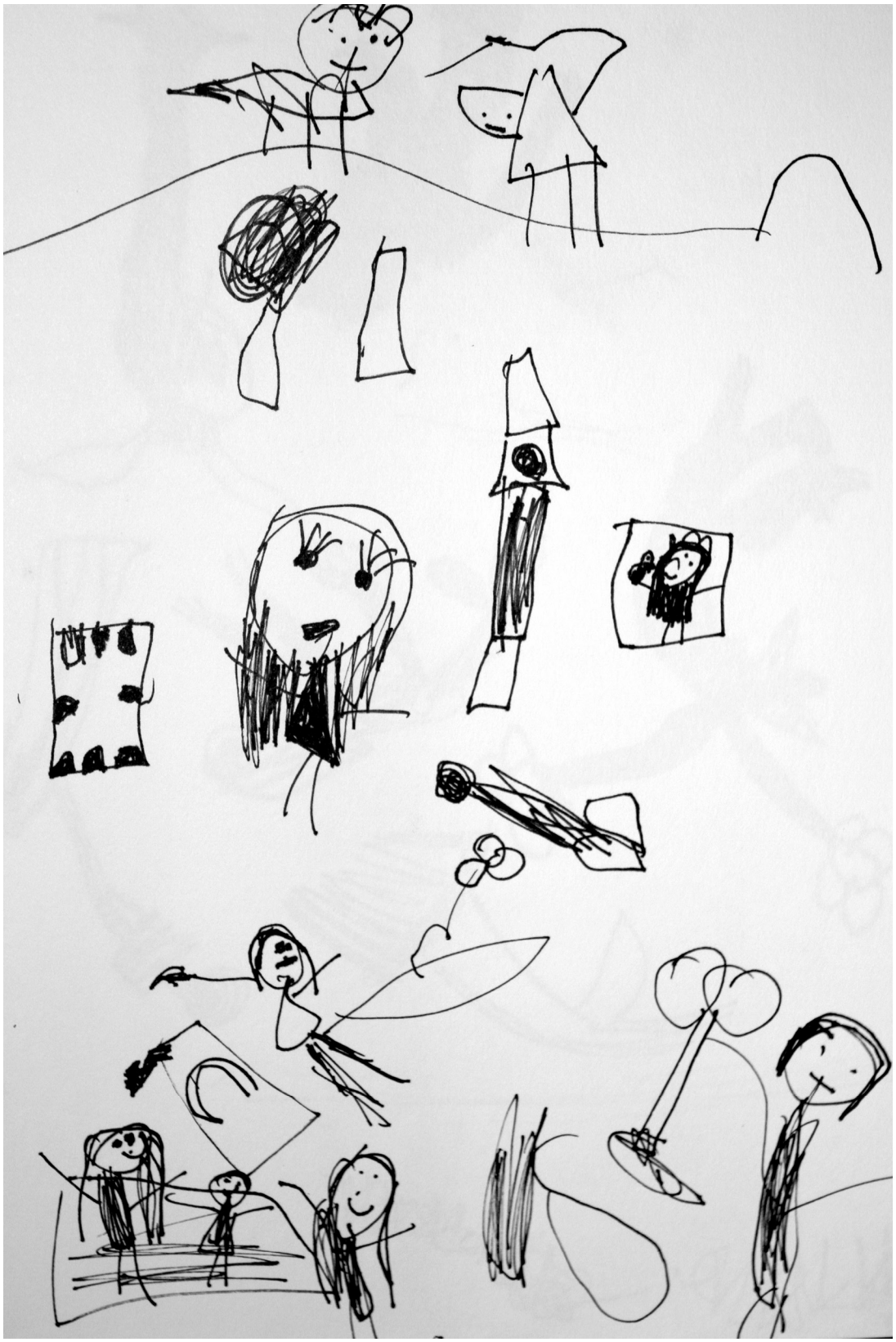
As all of the children ranged from five- to six-year-olds at some point during the school year, a common developmental phenomenon was the shedding of primary ("baby") teeth and the subsequent eruption of permanent teeth. Children emerging into this state of *mixed dentition* (Proffit, Fields, & Solver, 2012) –having both primary teeth and permanent teeth transitioning in one's mouth –frequently asked me to take photos of their mouths. Often, their cameras were used as a means to inspect each other's mouths for signs that teeth were loosening, to document a wiggly baby tooth or erupting permanent tooth, or in an attempt to discern the change in teeth after particularly crunchy snacks were consumed. While doing photos, many children grappled with the various ways in which these teeth come and go.

Elizabeth: *You wanna know how I lost this one?* [Placing her finger inside her mouth.]

Casey: *How?*

Elizabeth: *Cotton ca-a-a-andy! At Disney on Ice, I chewed on it …but I didn't swallow it. I was like* [pretends to pull a tooth out of her mouth] and then I was like [pretends to spit into her cupped hands] *and I spit my bloody spit out and I was like, "Ew! Yuck!" and I felt my hand and I was like, "Oh no, oh no … my tooth is out!" and I was like, "Mommy...here's my tooth" and she was like, "Elizabeth, oh my god." And then I couldn't even eat. I was too afraid. I was not happy about getting this tooth out. I was not happy. I was too afraid to bite stuff with that teeth! And guess what?*

Casey: *What?*



Elizabeth: *At first, when I was four I did not want to eat because this tooth was bugging me so much. And I was like, "I don't wanna get it OUT!" And then when you bite stuff it hurts because my teeth get really loose. And I want to eat soft food but Mommy and Daddy say, "No! You have to eat crunchy stuff." And I'm like, "Oh no! Why?" And they say, "Well, the Tooth Fairy will come when that tooth comes out." See?*

She draws her family at Disney on Ice and adds a Tooth Fairy flying over them.

Casey: *I see...it seems hard to eat when your teeth are so loose.*

Elizabeth: *Yes. Well, no. When they start...your teeth tell your other teeth, "Are you ready to wiggle? Are you ready to…get out? I wanna let someone else come in." And then they start wiggling their bodies.* [Jerks left and right in her chair.] *And then I say, "Oh boy, they spoke to each other...I'm not going to be able to eat stuff".*

She draws a square "mouth" with teeth around the inside edge.

Paige: *Teeth don't talk!*

Elizabeth: *Well, they talk to each other, not to me! I don't know…*

Paige: *No, your teeth get older. They get old…old and then they come out. And then another tooth grows in, but that tooth doesn't come out. My grown-up tooth is coming in right now.*

Petal: *How about mine?* [Opening her mouth.]

Paige: *Oh, yeah...it's coming. They attach to your other bones*

Petal: *No, no. They attach to your gums.*

Paige: *Well, it takes a little while for your teeth to come in. If you want it out quicker, you tie a string around a wiggly tooth and* [pretending to pull out her tooth]…*yank it out. I try to wiggle my tooth with a tissue, too. But there's one problem.*

Casey: *What's that?*

Paige: *If you yank it out before it's ready, it will bleed everywhere.*

Petal: *Yeah, but you can't get your teeth out just because everyone else is losing their teeth. Nia hasn't lost one tooth! She has all baby teeth. But…you can't…it just comes when it grows up. They grow up, up!* [Raising her arm into the air] *Because there is a seed in there that makes them grow.*

Paige: *A seed!?* [Laughing.]

Petal: *No*. [Laughing] *Maybe. I think it's seed…but I just think that's funny. It's super funny that Paige grows! I'm going to draw Paige with her little teeth all around.*

She makes dotted "teeth" all over the drawing of Paige's face.

Paige: *I'm going to make a story.*

She renders herself as a stick figure, reaching inside of a wide-open mouth. She then begins to "write" in cursive all around her drawing, scribbling quickly as she talks.

Paige: *It goes: One day I had a dream my teeth were wiggling and I woke up in Kindergarten and…wiggling tooth, tooth, tooth! Every day, every day, every day. It's loose because a new tooth is coming in and it's really…strong.*

As they engaged with photos of mouths with missing teeth, Petal, Paige, and Elizabeth grappled with the complexity of the variety of more-than-human forces

entangled within the processes of *resorption* and *propulsion* (Proffit, Fields, & Solver, 2012) – the means by which baby teeth become loose and eventually fall out and by which adult teeth move into place. Whether it was conceptualized as a growing seed or a conspiracy spoken only amongst the teeth, there were bodily becomings that were never completely under their control. Intervening in these processes –pulling with your fingers, tugging with a string, or eating crunchy foods – could increase their efficiency; however, pain, fear, and blood could result. Thus, these processes were not considerate of the social situations in which the children found themselves. Although it might be most convenient to *not* loose one's tooth during a family outing or it might be more socially acceptable to loose one's tooth "because everyone else is loosing their teeth", teeth were not beholden to those ideals.

This dance that occurred between what children actively chose or wanted and what the body forced upon them seemed to be at the center of why *toothholes*, not the teeth themselves, emerged as tinythings. As more and more children lost teeth, these empty spaces within their mouths became a site of bodily activity that complicated social interactions within the classroom.

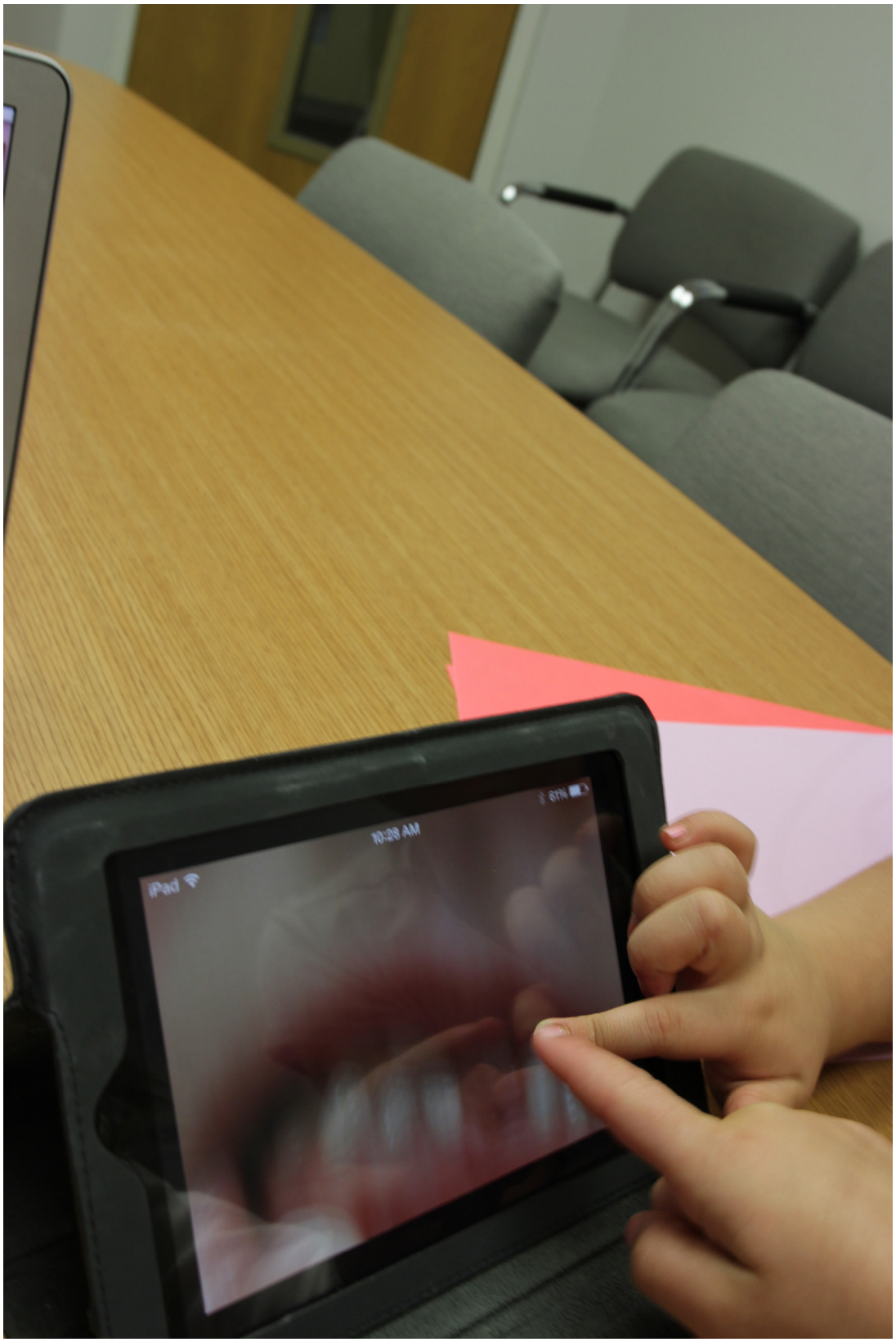
Elizabeth: *This one has been bugging me forever!*

She puts her finger in her mouth and rubs her gums.

Casey: *Your tooth?*

Elizabeth: *My toothhole. I just cannot stop lalalalalala.*

She flicks her tongue in and out of her mouth repeatedly.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Elizabeth: *And I try to stop, but I cannot stop ah-lalalalalalala!*

Casey: *And that bugs you?*

Elizabeth: *Well, I was at The Writers' Center and (another child) said, "Stop sticking your tongue out at me! That's rude!" and I was like, "I didn't!" and then she was like, "You did!" and I said, "Well, I didn't do it on purpose!" I just stick my tongue in there or I rub it with my finger and it's hard to stop.*

Casey: *Why is it so hard to stop?*

Elizabeth: *You know, I don't even know! I don't think about it!*

Paige: *Putting your finger (inside the tooth hole) is not so hard to do. I don't even have a little thought about putting my finger in there. I just slide it in and out or make it a resting place. Like, watch my tongue…[She finds a photo of herself in which her tongue can be seen through her toothhole] it just happens. [Sliding her tongue in and out of her toothhole] So squishy!*

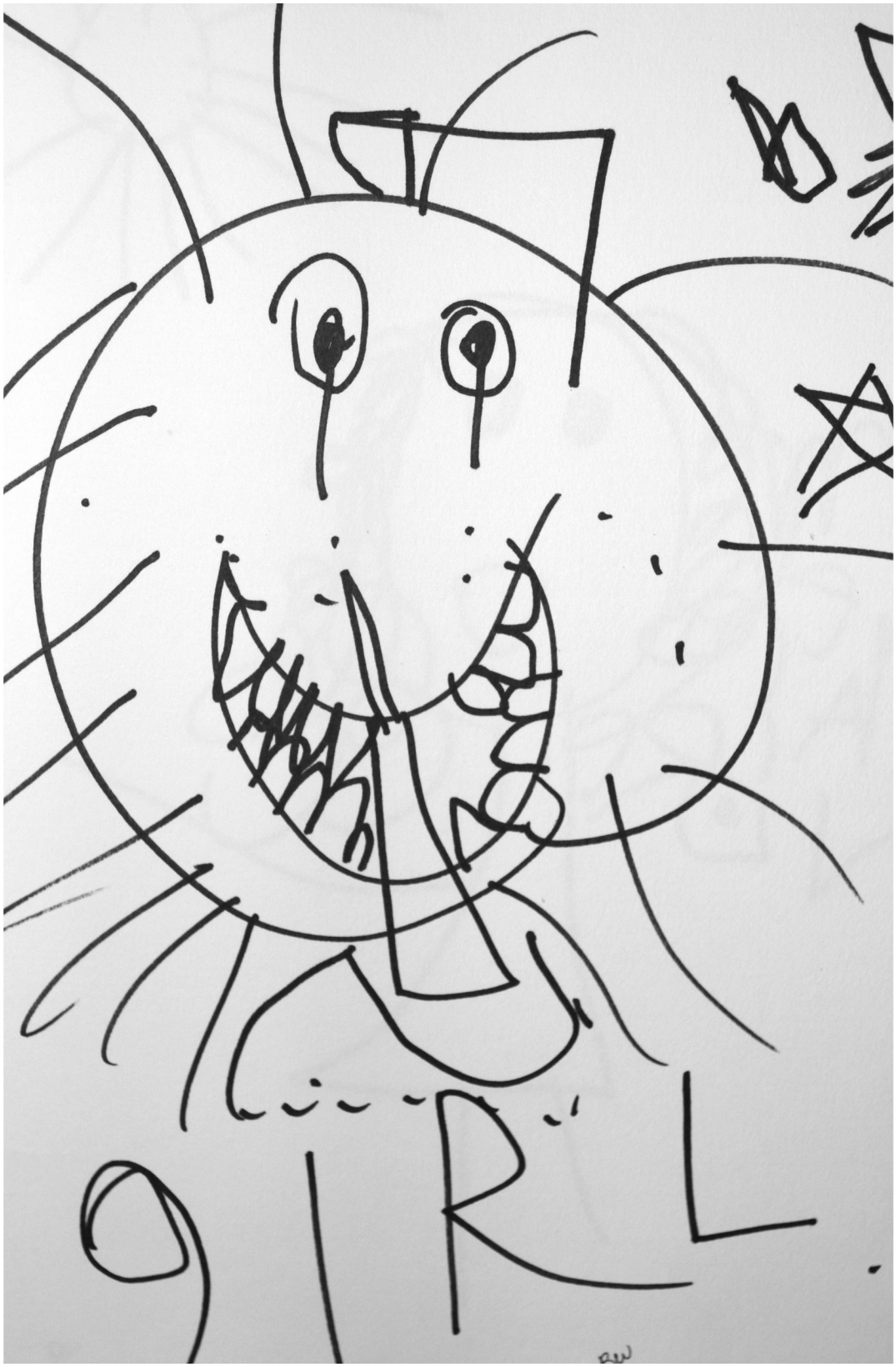
Casey: *It feels good?*

Paige: *Oh yeah…I can't stop [flicks her tongue in and out repeatedly through the tooth hole]. And then it's, "Oh my god! Stop doing that!" and I'm like, "Well, this tooth hole won't leave me alone!"*

Casey: *Who tells you to stop?*

Paige: *Well, like, a teacher would say, "That's rude!"*

Elizabeth: It's not rude because you're not trying to be mean. But it does get me thinking about teeth and then I wanna draw (toothholes) and a million fingers.


GIRL

She draws a smiling face with two tongues emerging from a toothhole. She adds straight lines, like rays of a sun, all around the face.

Paige: *Those are the fingers. A toothhole makes you do that!*

Elizabeth continued to add details to her drawing and several times over the next few minutes, Paige put her finger in her toothhole while she watched her. Elizabeth notices this and giggles, pointing her finger at Paige's mouth.

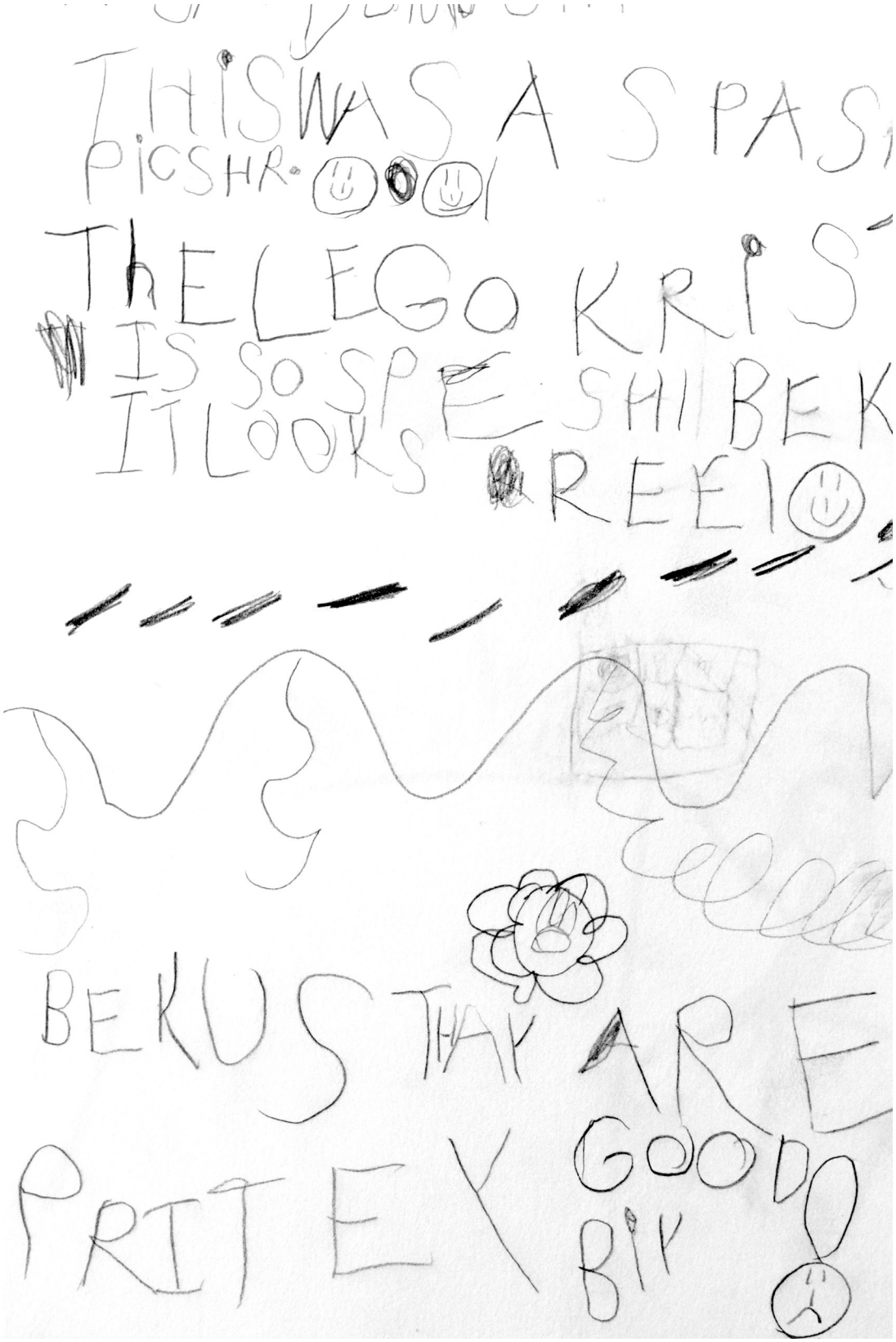
Paige: [Rolling her eyes and laughing] *REALLY? Toothho-o-o-ole!*

Paige and Elizabeth's photo-doings became a space in which they both remarked on and experienced the limitations of human agency in relation to toothhole-as-tinything. In some ways, a toothhole was a satisfying space (e.g., it could be a "resting place"). However, the way the toothhole repeatedly called to fingers and tongues complicated relationships with adults and peers, as they were annoyed by this behavior that they perceived to be purposefully rude. Even though children were aware of the social difficulty the toothhole caused, it was difficult to stop responding to it because the body answered the call of the toothhole subconsciously, without "a little thought". In these ways, toothholes were not only appearing frequently in the mouths of children, but they were unrelenting in their material-discursive effects – always pulling other body parts toward the squishy flesh where the baby tooth once was, priming the social sphere for a misunderstanding, as adults and other children alike would underestimate a toothhole's intentions.

“You Can’t Get The Pointy Crystal in One Picture!”

Throughout the Winter and Spring, there were few things that embodied tinything-ness more than one LEGO™ Transparent Neon Green Crystal. More broadly known as Part 52, this small plastic piece comes in multiple transparent and metallic colors and has been an accessory in various LEGO themes that focus on either underwater or space mining (“Part 52”, n.d.). Part 52, typically referred to as “the pointy crystal” by the Kindergarteners, would emerge as a tinything for interrelated reasons – it looked real and it was rare. The children grappled with the ways in which these characteristics manifested themselves across various classroom contexts – from The LEGO Loft to The Playground – as well as the ways in which the pointy crystal would be constructed (or not) within our documentation.

About the time the children returned from Winter break, I began hearing about the pointy crystal, mostly in children’s conversations during what seemed to be conflicts in The LEGO Loft. Children would also use it as a reference point when they played with the rocks in the science area of the classroom (e.g., discussing which rocks did or did not have pointy crystals in them). The first time I saw the pointy crystal was when Rosa called me over to The LEGO Loft to take a photo of it. Nia quickly brought it to the entrance of The Loft, set it on the floor just long enough for the shutter to fire twice and then she promptly scooped it up again. When engaging with the photo later, Rosa discussed how the quality of being “real” impacted children’s activities.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Rosa: *I'm just going to write about this (photo).*

She writes carefully for several minutes then holds the page up for me to read.

Casey: [Reading] *This picture is special because it looks real. The crystal looks real.*

Rosa: *We love crystals. A lot of us do, anyway.*

Casey: *Why do you love them?*

Rosa: *They are really sparkly. They're pointy…. And this one has points on the top. Like a real, real crystal. Everyone likes real crystals because they are pretty. Like, the rocks on the platform and outside on the (Playground) steps there are those sparkly rocks. And we like to wash them off with the snow so they can sparkle…well, those are a kind of crystal. Did you know that?*

Casey: *I didn't.*

Rosa: *Well, I did because I know a lot about crystals and rocks. I have a box of crystals and gems. I brought it for sharing one time.*

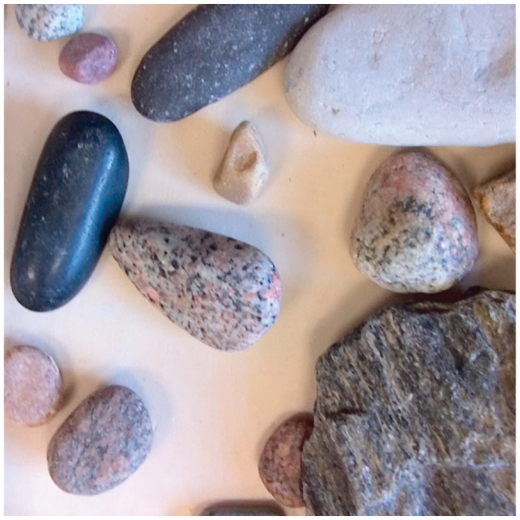
Casey: *LEGO crystals and gems?*

Rosa: *Real* [scrolling though children's photos of "crystals and gems]. *A lot of kids take these (photos)…looking for the real crystals. We're always trying to find the most sparkly ones…the real ones.*

Casey: *Are they easy to find or hard to find?*

Rosa: *Any crystal is hard to find because it's not just a plain rock or something. And the pointy crystal is hard to find…you have to look for it and there are not always enough. Like, Jackson and Lotta tried to be the boss of it so that meant some people couldn't do it.*

Casey*: The boss of looking for crystals? How?*



Rosa: *Well, the boss of cleaning them with the snow. Paige and Clara wanted to do it, but…nope.*

Casey*: Why not?*

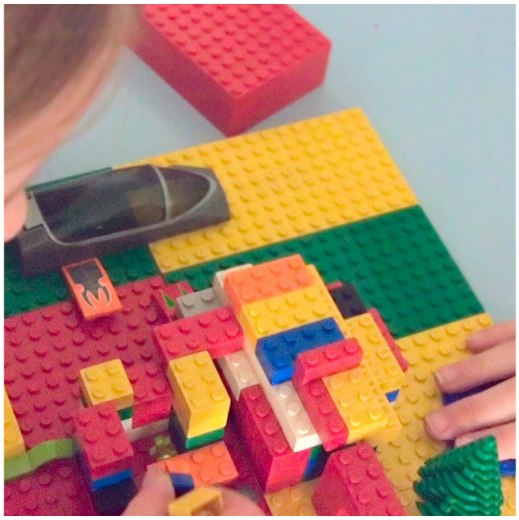
Rosa*: They're so pretty, that you want to keep as many as you can and there might only be a few or… even one. It's not easy to share.*

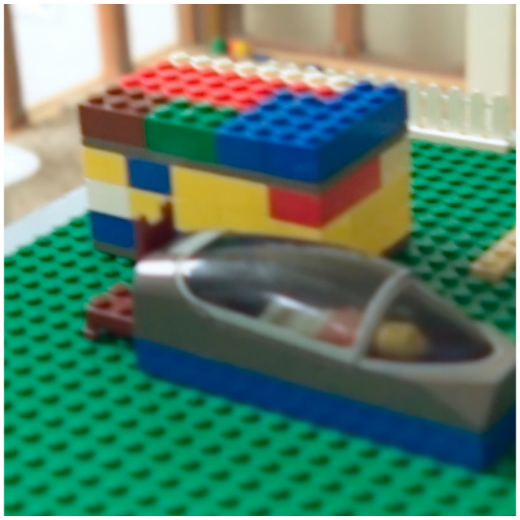
Although its unclear (and perhaps even unimportant) whether the interest in real crystals drove the interest in the pointy crystal or vice versa, in both cases it seems that being real or realistic meant being pretty and, thus, desired by the children. According to the children, the crystal's realistic beauty rendered it irresistable. It's desirability also lead to it's rareity. Any child who discussed the fact that there was only one available LEGO crystal reccounted some form of the following story:

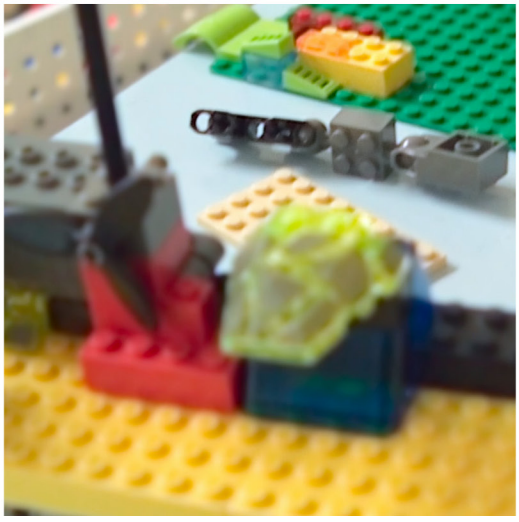
Margaret: *There used to be three or even four (LEGO) crystals but they were so pretty that everyone wanted them and someone even tried to put them in their locker. And then the teachers took them and put them in their office because it was a problem.*

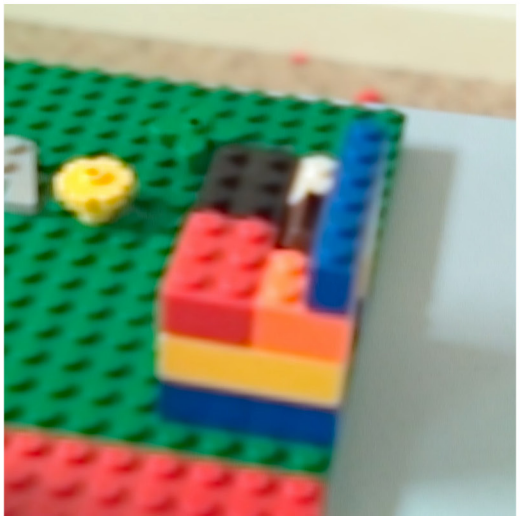
Casey: *So how is there still one left?*

Margaret: *Well, (the teachers) thought they had all of them, but…no. Still one pointy crystal and now everyone tries to bury it…even hide it. So they know where it is but no one else does. And then it's too soon that someone else finds it and then they want to keep it safe for themselves.*









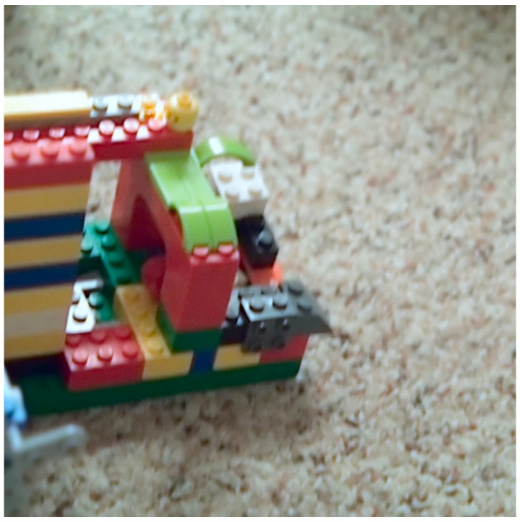
The fact that the pointy crystals were desirable caused a problem in the classroom – children hiding them away, "stealing" them, hoarding them, etc. The teachers' attempts to remedy the situation actually intensified it. The singular pointy crystal that remained emerged as inextricably beautiful, desired, and rare – each characteristic fueling the other – and it would impact the ways in which LEGO structures would be built, dismantled, and documented. As they engaged with children's photos closely during their photo-doings, Krissa and Margaret elaborated on the ways in which the pointy crystal emerged as a influential actor in child-LEGO events.

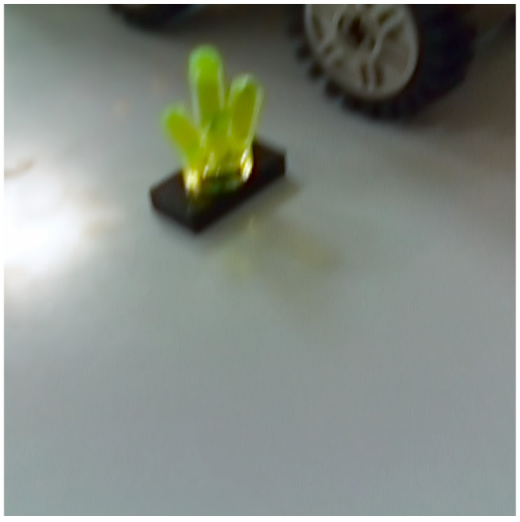
Krissa: *The crystal has even littler crystals on it that go around…the points. Like, it has many sides. And you can see through it kind of. Lots of people want to make treasure things and shiny stuff so that's why everyone wants the crystal. And then they try to hide it. Because when we found it first, we tried to hide it. I hid it under my (LEGO) car so people would just think it's a parking spot. And then the next morning, I looked and it wasn't there. It was on Lotta's structure! Somebody moved it. So now lots of people make boxes when they find the pointy crystal.*

Casey: *What does the box do?*

Krissa: *It keeps people from taking it when they found it first. There's probably one in there right now! [Pointing to the LEGO box in the photo] There's a box in almost every one…so you can't see the crystal at all.*

She looks at several more photos. Running her fingers over the screen in a square shape, tracing the outline of the boxes on the LEGO structures.





Krissa: *I think probably the crystal is in all of these, but it's hidden in a box.*

Margaret: *Lots of people put it on their structure and make a box for it to keep it safe. Like I do on that structure that I was working on in The LEGO Loft. There's a box with a roof.* [Examining a photo closely] *I remember that structure because I was in charge of it. I made that box.*

Casey: *And the box hides it…or keeps it safe?*

Margaret: *Kind of. People usually find it because they figured it out that in any box there could be…the pointy crystal. So every kind (of box) with a roof…usually gets the pieces taken off and destroyed. People will just throw (pieces) on the floor.*

Casey: *So what happens when people take the crystal out of someone else's box? They get it keep it for a while?*

Krissa: *Oh, no. It's a problem. People keep taking it and taking it until someone gets too mad. And we have to have a meeting (with a teacher) about not taking parts from someone else's structure.*

Casey: *So you talk about it at morning meeting. Does that help?*

Margaret: *Not really. It's not going to stop…because there's still just one crystal!*

Many children grappled with the ways in which the pointy crystal, as a desired and rare object, pulled children into this circular pattern of events – a child finds the crystal, takes it, makes a box with a roof in which to hide the crystal, and then another child searches, dismantling any structure suspected of harboring the crystal, child finds the crystal, reconstructs a box, and so on. Within Krissa and Margaret's photo-doings,

these events emerged as destructive problems that even adults couldn't solve despite their efforts to at mediation. But while these events seemed to disturb and frustrate some, they delighted others. During their photo-doings, Ginger and Nia playfully re-presented these events as silly games of chase incited by the crystal.

Ginger: *I try to get that crystal all the time. If I see it on someone else's structure in the morning, I will take it and put it on mine. Or I will give it (to another student) because I love him. But if I want to keep it safe I will make a box and put it in there.*

Nia: *There are other pieces – but not as special.* [She zooms in on a photo of a LEGO structure.] *Like, I like the baby snake tails* [pointing to two light green, curved pieces] *because of snakes…but not as much as the crystal. Everyone is always trying to find the pointy crystal.* [Drawing] *I'm going to make Ginger in long dress. Look at the fattest part of this dress…look at the ruffle!*

Ginger: *I'm going to make Nia in a long, long dress!*

She giggles and continues to add details to her drawing

Ginger: *And there's a crystal over here.*

She quickly draws a crystal and squiggly line leading to her illustration of Nia.

Ginger: *So she goes over to get it.* [Talking as Nia] *"Yeah! I'm gonna get that crystal for my little box!"*

Nia: [Laughing, scribbling over the crystal] *But then, it's over here.*

She adds another crystal on the other side of the page.

Nia: *And Ginger goes to get it. But then it's over here! [Talking as Ginger] "Waaa! Waaa! I can't get that crystal for my husband!"*

Ginger: *And then you try to get it, but it's in a little box. Of somebody else's. And then it's over here!*

Nia: *I'm coming!*

The girls continue in this joyful way until the page is filled – their characters chasing each quickly drawn pointy crystal, only to be fooled, and begin again.

As the pointy crystal became the protagonist/antagonist in these cycles of hiding and seeking, Elizabeth engaged with how problematic it was to attempt to represent them. In one of our last photo-doings, Elizabeth and I were discussing the data events that children wanted to include in this "book" and she offered insight into the complexity of rendering events as static words and images.

Elizabeth: *What did Nia do yesterday?*

Casey: *When we did photos? Well, we looked at some photos of LEGO and talked and drew a bit about the pointy crystal.*

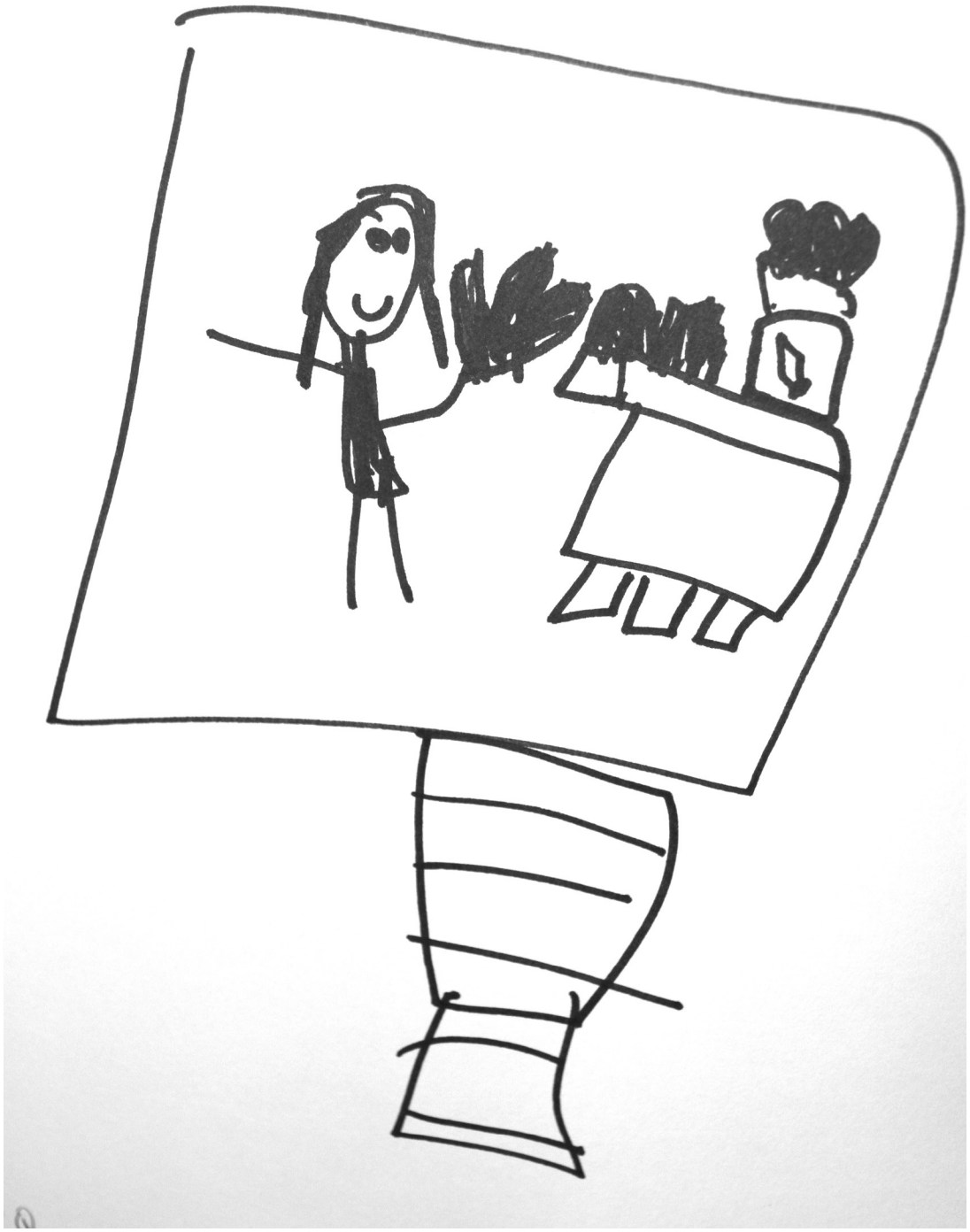
Elizabeth: *Oh, that's gonna be in the book. The pointy crystal…you know why?*

Casey: *Well, I know there's only one for the whole class. And Rosa said that children are interested in the pointy crystal because it is like a real –*

I was about to say "like a real crystal", but she interjects.

Elizabeth: *Like, a real special occasion.*

I'm tickled by her turn of phrase and I laugh.



Casey: *They ARE a real special occasion!*

Elizabeth: *Really! It's a big thing. When you get it, you try to keep it. If you don't get it, you look all over and then sometimes some…some kids will even steal it, take it, put it on their structure. Everybody is always…get it, make a little safe box, then it disappears.*

Casey: *That seems to happen a lot.*

Elizabeth begins drawing – first making a pointy crystal, then a human figure holding it, and then LEGO structures on the small table, then the perimeter of The Loft and the ladder. She sets the marker down and looks at her finished drawing, dismayed. She sighs heavily and scowls. She then "pretends" to scribble over it with the marker and shrugs exasperatedly.

Elizabeth: *Well, I can't do it.*

Casey: *Can't do what?*

Elizabeth: *It's too fast…it's too fast because you're, "Where'd it go? Where'd it go?"*

She jumps up and pretends to search all over the room, feigns gasping for breath.

Elizabeth: *Try to get me!*

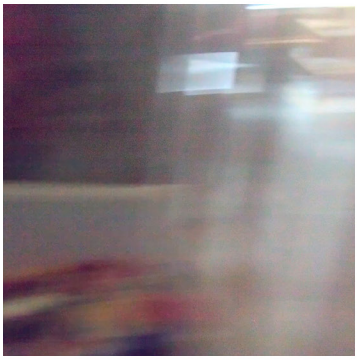
I take several photos of her; all of which are somewhat blurry.

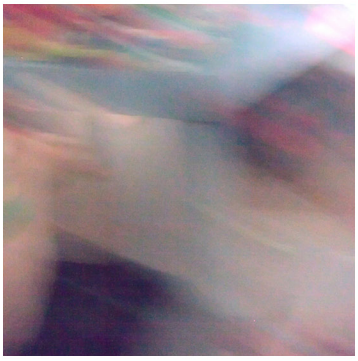
Elizabeth: *You can't get the pointy crystal in one picture!* [Sighing] *Are there photos?*

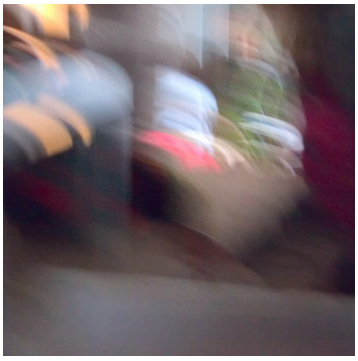
We look through the photos that children have taken, searching for images of children engaged in the searching for, finding, taking, and/or hiding the pointy crystal. She closely examines a series of dark, blurry photos taken inside The LEGO Loft.

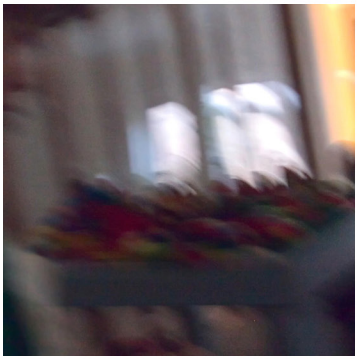
Elizabeth: *Hmm…time to clean up, I think.*

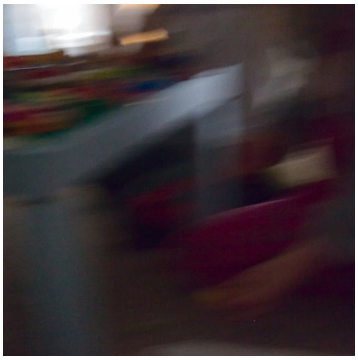
Casey: *Yeah, they must've turned (the lights) off. It was pretty dark up there.*

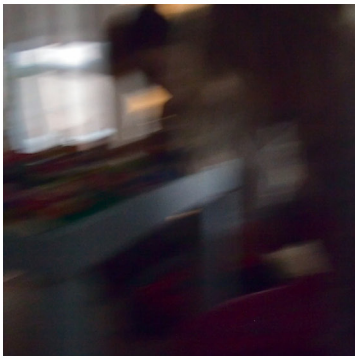












She makes out the corners of the small blue table in The LEGO Loft, and runs her fingers over them on the screen. She holds her hand up as if to take a photo, and then shakes it all around.

Casey: *What is happening here?*

Elizabeth: *I think everyone is, like, trying to hurry to find the pointy crystal. It's blurry when you move fast like that, so it's not a good one. But it is really fast. Really fast.*

Be it experienced as delightful or destructive, the pointy crystal would pull children into a hurried, participatory kind of chaos that was not easy to replicate or re-present in an image. According to Elizabeth, the pointy crystal was not simply an object, but an *event.* The images of this "special occasion" were contradictory– they were not technically "good" if they were blurry, but they also were not affectively meaningful if they weren't "fast." Constructing cuts of these entanglements through narrative retelling, photographs, and drawings only offered brief, distorted glimpses the ways in which tinythings and children were working on each other.

"Take A Baby To The Disability Center": Limbless Figures, Disability Plays

This cartography attempts to give shape to the ways in which classroom discourses and enactments of disability[1] and the physical characteristics of a collection of plastic animal figures were mutually implicated in the production of children's play. This cartography does not psychoanalyze this play in terms of its implications for young children's perceptions of *people* with varying abilities nor does it make judgments about the purely sociocultural nature of children's perceptions of ability in general, as these

particular lines of inquiry have been well established (e.g., Dyson, 2005; Diamond, 2001; Diamond & Huang, 2005; Yu, Ostrosky, & Fowler, 2012, 2014). This is not an attempt to uncover what "disability" *meant* to children. The purpose of this map is to outline the various ways in which a certain kind of play came to be possible through the specific material-discursivity of "disability" that emerged from/around these plastic figures, classroom curriculum, and various more-than-human actors. In other words, this is an attempt to re-present what "disability" *did* as it emerged within the classroom.

Injured Figures Emerge

Just a few days after I had started "being with" the children, I heard loud talking, laughing, and pretend "yelling" from the children who were gathered around the building platform. Intrigued by the commotion, I walked over to the platform area with my camera and sat down on the floor. I noticed Paige, Jackson, Lauren, Lotta, Clara, and Elizabeth hurriedly arranging a soft green piece of fabric on top of the platform and I asked them if I could sit and "be with" them. After they affirmed, Clara dumped out a clear bin containing plastic animals – horses, giraffes, cows, sheep, moose, elk, camels, and zebras of varying sizes – onto the floor and began handing them out to each of the children gathered around the platform.

Lauren: *Hey! My horse is missing her tail. No fair! Trade with me, Paige.*

Paige: *Well, a lot of them don't have tails so you just have to get what you get.*

Jackson: *This one is missing his ear! None of the big giraffes have ears!*

Paige: *Nuh-uh! This one just has one ear.*

Jackson: *No, that's what I meant. But there are the little horns that are missing!*

The children began to notice that each figure was "missing" at least one of its parts – be it a tail, foot, ear, antler, or eye – and these animal bodies were met with both intrigue and enjoyment. For example, Paige inspected each figure and then she would widen her eyes and exclaim, "Really?" and the other children would laugh at her reaction.

As the children moved these toys around the platform, the combination of their imbalanced bodies and the soft fabric underfoot made it difficult for many of the figures to stand upright. Some animals were able to stand independently if the plush fabric was pushed out of the way and they were afforded the hard, level surface of the platform; others needed another figure to lean on for support. The animal figures that remained unsupported in the center of the platform on the fabric, however, continued to fall over. Several of the children began to take rocks from the shelves around the building platform and pile them around the horses to keep them standing upright. This rock pile, however, kept collapsing inward on itself, burying the horses inside its perimeter. This collapse was met with feigned terror – the children were at once laughing and creating a kind of accident/injury story for many of the plastic figures. At this time, many other children arrived at the platform and either joined in by creating dialog for the horses or piling rocks on top of the "cave".

Jackson: *Get more rocks! This is a kind of trap!*

Rosa: *Those are crystals – get the crystals! Put the heavy ones on the top of the cave!*

Paige: [As a horse] *Argh! Get my mommy! I'm getting crushed!*

Petal: [As a horse] *We need our mom! We're just babies!*

Clara: [Moving two small zebras into the cave] *My legs! My legs!*

Paige: [As a horse] *My whole tail is crushed!* [As herself] *Jackson, put more (rocks) on this side…so they can't even move out.*

Lauren: *No! They need to be buried on this side.* [Holds up a horse with a missing ear] *Look at this one – he's hurt bad!*

As more rocks were piled on top, some children made the figures "claw" at the cave in an effort to "save the babies", but these figures would also get crushed with rocks and buried. Soon, the cave was disassembled and the children began to simply smash the figures with individual rocks. Each time, plastic animals would cry for help, call out to their mothers, or remark on the part of their bodies that had been smashed. This continued until the teachers indicated morning exploration was over and it was time to clean up the toys.

Similar scenarios emerged over the next two weeks – children would dump the bin of animals out onto the platform and "injure" them using the rocks. The particular nature of the injuries were manifested through the ways in which the platform, the children, the rocks, the fabric and the pre-existing condition of any animal's body made themselves known to each other. For example, a horse with chewed-up hooves would not get to her "family" before they were crushed by boulders and swallowed up into the green fabric "lava"; the giraffe with the missing ears never heard the others when they called for help.

”disAbility Awareness Month” Events

The month of October marked the University’s annual *disAbility Awareness Month (dAM)* programming and two related classroom events coincided with the continuation of the children’s engagement with these plastic figures. First, a disability awareness advocate visited the classroom and read the children several books about accepting differences and the ways in which people with different abilities use adaptive devices and aids. In addition, she brought several child-sized mobility aids, such as a walker, forearm crutches, and a wheelchair, which she let the classroom borrow for the month. The teacher organized a sign-up sheet for the use of these aids and each child on the list would “use” this equipment during their morning exploration period while the others watched the timer and waited for their turn. These pieces of equipment were highly sought after and would often be at the center of peer conflicts. If the children did not adhere to the sign-up sheet and timer system for sharing, the aids would be removed from the classroom for the day.

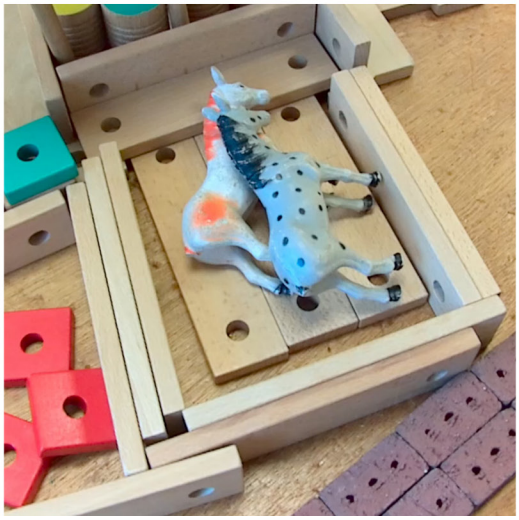
Next, two visitors – a man with a vision impairment and a female college student with multiple physical impairments—and their service dogs visited the classroom and participated in question-and-answer sessions with the class. During this visit, the children sat quietly and asked questions related to the origin and causes of their impairments (e.g., “When did you get blind?”), their relative strengths, needs, and responsibilities within the contexts of their activities of daily living (e.g., “Can you put on your own clothes?” “Who makes your food?” “What do you do if you need help with something?”), and the daily routines of their service animals (e.g., “What does your dog

do at night?”).

Other than permitting the exploration of the mobility aids, the teachers did not further elaborate on these events within the official daily classroom curriculum. However, these events did introduce specific materials into the classroom context and brought to the fore particular material-discursive conceptions related to disability, such as the independence afforded by assistive technologies and the constraints imposed by certain social scenarios or environments. In the months that followed these events, new ways of playing emerged between these ideas, the children, the plastic animal figures, and other available classroom materials.

Setting Traps: Emergence of Safety Structures and Origin Stories

After the *dAM* events, I noticed that the children and the animal figures began to engage each other in different ways. Rather than gathering the figures on the platform and smashing them with the rocks, the children began to build what appeared to be intricate mazes or fences around the animals with rocks, small bricks, or wooden and/or plastic blocks. Although they sometimes used thin cotton fabrics as a “base”, they stopped using the thicker plush fabric in their play with the plastic animals. As a result, some of the animals could now stand upright unassisted. In both the images I constructed and the images that the children constructed with their cameras, all engagement with the animal figures on the platform now included some kind of structure *around* the animals. The children’s dialogue still included occasional calls for help from the animals or mentions of their (lack of) limbs, but the activity seemed to be primarily concerned with the ways in which the structures around the animals were or were not coming together



and how the materials were being allocated between the students who were engaged in the construction. According to Lauren, most of the time was spent on "getting the building done" and not "playing with horses so much." What was once loud, hurried, sociodramatic engagement had been replaced by a more methodical, (relatively) quiet, and seemingly less imaginative way of working. However, when engaging with the photos of these structures, many children narrated and illustrated the ways in which construction with classroom materials was enmeshed with the creation of complex social worlds for the animal figures.

Paige: *This photo is the babies. You know why?*

Casey: *Well, I know those animals…you play with them a lot. Are the small ones the babies?*

Paige: [Zooming in on the blocks surrounding the animals] *Not really, they can be the bigger ones, too, but…this is a trap for them.*

Casey: *A trap for the babies? Or for other animals?*

Paige: *Babies. See, this is the baby horse and then he backs up and then boom!*

She makes a motion as if the horse would be flung into the air.

Paige: *He goes all the way back to his mommy. All the way here to this little island. Far, far away. Then a rubber band shoots him all the way to mommy and daddy. And there is a gate that keeps him from falling over.*

She zooms in on the portion of the photo near her hands, where purple bandage rests on the platform.

Paige: *But there is a Band-Aid on the bottom and if his paw steps on it, it will shock him.*

Casey: *That's a used Band-Aid, right? That shocks them?*

Paige: *Yeah, it's a My Little Ponies (Band-Aid). And there is a little camera that hangs from the ceiling to see...that's actually invisible here…but if someone pushes him over there it wouldn't shock him, but if she runs away from home, it will shock him. But if he is just walking to the edge to get some grass, then it won't shock him because My Little Ponies is right there. The camera knows the difference. There are three up there in the ceiling and this is the most important part. But this gate is even important-er because it helps to not…fall off the cliff. And if you are an adult, you can still go near the edge because you've already been trained. It takes special training to be okay by yourself. Like, if you don't have any eyes or ears or tail…if you are an adult you are trained so it is okay.*

Casey: *How does the baby get trained?*

Paige: *The trap does it for disability.*

Lauren: *And when the horse comes outside the fence to test the trap. It has to step on the rock…it can go from rock to rock to rock because this one does have legs so it works for this one.*

Casey: *Do the rocks hurt the horses like before?*

Lauren: *Only if you go past it, go off of it.*

She draws a large square with different sizes of rocks all around and an adjacent stable for the horses.

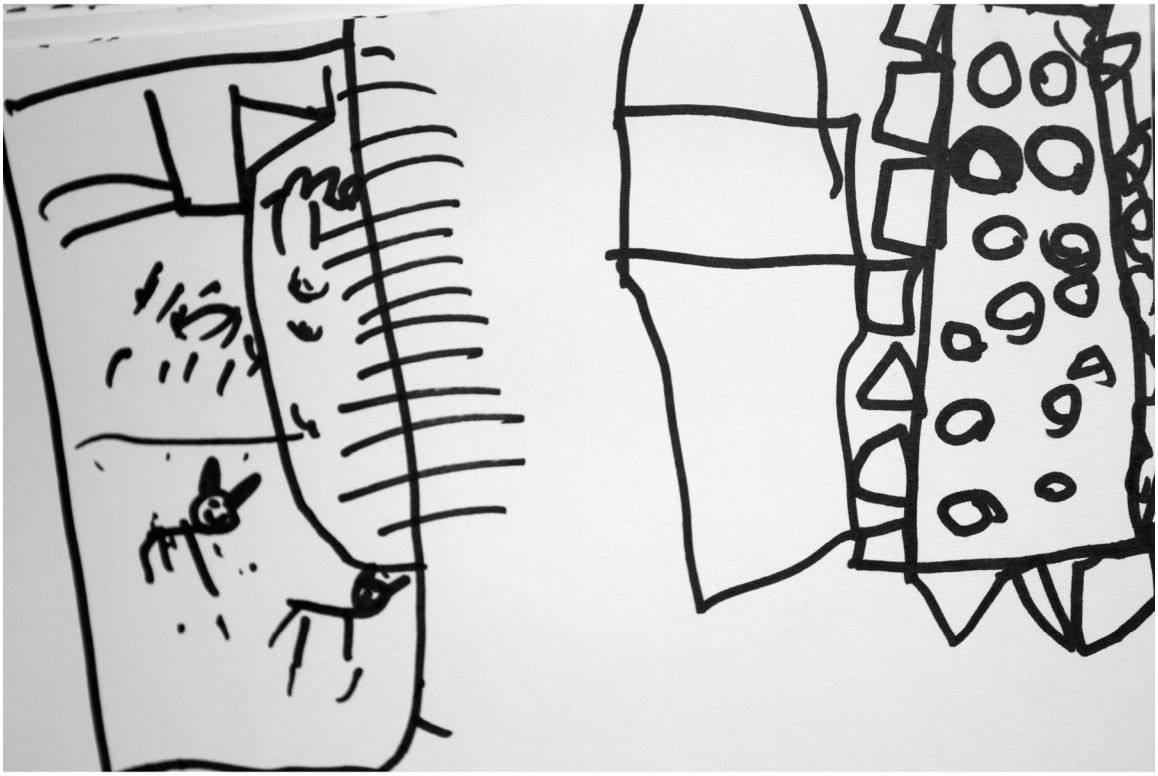
Lauren: *If the horse goes off of the platform it will fall down and then if there is no one to*

help it…it will just…I don't know. So the mother horse set up the big rocks and even if a horse is blind it will hit the rocks and know when to stop or something like that. It's not a smasher.

Petal: The *baby horses need a little stable so they don't get lost...it's hard for their parents to hear them so there has to be a little…pen for them…for night time. The rock is, like, a gate or a stopper. It's for…it's a disability.*

The ways in which "disability" materialized, according to Petal and Page, involved a combination of animal-specific impairments or abilities (e.g., blindness, falling over, having legs), material circumstances (e.g., gates, traps, pens) and social ideals (e.g., being responsible, becoming trained, etc.) all of which were mutually implicated in the other. Additionally, now that the rocks emerged as safety devices rather than as "smashers", Paige and Petal developed elaborate origin stories for the animals' bodies separate from these rocks. During our photo doings, they would examine the photos of the horses, zebras, and giraffes in their traps/pens, and ask me to film them while they performed these injury stories via dialog and drawing.

Paige: *The giraffe was standing under a tree and then a pinecone hit him on the head and knocked his ear off. And then a zebra came and they fighted and…whack! They whacked necks together and it took off both of his ears. And once upon a time there was a horse that had no tail…because this other zebra came up and whacked him and he hit a tree and a pinecone came down and whacked his head.* [Laughing] *And his butt.*



Petal: *Well, the zebra got shot by an arrow.*

Paige: *Nuh-uh! Read it like a story…Once upon a time, one zebra got hit by an arrow.*

Petal: *Okay. Once upon a time there was a zebra that got knocked down by an arrow…and then…this title is called, "The Zebras".*

Paige: *"The Zebras!" And then the other three zebras…*

Petal: *Woke up!*

Paige: *And they looked at their little sister.*

Petal: *"She's got knocked out!"*

Paige: *They all said. And then…*

Petal: *The giraffe came with her baby. And they were really sad because that was their best friend. But they still had two (zebras).*

Paige: *And then…do-o-own came the FAIRY! And then they were all screaming with glee!*

Petal: *And then they woke up! My name is Petal…*

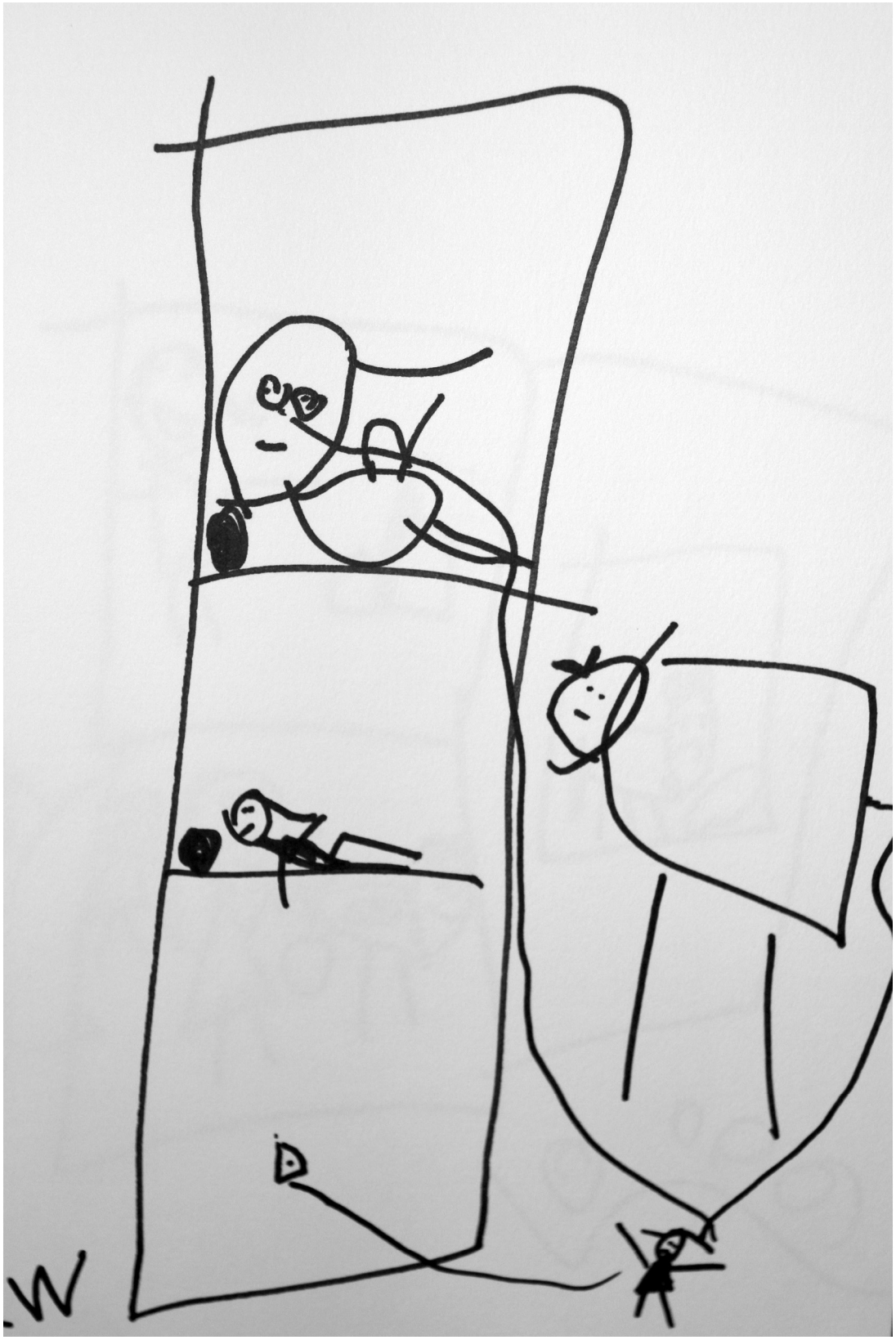
Paige: *And my name is Paige and you are Casey Myers…*[Laughing] t*hanks for watching our show!* Petal: [Laughing] *Okay, we know we made that last part up.*

Casey: [Laughing] *Which part?*

Paige: *About the fairy. It was just kind of, well, sad…I just added a fairy.*

Petal: *Yeah, because your ears cannot grow back, your tail cannot grow back…if you get shot by an arrow. But I have another (story)…I'm just going to write a story about it so everyone can know, okay?*

Casey: *Sure, go ahead.*

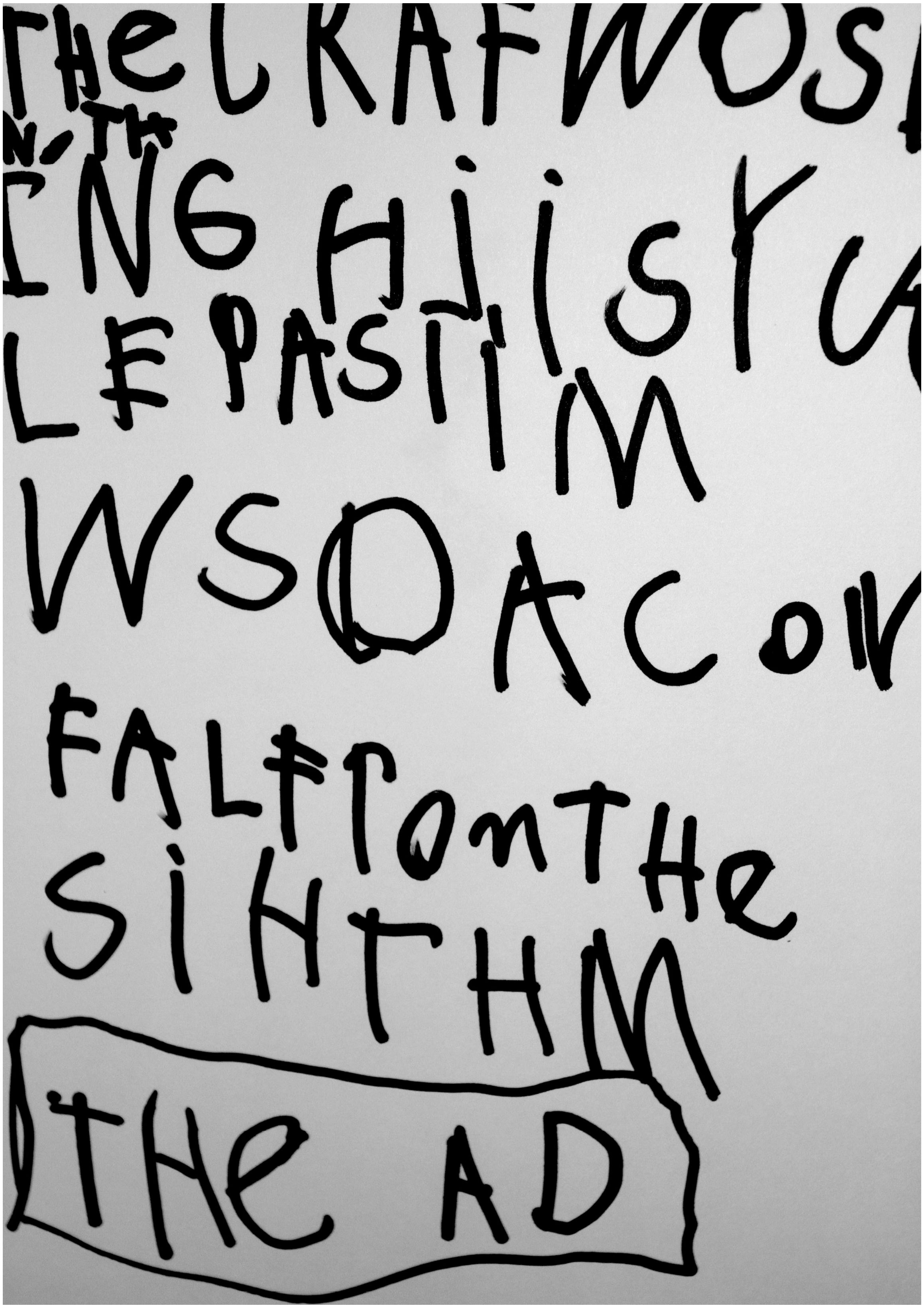


Petal: [Writing and then reading aloud] *There once was a giraffe who has doing nothing, which was his usual pastime. Well, some acorn fell from the sky and hit him. The End. That's how his ears are missing. So he has to stay in the pen. It's just not safe for him anywhere.*

Paige: *Except for in the pen.*

Petal: *Actually…I think people break off, like, when preschoolers borrow them at night...they must just break it. Some horses, too…have broken ears and tails because...well, they just come to us that way. Maybe toddlers chew off...chew them off? I'm not sure because I've never seen it when it wasn't that way to know how it happened exactly. It was…something.*

In the origin stories of the animals, "something" always happened to incite injury. This *could* be interpreted to say that children perceived physical differences in opposition to "normalcy", however the interpretive leap from plastic animal stories to interpersonal beliefs is not something I am confident in making, nor is it relevant to this particular cartography. However, it should be noted that because the majority of the animal figures available in this classroom existed in these varied states of limblessness or injury, the varied ways in which the children and the animal figures engaged each other (i.e., the modes through which "disability" emerged) were "normal" in that they were frequent and typical in the daily life of the classroom (note: see *Kicking Out: Emergence of Exclusion* in this cartography for further enactments of "normalcy").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Breaking Loose: Emergence of Mobility

Because, as Lauren said, the animal figures would meet an uncertain fate if they fell off of the edge, children's engagements with them typically happened at on the platform. However, two different modalities emerged which gave the horses and the giraffes the ability to leave the platform safely – "flying" and "stacking up". These mobility strategies for the animal figures emerged from the entanglement of their own capabilities and limitations as animals emerging into the sphere of "disability", the availability and uses of other classroom materials, the narrative arcs of their play schemes, and children's movements with within the classroom space.

Paige, Petal, and Clara's methods of "stacking up" occurred mostly with the horses and the giraffes and when other children were using the wooden blocks or bricks in a different area of the room. Animal figures stacked on top of one another, typically largest to smallest, would be lifted into the air and moved toward the adjacent shelf that held "science-related" materials – rocks, crystals, shells, magnifiers, non-fiction books, preserved animal specimens, etc. Once they reached the shelf, they would retrieve rocks, crystals, or shells for the purposes of making the safety traps or pens.

While doing photos, Paige and Petal engaged closely with the images of these "stacking up" events, re-narrating their methods and the material considerations required for successful mobility.

Petal: *Up…up…up…up…I'm waiting for it to fall over…but it's not!*

Casey: *I don't think I took a photo of the horses falling. Did they fall?*

Petal: *Almost. No…it's like [makes a startled face]…it could if you don't keep a balance.*

She zooms in on the small giraffes lying on their sides.

Petal: *And these are the babies that are just too small to ride this ride. It's like a Disney World. Did you know I went to Disney World…me and (my sister)?*

Casey: *I remember you telling me that. That was special for you.*

Petal: *Yeah.*

Casey: *Is this like a ride at Disney World?*

Petal: *No…this is just a balance…stacked up together so they can… just so they can go together and not die. But if you are too little you can't stack on.*

Casey: *Why not?*

Paige: *Because the legs won't go on, they'll just pop up.* [She zooms in on the smaller zebra on the top of the stack.] *You push it on to another one and it just pops right up.*

Casey: *Oh! They won't stay together stuck together…if they are too small? The space between the legs has to work…*

Petal: *Yeah. It only…just for the bigger ones. They stack up like that to get more rocks and more stuff, more shells. So…horse, horse, big giraffe, and small horse will be okay.*

Casey: *The order matters… for stacking.*

Paige: *The most important part…is you have to just use the legs to stay on and that is tricky. That's why it's hard to leave the platform. There has to be…three or four or five to go together* [drawing] *and then each leg goes around…if you are missing a foot or a leg…I have to hold you on the side.*

She draws several pairs of "legs" wrapping over and around the body of the giraffe.

Paige: *But this way, the adult can get some babies off (the platform) without a problem.*

Casey: *So no one gets shocked or anything?*

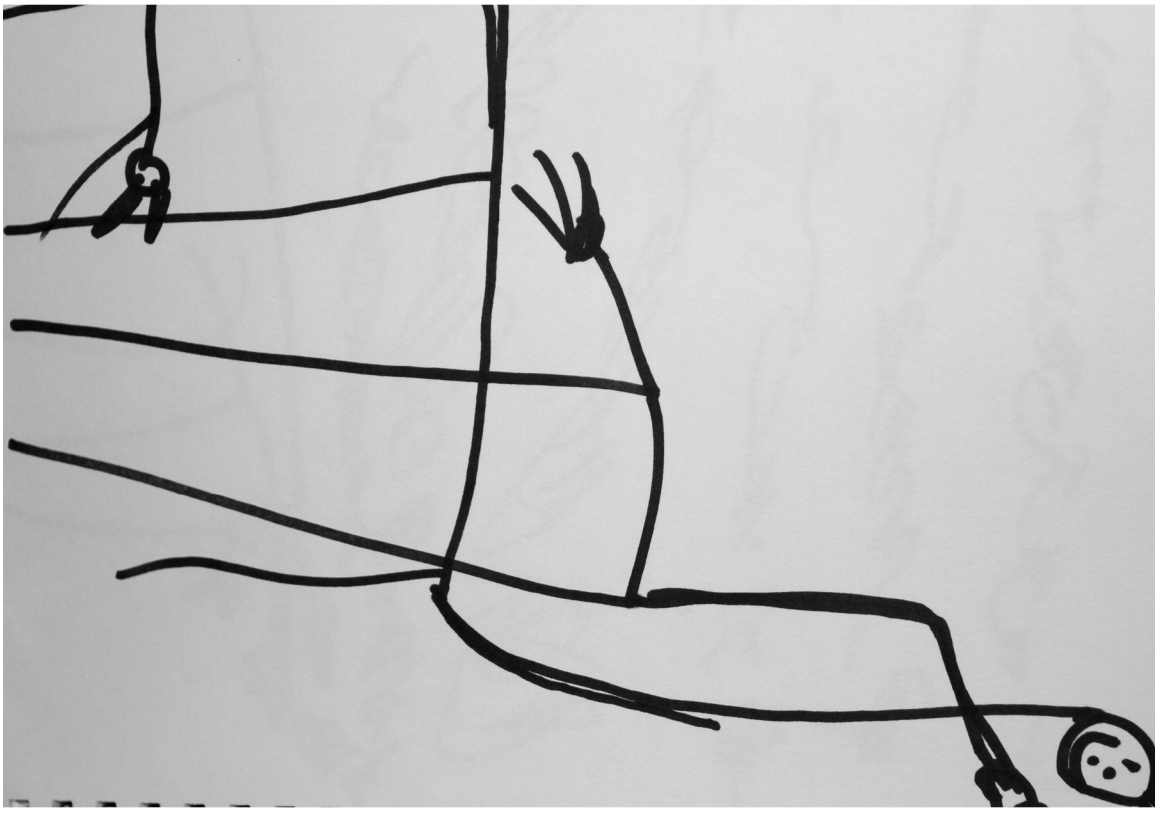
Paige: *Probably not…unless one falls off then it might not come back…if it falls into a cave or something.*

Within these new ways of moving, several agents were required to make themselves known in order to the horses to safely leave and return to the platform. A complex arrangement of legs and bodies had to work in concert in order to ensure the safety of the animal figures. Child and plastic figure alike were responsible for holding tight and balancing one another so that no animals would fall to their death and "more stuff" could be acquired for the building of pens and traps.

As Petal and Paige contended with the arrangement of body parts in "stacking up", another way of moving off of The Platform emerged between Rosa, the horse figures, and a plastic butterfly. I often noticed Rosa "flying" the horses around The Platform and Block Area – she would hold a horse in one hand and a blue and purple plastic butterfly in the other and jog around the room while the horse "stood" on the back of the butterfly. Sometimes, she would poke me playfully with the horse, wait for me to take a photo, and then they fly away again. When engaging with these photos, she discussed the ways in which "disability" emerged through and with these horse flights.

Rosa: *This horse doesn't have a tail. Did you know that?*

Casey: *I did notice that.*



Rosa: *What else?*

Casey: *What else do I notice? I notice the horse is on a butterfly.*

Rosa: [Smiling] *And that's mine! I have to take (my butterfly) sometimes from someone else's structure*. [Eyes widening, in a serious tone] *I will do that.*

Casey: *It's the purple one? I know you love that one.*

Rosa: *And blue.*

Casey: *Right. Purple and blue.*

Rosa: *I always use that one for flying because I know it. And I can take the horse all around and it won't get hurt at all.*

Casey: *It can be dangerous for the horses…*

Rosa: *Well, if someone has a something, like…they can't walk or they can't see, they could have a wheelchair…is a disability.*

Casey: *You mean a wheelchair is disability…or?*

Rosa: *Disability is just something that happens.*

Casey: *Oh.*

Rosa: *You need a wheelchair or something and then you use a wheelchair to walk…not walk, but go around. And you just go around because of disability and that is what a disability can do. Just like flying.*

Casey: *So, horse flying is a disability?*

Rosa: *Actually, yes. I'm thinking…there are wings on the horse that (a student intern) drew for Lauren. Someone put wings on it for disability! It could be Rainbow Dash but I*

don't think so because we don't have any Ponies horses in our classroom. Just the ones with missing tails.

In the case of flying, the horses' physical characteristics, a particular plastic butterfly, and Rosa's butterfly know-how emerged through/with an evolving discourse of disability. In addition, from Rosa's perspective this particular way of doing "disability" also materialized within others' drawings, which were constrained by the physical presence of certain kinds of horses in the classroom (e.g., having tailless horses vs. other kinds of horses).

On some occasions, Rosa, the butterfly, and a horse would simply go for a recreational flight – circling around The Platform, moving across The Carpet and into The Block Area before returning. This flight allowed the horse to travel safely outside of whatever safety system had been put in place for it on The Platform. However, this kind of on-butterfly flight was also the modality by which Rosa first began to bring horses and other plastic figures to visit specific block structures *outside* of The Platform.

Feeling Good: Emergence of Accommodations

Shortly after the construction of traps and pens began, Rosa began spearheading construction projects in The Block Area adjacent to The Platform, which she called "Disability Centers". Disability Centers, relatively large structures comprised primarily of wooden unit blocks, emerged within The Block Area throughout the Winter and Spring and often took two or more days to complete. Rosa would often leave detailed "save signs" to let other children know not to disturb her work. She also took the lead

in planning the major structural features of the Disability Center; Maggie and Ginger were often tasked with "decorating" with shells, gems, mini people figures, or small blocks. Once a Disability Center was completed, plastic animal figures would arrive via flight, explore and participate in some of the Center's offerings, and take a rest before flying back to The Platform. In our photo-doings, Rosa and Maggie elaborated on the ways in which Disability Centers operated.

Rosa: *A disability center is a place for disabilities.*

Casey: *What's a disability?*

Rosa: *When you do all of this with your body* [moving her open hand over the screen to indicate everything in the photo]. *Horses can do all of these things here.*

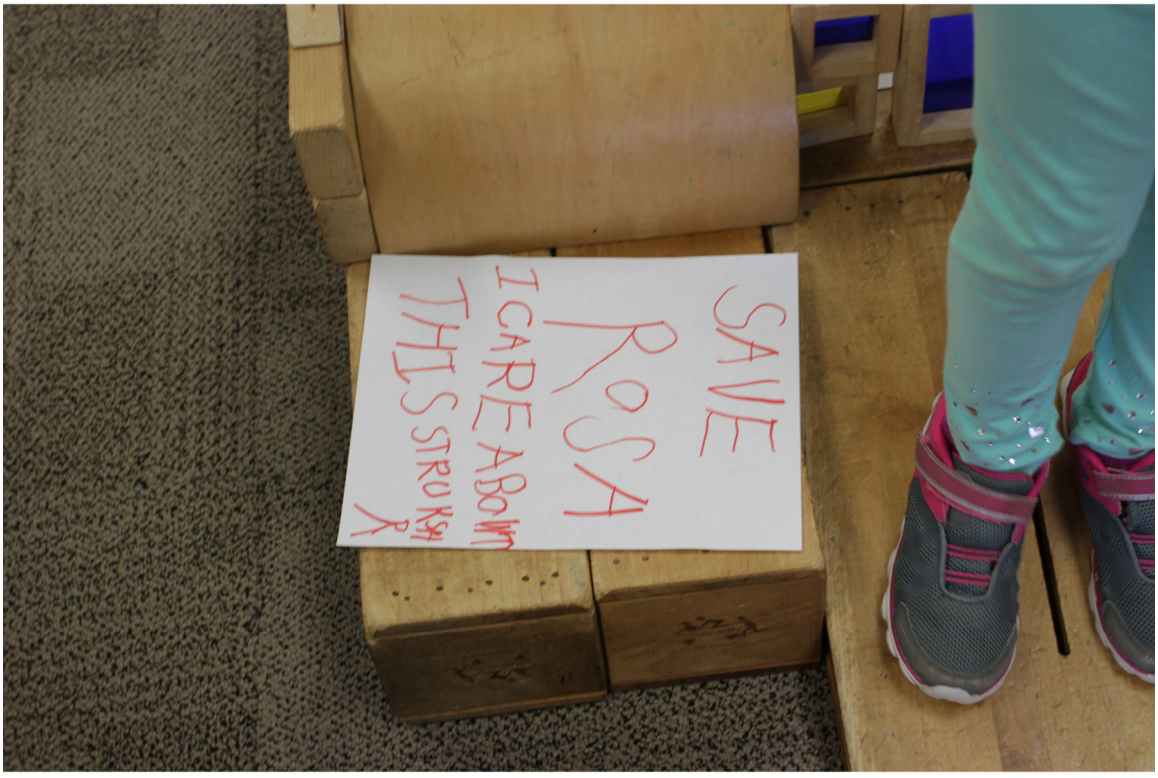
Margaret: *An exercising place, an eating-place, a giant slide…the big block is a rock-climbing wall with a rope.*

Rosa: *There is a slide…*

Maggie: *I decorated this part* [zooming in] *it's hard to see…but… there are gems…just like nice things all around. You can visit…gems, crystals, rocks…to have nice stuff all around.*

Rosa: *That's not really it…I don't care so much about the decorations right now! See how there are the triangle pieces? Those are the main slides. The blue part is the pool.*

Margaret: *Well, you can slide down the big triangle and a pool…a sliding place will help you stay healthy. That's a pool with a waterslide and the part that I made with a line,*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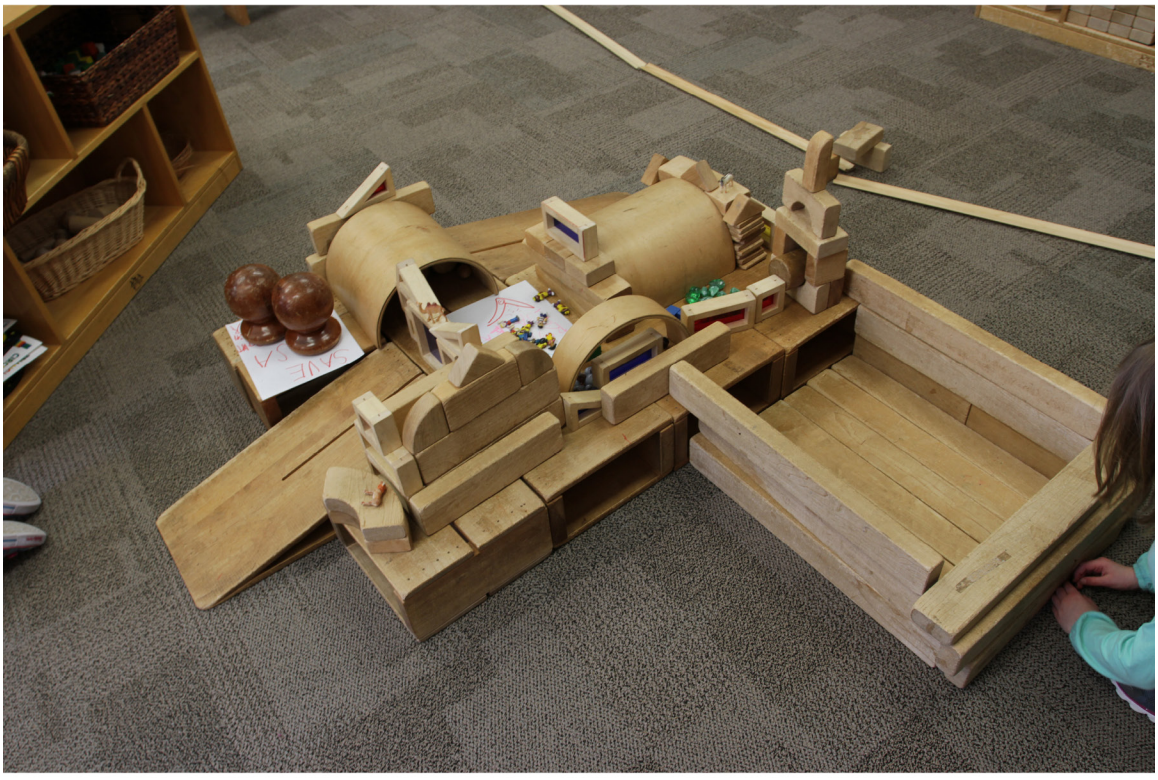


that is a lazy river. It's, like, you go around and around just for fun. You can just slide and slide and slide all over the river! To feel good.

Casey: *There are many slides…*

Rosa: *So, they are just easy. You could just slide right out. Or out. This round part is more like…you know something you put your feet up on. For relaxing? It's like a round…pillow but furniture? Like…*

Rosa sits back in the chair and lifts her legs up. She points to her legs as she holds her posture.

Casey: *Oh! A footrest? An ottoman?*

Rosa: *Yes! One of those. Ottoman. Just to take a rest.*

Casey: *Is that for the horses and the animals? The resting…*

Rosa: *Yes, a horse or animal can be a visitor. You would take a baby to the disability center because they could just slide around and not have to worry about getting hurt or lost. There's a no smoking sign. It's just healthy…for exercise, for healthy things, slides, relax, sleeping, gems. If you have to do those things you come to here. For disability. And slides.*

According to Rosa and Maggie, the main goal of the Disability Center was to facilitate wellness. These healthful surroundings were beautiful and functional, allowing animal figures to engage in activities safely. For example, there was no risk of falling or becoming lost; there were only beautiful things to admire while resting. Unlike the training and constraints placed upon them on The Platform, there was no explicitly

forbidden behavior at the Disability Centers (except for smoking). The slides allowed the horses to *do* – to move their bodies easily, to feel good in the water, to eat, etc. In these specific material-discursive contexts, "disability" was what an animal's body *did* in the pursuit of good health.

Kicking Out: Emergence of Exclusion

In May, many children engaged in "end of year" cleaning and organizing activities, such as testing the markers and discarding any with dry or excessively worn nibs, cleaning out The Lockers, and collecting personal artwork from around the room. One morning during exploration time, the teacher tasked Paige, Lotta, and Elizabeth with organizing the contents of the clear bins that were stored near The Platform. They brought two bins of plastic animal figures over to the round table where I was sitting near The Writers' Center with my camera and my notebook; Elizabeth sat on my lap while Lotta and Paige sat across from me.

Paige: *We need to make sure these are in the right place*!

She and Lotta began to take each animal out of the bin and place it on the table.

Elizabeth: [Reaching for my camera] *Let me take the photos. Can I just click it?*

I demonstrate how she can take photos without picking the camera up.

Casey: *It's pretty heavy…you can just move it around on the table and click.*

As Elizabeth continues to take photos from the low perspective of the tabletop, Lotta finds an animal figure that none of them have seen in our classroom before – a small spotted cat.

Lotta: *Hey! Look at this one!*

Paige: *Really?! Where did that come from?*

Elizabeth: [Aiming the camera] *Show me, Lotta. Let me get a photo!*

The shutter fires several times.

Lotta: *I bet a preschooler put it in here. It's, like, a mix-up.*

She places the cat next to a black horse with a missing tail and chewed foot for comparison. She makes a disgusted expression and drops the cat back into the plastic bin.

Paige: *No way. It is not part of our animals!*

Lotta: *Paige!*

Paige picks the cat back up and holds it close to her face. She furrows her brow and begins to scold it.

Paige: *No! Argh! Say bye-bye, little baby!*

She takes the cat to The Side Door, throws it into The Courtyard where several preschool children are playing, and returns to the table.

Elizabeth*:* [To me] *Paige just pitched him right out.* [Laughing] *Bye-bye, baby!* [To Paige] *What happened when you pitched it?*

Paige: [Laughing] *Who cares! He's not even our animals!*

Lotta: *He belongs out in that preschool table.* [Shrugging] *It's fine, it's fine.*

In one of our final doing-photos sessions of the year, Elizabeth engaged repeatedly with the series of images she made with my camera during the sorting of the

animal figures. She zoomed in over and over again on the small beige cat figure.

Elizabeth: *That was so funny. Paige just* [making a throwing motion, laughing]

Casey: *Yeah, she threw him right outside!*

Elizabeth: *Well, he was NOT part of our animals at all.*

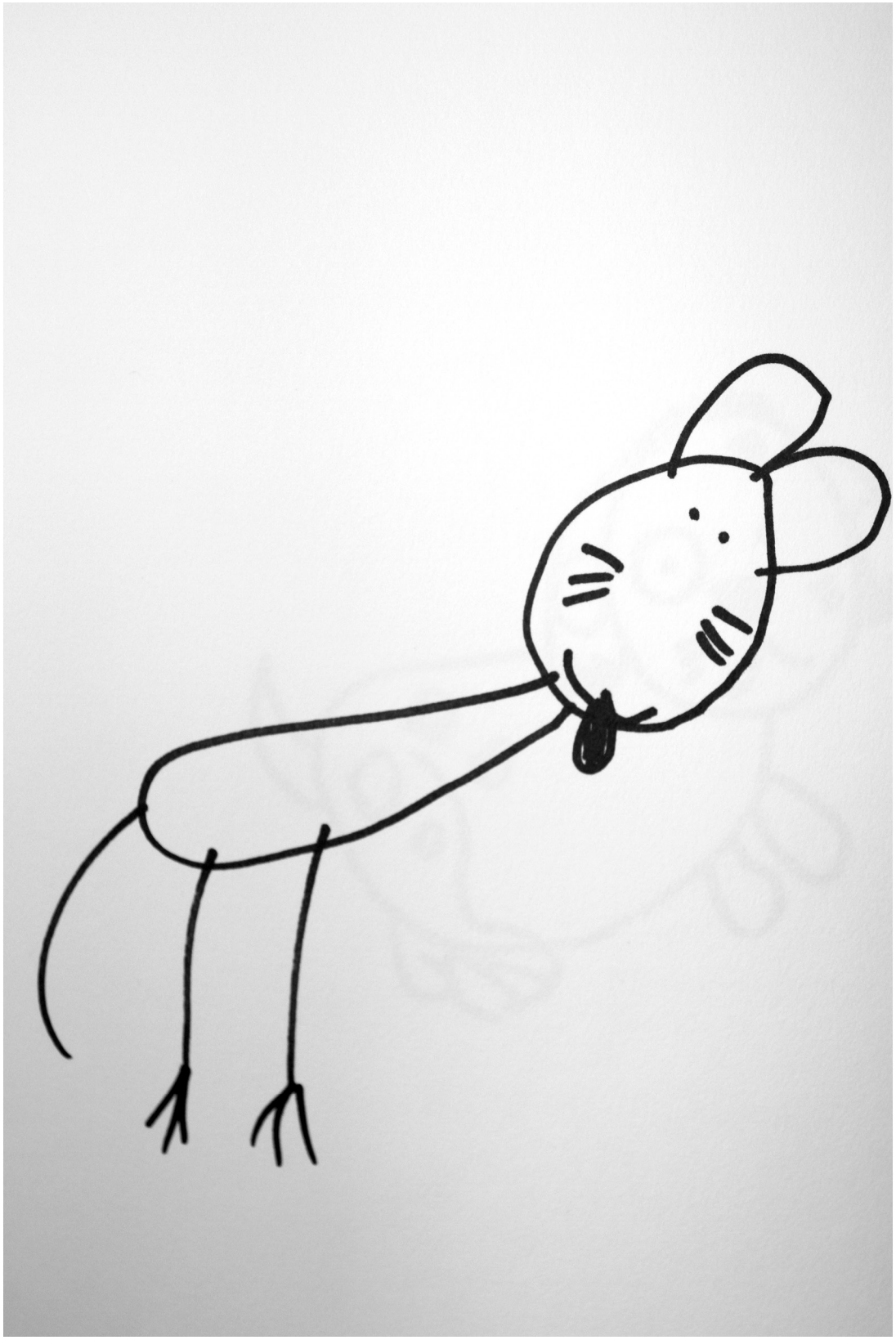
Casey: *Right, I had never seen him before…with the horses and giraffes.*

Elizabeth: *Well, he is not part of that family…like,* [begins to draw a cat figure]. *Okay, now this is part of that…our animals. See how he doesn't have legs in the front or paws?*

Casey: *Yes, only legs in the back.*

Elizabeth: *Right. This one could stay because he has this whole body like this* [moving her open hand over her drawing to indicate all of it]. *All these parts.*

According to Elizabeth, the way to belong to "our animals" was be limbless in some way. Despite the children's focus on the training and the safety of the "babies" on The Platform, Lotta, Paige, and Elizabeth did not hold this particular cat baby in the same regard. The cheetah was quickly removed – literally thrown out – from the classroom after Paige compared him to the earless horse. With this exclusion and, subsequently, Elizabeth's drawing, the notion of disability materialized and reconfigured once again in relation to limblessness. What it meant to belong, to have "all" of one's limbs could not be separated from the ways in which the figures emerged within children's play.



CHAPTER V

POTENTIALITIES

> Physical matters, matters of fact, matters of concern, matters of care, matters of justice are not separable. Matter is a matter of trans-materiality – a cutting together apart, differentiating entanglements, agential relatings, and differences across, among, and between genders, species, spaces, knowledges, sexualities, subjectivities, and temporalities. At stake are questions of being-becoming, knowing, getting along well together, and living well.
>
> -- Karen Barad, Re-membering the future, re(con)figuring the past: Temporality, materiality, and justice-to-come

The research enactments comprising this dissertation explored how assemblages of agencies mobilized disruptive, delightful, and even confounding events, and how a researcher and a group of young children might engage in research within the on-going intra-action of various data machines through attending to the following questions:

- What are young children's perspectives on their more-than-human relationships within their particular early childhood classroom context?
- How do these relations emerge and change over time as children and materials engage each other?

The cartographic re-presentations of these queries have given shape to the various ways in which one kindergarten classroom emerged as a more-than-human space, with agents on multiple scales that were continuously entangled in mutual acts intelligibility. In this

final chapter I will continue to draw upon a posthuman, new materialist orientation, subverting "conclusions" in favor of a conceptualization of spheres of *potentialities*, so as to imagine "life, pedagogy, knowing, and learning in an affirmative, evolutionary, and creative way" (Lenz Taguchi, 2010, p. 176).

Conceptualizing the "end" of this research – this activation of philosophy, theory, reconfigured methods, generative events, constructions, renderings, and re-presentations – as an array of potentialities allows me to maintain a post-qualitative, posthuman perspective and draw upon the ways of knowing-being that have been instrumental to the project. In the preface, I wrote that it was Hillevi Lenz Taguchi's conceptualization of intra-active pedagogy that allowed me to locate myself as a novice researcher within a landscape that comprises posthumanities, new materialisms, post-qualitative inquiry, and early childhood education. In this final chapter, I draw upon Lenz Taguchi's work once again, as she uses the term *potentialities* (2010) to describe the ethical, relational possibilities of working within a philosophy of intra-activity in early childhood spaces. Drawing on both Barad and Deleuze, she argues that to accept an onto-epistemology wherein "matter and meaning are mutually articulated" (Barad, 2003, p. 822) is to recognize that there are no prescriptions or set paths to take, there are only movements between "what is (the actual) and what we might become (the virtual)" (Lenz Taguchi, 2010, p. 176). In Deleuzian fashion, thinking through research is a liminal exercise; inquiry can't tell us what should be done, but it can activate new potentials for how we might live (May, 2005). As a final movement to this work, I draw upon all of these

influences to ask: What potentialities does this research activate in terms of *being-becoming*, *knowing*, *getting along well together*, and *living well* in the early years?

Potentialities: Being-Becoming

Working from the notion that the daily lives of young children are entangled within the more-than-human landscape of a classroom, there is potential to notice the ways in which children and the material emerge together. Many of the ways in which the children and the material emerged within this research might allow us to reimagine early childhood as something far beyond a location upon a developmental timeline or the construction of subjectivities among an array of available discourses. Continuing to attend to how the children themselves recognized, grappled with, and acted against or in cooperation with the multiple material agents that were embroiled within the daily life of their classroom and what emerged within those intra-actions, particularly affords the potential to disrupt taken-for-granted notions of *consumption* and *regulation.*

Being-Becoming Differently In Relation To "Consumption"

In recent turns in childhood studies, the view of children as innocent victims of consumerism has given way to more nuanced understanding of children as cultural agents (Buckingham, 2011; Prout, 2005). In particular, the ways in which consumption of popular culture, especially branded films and associated media (toys, clothing, etc.), influences children's construction of identities within early childhood classrooms has received much attention (e.g., Blaise, 2005; Henward, 2012; Marsh, 2005; Wohlwend, 2009). From a posthuman perspective, however, "the thing still missing from consumer studies and children as consumers is a systematic research on children's intra-action with

things: what is undergone with things, how are they consumed and what do they *produce*?" (Rautio, 2014, p. 471, italics mine). That is, analyses of children and popular media are predominantly poststructural and textual, rather than posthuman and material-discursive. By attending to what emerges *between* children and popular media during various entanglements, mutual acts of transformation, rather than cultural or identity (re)production, may come to light.

Although many scholars have fairly criticized Disney's role in the commercialization and commodification of early childhood (e.g., Canella & Kincheloe, 2002; Giroux, 2000; Steinberg & Kincheloe, 2004), what emerged within children's various ways of "doing *Frozen*" transgressed many of these discourses, including my own preconceived notions of how Disney-related media might (re)inscribe racial and gender biases in young children. With regard to race, the ways in which "making braids happen" came into being in this classroom privileged Black hair, in general, and Bella, in particular, which runs counter to the popular notion that the imagery of princess culture exclusively privileges White standards of beauty (Hurley, 2005; LaCroix, 2004). If interpreted through lens of cultural and identity politics, one could argue that the reason Bella's hair emerged as desirable is because that desire was authorized by the image of the White princess Elsa and that this type of validation has the potential to negatively impact the self-identity of children of color (Yeoman, 1999). What a posthuman, new materialist orientation affords, however, is a movement away from identities as purely social, discursive constructions. Conceptions and enactments of identities are inextricable from the material bodies and apparatuses with which they emerge; they are

always both materially *and* discursively entailed. I cannot and would not claim that systems of White supremacy were subverted, but it should be noted that the ways in which multiple agential forces "did" *Frozen* afforded space for Bella's hair to emerge differently, transforming how *Frozen* might be read as a "text" in the process.

With regard to gender, it is has become virtually commonsense within critical scholarship that Disney movies, particularly those with princess protagonists, perpetuate gender-based stereotypes and these stereotypes are consumed by children to negative effect (see, for review, England, Descartes, & Collier-Meek, 2011). Although there have been pop culture critiques labeling *Frozen* as a feminist triumph, a subversive revision of the popular princess-seeking-husband tale (e.g., Feder, 2014; Leon, 2013), my personal analysis of the film tends to fall into the "false feminist" genre of critique (e.g., Coleman, 2014; Jafar, 2014) because Princess Elsa isn't actually a protagonist empowered by her difference (i.e., her "ice powers"). She's an impossibly beautiful antagonist who, in the end, gains acceptance by taming herself and using her powers to please others. Regardless of how critics – myself included – might read the film as a feminist or false feminist "text", how this group of girls "did" *Frozen* resists categorization as simply the consumption of harmful gender discourses or not. The ways in which power and transformation were enacted had as much to do with Elsa's perceived beauty as it did with the weather outside of the classroom windows. And although some of the girls did alter their *Frozen* doings to conform to the expectations of "good" work, they did so in intelligently subversive ways. *Frozen* was always a production that entailed more than "playing princess".

Within the *Frozen* landscape that the children and I charted, the children emerged *with* the agents of a seemingly commercialized, commoditized, and corporatized childhood. Discourses of work, play, visibility, power, gender, race, and equity emerged *with* the scribbled drawings, photos, windows and weather, songs, strips of paper and strands of hair, blue markers, and, of course, tape. These mutual doings of children and things produced *Frozen* differently in every iteration – as ice powers, braids, queenly displays, other-than-best work, and covert operations – rather than simply (re)inscriptions of preexisting discourses. It is certainly necessary for scholars to continue to do the work of examining the various ways in which identities are portrayed through media, especially those that are specifically marketed towards young children. However, the ways in which children "do" popular media is a complex arrangement of intra-activities that comprises *more than* cultural (re)production or the ways in which the race, gender, or class biases that are seemingly inherent in Disney-related media are delivered to children and consumed as texts. This work activates a potential to conceptualize the relationships between children and media not as unidirectional processes of consumption and subsequent (re)construction of social identities, but as differential and diffractive practices of *mattering,* "produced through complex agential intra-actions of multiple material-discursive practices or apparatuses of bodily production" (Barad, 2007, p.140).

Being-Becoming Differently In Relation To "Regulation"

Although "psychologists often use different words to refer to it (impulse control, self-control, self-management, self-direction, independence) and describe its development in quite different ways" (Bronson, 2000, p. 3), young children's executive

functioning, and in particular *self-regulation,* has received much attention within mainstream early childhood practitioner literature in the United States. Recently, a meta-analysis of empirical research on the relationship between curricular interventions targeting executive functioning and subsequent academic success concluded that, "a careful look at the literature finds no compelling evidence that these associations are causal" (Jacob & Parkinson, 2015, p. 30), however, there remains widespread belief in early childhood education that executive functioning, and in particular socio-emotional and cognitive self-regulation, is the underpinning of school success and academic achievement. Because a child's early years are seen as a critical period for developing this "deep, internal mechanism that enables children as well as adults to engage in mindful, intentional, and thoughtful behaviors" (Bodrova & Leong, 2008, p.1), self-regulation has come to be seen as early childhood's crucial competence (Bodrova & Leong, 2005). Whether through "modeling and scaffolding during ordinary activities" (Florez, 2011) or through the implementation of specifically designed curriculum (e.g., Bodrova & Leong, 2007), teachers are encouraged to strengthen children's capacities to pay attention, make appropriate choices, follow rules, and persist to complete difficult tasks. From this perspective, ignoring things that adults determine to be superfluous and actively participating in what adults determine to be educational (even if it's undesirable) are necessary for learning.

Within this specific classroom, an educational focus on self-regulation manifested itself through adults' framing of "choices". Children were frequently encouraged by to engage in a kind of metacognitive, mindful reflection, as conflicts or misbehavior were

positioned as the result of making inappropriate choices. Making a "good choice" meant to "delay gratification and suppress their immediate impulses enough to think ahead to the possible consequences of their action or to consider alternative actions that would be more appropriate" (Bodrova & Leong, 2008, p. 1). However, within our research doings, children pushed back against adults' framing of "choices" in relation to expectations of self-regulation. For example, in referencing the relentless nature of tinythings, Clara rejected the good choice/bad choice dichotomy that positioned children as being able to control their environment and disregard the non-human as "distractions". Petal and Bella also grappled with the ways in which milkweed floss and children were mutually responsible for acting and reacting in the flow of classroom events. Similarly, Clara talked against the notion that children alone were in control of their *Frozen* work, as various more-than-human interests are implicated in the production of children's drawings. In these cases, a "choice" was not simply about knowing the right thing to do and then doing it. Choice was always impacted by forces on multiple scales and behavior was always entangled within a "complex set of mediations" (Prout, 2005, p. 44) occurring at any given moment in the classroom.

These insights from children might help us to recognize that conceptualizations of children's behavior in general, and interpretations of and responses to children's engagements with the non-human in particular, are nested within processes of normalization received from developmental psychology (Jones, MacLure, Holmes, & MacRae, 2011). And when these received "truths" become distilled into taken-for-granted pedagogical practices, children may have good reason to question them, even if

the matters of (in)justice seem quite tiny. In the case of Bella, Petal, and Clara, what were excluded from adult's idea(l)s about children's choices were the impulses and desires of the more-than-human forces already in motion. These forces – the salt's habit of tangling in the carpet fibers, the milkweed's ability to fly, and the wind's quickness in moving the snow this way and that – were not under the children's control, yet figured heavily within children's everyday classroom being-becoming. Adults' narrow focus on children's supposed choice within these circumstances upheld "the myth of the autonomous and independent person, as if it were possible to be human without belonging to a complex web of interdependencies" (Prout, 2005, p. 66). With this in mind, self-regulation may be better framed within our daily pedagogical practices as intra-actions between agents on multiple scales, rather than something which children are solely responsible for controlling from deep within. This is not to say that any and all behavior is acceptable – taking an extreme relativist position on the ways in which humans – regardless of age – relate to others is not my intention. However, attending to the various specificities of the more-than-human context of children's classrooms may allow *adults* to be more mindful of the complexities through which children are being-becoming in any given moment and help us to refrain from oversimplifying our interpretations of and mediations into children's behavior.

Potentialities: Knowing

Many aspects of this research sought to complicate what it means to know, to construct knowledge, and to inquire with the intention of knowing something in the afterward. First, a posthuman onto-epistemology of entanglement that conceptualizes

matter and meaning as inseparable decenters the human subject, and this complicates what it means to construct knowledge. As Lather and St. Pierre (2013) ask: "If we give up "human" as separate from non-human, how do we exist? Can there be there an instituting "I" left to inquire, to *know*?" (p. 631, italics mine). Decentering the human from the meaning-making process calls into question many foundational conceptions of research as a process that uncovers or constructs knowledge. Second, the early childhood reconceptualist ethos of research participation that informs this study calls for a renegotiation of research roles through ethical and equitable relationships between adults and children. The adult's position as the sole producer of knowledge is deprivileged, as children's own experiences and meanings are made central through a kind of multi-modal listening (e.g., Clark, 2008; Clark & Moss, 2001). In Chapter Three, I outlined the ways in which merging a posthuman onto-epistemology and rights-based, participatory research approaches with young children may seem paradoxical – how might it be possible to work to decenter the human from the construction of knowledge while also centering the child as a meaning-making, protagonist? By activating a post-qualitative assemblage of methods that ethically situated children's perspectives as but one force within an assemblage of interconnected material-discursive forces, I argued that room could be made for material agency within a participatory framework.

If research was enacted as "making room" (Haraway, 1991, p. 99) for myself and children and various more-than-human others, what potentialities do these spaces hold for the continued reconceptualization of knowing? The first possibility outlined in this section muses on the ways in which research emerged, not as a tool for the knowing

human subject, but as a process of attending to, highlighting, or otherwise coming to grips with the various agential forces implicated in "knowing". The second examines how foregrounding material-discursive entanglement offers a way of "listening" to what children know that interrupts interpretation. Both of these push against more common notions of what ethical research with young children entails.

Knowing Differently Through Material Inquiry

As the research project was coming to a close in the final days of the school year, many discussions during our "doing photos" sessions contemplated what our research had done and how it would be re-presented in the "book". Although he did not appear in the cartographies included in Chapter Four, Michael did offer many insights into how the various actors and forces entailed within the processes of our post-qualitative method assemblage folded and unfolded. In the vignette that follows, Michael articulates the ways in which the methods we enacted, and, thus, all associated agents, were bound-up in the knowledge we produced, at once bringing several constituents of "knowing" to the fore.

Michael touches the screen and then scrolls through the photos using the arrow keys. He moves his face close to the screen, furrowing his brow.

Michael: *I can't tell either.*

Casey: *Can't tell what?*

Michael: *When all the photos get on the computer…is this row (of photos) from the blue camera and this one from the gray camera?*

Casey: *No. It's not. When I put (the photos) on my computer from the little cameras, they get all mixed together. So, you're right, it is hard to tell which photos came from which camera. I don't know who took the photos unless someone tells me.*

Michael: *Well…I know some photos that I took, but I don't know if I took some of these ones. But it doesn't matter. It doesn't matter who took this photo. I can still do it, right?*

Casey: *You can do any photo you want to.*

Michael: *I can draw things for this. Do you think I should draw what is in this (photo)? It's an important thing…I feel like want to.*

Casey: *You can do this photo however you want. We've been trying to figure things out…by doing photos however we want.*

He examines a photo of Paige holding a dandelion and then one of her lying in the field just outside of The Playground fence. He runs his fingers over the outline of her face and then zooms in on the blades of grass. He moves his face closer to the screen and squints his eyes, then settles back into his chair and rests his face in his hand.

Michael: *I think you try to get some things from the picture and then add some that you want. A photo doesn't have…everything for this research. It's for research because that's how we're doing this, right?*

Casey: *Yes, this part can be for research. Do you want it to go in the book?*

Michael: *Yeah…*[Drawing] *if you are doing a picture, you make some things first and then you can add more things that you want. But you don't have to stop…you can make more new things in that rectangle. That picture frame…that you make.*

Casey: *Yes, you can.*

Michael: *Well, I see one ear in this picture.* [Wryly] *She only has one ear? Paige has two ears though! You can't know that if you just traced. You have to trace, add, add some more whatever you think of. And this.*

He carefully adds a cluster of circles to Paige's dress and examines the photo once again.

Michael: *Did you know there are little bugs everywhere in the grass and they can bite you? There are bugs everywhere under that part* [pointing to the grass in the photo] *but I can't see them. If you have a big marker, it might be hard!*

Casey: *What's hard?*

Michael: *I have a little hand, so I like a little marker.*

Casey: *Oh…do you want my pen? It will make a thinner line for you.*

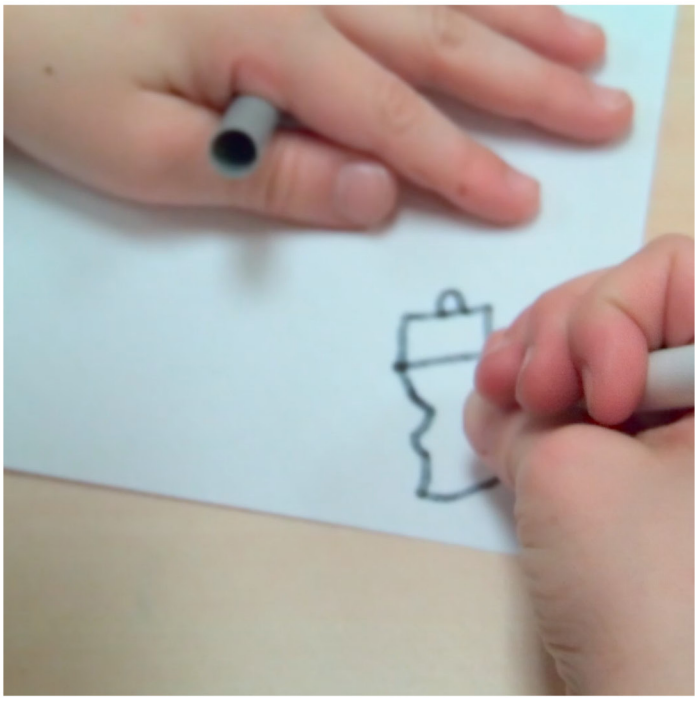
Michael: *Well, it doesn't matter now ... but the picture I'm making is going to be blurry because of this (marker). I sometimes have a big marker and sometimes a little one.*

Casey: *That's true. It depends on what markers I bring for the day.*

Michael: *Yeah. Whatever we make depends…it depends. And then you go, "Wow! I made this even different-er. I didn't know a photo had those parts like that!"* [Sighing] *I like this…Paige…I like Paige so much!* [Drawing a cluster of shapes above Paige's head] *See? More of those things.*

Casey: *What are those?*

Michael: *Those are the bugs but I have to make them bigger. Bigger than Paige's head almost! That's how I have to do it for this research. Research is doing it the way you want. Except for when you have a thick marker…then maybe you don't get to do it your way, so you can just make bugs like these. It's a little harder work for me.*



This vignette highlights the ways in which the entanglements of matter and meaning were always in motion within our research processes. Our research emerged out of movements, desires, affordances, constraints, feelings, and more. The file sorting protocol of my computer's software, the constructed cut of the photographic image which rendered certain features and creatures (in)visible, Michael's wants and ideas about what that image evoked, our conversation, his warm feelings for Paige, the tiny bugs in the grass, the thickness of the marker and his little hand. As Michael said, when we entered into these encounters with images, we were often taken by surprise. There was no way of knowing what a photo could do, that it had "those parts like that" before we began; all of our knowing was continually enmeshed with the various apparatuses of inquiry and what emerged between us couldn't be predicted. Research, then, was not about uncovering what preexisted our investigations, but about producing something different in our intra-activity. What can be known is bound-up in the material-discursive processes of inquiry.

Although established approaches to ethical listening to young children are meant to access and then represent what children "know" through drawing, photographing, modeling, etc., they do not acknowledge the ways in which both the researcher's and the children's knowings are mediated by the very materialities of inquiry. Unlike these approaches, researching in the way we did positions what children "know" as both creating and created by the apparatuses of the inquiry. With regard to the potentialities that these research doings hold for activating new orientations toward and enactments of research as "coming to know" with young children, Barad claims that, "we do not obtain knowledge by standing outside of the world; we know because "we" are of the world"

(2003, p. 829). Or, more simply, "whatever we make depends" because the processes and products of knowing are entangled with being and exist in layered states of intra-dependency.

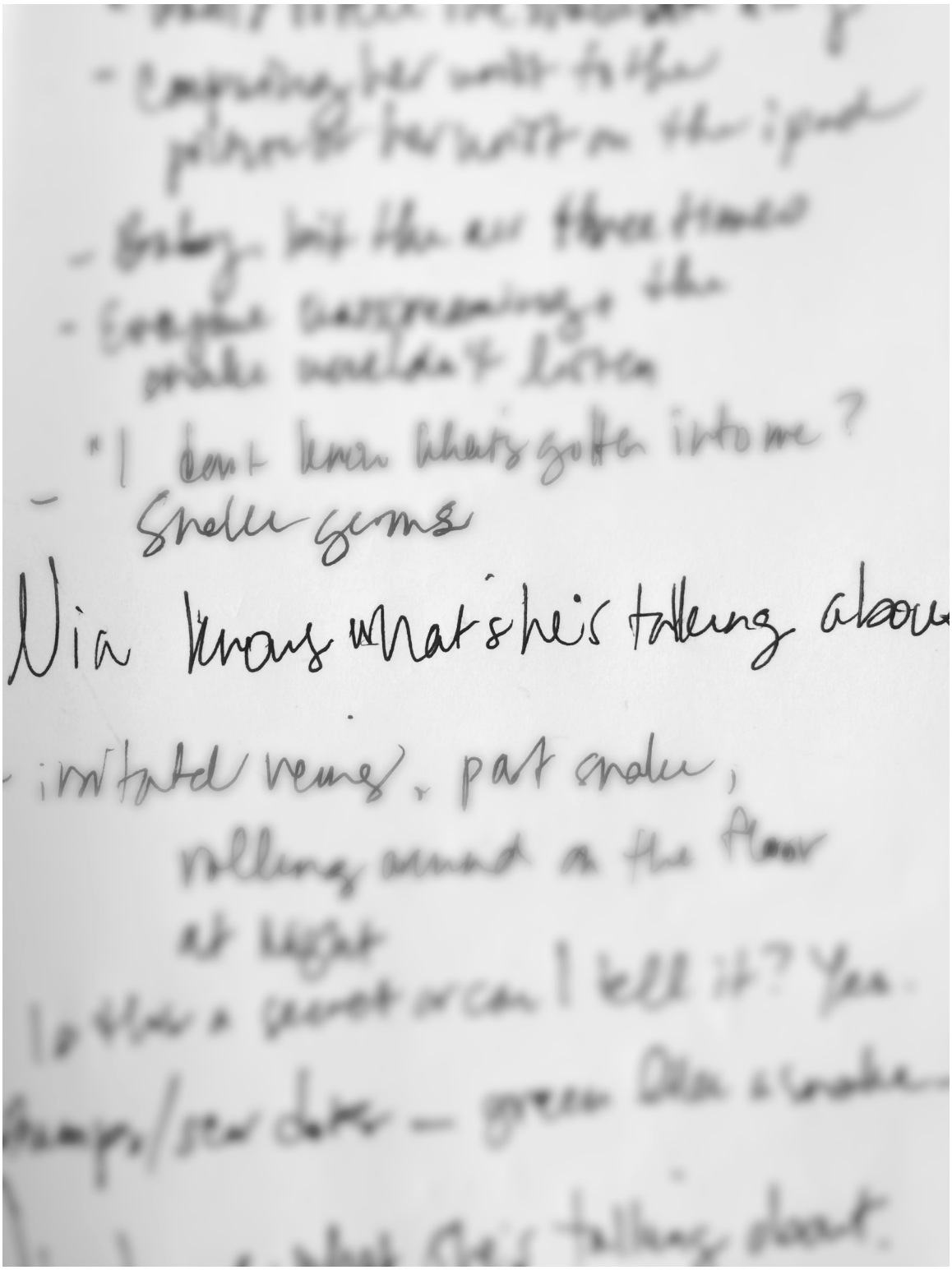
"Listening" Differently To What Children Know

In Chapter Two, I summarized one of Lenz Taguchi's arguments for intra-active pedagogical practices by posing the following with regard to interpreting what children say: *What if what is commonly taken as a humanizing grammar could be viewed as a conceptual grammar of entanglement? What if the kind of pedagogical listening that holds an image of the child as competent and communicative (Rinaldi, 2005, 2008) also entertained the possibility of the child as materially aware?* That is, imperative to inquiry grounded in an onto-epistemology of entanglement is that children's ideas are not necessarily fantastical misunderstandings or egocentric projections, but may be articulations of classroom life that are tuned-in to intra-activity. I found that entertaining this possibility required engaging with what children *said* seriously and affirmatively. This posthuman orientation toward their perspectives on relationships, events, bodies, and feelings of significance required an acceptance that children know what they're talking about. Despite positioning myself within a posthuman worldview, this was not a task that came easily and the pull towards over-interpreting and analyzing what children "actually meant" during these moments was strong.

Nia identifying as "part snake", Petal explaining how a milkweed "knows" how to fly, Elizabeth classifying the LEGO crystal as an "occasion", and Clara's asserting that the weather "does what it wants" were all moments that pulled me towards humanist

interpretation. When several girls spoke, not of a horse *having* a disability as a set of characteristics, but of a horse *doing* disability in relation to varied social and material circumstances, my first reaction was to question their grammar. The children's enactments of ability as socially and materially emergent in time and space would not be out of place within a new materialist account of ability (e.g., Campbell, 2009); however, in those initial moments of "listening" I attributed their utterances to either a developmental error of syntax (i.e., using disability as a noun vs. a verb) or of semantics (i.e., misunderstanding what the word "disability" really means).

As a countermeasure to (and out of frustration with) my humanist interpretive tendencies, I began writing "(child) knows what he's/she's talking about" in my notebook whenever I noticed myself considering that a child's perspective might be borne out of their ignorance and inexperience rather than their expertise and astute awareness. As simple as this tactic seems, materializing this affirmation on the page was generative in two important ways. First, it caused me to pause and literally do/become something different when I might have otherwise assumed, interrupted, or asked an unnecessary question. This practice pulled me onto the page. Second, it helped me to confront children's ways of knowing that were troubling and alerted me to the complex and confounding nature of entanglement. These would become touchstone moments of rupture – the very "patterns of differences that make a difference" (Barad, 2012, p. 49 in Dolphijn & van der Tuin) around which our cartographies would be organized later. This practice materialized disturbance.


Nia knows what she's talking about

Taking children at their word and engaging *seriously* and *affirmatively* with utterances that caused "trouble" figured so heavily in our inquiry that this causes me to continue to question the ways in which certain research practices with children are conceptualized as ethical and equitable, while others are seen as potentially upholding power inequities between adults and children. Although they posit that children are given control of meaning-making through multi-modal practices (drawing, photographing, map-making, etc.), the ethical "listening" methodologies located within the early childhood reconceptualist movement (e.g., The Mosaic Approach) do not contend with the particular implications of adults' onto-epistemological interpretation of the content of what children *express*. For example, regardless of the modes of alternative expression made available to young children in the name of valuing children's capabilities and perspectives, an anthropocentric interpretation on the part of the adult can foreclose upon the possibilities of children's more-than-human knowing.

With regard to the techniques that are put forth by "listening" methods in the name of equitable participation, Rautio (2013b) states:

> It is quite possible to consider, however, that children, like any beings, might not need support in encountering the world and expressing to others something of these encounters – this takes place anyway, all the time. Children might not need adults to provide them with equipment and allocate special spaces and time for participation. They might need an adult to take seriously the things and actions with which they encounter their worlds…" (p.4)

With regard to agency and power, Barad (2012) says that: "Agency is about response-

ability, about the possibilities of mutual response, which is not to deny, but to attend to power imbalances. Agency is about possibilities for worldly re-configurings (in van der Tuin & Dolphijn, p. 55)." When assembled with each other, these statements activate the connections between agency, power, participation, and response. The rights of children in research depend as much on the adult's "response-ability" as on the modes of and avenues for participation. As Rautio suggests, this research mobilizes the potential in taking children's word as an articulation of the entanglements of existence. Saying "yes" to the complex ways in which children speak their experiences, relationships, and everyday encounters in their classroom worlds, reaffirms the agential force of children, and of all things in their midst.

Potentialities: Getting Along Well Together and Living Well

While the dominant discourse of educational "quality" in the United States is arguably neoliberal and managerial (Moss & Dahlberg, 2008; Dahlberg, Moss & Pence, 2000), a reconceptualist ethos argues that children and those that work with them would be better served to move towards "a collective and democratic process of interpretation, critique and evaluation, involving dialogue and argumentation, listening and reflection, from which understandings are deepened and judgments co-constructed" (Moss & Dahlberg, 2008, p.6). Osgood and Giugni (in press) have recently argued that turning toward posthuman, new materialist orientations offers "a generative reconfiguration of quality" in the early years, allowing us to go "beyond" these ideals. Through "an ethical obligation to intra-act responsibly in the world's becoming, to contest and rework what matters and what is excluded from mattering" (Barad, 2007, p. 178), this posthuman,

material turn can help us reconfigure collectivity, democracy, co-construction and all other practices of being-doing *together*.

In light of this emerging call for posthuman, new materialist reconceptualization of "quality", how does this research mobilize new potential to do well for and with all others every day in early years classrooms? To activate this question, I offer one last vignette from our engagements with data wherein Krissa and Paige reconfigured the notion of the "togetherness" of classroom life.

Krissa notices a series of photos I had constructed of the classroom – the spaces and materials are put away neatly, there are no children or teachers present. She selects a wide shot and examines it closely, zooming in and out on the screen.

Krissa: *Is this our whole classroom?*

Casey: *Well, I took this photo so I could remember where some of the things were in the classroom, but…*

Paige: *No, it's not the whole thing!*

Casey: *Something's missing?*

Krissa: *A lot. I might do some more (drawings) for this. Could we put them on here?*

Casey: *Put drawings on this photo?* [Krissa nods.] *Yes, if you draw what you want I can put them on and we could make a new picture from that. Like a collage.*

Krissa: *I'm going add a little LEGO house because I get to do those with (another student) and I love him. That's number one!*

Paige and Krissa begin a flurry of drawing – talking quickly as they work with markers on opposite pages of the notebook. Paige connects lines to make a block structure; Krissa adds some additional LEGO pieces and works to number them.

Paige: *This is Bella and* [adding circles to her hair] *the beads on her braids. Like…click, clack, click, clack…when she moves her head. I like that.* [Drawing a furry body with a feline face and laughing] *And this is me!*

Krissa: *Paige! You're a cat!*

Paige: *When I do the block ramps, I have to crawl all around. And I am even thinking about cats and sneak around.* [Adding wavy lines] *I think, "I hope this doesn't get destroyed!" These lines are jumping off the bench and going all over because if someone jumps there…you might knock it down.*

Krissa: [Drawing a small square] *I can make a "save sign" for number seven but sometimes blocks just fall down and it's not your fault. It just blows over. Add a little fan because it's going to blow your structure down!*

Paige: [Exasperated] *Really?! I can't draw that!*

Krissa: *Let me see*. [Drawing a small fan to the right of Paige's ramp] *The fan is going to blow the marble down the ramp.*

Paige: I need one marble, two, three, four, a hundred [Dotting the marker multiple times on the page] *because they roll away so fast that they always get lost into the corner. Jackson did that with all of our marbles!*

Krissa: *How about a frozen ice? With a sharp part?* [Making jagged lines] *There's a lot for Frozen…like a castle and dresses and paper braids and the markers for that…that's 22.*

Paige: *I'm going this window part. There was rain today like, "bam, bam, bam!"*

She makes wavy rain on the window and then knocks her hand on the table to recreate the sound of the heavy rain on the glass.

Paige: *I could hear that the whole time during morning meeting. Bam!*

They continue adding crucial classroom phenomena – the plants that children pick the leaves off of without the teachers' permission, the piece of gum that a classmate had secretly stashed in her pocket that caused an argument that day, another child's new eyeglasses – until their pages are filled.

Krissa: *Okay, I think we're done. There's like 32 or 42 more things for this classroom!*

Casey: *Is that the whole classroom?*

Krissa: *No. It's even more things though.*

Paige: *You have to put all of these to a picture and that will be 'The Almost Whole Thing Together'. Write that down.*

Paige and Krissa's multi-scalar, multi-species, and multi-temporal (re)configuration of what comprised the classroom literally and figuratively overran the boundaries of the original image I had constructed. Of course, this layering and cutting together of the events and objects, bodies and spaces that comprise the classroom would have materialized differently on any given day and with different collaboration of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children. Questions such as, "*Who and what are co-constructing the events that matter to children? Who and what are the drivers of the collective practices in classrooms?*" may never be answered the same way twice. But their construction of a more whole classroom highlighted the pleasures and struggles of the ways in which meaning and matter are always at work in childhood spaces. As such, we must recognize that the ethics and politics of the early childhood classroom are always already more-than-human. Getting along well together and living well must entail a willingness to engage with those entanglements seriously, even those that seem especially mundane, insignificant, or unserious to adults. This work offers a space for those who work with and on behalf of children to reconsider what it means to live well and reimagine what being together is doing at any given moment. This activates the potential to attend to the specificities of emerging as a child-among-things in the everyday life of the early years classroom.

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