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## **Deterritorializing Dichotomies in Teacher Induction: A (Post)Ethnographic Study of Un/Becoming an Elementary Science Teacher**

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DETERRITORIALIZING DICHOTOMIES IN TEACHER INDUCTION:  
A (POST)ETHNOGRAPHIC STUDY OF UN/BECOMING  
AN ELEMENTARY SCIENCE TEACHER

A Dissertation  
Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
In Partial Fulfillment of the  
Requirements for the Degree of  
Doctor in Philosophy

in

The School of Education

By  
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August 2017

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To my family, whose love and life inspires my own.

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*The greatest gift we can give her is self-confidence. - Dad*

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## **Abstract**

Un/becoming an elementary science teacher is a dynamic phenomenon, yet the process is often intentionally limited to several taken-for-granted assumptions in research on science teacher induction. Inherent to research on beginning science teacher induction is also the construction of certain truths beginning science teachers, science teacher educators, and researchers think, feel, and live. This study complicates prevailing truths shaping notions of beginner, novice, induction, and traditions of inquiry as an ethicopolitical commitment to those implicated. In doing so, this study illuminates more expansive ways science teacher educators and those studying induction might study and understand the experiences of beginning science teachers from both humanist and post-humanist ontological paradigms. To provide an intimate, in-depth, and multidimensional analysis of elementary science teacher induction experiences, feminist post-structural theory was employed throughout the study. This perspective further informed the post-foundational ethnographic practices shaping the structure of the study as an always-already emergent process. Taking form as a (post)ethnographic inquiry, the study specifically examined the induction experiences of two beginning elementary science teachers alongside three ontological dichotomies in research shaping science teacher induction: (a) the beginning science teacher subject; (b) the concept of induction; and (c) the mode of inquiry. Employing both conventional humanist qualitative methods and post-qualitative inquiry, this study reveals the multifaceted ways in which beginning elementary science teacher subjectivity, research assumptions, and definitions framing the very notion of elementary science teacher induction intra-act. Offering a series of provocations as lines of flight, researchers of science teacher induction and science teacher educators might begin to re-conceptualize ways beginning science teachers un/become known and get re/produced.

## CHAPTER ONE: INTRODUCTION

Becoming a teacher is a dynamic phenomenon. The structures making up the institution of American schooling encompass the ways teachers move, make meaning, and teach. Each act is a delicate engagement, constantly acted upon and shaped by the social cultures in which teachers participate. Historically and currently, the American school system has been designed to control and impart knowledge onto the subjects implicated within. Most recently, American teachers have experienced this regulation through large-scale ‘reforms’ for increased accountability. From standardized testing, scripted pre-packaged curricula, and heightened teacher evaluation, the role and performance of American teachers is under careful watch. Consequently, the de-professionalization and de-skilling of K-12 teachers persist.

In recent attempts to reform American education, teachers carry the weight of society’s new and higher expectations for schools (Hargreaves, 2003). Brewer (2014) adds, “it could be said that education reform has by and large become an effort at teacher reform as a means of improving schools” (p. 246). While this pressure is true for all levels of teacher experience, this is often felt most intensely by beginning teachers. Drawing on Gordon and Maxey (2000) and Moskowitz and Stephens (1996), Borman and Dowling (2008) assert, “Unlike other developed countries, beginning teachers in the United States are typically given the most difficult assignments, are provided limited classroom resources ... and are generally isolated ...with little feedback or help” (p. 397). In the midst of negotiating many personal and professional changes, beginning teachers are also expected to successfully navigate the social, political, and cultural contexts they engage.

## Research Dilemma

In addition to un/learning more about beginning science teacher experiences, this study illuminates several dilemmas framing conceptions of induction in research practices to ways we might un/know beginning science teachers otherwise. Consequently, I am always-already working in tension (Springgay & Truman, 2017) alongside the participants in this study. Throughout each dilemma or tenuous moment explored in this study I intentionally attempted to make my movements (of all kinds) explicit to the reader, implicated participants, and also myself. Beyond the ontological and epistemological contexts contextualizing this study, the following is an un-exhaustive list of the array of tenuous intersections, parallels, and entanglements that percolate throughout this study: ought and might, right and wrong, legitimate and illegitimate, power and knowledge, thinkable and unthinkable, possible and impossible. Given these conflicting and at times contradictory mo(ve)ments I wrote (and conducted this research) within the threshold of dominant and marginalized conceptions of scholarly inquiry. This, among many others, is an infinite dilemma underpinning this entire study and the written narrative depicted here.

As I (re)searched and wrote from a space of infinite dilemmas, this particular study considered ways one central dilemma, science teacher induction, is predominantly shaped by assumptions of *ought*. Whether as an induction practice or doing the ‘right’ kind of research on induction, the possibilities for beginning science teachers (and their practices) are intentionally constrained by others. Presently, most of our conceptions of the ways beginning teachers and their practices become constrained originate from large-scale studies that describe the causes for high teacher attrition (e.g., Borman & Dowling, 2008; Ingersoll, 2001; Ingersoll & May, 2010; Ingersoll, Merrill, & May, 2012; Tye & O’Brien, 2002). Borman and Dowling’s (2008) meta-

analysis describes two themes surrounding why teachers decide to leave the field: (a) “various personal and professional factors that change across teachers’ career paths;” and (b) factors that are “more strongly moderated by characteristics of teachers’ work conditions than previously noted in the literature” (p. 367). While broad, both themes begin to depict just how multifaceted teachers’ decisions stay or leave the profession can be. This is the dominant narrative of teacher induction. Today researchers and practitioners of teacher induction (and even teachers themselves) tend to be fairly well versed in this narrative. However, there is a hidden narrative of teacher induction not yet explored; or as some might contend, a narrative that was/is made unintelligible and/or illegitimate. More specifically, much of this prevailing research on teacher induction begins from a humanist ontological standpoint, which maintains Enlightenment ideology. The major dilemma with this is that beginning teachers have been and continue to be ‘known’ from a deficit perspective. Like Friere’s (1970) banking model of instruction, the underlying assumptions of induction not only drive school district and government interventions to fill-up teachers with the ‘right’ tools, but this perspective also fuels research projects which desire uncontaminated inputs and outputs. Resultantly, these standpoints propose ways to ‘successfully’ induct, and strategically define ways to know and manufacture beginning teacher subjects. Through induction research informed by positivistic traditions beginning science teachers become constrained to one plausible, true, and right ontology. For this reason, I “enact research as a form of social justice” (Wallace, in pressA, p. 5).

Considering ontology in science education is an extremely complicated space when working with beginning science teachers who are also considered ‘participants’ in a formal research study, like the one presented here. The work of science teachers is especially challenging given the capitalistic, patriarchal, and racialized epistemological (and ontological)



roots from which the field of science education *and* ‘good scientific’ research originate. K-12 science teachers experience a compounding effect of Foucauldian scientificity (Lather, 2010) in education. Lather (2010) translates Foucault’s concept of scientificity into educational policy by helping us see how “science [has] an ideological function” (p. 60). From Lather and Foucault we see how there is a certain form of ‘stickiness’ of science, and specifically the re-production of a strict lock step ‘scientific method’ that supersedes the level of day-to-day actions of scientists, even though it may not represent authentic practices of scientific inquiry. With this dominant narrative of science percolating throughout educational policy and science education, science teachers are wedged within a particular regime of scientific truths: (a) performing a particular kind of ‘effective science teacher’ positionality; (b) maintaining an image of ‘effective science teacher’ informed by dominant conceptions of scientific methodology; and (c) imparting historical traditions of scientific knowledge (see Figure 1). For beginning science teachers the historical roots of scientific methodologies and practices are often intensified during their early formal teaching experiences.

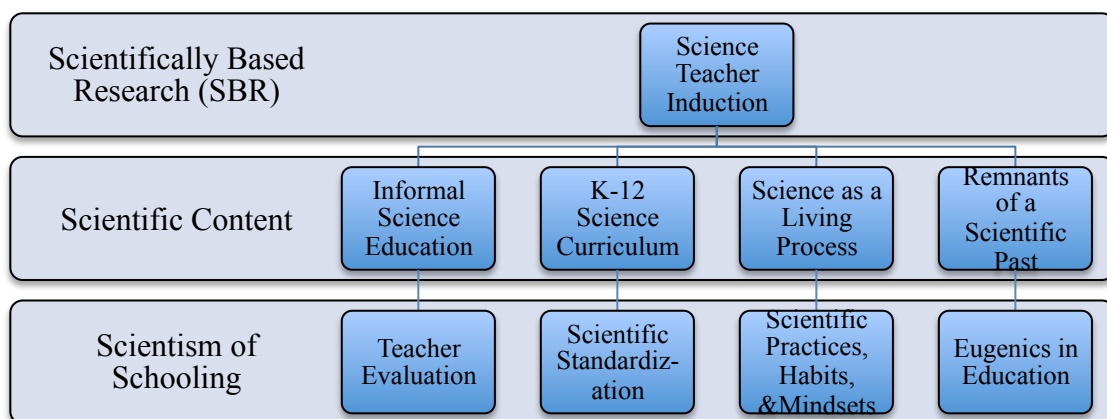


Figure 1: The Unspoken Scientificity of Science Teacher Induction

Since the participants in this study always-already held an affinity for science content and teaching science, this was not their primary interest or even identified as a concern related to their induction experiences. Rather the participants' concerns were enmeshed within the ways in which their experiences of 'becoming an elementary science teacher' were treated as a 'scientific endeavor.' For example, this study depicts ways the very conception of how one ought to 'become a teacher' (in this case an elementary science teacher) is also underpinned by dominant perceptions of science; that is, 'the science of teacher induction.' Since the participants in this study were elementary science teachers, they were also obligated to maintain particular practices and conceptions of 'good science' in the elementary classroom. Unlike many studies of science teacher education and induction, this study provides a unique look into ways 'science teachers' also experience subjectification through 'the science of teacher induction.' Following the participants' experiences and interests, this study specifically attends to the socialization of scientificity and scientism of teacher induction for two elementary science teachers.

Similar to the process of schooling, research on science teacher induction creates a particular set of truths and realities for the implicated subjects. From standardized curricula to 'best' teaching practices, beginning science teachers and researchers get inherently entangled within their work. This is unavoidable. Informed by these constitutive properties, I engage this study as a process that attempts to also care for the deterritorialization of subjectivities enmeshed within the fabric of this research study. Rather than pretending I was a removed onlooker, the participants and I contribute to the study in such a way that unearths many of the implicit entanglements between researcher, study, and participants. Further contextualizing this challenge in research on science teacher induction are the very traditions of inquiry shaping this particular field of study. It is from with(in) these dichotomous junctures I re-search anew. As depicted in

Figure 2, the three dichotomies contextualizing this study include: (a) the concept of induction, (b) the mode of inquiry, and (c) the subject. Within each of these three areas of inquiry, additional, often unacknowledged, dichotomies emerge.

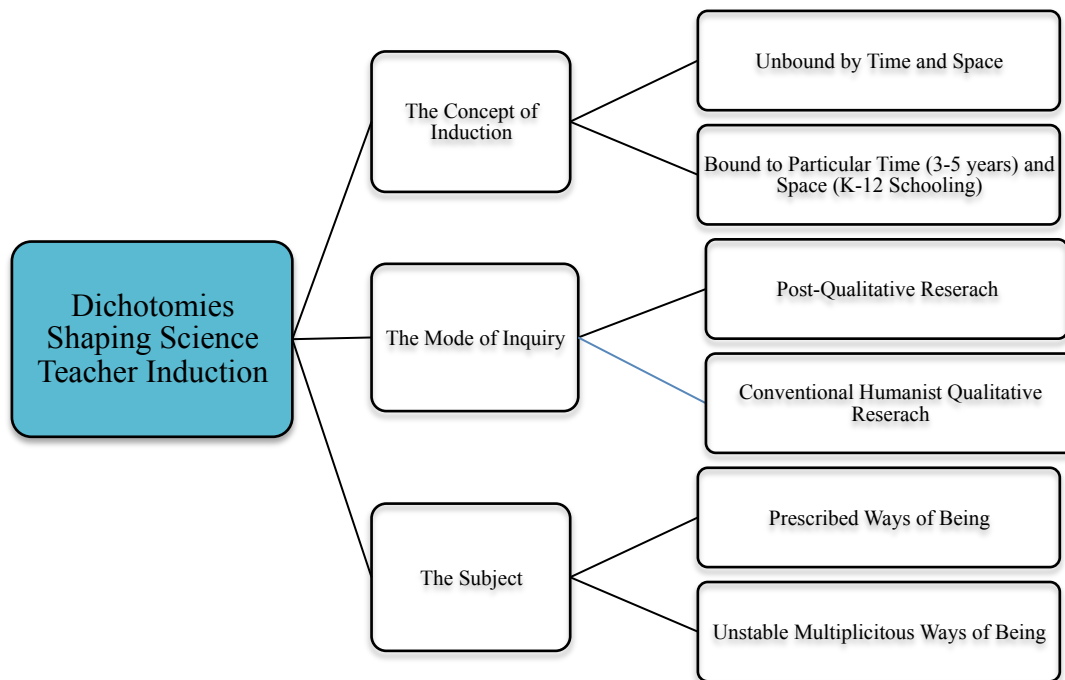


Figure 2: Overview of the Ontological Dichotomies Shaping Science Teacher Induction

### The Concept of Induction

A traditional look into the process of becoming a science teacher is often guided by three different meanings of induction: (a) a *phase* consisting of the first one to three years of teaching experience; (b) a *program* intended to support and facilitate beginning teachers' entrée into the profession; and (c) a *process of socialization* where teachers become enculturated into the profession, a school, or identity (Feiman-Nemser, 2010, emphasis added). Whether as a program, process, or phase, the induction of beginning science teachers has been intended to serve as a model of providing support, professional development, and helping beginning science teacher learn how to stay-a-float in the common 'sink or swim' culture of K-12 schooling. In each of the

three different meanings Feiman-Nemser (2010) outlines, one aspect is a constant thread; that is, induction is limited to a particular time and space. However, this study aims to extend current understandings of induction to include more expansive and non-linear trajectories in which teacher induction occurs. For example, these types of dynamic trajectories for beginning elementary science teachers escape conventional assumptions about teacher induction as they are unbound by time and space. More importantly the dominant way researchers of induction ‘ought’ to know the experiences of beginning science teachers is limited to a relatively short and linear time period within the formal space of K-12 schools.

Furthermore, teacher induction as socialization occurs on a daily basis, with and without intent or direction. Within the heightened neoliberal climate of American schooling, beginning science teachers are often expected to conform to the dominant assumption of successful science teaching as a fixed binary; that is, you either sink *or* swim. Swimming to where? Swimming for what purposes? Swimming at what costs? And how long must one swim? In teacher training, this notion of conformity is

something more than the uniformity of thought and standardization of activity. As a measure of being, conformity diminishes prospects of becoming something other than what has been previously established. In this sense the forces of conformity are repressive...Education, when dominated by the discourse and discursive practices of conformity, scripts a mechanistic training. (Britzman, 2003, p. 46)

Beyond ‘teacher training,’ a myriad of terms synonymous with ‘training’ exist; ‘teacher education,’ and ‘teacher induction.’ In fact, Wallen and Travers (1963) describe the nature of teacher training to a process of enculturation, which produces “the concocted teacher” (p. 451). Even so, Wallen and Travers’ (1963) assertion is still bound to the formal spaces of teacher education. Likewise, our understanding of teacher induction continues to be limited to fixed pre-

determined settings. The other side of this bifurcation is an account of induction, which reaches beyond conventional notions of time and formal educational spaces and is often taken-for-granted. For this reason, this study expands our conceptions of induction to exceed predetermined boundaries of time and space.

### **The Mode of Inquiry**

The second ontological juncture, ‘modes of inquiry,’ is the timeliest. Rather than maintaining dominant epistemological traditions of inquiry, scholars of qualitative research and teacher education are beginning to call for a ‘turn to ontology.’ Lather and St. Pierre (2013) term this new paradigm within research on education as ‘post qualitative inquiry.’ Inspired by ‘the posts’ (e.g., post structuralist, post feminist, etc.), post qualitative inquiry marks a divergence between conventional humanist centered qualitative research and one that de-centers the human subject as the primary ontological unit of inquiry within qualitative educational research (St. Pierre, 2014a).

Humanist ideology dates all the way back to the Renaissance time period, which was driven by a desire for humans to achieve enlightenment. Through the accumulation of knowledge, out there ready to be taken, one can eventually reach the ideal mode of being human. This assumption is “a sort of contract—what might be called the contract of rational despotism with free reason: the public and free use of autonomous reason will be the best guarantee of obedience” (Foucault & Rabinow, 1987, p. 37). Consequently, the ontological assumption that humans are entirely rational, independent, stable subjects without regard to the conditioning forces of the social and natural world persists within humanist ideology. Descartes serves as the prime example of humanism infiltrating thought that relies on rational methodology (Descartes & Weisman, 1996). According to Descartes, if one thinks, therefore, they have sole control over

the ideas and surrounding world. When using conventional methodologies grounded in humanist ideology, an anthropocentric norm persists in educational research. Moreover, humanist ideology is amplified within the context of scientific traditions of strict, linear, replicable, and, as Popper (1972) would claim, falsifiable methods. Through rationality and strict methodology, research on science teacher induction maintains the dominant contention that beginning science teachers can and ought to be figured out.

A post qualitative account contradicts conventional humanist research by assuming an unstable being (i.e., human and/or non-human), which is always-already entangled within social, material, natural, and unknowable conditions. Currently, much of the field of science teacher induction does not account for this alternative ontological possibility within research on beginning science teachers and their experiences. Within the post qualitative turn, research practices involve a series of ‘turns’: (re)turning to and away from fixed binaries of thinking and being. Post qualitative modes of inquiry also include the new materialist movement within educational research (Bazzul, Tolbert, & Kayumova, in press; St. Pierre, Jackson, & Mazzei, 2016; Ulmer, 2016). For many post qualitative scholars, this move is an ethical necessity (St. Pierre et al., 2016). Unlike conventional humanist empiricisms where the material precedes knowing, post qualitative scholars view processes of intra-connected knowing *with* being as a dynamism that produces a ‘new’ materialization of something (or someone). It is through a critical engagement with diverse modes of inquiry that the unspoken scientificity of science teacher induction begins to surface (See Figure 1).

### **The Subject**

The last ontological dichotomy contextualizing this study of elementary science teacher induction is the very conception of what it means to be ‘a subject.’ In the case of research on

science teacher induction, this is often the beginning science teacher(s) implicated in one's research study. However, there are several hidden, unspoken subjects also implicitly embedded in research on science teacher induction. In this study, I expand the conversation from one subject, the beginning science teacher, for which I am to 'know,' to also include research participants and the researcher subject. By blurring the lines between subjects that are often intentionally isolated in research on science teacher induction an unacknowledged dichotomy can be engaged; that is, differing modes of subjectification.

Emerging from the view of teacher induction as a process of socialization, I view socialization as also a mode of subjectification. Extending from this assertion are two dichotomous definitions of subjectification explored in this study: one dimension that closes down ontological possibilities (i.e., subjectification a la Foucault) and a second that opens-up possibilities for the subject (i.e., subjectification a la Biesta). More specifically, the first definition looks at how subjects become a product of power/knowledge within disciplining structures and the other looks at how beginning science teachers are not entirely determined by existing orders and traditions.

### **Deterritorializing the 'Novice' Science Teacher**

Traditionally, science teacher induction relies on the existence of a particular kind of a subject; which is the 'novice science teacher.' Before this section one might have overcoded the terminology of 'beginning science teacher' with the textual image of 'novice'; however, this study complicates the taken-for-grantedness of the very idea of 'novice.' Further informed by the etymological roots of 'novice' as connected to the importation of slaves and induction of those entering a religious order (novice, n.d.), it is imperative that those involved in the induction of science teachers engage moments of hesitation in their work. From this brief glimpse into the

historical context of the term ‘novice,’ we begin to see just how delicate the engagement with beginning science teacher subjects and the very notion of induction become. ‘Novice,’ like all terminology contains a history often left unexamined. The most revealing aspect of ‘novice’ is its connection to slavery. In the context of schooling, education, and induction, the problematic lineage of utilizing the term ‘novice’ to characterize beginning science teacher experience is indicative of the broader ontological dichotomies contextualizing this study’s research dilemma. Furthermore, the historical assumptions underpinning the notion of a ‘novice’ teacher originate from an enduring desire that a body without some desirable quality for replication be intended, or inducted, to enact a particular kind of labor.

This study provides a unique account of science teacher induction that examines the ontological dilemmas shaping beginning science teachers and their induction experiences. More specifically, embracing an alternative, conflicting, and dynamic research process affords a space where we might re-engage science teacher induction in tension (Springgay & Truman, 2017). By residing in the ‘speculative middle,’ “research methods become a practice of being inside a research event” (Springgay & Truman, 2017, p. 2). At first glance ‘a middle’ might suggest the establishment of a fixed dichotomy which produces binaries and thus multiple bifurcations, but I what I aim to do in this study is to intentionally live with/in the middle of the dichotomies shaping science teacher induction. Regardless of whether it is a rhizome or the arborescent structure, junctures always exist. At each juncture, a middle is produced. It is within this middle that I work, think, and live.

For Deleuze and Guattari, the middle is where things grow, expand, and pickup speed. The middle is not an average nor a zone between the beginning and the end. The middle passes between things as a ‘transversal movement’ (p. 25). In the middle, immanent modes of thinking-making-doing come from within the processes themselves, not from



outside them. In the middle the speculative ‘what if’ emerges as a catalyst for the event. (Springgay & Truman, 2017, p. 4)

By residing in a middle space for and with subjects, practices, and assumptions, new possibilities for one to maneuver a process of de/territorialization is revealed. For example, beginning science teachers already reside within a unique juncture of being always-already enough to some and not yet enough to others. Their rich position within science education, teacher induction, and life contains a generative space for developing more expansive ways to conceptualize science teacher induction. Following the deep and complicated assemblages within science teacher induction, we can begin to deterritorialize the striated space limiting the possibility for something new to emerge. Parr defines deterritorialization

as a movement producing change. In so far as it operates as a line of flight, deterritorialisation indicates the creative potential of an assemblage. So, to deterritorialise is to free up the fixed relations that contain a body all the while exposing it to new organizations. (2010, p. 69)

Expanding beyond the historical context of ‘novice’ to characterize science teacher experience, deterritorialization assists in re-imagining how the concept of induction, mode of inquiry, and conception of the subject function as regimes of truth (Foucault, 1984). In fact, these dichotomies are inherent to the process of becoming a science teacher, yet are often intentionally explored in isolation from the other.

Enacted in every pedagogy are the tensions between knowing and being, thought and action, theory and practice, knowledge, and experience, the technical and the existential, the objective and the subjective. Traditionally expressed as dichotomies, these relationships are not nearly so neat or binary. Rather, such relations are better expressed as dialogic in that they are shaped as they shape each other in the process of coming to know. Produced because of social interaction, subject to negotiation, consent, and

circumstance, inscribed with power and desire, and always in the process of becoming, these dialogic relations determine the very texture of teaching and the possibilities it opens. (Britzman, 2003, p. 26)

Like Britzman's (2003) description of the dichotomies shaping the texture of teaching and becoming a teacher, this study explores the overlay of research assumptions within the fabric of beginning science teacher induction. Consequently, deterritorialization is necessitated as an ethical responsibility to the experiences of 'novice science teachers.'

### **Affordances of Feminist Post-structural Theory**

Theories, like teacher experience, are messy. This study's theoretical underpinnings are no different. As a branch of critical theory, contradictions in my use of feminist post-structural theory always-already exist. In light of the historical ruins, lineage, and absent-future theoretical lines of flight I do not merely 'apply a theoretical framework' to research project, but rather feminist post-structuralism informs how I think and live my way through this study. For example, by beginning from primarily a feminist post-structural perspective, I found generative possibilities when interweave aspects of critical theory, post humanism, and new materialism together.

Feminist post-structural theory works to expose and (re)engage that which is made possible and impossible through a variety of philosophical concepts: "language; discourse; rationality; power, resistance, and freedom; knowledge and truth; and the subject" (St. Pierre, 2000, p. 477) by focusing on "*constructed* verses *found* worlds" (Lather, 1992, p. 89; emphasis original). Working from a feminist post-structural perspective to look into the construction of beginning science teachers' subjectivities, the modes in which power, knowledge, and truth circulate through and within their subjectivities (*and* practices) can begin to be deterritorialized as an ethicopolitical obligation to those implicated.

Unlike dominant modes of doing-thinking research, feminist post-structural theory often works to “examine any common place situation, any ordinary event or process, in order to think differently about that occurrence – to open-up what seems to be ‘natural’ to other possibilities” (St. Pierre, 2000, p. 479; Kumashiro, 2004; Weedon, 1997). By cracking open the subject (e.g., beginning science teachers), science teacher educators can (re)engage and uncover ways in which institutional culture and ideology work as a function of power/knowledge (Foucault, 1977), and thus produce subjectivities that are often in conflict, diverse, and unstable (Britzman, 1994; Weedon, 1997). A feminist post-structural perspective can also help researchers and their participants reveal ways in which dominant discourses can trap us in “conventional meanings and modes of being” (Davies, 1990, p. 1). Beyond insights into research on science teachers, feminist post-structuralism enables science teacher educators to theorize with beginning science teachers to collectively re-imagine one’s practice. Through this mode of thinking-doing research and practice, participants are given the space to release themselves from institutional cultures of control and regulation. By drawing on feminist post-structural theory, this study brings forth new questions that illuminate areas where science teacher educators and researchers of induction might engage an ethics of hesitation (Biesta, 2012).

As much as one bounded theory can be helpful, I embrace the messiness of theorizing and modes of inquiry together. More specifically, my living of theory does not always have clean lines of application and implication. At times my living of theory pulls together conflicting ideas. Concepts, questions, and motivations are always entangled, so why not theory? Feminist post-structuralism make this idea even thinkable. In this study, I depict how ‘the messy’ is where things get interesting. ‘The messy’ is when theorizing excites me. ‘The messy’ is when new things emerge. But, ultimately, ‘the messy’ provokes what is not yet (Greene, 1995).

## Research Question

As the aforementioned ontological junctures begin to depict, being and becoming a science teacher is a complicated phenomenon and often couched within the field of research on teacher induction. The research question guiding this study was designed in such a way that it carves out space for new possibilities of understanding the ontological dichotomies shaping science teacher induction as socialization *as also* a multi-dimensional process of subjectification: How do beginning elementary science teachers experience induction?

## Summary of Chapter One

Chapter One provided a glimpse into the complicated and messy nature of ‘knowing’ the beginning science teacher. With the changing nature of American education, science teacher induction and support is often a concern for many schools in the United States. By studying how science teacher induction can be analyzed from two opposing definitions of induction *as subjectification*, this chapter begins to set the tone for (un)making sense across and in-between dichotomies that define what it means to ‘know’ the induction experiences of beginning science teachers.

In the next chapter, another dichotomy is explored; that is, a traditional and alternative account of teacher retention, support, and development is explored. More specifically, Chapter Two does two things: (a) describes the current landscape of research on teacher induction, support, and teachers’ decisions to leave or stay in the profession; and (b) begins to open-up new questions for researchers and teacher educators to consider when ‘the beginning science teacher’ as we know *it* is disrupted.

## Key Terminology

**Teacher Induction:** A process where teachers become enculturated into the profession, a school, or identity (Feiman-Nemser, 2010)

**Subjectification a la Foucault:** The construction of the subject as an effect of power/knowledge and disciplinary structures (Foucault, 1977)

**Subjectification a la Biesta:** “Is about ways of being that are not entirely determined by existing orders and traditions” (Biesta, 2013, p. 18)

**Subjectivity:** “the conscious and unconscious thoughts and emotions of the individual, her sense of herself, and her ways of understanding her relations to the world” (Weedon, 1997, p. 32)

**Beginning Science Teacher:** For the purpose of this study, a beginning science teacher is any self- and/or externally identified individual in their first three years of science teaching experience.

**Deterritorialization:** “deterritorialization can best be understood as a movement producing change. In so far as it operates as a line of flight, deterritorialization indicates the creative potential of an assemblage. So, to deterritorialize is to free up the fixed relations that contain a body all the while exposing it to new organizations” (Parr, 2010, p. 69)

**Novice:** from Medieval Latin *novicius*, noun use of Latin *novicius*, “newly imported, newly arrived, inexperienced” (of slaves), from *novus* “new.” Meaning “inexperienced person” is attested from early 15c. (novice, n. d.)

## CHAPTER TWO: LITERATURE AND THEORETICAL UNDERPINNINGS

While pressure to be considered ‘highly effective’ is true for all levels of teacher experience, it is often felt most intensely by beginning teachers. In the midst of negotiating many personal and professional changes, beginning teachers are also expected to successfully navigate the social, political, and cultural contexts they engage. Within the context of research on teacher induction, beginning teachers become inherently implicated into a wide array of ontological and epistemological assumptions. Like teacher experiences, the literature and theoretical perspectives contextualizing our understandings (or perceived ‘truths’) of those experiences is multifaceted. More specifically the scholarly background, which initiated this study, emerged out of the dominant narrative of ‘induction’ that has traditionally resorted to studies of ‘stayers,’ ‘leavers,’ and programmatic implementation of ‘good and right teacher induction.’ While in some contexts this prevailing research has served helpful, the strategic maintenance and privileging of ‘good and right teacher induction’ depicts normative (and normalizing) accounts of induction that often over-code more nuanced, messy, authentic, and/or holistic conceptions of teachers and their induction experiences. Consequently, this chapter intentionally makes the dominant narrative of induction explicit and then subsequently employs feminist post-structural theory to put non-normative notions of ‘teacher induction’ to work.

For this reason, it is important to resituate and reiterate that the following sections only focus on *one* juncture within a larger framework of science teacher induction. Figure 3 highlights the two different angles from which the induction experiences of beginning science teachers can be understood: (a) from a teacher retention and development standpoint; and (b) from a theoretical critique regarding how beginning science teachers are currently ‘known.’ Both accounts are valuable for being, seeing, thinking, and educating anew.

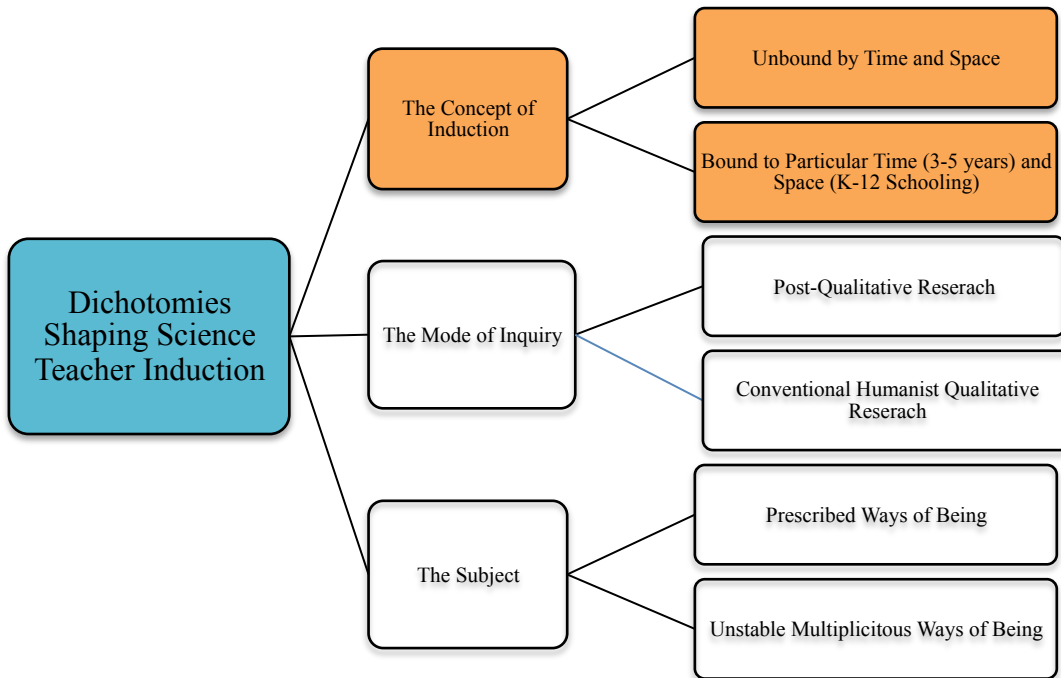


Figure 3: Ontological Dichotomies Shaping the Concept of Science Teacher Induction

### Reasons for Teacher Attrition

Teachers' decisions to stay or leave the profession are often informed by a variety of compounding factors; however, one unique difference prefaces these variables. The teaching workforce is currently in the process of a generational shift from majority 'veteran' (20+ years of formal experience) teachers to majority 'novice' (0-3 years of formal experience) (Ingersoll, 2012; Johnson, Birkeland, Donaldson, Kardos, Kauffman, Liu, & Peske, 2004). In contrast to the 'veteran' workforce nearing retirement, beginning teachers are increasingly hesitant to make teaching a lifelong career, and often enter the role with the intention of leaving not long thereafter (Johnson et al., 2004). With this in mind, beginning teachers are also expected to navigate immense obstacles efficiently and effectively, adding additional fuel to the inevitable moment when beginning teachers (re)negotiate their career decision.

Teacher work conditions are often contextualized by organizational structures within schools and school districts greatly influence their career trajectory. Ingersoll's (2001) study

exposes how the prevailing assumption of teacher retirement as the primary cause for teacher attrition is not entirely accurate; rather, the data show job dissatisfaction as the primary influence. For the teachers in Ingersoll's (2001) study, job dissatisfaction comes from feelings of "inadequate support from the school administration, student discipline problems, limited faculty input into school decision-making, and ... low salaries" (p. 501). The U.S. Department of Education (2000) reveals specific reasons for teacher dissatisfaction: 65% of teachers reported a lack of planning time, 60% stated the workload was too heavy, 53% felt student behavior was problematic, and 52% felt that they had a lack of influence over school policies. Many of the reasons for why experienced teachers left or would consider leaving the profession have been ranked into two categories:

- [Individuals who] already left teaching
  1. Accountability
  2. Increased paperwork
  3. Student attitudes
  4. No parent support
  5. Unresponsive administration
  6. Low status of the profession
  7. Salary considerations
- [Individuals who] would consider leaving
  1. Salary considerations
  2. Increased paperwork
  3. Accountability
  4. Low status of the profession
  5. Unresponsive administration
  6. Student attitudes
  7. No parent support (Tye & O'Brien, 2002, p. 26-27)

Teachers' reasons for leaving are often also connected to the cultural dimensions of a school community. Each school's unique economic, social, and cultural dynamics afford different types of support and expectations for its teachers. One common example of this is the



attrition discrepancies between poor and wealthy schools (Darling-Hammond, 2010; Loeb, Darling-Hammond, & Luczak, 2005; Kozol, 1991; Oakes, 1990; Rosenholtz, 1985). Loeb et al. (2005) address the higher turnover rates in schools serving under-achieving, low-income, and minority students by stating, “large class sizes, facilities problems, multitrack schools, and lack of textbooks—are strong and significant factors in predicting high rates of turnover” (p. 45). Beyond the physical structures’ influence on teacher turnover, the socialization of beginning teachers affords and constrains different professional and personal characteristics (Kardos, 2004; Kardos, Johnson, Peske, Kauffman, & Liu, 2001). For example, Kardos (2004) describes how “new teachers in a veteran-oriented professional culture suffer from professional isolation and lack the sheltered status they need as beginners. The cost to schools is often frustration, confusion, and attrition among their new teachers” (p. 145). Alternatively, in a novice-oriented professional culture Kardos (2004) states:

new teachers might praise the mission, excitement, and social-emotional bonds they experience in novice-oriented professional cultures, they often bemoan the overwhelming challenges of their many responsibilities and lack of support they have in meeting them. The cost to new teachers is exhaustion, frustration, and disillusionment, while schools pay a price in new teacher attrition. (p. 152-153)

Many of the reasons mentioned above for why teachers leave the profession focus on the events and structures within the walls of school buildings; however, the remnants of each structural or systemic feature also leave impressions on the teachers as they end each school day. For example, teachers will leave the profession due to personal experiences like changes in their family situations (e.g., pregnancy, child rearing, changes to family status), further influencing teacher attrition rates (Borman & Dowling, 2008; Kirby & Grissmer, 1991; Wayne, 2000).

Teacher attrition can be attributed to a variety of discrete factors; however, the structures (e.g. time for planning and collaboration, opportunities for teacher voice and leadership, and increased demands) built into the schools where teachers move, make meaning, and teach plays a critical role in teachers' decisions to stay or leave.

### **Advice from Stayers and Leavers**

Teachers who decided to stay in the profession for more than five years are a great source of insight. Their experiences and perspectives often provide valuable wisdom for recent college graduates entering the profession and those charged with providing supports for beginning teachers. For example, teachers with at least 15 years experience attribute their longevity to an intrinsic and spiritual commitment to the profession and their students (Williams, 2003), rather than particular structural elements. However, recent leavers advise to increase teacher pay, provide effective induction and mentoring programs, and develop strong professional communities where teachers have decision-making powers (Brill & McCartney, 2008).

This juxtaposition between the advice of stayers and leavers is quite interesting. The leavers, as evident in the aforementioned literature, emphasize organizational features while the stayers attribute a deeply personal connection to their work. Hong (2012) further complicates the perspective of leavers by responsabilizing the school structures to increase beginning teacher self-efficacy. Whereas Williams (2003) stresses that the stayers in her study “learned to live with what they perceive to be beyond their control” (p. 73). Could high teacher attrition be a sign of institutional resistance toward current practices of education reform?

### **Current Retention Practices in Schools and Districts**

With teacher attrition on the rise, schools and districts have become increasingly responsible for implementing approaches to help combat ailing teacher retention. Since almost

half of teachers leave the profession before their fifth year of teaching experience, systems of support and induction often target those in their first three years of formal teaching experience, which is often termed the induction phase of a teacher's career (Bartell, 2005).

While the term 'induction' can currently be defined as either a phase, process of socialization, or program of support (Fieman-Nemser, 2010), schools and school districts primarily view the concept of induction as a program of support. Induction programs can vary in scale, elements, and goals (Villani, 2009); however, the broad overarching purpose of induction programs is to retain teachers and support the enactment of effective classroom instruction for teachers in their induction phase. Schools and school districts approach their program design from different structural and cultural angles (i.e. from district or school-level supports).

As they plan for strategic implementation, schools and districts often center their focus on the efficient systematization of replicable structures. Villani (2009) provides several examples of how school districts can replicate successful models of induction that have been or are being used. Specifically, designs of successful school district models focus on the following elements: (a) program costs, (b) program duration, (c) role of the novice teacher mentors (e.g., evaluate novice teacher or not), their selection, and modes of support, (d) what benefits (if any) are provided to mentors, (e) relationship to institutions of higher education, (f) program administration, and (g) target participants type. School-based induction programs are said to provide support in other context-specific dimensions beginning teachers must also successfully navigate (Johnson et al., 2004). These induction programs

[begin] with the assumption that each school is unique and intricate and that in order to succeed, a new teacher must understand her school's particular mission, values, norms, traditions, curriculum, policies, and practices. Becoming a good teacher necessarily means becoming a good teacher within the context of a particular school and its community.

(Johnson et al., 2004, p. 195)

Both program styles consider the multifaceted ways in which support for teachers' personal and professional needs can start to be met *before* reaching the five-year mark.

Often embedded in new teacher induction programs (at the school and district levels) is the assignment of a mentor for new teachers. According to the Goldrick, Osta, Barlin, and Burn (2012) at The New Teacher Center, "27 states require new teachers to participate in some form of induction or mentoring" (p. iv). As with any program, the nature of this support and mentoring characteristics varies widely (Goldrick et al., 2012). However, Strong (2009) highlights how one district initiative, "The Toledo Plan," attempted to support beginning teachers by releasing more experienced teachers from their full-time teaching responsibilities for three to four years to assist new teacher development in the district. The Toledo Plan required new teachers to participate in a one-week long orientation and receive personalized instructional support from full-time mentors for at least twenty hours each semester. Like Strong (2009), Breaux and Wong (2002) and Wong (2002) feature the Lafourche Parish new teacher induction program as a successful model (i.e., increasing teacher retention by 80%) that, at the time, served as a framework for the Louisiana's induction policies. Wong (2002) describes the Lafourche Parish program as "highly structured," filled with "hugs and words of encouragement from master teachers," "demonstration classrooms," "enthusiasm for new teachers," and "effective teaching techniques" (p. 53).

In addition, to support programs like mentoring and professional development, many school districts over the past ten years have used methods to incentivize teacher performance and increase retention. The underlying motivation for this is to combat low teacher pay while ensuring high student achievement. Houston Independent School District is one of "the nation's

largest and longest-running performance bonus systems" and rewards millions of dollars to teachers for "growing" student achievement each year (Mellon, 2015a, para. 1). In 2014, the average bonus payout for teachers was \$5000 and reached a maximum of \$13,000 (Mellon, 2015b, para. 7).

However, the use of teacher induction as a means to increase teacher retention and/or produce certain kinds of teachers has the potential to miss many social, political, and cultural aspects of the induction experience. For example, much of the scholarly literature on mentoring and induction focuses on the 'shoulds,' or recommendations, for successful induction and mentoring implementation (Brown, 2015; Hill & Luft, 2015; Howe, 2006; Wayne, Youngs, & Fleischman, 2005). Additionally, scholarly literature on induction programs (specifically for science teachers) depicts how they can provide support for developing beginning teachers to have reform-minded instructional practices (Luft, 2001), yet it is often an outgrowth of a university-level initiative and not associated with one specific school or district context. While recommendations and intervention-style studies can serve helpful, nevertheless, there is a gap in the literature on induction that focuses attention toward a deeper understanding of that which is always-already happening in processes of becoming an teacher.

### **Research on Science Teacher Induction**

Similar to other fields of teacher induction, the field of science education continues to view the beginning science teacher as a clearly *knowable* subject. For example, research on science teacher induction centers beginning science teachers and their experiences as something that *can be* figured out. Beginning science teachers have been studied and made generalizable. The following accounts of teacher induction within science education, specifically, represent the dominant narrative of how beginning science teachers experience and/or ought to experience

their induction into the profession. From these perspectives, the literature on science teacher induction can be characterized by one overarching theme; that is, studying the role induction (as a program, process, and/or phase) plays in maintaining beginning science teachers and their practices. While this section highlights relevant literature related to the experiences of beginning science teachers it is imperative to mention that the majority of research on science teacher induction works from purely a humanist ontological paradigm.

In an editorial piece, Luft outlined the “types of studies [that] will be important to conduct” and what they “should explore” (2007, p. 534) to better understand beginning science teachers. According to Luft (2007) there is a need for longitudinal studies that look at the transition from pre-service to the first formal year of science teaching experience, the socialization into the science education community, views about equity in the classroom, and the formation of teacher beliefs and their practices within the context of science education. From these types of studies, science teacher induction programs might be enacted more effectively and provide adequate research for the characterization of science teacher development (Luft, 2007). More recently, Luft and Dubois (2015) provide a series of propositions for the landscape of research on science teacher induction as an emerging theory “meant to guide the development of newly hired science teachers” (p. 197).

One example that meets Luft’s (2007) call comes from Bianchini and Cavazos (2007) where beginning science teachers are studied in regards to their ability to inquire about ways that their practice became linked, or not, to equity and diversity. With this in mind, researchers of science teacher induction have begun to question the nature of teacher development, beginning with students as informative starting points for guiding instruction, and how the nature of teacher communities does not ensure reform-based practices (Bianchini & Brenner, 2009). Many

researchers of science teacher induction (Luft, Lee, Fletcher, & Roehrig, 2007) may say that beginning science teachers' ability to identify and/or choose to shift their practice toward more student-centered, inquiry-based science is the result of a shift in teachers' beliefs systems. In this vain, it appears that the aim of science teacher induction is to ultimately shape a particular kind of beginning science teacher.

Luft, Firestone, Wong, Ortega, Adams, and Bang (2011) illuminated the effects of socialization on science teacher induction when they saw how the pedagogical content knowledge (PCK) of participants in a science-specific induction program was strengthened only to find in year two of the study, teachers' PCK and beliefs about inquiry shifted to align with the population mean across program types. Simply put, after one year within an induction program, induction as a process of unintentional socialization took over. Yet, studies on the influence and/or effects of science-specific, and/or inquiry-based, induction persist (Ortega, Luft, & Wong, 2013; Ozel & Luft, 2013). The primary difference is that Ortega et al. (2013), and Ozel and Luft (2013) focus on different effects within the first formal year of teaching, from working with English language learners to the conceptualization of inquiry-based instruction. Luft, Lee, Fletcher, and Roehrig (2007) found that beginning science teachers who participated in the same induction program that supported inquiry-based instruction resulted in findings that can be characterized as "if, then" statements: if "teachers ... develop their inquiry practice [then they were] also able to build their conceptual knowledge" (p. 344). The nature of these conventionally articulated findings reveals more than just information about beginning science teachers, but also the nature of research on science teacher induction. While helpful for thinking about concrete supports for beginning science teachers, many big questions regarding our taken-for-granted assumptions about beginning science teachers and their experiences are left unexamined.

As seen in these studies above, science teacher induction literature is inundated with work that begins from the same humanist paradigm. Consequently, the dominant narrative of science teacher induction is ultimately *the* narrative of beginning science teachers and their experiences. While I have come across *one* study that strives to draw on alternative ontological perspectives inspired by post-humanism (Strom, 2014), Strom (2014) admits she “found herself straddling.... the middle of the continuum of qualitative research” (p. 72) in fear that her research would not be respected. In fact, this fear is one significant example of the power and privileged embedded the role of being a researcher within science teacher induction:

Although robust data in some research settings should accurately reveal the perspective of the teacher, *it should not be an account that is influenced by a personal experience...* there are only a few instances in which the ‘personalization of data’ could be considered as a starting point, but *there are no instances in which this orientation provides an adequate conclusion.* (Luft, 2007, p. 535, emphasis added)

From this excerpt of an invited editorial, Luft (2007) makes it clear that personal experiences do not ‘count’ as proper representation of beginning science teacher induction. Certain ways of knowing *and* being are consistently defined as legitimate and illegitimate within science teacher induction.

There is a recent movement to bridge research on science teacher induction toward utilizing sociocultural theories (Lave & Wenger, 1991; Gee, 2000) that emphasize processes rather than merely responding effects. For example, Saka, Southerland, and Brooks (2009) use Cultural Historical Activity Theory (CHAT) perspective to map the depths to which induction as socialization functions amongst ways beginning science teachers create their own activity system. Shifting into more focused analytical frameworks of science teacher identity Webb (2012, 2015) and Avraamidou (2014) explore intersectional accounts of beginning science



teacher identities. Looking across multiple trajectories of development related to science teacher identity, Avraamidou (2014) found the following themes when unpacking the experiences of one beginning elementary science teacher: (a) embracing and enacting scientific inquiry; (b) the impact of relationships and science learning experiences; (c) women in science; and (d) the role of context (Avraamidou, 2014). More specifically, Avraamidou (2014), draws on sociocultural theories to map each theme onto a specific identity framework (Gee, 2000; i.e., nature identity, institution identity, discourse identity, and affinity identity), rather than conflating them together under the generalized language of, ‘identity.’ However, rather than make direct links to a pre-determined set of identity frameworks, Webb (2015) provides a conceptual model to look at the mediating role of newly hired science teachers’ meaning making. Influenced by the recent sociocultural cultural work in science teacher induction, this study continues to extend research on beginning science teachers’ identities to include additional ontological frameworks for reconceptualizing ways educational researchers come to know, name, and produce beginning science teachers.

### **Research on Elementary Science Teacher Induction**

While there is some work on science-specific teacher induction initiatives, there is even less work that specifically attends to elementary science teachers. The majority of research on elementary teacher induction tends to focus on other issues including novice teachers’ stressors unique to the elementary classroom (Rieg, Paquette, & Chen, 2007), pedagogical content knowledge of the ‘core’ elementary mathematics curriculum (Dalgarno & Colgan, 2007), and maintaining language arts program coherence as an induction support for beginning elementary teachers (Youngs, Holdgreve-Resendez, & Qian, 2011). Similar to research on teacher induction across the K-12 continuum, ‘novice’ elementary teachers were found to be less likely to stay in

the profession if they perceived a poor relationship with campus administrators (Pogoshzinski, Youngs, Frank, & Belman, 2012). Beyond the pedagogical challenges beginning as early as their student teaching experiences, elementary teachers experience heightened expectations to personally fund classroom materials and teaching resources (Jordan, Sinclair, & Szabo, 2010).

In addition to challenges faced by many general elementary teachers, beginning elementary *science* teachers experience an additional set of unique obstacles from curriculum planning to understanding the nature of inquiry (Davis, Petish, & Smithey, 2006). In Chapter Seven, one of the participants provides a closer look at the negotiations she must make when planning inquiry-based science curricula for fourth-grade students. Through her story, the gaps in literature related to elementary science teacher induction begin to be addressed. Further attending to the curricular challenges of beginning elementary science teachers, Davis and Smithey (2009) discuss design-based processes for the implementation of educative science curriculum materials. To support beginning elementary science teachers' enactment of authentic science instruction, science teacher educators are advised to support elementary science teachers' strategic use of anchoring investigatory questions within their curriculum and instruction (Forbes & Davis, 2009). Enacting similar problem-based learning practices enables elementary science teachers to develop increased levels of pedagogical content knowledge (Goodnough & Hung, 2009).

### **Teacher Preparation as Teacher Induction**

Elementary teacher preparation can also be interpreted as a program of support either in the context of traditional teacher certification programs and/or professional development for teachers currently situated within a formal K-12 classroom. However, what would it mean for researchers of teaching to consider teacher preparation *as also* a mode of teacher induction? For

example what if the label [teacher induction] for Feiman-Nemser's (2010) definition--a process where teachers become enculturated into the profession, a school, or identity-- was switched with [teacher education]? Now it is possible for us to consider teacher education as also a process where teachers become enculturated into the profession, a school, or identity. Historically, beginning teachers are expected to be

vulnerable and unformed. They are expected to be unable to resist pressures to conform to institutional norms for teacher behavior. Willingly or unwillingly, beginning teachers are seen to be cajoled and molded into shapes acceptable within their schools. (Zeichner and Tabachnick, 1985, p. 1)

Relying on Feiman-Nemser's (2010) definition of induction, Zeichner and Tabachnick's (1985) assertion can be said for both traditional university teacher education *and* teacher induction. Herein lies a trajectory of induction informed by continuum of central learning tasks, rather than particular pre-determined phases of formal teaching experiences (Feiman-Nemser, 2001): (a) analysis of beliefs and formation of new visions; (b) develop subject matter knowledge for teaching; (c) develop understandings of learners and learning; (d) develop a beginning repertoire; and (e) develop the tools to study teaching. The forthcoming insights from the participants in this study continue to complicate the ways we think about induction as something the *only* occurs upon the first formal year of classroom teaching experience.

### **Putting Theory to Work: Feminist Post-structuralism**

To combat neoliberal cultures of K-12 educational reform (Di Leo, Giroux, McClennen, & Saltman, 2013; Hursh, 2007) and scientism of educational research (Lagemann, 2000; Lather, 2010), new modes of scholarly inquiry are necessary. Responding to scholarly calls (Bazzul & Kayumova, 2015; Marble, 2012; Roy, 2003) this study reiterates the need to re-engage how we

come to know teachers and the practice of teaching. The process of evening naming, beginning science teachers, as the subject of inquiry can be viewed as problematic, given the politics the very process of naming subjects of education enacts (Biesta, 2010).

By putting theory to work I move to deterritorialize the beginning science teacher subject in order to liberate the subject (i.e., beginning science teachers) from being re-inscribed and re-produced by assumptions beginning science teachers may not even align with themselves. Resultantly, I draw on feminist post-structuralism to provide a critical and complex analysis of the induction experience beginning science teachers internalize through structures of power, language, rationality, truth, discourse, and knowledge. By doing so feminist post-structural theory offers a theoretical framework that can re-configure, dismantle, and open-up more liberatory ways of un/knowing work with beginning science teachers.

### **The Re/making of the Beginning Science Teacher**

The production of the beginning science teacher originates from the making of the educated subject. Lortie (1975) and Fendler (1998) help illuminate the hidden, more silent, modes in which one becomes educated and while also implicitly educating others. Through socialization, power/knowledge, normality, and a will-to-truth the beginning science teacher is manufactured. For example, “what is assumed to be educated today embodies particular values by defining what is normal and what is not normal” (Fendler, 1998, p. 39). As discussed for the concept of induction, Figure 4 demarcates the second juncture series framing science teacher induction, specifically attending to how we come to know a particular beginning science teacher subject. Feminist post-structuralism is a generative lever for residing in the middle of these junctures.

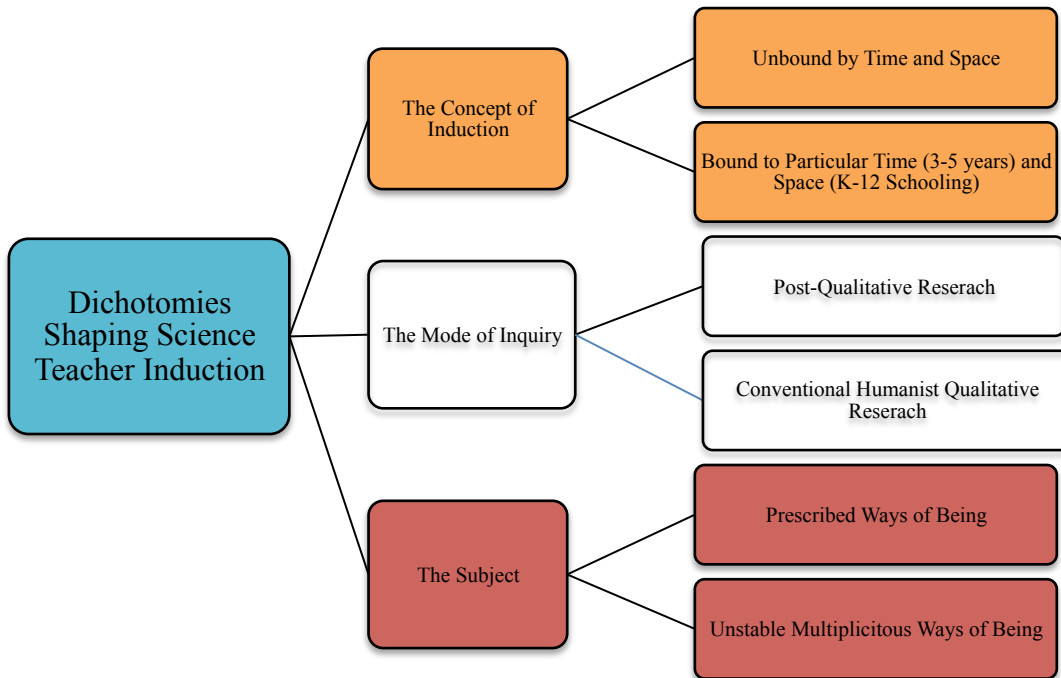


Figure 4: Ontological Dichotomies Shaping Definitions of the Beginning Science Teacher Subject

## Language

[Beginning] [science] [teacher]—the three terms that signify the individual of study also exemplify three distinct meanings. At the most basic level, ‘beginner’ implies not yet an expert; ‘science’ implies an objective, rational linear method, and ‘teacher’ tends to suggest an authoritative female. The underlying assumptions embedded in the language of education even extends beyond the notion of a ‘teacher,’ to when we refer to a subject within education as a ‘learner.’ Regardless of whether referred to as ‘teacher’ or ‘student,’ these subjects are expected to also be ‘learners.’ With this in mind,

What matters in calling someone a learner is, however, not about what it is that needs to be learned; what matters is the fact that the learner is constructed in terms of a *lack*. The learner is one who is missing something. The learner is the one who is not yet complete. (Biesta, 2010, p. 541, emphasis original)

Hidden beneath the language employed is another ideological story contextualizing who and how beginning science teachers are expected to be and become. A feminist post-structural analysis helps researchers focus on “how language works, in whose and what interests, on what cultural sites and why” (Kelly, 1997, p. 19). In public K-12 school districts and even scholarly discourse, the language defining and often *speaking for* the beginning science teacher is grounded in concepts of human capital, efficiency, and objectivity.

Current language encompassing the expectations of beginning science teachers demonstrates a connection to market-based goals and a cost-efficient subject. For example, standardized statements like the following get mobilized into calls for action:

- (a) “we need empirical evidence;” (Strong, 2009, p. 4);
- (b) “prescribe the content of induction programs” (Strong, 2009, p. 35);
- (c) “the only reliable way to measure classroom teaching practice” (Strong, 2009, p. 51);
- (d) “lessen subjectivity” (Strong, 2009, p. 56);
- (e) “more precise” (Wang, Odell, & Clift, 2010, p. 7); and
- (f) “produce the outcomes of interest” (Wang et al., 2010, p. 9)

Ironically, the narrative ensuring effective subjects is often prefaced and/or concluded with statements like, “[research on induction]... force[s] us to conclude that we really do not know the extent or nature of any effects of induction on teaching, and what we think we know, we cannot prove” (Strong, 2009, p. 77). While researchers acknowledge the difficulty in ‘knowing’ the beginning teacher, the field continues to seek a normalized language to neatly order and prescribe remedies to the systemic re/production of beginning science teachers.

Weedon contends, “a great amount of effort, and often money, is put into producing particular meanings” (as cited in Barret, 2005, p. 81). Barret (2005) provides a basic example of

how “language, then, is productive and shapes our understandings of ourselves, others, and what is or is not possible” (p. 81) by revisiting a lesson on pond scum with her students. The lesson demonstrates how words like ‘slimy’ signaled the children to jump and/or squirm due to their discomfort. Barret’s (2005) example shows how even reactive bodily movements of others can be attached to the language individuals employ. The power of language (re)constructs our lived realities as fictions (Gough, 1991); and thus, “fictions nevertheless function as truth” (Munro, 1998, p. 1). Looking back through the language that circulates around beginning science teachers, feminist post-structural theory enables elementary science teacher educators and induction researchers to enact an ethicopolitical commitment by asking: What might be the lived fictions of beginning science teachers?

## **Discourse**

The beginning science teacher must first master classroom management (Berliner, 1988; Dicke, Elling, Schmeck, Leutner, 2015; Eckert, 2014). This statement represents a common discourse infiltrating teacher education, professional development, and induction programs. While not distinct, this perspective often frames many beginning science teachers’ assumptions when starting their student teaching (Fuller, 1969) and first formal year of teaching experience. Whether it is as an administrator’s passing critique or mode of formal evaluation (i.e., classroom observation rubrics), the discourse is conceived of as a set of beliefs and understandings reinforced through daily practices, and thus reinforces specific ways beginning science teachers are expected to be in the world (St. Pierre, 2000; Weedon, 1997) and in their classroom.

Foucault charts the historical discourse of mental illness (1965), punishment (1977), and sexuality (1978). Through Foucault’s genealogical account teacher educators can begin to see how and where discourse functions to produce regulations of ‘normality’ and ‘natural.’ Rather

than seeking out fixed meanings of a particular discourse, Bove (1990) outlines the types of questions post-structuralists are concerned with: “How does discourse function? Where is it found? How does it get produced and regulated? What are its social effects? How does it exist?” (p. 54).

The discourse of the beginning science teacher has a Cartesian lineage. Youngblood-Jackson (2001) describes,

Embedded in the normative discourse of teacher education is the valorization of experience, and subsumed in this is the idea that learning to teach is a linear process in which a novice student becomes a teacher through the function of *unproblematic experience*. (p. 386, emphasis added)

For example, early research on teaching focused on the nature of teachers’ pre-service preparation as a means to ensure a particular form of effective teaching. From the assessment of cognitive ability (Bloom, 1963), classroom behavior (Medley & Mitzel, 1963), teacher personality and characteristics (Getzels & Jackson, 1963), to patterned teacher behavior (Wallen & Travers, 1963) an epistemological foundation for the “concocted teacher” (Wallen & Travers, 1963, p. 451) was constructed.

By identifying how the replicable, patterned, and predictable beginning science teacher is discursively contextualized, feminist post-structural theories of discourse “allow us to understand how knowledge, truth, and subjects are produced in language and cultural practice as well as how they can be reconfigured” (St. Pierre, 2000, p. 486). This particular discourse of teacher preparation and feminist post-structural theory enables elementary science teacher educators and induction researchers to enact an ethicopolitical commitment by asking: Whose or what



epistemology are we perpetuating and how does it work within the hearts, minds, and bodies of beginning science teachers?

### **Rationality, Knowledge, and Truth**

Guiding the perspectives of feminist post-structural theorists is a contentious hesitation to merely accept the ‘known’ as ‘truth’ or ‘rational.’ Instead, the goal is to follow a different line of inquiry: What makes certain truths or knowledge possible and/or privileged? As teachers work through the developmental ranks of novice, experienced, and veteran, the profession is not only militarized (Foucault, 1977), but it also implies a deeply rooted hierarchical structure for how one can and should gain knowledge.

Rationality as a mode in which to achieve true knowledge is infused with power relations (Simola, Heikkinen, & Silvonen, 1998). These power relations undergird society’s and research’s reliance on objective humanistic methods of inquiry. St. Pierre (2000) describes that “reason become[s] the basis of the scientific method, and any kind of rationality not formed by science was considered irrational and therefore suspect” (p. 486). Furthermore, the modern educated subject is assumed to “have access to knowledge through scientific and rational means” (Fendler, 1998, p. 43). The scientificity embedded within science teacher induction, scientific, or ‘gold-standard knowledge,’ percolating within the subject continues to compound. The depths to which teacher educators teach fixed truths through ‘objective’ rational methods also serve as a dissemination of power. Lather (1990) contends “the exercise of power” is “disguised as reason” (p. 329).

### **The Subject**

Weedon (1997) defines subjectivity as “the conscious and unconscious thoughts and emotions of the individual, her sense of herself, and her ways of understanding her relations to

the world” (p. 32). Therefore, subjects cannot claim to be sole authors of their ideologies, but rather ideologies inscribe one’s subjectivity (Barrett, 2005). Curricular materials, administrator expectations, modes of formal evaluation, and prior experiences with disciplinary content, among other things, all infiltrate the subjectivities of beginning science teachers. The experiences of beginning science teachers are further complicated as these discourses often converge, pile-up, intersect and contradict each other.

In an attempt to simplify and streamline teacher education and the process of becoming a teacher, beginning science teachers must follow a predetermined linear progression.

Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, and Zeichner (2005) identify three goals for new teachers: (a) learning to teach requires them to teach differently than what they experienced as a student, (b) thinking and doing like a teacher, and (c) learning as a life-long endeavor. Furthermore, teaching is said to “[require] the development of automatized schemas and routines that provide enough background efficiency to keep teachers from becoming overwhelmed and losing sight of important goals” (Hammerness et al., 2005, p. 363). From these accounts we begin to see how teacher preparation works “on a developmental model of growing expertise, where novices move from error to effective practice by replicating the strategies and classroom moves of model teachers” (Marble, 2012, p. 21). Another example of this is Berliner’s (1988) developmental typology for becoming a teacher where he describes “the behavior of the novice is rational, relatively inflexible, and tends to conform to whatever rules and procedures they were told to follow” (p. 8). Resultantly, the beginning science teacher turns into a subject that must be inducted and serves as malleable material for which to indoctrinate into a certain mode of being-teacher.

In the case of the beginning science teacher subject, feminist post-structural theory allows us to reconsider the natural taken-for-granted conceptions of what it means to become a science teacher. The work of Foucault helps to disrupt these ideas further. Through his conceptions of power, language, discourse, and knowledge we see how the educative experience can be quite violent when considering the delicacy of subjectivities. Currently, beginning science teachers must first become automatized and efficient in order to be imaginative or ‘effective.’ Upon receiving proper teacher training, innovative teaching practices can now happen within reason. Foucault (1977) ascribes this disciplinary mechanism as a means to produce the docile subject: “‘Docility,’ which joins the analyzable body to the manipulable body. A body is docile that may be subjected, used, transformed and improved” (p. 136). Alternatively, Biesta (2010) conceptualizes “dissensus ... as an act of subjectification, an act in and through which a subject...comes ‘into presence’” (Biesta, 2010, p. 547; Biesta, 2006). For both Biesta and Foucault, the subject is produced within and by something other than the subject themselves. Beginning science teachers are only one example of this subjectification.

Given that much of “educational reform has by and large become an effort at teacher reform” (Brewer, 2014, p. 246), beginning science teachers are now the bodies of interest to be subjected, used, transformed, and improved. When looking into the subjectification of beginning science teachers, feminist post-structural theory enables elementary science teacher educators and induction researchers to enact an ethicopolitical commitment by asking: By approaching my practice and thinking in \_\_\_\_ way, what types of subjectivities are made possible and impossible? Or, what harm might be involved?

## **Power, Resistance, and Freedom**

Using/living feminist post-structural theory is “a kind of self-wounding laboratory for discovering the rules by which truth is produced” (Lather, 2000, p. 305). Within this desired production of truth, we see and feel the persistent presence of power. Foucault (1977) tells us that power is a productive (rather than repressive) entity that is quite silent and capillary as it moves throughout subjects in various institutions. While Foucault’s (1977) description of power can often feel transcendental, leaving little room for human agency, in *Archaeology of Knowledge* (1972) he seeks to use writing as inquiry (Richardson & St. Pierre, 2005) in an attempt to resist being the same. Foucault (1972) states, “...with a rather shaky hand – a labyrinth into which I can venture, in which I can move my discourse, opening up underground passages, forcing it to go far from itself finding overhangs that reduce and deform its itinerary...” (p. 17). Like Foucault models as he traces various lines of flight (Deleuze & Guattari, 1987), he shows us a space for resistance and how researchers might also begin to free up the subject.

To release beginning science teachers of their subjectification, teacher educators must first escape the developmental and militaristic assumptions sequencing teachers’ being and becoming. The discursive and subjective tension exposed through this resistance is where exciting and innovative possibilities can happen. It is on these plateaus of being that the beginning science teacher might be and think otherwise. For beginning science teachers to teach and move in more socially just ways, teacher educators might assist beginning science teachers to navigate the inevitable smooth and striated spaces (St. Pierre & Pillow, 2000) making the self and one’s practice.

Deleuze and Guattari (1987) are particularly helpful for re-conceptualizing the subject. St. Pierre (2004) provides insight on how Deleuzian concepts can specifically aid teacher educators and researchers to undo the subject. Rather than essentializing the subject as singular, fixed, and predictable, Deleuze and Guattari (1987) open-up the possibility of a multiplicitous subject. Roffee (2010) clarifies the concept of multiplicity:

Deleuze takes the idea that any situation is composed of different multiplicities that form a kind of patchwork or ensemble without becoming a totality or whole. For example, a house is a patchwork or ensemble without becoming a totality or whole. For example, a house is a patchwork of concrete structures and habits. Even though we can list these things, there is finally no way of determining what the essence of a particular house is, because we cannot point to anything outside of the house itself to explain or to sum it up - it is simply a patchwork. This can also be taken as a good description of multiplicities themselves. (p. 181)

Whether as a patchwork piece or nomadic exploration (Braidotti, 1994; Roy, 2003), “Once you have used [Deleuzian concepts]... to think in the world, you live differently” (St. Pierre, 2004, p. 285). Furthermore, if teacher educators engage their practice with the assumption that beginning science teachers are rhizomatic, multiplicitous, and becoming-teacher (Marble, 2012), I wonder (and am excited to imagine) how beginning science teachers might teach differently and in more socially just ways. One example of this is how “rhizomes and lines of flight escape structures that would seek to capture and reterritorialize them” (Bazzul & Kayumova, 2015, p. 4). Given that beginning science teachers navigate a system built to categorize, sort, indoctrinate, and “reproduce the rationality of social control and class dominance” (Giroux, 1980), the work to undo the subject becomes a critical ethical endeavor.

By providing a rhizomatic ontology from which to start examining the beginning science teacher, Deleuze and Guattari alongside a feminist post-structural perspective enable elementary

science teacher educators and induction researchers to enact an ethicopolitical commitment by asking: How might we engage the preparation and education of beginning science teacher as nomadic or following lines of flight?

### **Summary of Chapter Two**

The heaviness of the educational system is apparent. For teachers to *want* to stay in the classroom, space-time must be made to meet the personal and professional needs of beginning science teachers. In this chapter, I demonstrate that for thoughtful, passionate teachers to stay, policymakers and school leaders must shift their ideologies and practices from mechanistic modes of control to engage the induction experiences of beginning science teachers as a deeply personal, delicate, and complicated phenomena. In addition to looking at what scholarly literature currently tells us about the experiences of beginning science teachers, I provide new lines of flight, in the form of questions, needing further exploration. By challenging ways language, discourse, power/knowledge, and conceptions of the subject influence beginning science teachers, we see how these dilemmas also open-up new worlds (Roy, 2003). The next chapter provides a thorough examination of how two more dichotomies (i.e., ethnography and post qualitative research) set up multifaceted looks into the new world(s) of beginning science teacher induction.

### CHAPTER THREE: METHODOLOGICAL FOUNDATIONS OF ETHNOGRAPHY

When conducting ethnographic research, participants, space, time, and the ethnographer are in a constant mode of negotiation. The methodological framework of this study was also under negotiation and ultimately conducted as what I refer to as a '(post)ethnography,' which is always-already in tension with the foundations of conventional ethnographic research. For example, the subsequent chapters of this dissertation (Chapter Four-Ten) inherently work *out of* and *within* the ruins of ethnography in order to do ethnographic inquiry otherwise. Spanning from the field of anthropology to education ethnography is traditionally employed to gain deeper cultural insights into a variety of social phenomenon mediated by expansive historical, epistemological, and political considerations. A conventional goal of ethnographers is "to document the culture, the perspectives, and practices of the people in these settings. The aim is to 'get inside' the way each group of people sees the world" (Hammersely, 1985, p. 152). Alternatively, since this research is not merely a study on and about others, it is imperative to first illuminate the dominant narrative of ethnographic research in order to imagine (and work) my way out of those ruins toward the eventual enactment of the (post)ethnographic study discussed in detailed in Chapter Five. Further, Chapter Three makes the entries and exits of conventional ethnography explicit. In doing so it begins to map a dynamic trajectory of past, present, and future ethnographic research moving from the methodological foundations of ethnography as a conventional qualitative research methodology to the new ontological entry point of post qualitative inquiry. Figure 5 depicts how both methodological paradigms mark a new juncture in qualitative research.

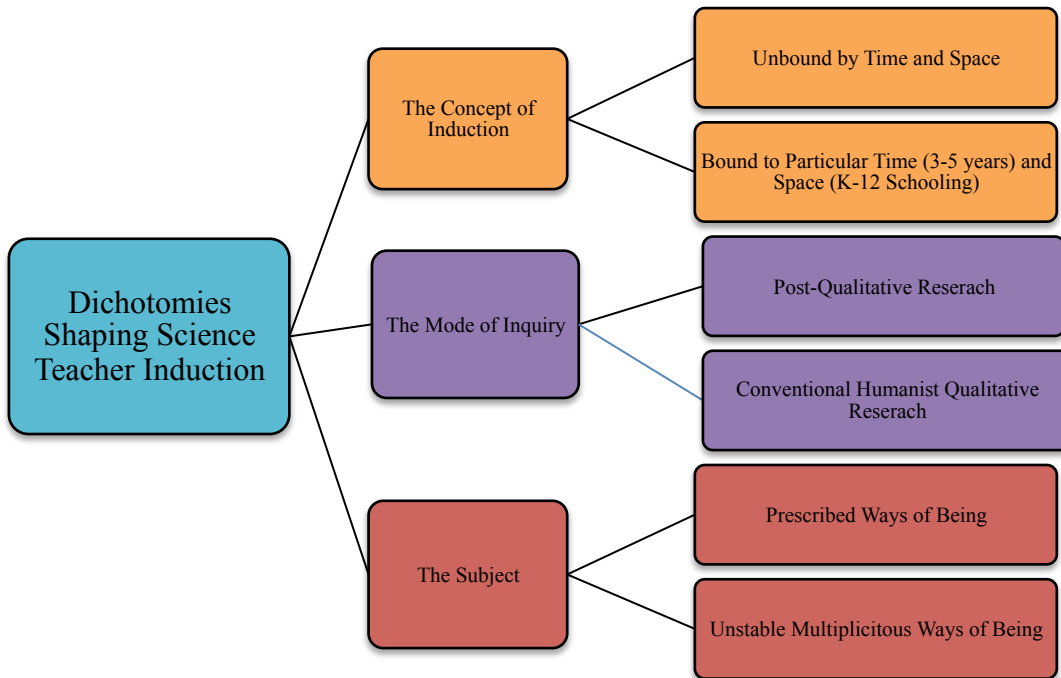


Figure 5: Ontological Dichotomies Shaping Modes of Inquiry in Research on Science Teacher Induction

### Historical Underpinnings of Ethnography

Ethnography originates from comparative cultural anthropology and a goal of understanding primitive cultures (Atkinson & Hammersely, 1994). Many of the earliest ethnographies “were closely linked with colonialism and therefore characteristically involved studies of the ‘other,’ or foreign and exotic social groups” (Reeves, Peller, Goldman, & Kitto, 2013, p. e1367). Tylor (1889) serves as a major jumping off point for the field of ethnography, by looking into questions of human difference. More specifically, Tylor (1889) wanted to understand “groups of men of races most different from our own” (p. 2). Further contextualizing the historical origins were degradation theory and progression theory (Risjord, 2000). Early ethnographers approached their research by studying their subjects from one of these two perspectives. Degradation theory “held that humankind was created in a rough civilized form. Some human groups then fell from civilization, while others maintained or elevated it” (Risjord,



2000, p. 32). Progression theory “held that humanity had progressed from the earliest stages of savagery ...” (Risjord, 2000, p. 32). However, both historical perspectives attained a vision of enlightenment for primarily the ethnographer. In the 1920s, Risjord (2000) asserts that ethnographers shifted from asking questions about “why human groups differed” to “how particular human groups were constituted” (p. 35; e.g., Malinowski, 1967; Radcliffe-Brown, 1922). Ethnographic questions focusing on human difference ground the field in a delicate political space. Risjord (2000) emphasizes, “To put it bluntly: the very question that dominated nineteenth-century anthropology was racist” (p. 46). However, Boas (1904) was one of the few anthropologists that recognized the relationship between moral assumptions about the subject and questions of human difference. Since the rise of egalitarian politics in the early twentieth-century (Risjord, 2000), ethnographic research developed an increasing amount of anthropological studies grounded in moral egalitarianism (Harris, 1968; Herskovits, 1953; Hyatt, 1990; Jarvie, 1964; Stocking, 1968).

In the early 1900s, the Chicago School of Sociology started using ethnography to understand contemporary social problems (e.g., homelessness, immigration) as Chicago became increasingly urbanized (Reeves et al., 2013). Eventually, the methodological use expanded to Los Angeles and New York, simultaneously developing their own schools of thought (Hunter, 2014). Primarily situated in large urban cities, most ethnographic studies in sociology have attempted to shift the field from ‘primitive’ locations to contemporary communities in urban settings. For this line of study Park (1915) began to pave the way by looking into the ways human ecology and city dynamics interact:

[T]he city is rooted in the habits and customs of the people who inhabit it. The consequence is the city possesses a moral as well as physical organization, and these two mutually interact in characteristic ways to mold and modify one another. (p. 578)

Hunter (2014) explains that ethnography provided a way for sociologists to “theorize the complexities of general themes and social problems” (p. 199).

In sociology, urban ethnography is said to be one of the primary ways that the field has stayed connected to the “available world of empirical observation” (Suttles, 1976, p. 1).

Depending on one’s morals and presuppositions, ethnography in sociology (similar to its roots in anthropology) is often divided into two branches of inquiry (Suttles, 1976): normative or situational. The normative approach again focuses on human difference; that is, what is ‘normal’ and what is ‘deviant’ behavior (e.g., Humphreys, 1975). Alternatively, in situational approaches ethnographers “look to contextualize the social world of those deemed deviant, aberrant, or disadvantaged” (Hunter, 2014, p. 200; e.g., Venkatesh, 2008; McCorkel, 2013; Willis, 1977).

While maintaining a historical lineage within the field of sociology, these two stances have reverberations in contemporary modes of ethnographic inquiry as either ‘realist’ (Van Maanen, 1988; Hammersley, 1992) or ‘critical’ ethnography (Thomas, 1993; Madison, 2012).

Willis (1977), in particular, provides an example of how ethnographic studies often move between institutional and informal sites. Focusing on high school boys, Willis (1977) explores how the movements of ‘deviant’ boys between their familial and school communities influenced the (re)production of the working-class in a small industrial town. Consequently, Willis (1977) provides an important starting point for ethnographic research in an educational context. More recently, Eisenhart and Finkel (1998) looked into the ways women do science ‘in the margins’ while continuing to experience forms of gender discrimination. Lecompte (2002) states “over the past 40 years, ethnographic research has irrevocably changed awareness of how schools operate

in culture and society” (p. 283). From these educational accounts, we begin to see how ethnographic studies have helped move the field of educational research beyond behaviorist understandings of learning, students, and schools toward an increasingly sociocultural account (Lecompte, 2002).

Anderson (1989) describes the roots of critical ethnographic inquiry in education as the merging of two distinct lines of thought; that is, epistemology and social theory. Rist (1982) described the methodological movement as an attempt “to break out of the conceptual cul-de-sac of quantitative methods” (p. 8). In some sense, this intent remains true today. With Cusick (1973), Henry (1963), Ogbu (1974), Rist (1973), Smith and Geoffrey (1968), Smith and Keith (1971), and Wolcott (1973) serving as the roots of ethnography in education, many educational researchers found exemplars for developing more imaginative opportunities for inquiry (Anderson, 1989). However, many of these studies and others taking place in the 1970s and 1980s were tied to a realist ethnographic standpoint. Methods of data collection during this time were simply “descriptive, oriented at making known to outsiders hitherto unstudied social processes and group dynamics” (Lecompte, 2002, p. 285). With the rise of critical perspectives in education (Apple, 1978; Lather, 1986), ethnography began to move and work toward a more democratic and emancipatory modes of inquiry.

### **Epistemological Underpinnings of Ethnography**

While realist and critical ethnographers often enter from two opposing ontological viewpoints, both modes of inquiry often seek rich and holistic insights into people’s worldviews, actions, and nature of the spaces they engage (Hughes, 1992). These underlying goals begin to represent the epistemological standpoints and tools that ethnographers develop in an attempt to know, name, and interpret the social phenomena in which they engage. Furthermore, as either a

realist or critical ethnographer, the epistemological tools (i.e., types of data, modes analysis, etc.) become entangled in the ways one collects, examines, and makes decisions about their study. Realist ethnography claims to work objectively, often working from a third-person perspective, narrating “the facts,” and ultimately has “the final word on how the culture is to be interpreted and presented” (Creswell, 2013, p. 92). Alternatively, critical ethnographers are typically politically minded and attempt to “[empower] people by giving them more authority, challenging the status quo, and specifically studying issues of power, empowerment, inequality, inequity, dominance, repression, hegemony, and victimization” (Creswell, 2013, p. 94). Depending on the epistemological standpoint from which an ethnographer constructs meaning, each epistemological tool or touch point can, and often will, work differently.

Even as I moved forward in writing, it became difficult to fully speak on behalf of both realist and critical ethnographic stances. Enmeshed in my explanation was my leaning toward a critical account of methodology employed in ethnography. This brief moment of self-reflexivity is also representative of how researchers’ values and beliefs inherently get wrapped up in the work of ethnography (Finlay, 2002). Consequently, many ethnographers tend to be deeply connected to the field site(s) and the study’s participants.

The personal nature of ethnography is also connected to the underlying premise of ethnographic research. Ethnographers seek to understand, explore, or examine the authentic day-to-day realities of a specific community. Hammersley and Atkinson (1995), Wolcott (1987, 1994, 2008), and Fetterman (2010) demonstrate the analysis of ordinary settings in an attempt to clarify lifestyle and cultural patterns. To get an insiders perspective on how things and ideas function, a variety of inquiry and data collection strategies are often used.

## **Study Design**

One of the first and most important steps in the ethnographic process is the selection of participants and/or field site(s) (Lecompte, 2002; Mackenzie, 2006; Reeves et al., 2013). This decision also becomes a question of whether the study should be aimed at breadth or depth. Depending on the goals of the study, participants can be selected opportunistically or purposefully, with the latter being preferable (Atkinson & Pugsley, 2005). While traditional ethnographic field sites were bounded to a single place, Lecompte (2002) and Marcus (1995) explain the use of multiple locations as valuable and representative of contemporary shifting social worlds. Depending on the guiding, yet fluid, research questions, field site selection might begin in one particular place and extend in multiple directions and levels. However, Delamont (2007) reminds us that ‘the field’ is “metaphorical: it is not a real field, but a setting or a population” (p. 206). Moving from formal sites to informal spaces can enhance the level of spatial description contextualizing the study’s social activities.

Beyond decisions about physical space, one of the other markers of ethnographic inquiry is the extended duration an ethnographer is involved in data collection. Ethnographers usually remain connected to a field site(s) for at least one year and often extend into multi-year studies to develop a rich, ‘thick description’ (Geertz, 1973). With that said, a common discourse that circulates throughout ethnographic work (mostly in anthropological settings) is a cautionary note to avoid ‘going native.’ Delamont (2007) describes “going native” as “abandoning the researcher perspective and adopting the views of the actors in the setting” (p. 212).

## **Data Collection**

To gain a holistic perspective of a community or participant’s experiences, ethnographers often draw on multiple resources as helpful data points. However, one key methodological

approach in ethnography is participant observation, also referred to as ‘fieldwork’ (Delamont, 2007). According to Denzin (1989), participant observation is “a field strategy that simultaneously combines document analysis, interviewing of respondents and informants, direct participation and observation, and introspection” (p. 157-158). This essential element in data collection works to situate the ethnographer as an insider, but also maintains some degree of distance from the community. Through participant observation, the ethnographer “cannot and should not attempt to be a fly on the wall. No field researcher can be a completely neutral, detached observer” (Emerson, Fretz, & Shaw, 2011, p. 4). Participant observation demands a fully present researcher that engages in the day-to-day realities of the individuals in the community. Researchers might approach their positionality as a participant observer along a continuum ranging from complete participant to complete observer (Pope, 2005). However, while some ethnographers might approach their entire study from one of these stances, the nature of ethnography makes it very difficult to enact just one role in any one moment. For example, when conducting participant observation in one’s home, Hoodfar (1994) likens the construction of the ethnographer-self to a schizophrenic experience.

With participant observation being one of the most characteristic components of ethnographic inquiry, the second is writing up field notes (Emerson et al., 2011) that attempt to capture the observations, feelings, and conversations experienced. When conducting fieldwork, it is crucial that ethnographers make jottings (Emerson et al., 2011) as a way to begin capturing significant moments, patterns, or disruptions taking place at the field site(s). Jottings tend to look like rough nonsensical notes, but to the ethnographer, these scribbles play an important role in the writing-up of the more formalized field notes (Emerson et al., 1995). At times ethnographers will even develop their own personal shorthand language for note taking (Burns, 2000). describe

Personalized shorthand can actually have dual purposes: “Abbreviations and symbols not only facilitate getting words on a page more quickly; they also make jotted notes incomprehensible to those onlookers who ask to see them and, hence, provide a means for protecting the confidentiality of these writings” (Emerson et al., 2011, p. 35). As ethnographers move from taking jottings in the field to formalized field notes away from the field site(s), there is often a rush to simply ‘get things down.’ Throughout the writing process, field notes are expected to be increasingly detailed, descriptive, reflexive, and often recreate important moments of dialog (Emerson et al., 2011). Field notes serve as a key data point in ethnographic research.

To extend and account for the ways meanings and discourse circulate beyond a physical space, ethnographers also often incorporate a variety of additional data sources. Including, but not limited to, informal conversations with participants, semi-structured in-depth interviews with participants, media reports, and cultural artifacts (Spradley, 1980). These additional data sources work to contextualize and develop a comprehensive understanding of the individuals implicated in a particular situation or community. Participant interviews can be approached from two angles: (a) discussing a particular topic being explored, and (b) seeking insights into participants’ explanations for their everyday social life (Reeves et al., 2013). Furthermore, ethnographers often also draw on life histories of study participants in an attempt to seek understanding beyond the time spent within the field. Cultural artifacts can be a variety of materials ranging from emails, lesson plans, local newspapers, historical photographs, or curricular materials. By collecting material artifacts, ethnographers seek to use the non-oral and textual discourses to better understand how the non-verbal realities circulating within and through participants or a particular community. These diverse modes of data collection influence the historical, political,

economic, and environmental influences of providing a holistic account of and for a specific community (Fetterman, 2010).

### **Prevailing Modes of Analyses**

Ethnographers collect mounds of data. It is easy for ethnographers to become overwhelmed when trying to organize and make sense of the data collected, as this process does not always happen in a sequential, organized fashion. For example, Delamont (2007) states, “the research does not proceed in a straight line, but in a series of loops, because each step leads the researcher to reflect upon, and even revisit, earlier steps” (p. 211). There are many moments of the research process that happen at the same time. Quite different than positivistic inquiry where participant experience is often sorted and interpreted as isolated variables, ethnographic analyses are very messy. Ethnographers do not view this a problematic, but rather depictive of social interactions. However, the prevailing modes of analysis are mostly grounded in humanist, rational, empirical traditions with a constant attempt to develop concrete patterns of social phenomena. Resultantly, many ethnographers have found ways to ‘tidy-up’ data through systematic modes of coding data as a means of building trustworthiness, validity, and reliability. Not only does this step in the research process develop legitimacy and intelligibility of the method, but it also improves the readability for those outside the field.

Historically, the tidying-up of ethnographic data has gone through a fair share of shifts from inserting quantitative methodologies to heavily relying on a reflexive relationship with the data. In either approach, triangulation occurs across data sources. Denzin (1970) describes four types of triangulation: data triangulation, method triangulation, investigator triangulation, and theory triangulation. Inevitably, each approach illuminates different possible meanings or patterns for a particular social phenomenon.



However, one of the most commonly used approaches to field note analysis is a series of thematic coding. Coding strategies use organized themes to tell a story of the observed social world (Emerson et al., 2011). When coding, the ethnographer moves through their field notes line-by-line, paying close attention to the events and people represented in the data. During this step the ethnographer starts slowly develop through, fluid codes, or tags; this is called “open coding” (Emerson et al., 2011). As more layers of open-coding are completed, the ethnographer moves away from a “discovery” (Charmaz, 2001, p. 335) mindset to a more analytical perspective. In this sense, the data analysis is both inductive and deductive (Emerson et al., 2011), and thus leads to analyses that often fold onto each other. To keep coded definitions consistent, ethnographers will often develop codebooks and memos (Strauss & Corbin, 1990) that include ethnographers’ detailed descriptions of a particular theme or code. Throughout this process, ethnographers are expected to push themselves to closely examine the processes shaping a particular social phenomenon, rather than working to understand why.

Eventually, these codes and representative data examples serve as points of entry for theoretical analyses. While the ethnographer may remain in the field, traditional realist analyses expect the ethnographer to write in a space that talks about the Other (Hegelund, 2005). This type of positioning has become a point of contention for many contemporary ethnographers (Cant & Sharma, 1998), as it continues to represent impressions of the historical, anthropological lineage. Many critical ethnographers use reflexivity to combat and raise awareness of one’s inherent biases and participation in the research process. Foley (2002) describes the ethnographic turn toward reflexivity through four dominant modes: (a) confessional, (b) theoretical, (c) textual, and (d) deconstructive. This move not only attempts to escape old scientific accounts of

social worlds but also ethically account for the ways power infiltrates the doing and writing of research.

### **Political Underpinnings of Ethnography**

Ethnography pushes the boundaries of research. While this can lead to a variety of innovative and new possibilities, it also produces a tenuous and complicated reality for ethnographers to negotiate. I have organized this section into two overarching concepts; the first looks at how ethnography works against traditional modes of knowledge production and the second focuses on the messiness of writing-up one's experiences. While both are presented separately, these ideas continuously interact, pushing the ethnographer to make complicated decisions about the study.

### **The Discourse of 'Knowing' the Educative Experience**

The field of educational research is traditionally grounded in objective, rational, and scientific accounts of social phenomena. Many feminist scholars reject this stance as it embodies a particular set of dominant ideologies that position anyone (and their inherent social world) within an epistemological framework that reifies research and knowledge informed by white supremacist capitalistic patriarchal ideology. Crasnow, Wylie, Bauchspies, and Potter (2015) describe how some scholars even "reject the conviction that social research must conform to models of natural scientific practice on the grounds ... that [these] methods entrench 'ruling practices' ... that reproduce the categories of dominant ideology and obscure devalued or subordinate perspectives" (p. 29). In a sense, critical ethnography is one form of resistance toward this particular ideology dominating the discourse on education and educational research. Lecompte (2002) asserts,

[Ethnography's] increasing legitimacy in educational research has de-centered both experimental design as the only legitimated form of investigation, and positivistic epistemology as the dominant source of canonical authority in educational research. As it provided an epistemological alternative to the prevailing research canon, ethnographic design made it possible to question received truths and to ascertain whether or not what appeared to be societal consensus...in fact, that apparent consensus was the product of hegemonic ways of looking at the world. (p. 284)

Rather than objectifying social phenomena to isolated variables able to be scientifically tested, ethnography helps researchers gain a more nuanced look into human and non-human engagement.

### **The Complexity of Writing-Up**

One of the most delicate processes of ethnography comes when the ethnographer must move from fieldwork to writing about the field. While the language used to depict and examine the authentic experiences of research participants is important, the very process of negotiating what counts (and what can be used) as data can also become quite fuzzy. Navigating the blurred spaces between 'research' and 'reality' is frequent and often difficult for ethnographers. With that said, it is also easy for ethnographers to implicitly revert to realist ethnography or Othering as a means of analysis. Waquant's (2002) critique of three contemporary ethnographers demonstrates the political repercussions when writing-up accounts of others. Blinding issues of race, class, power, and disregard for the ethnographer's own positioning in unique situations of legality are common critiques (Waquant, 2002). Resultantly, "The ensuring 'crisis of representation' (Marcus & Fischer, 1985, p. 7) has induced deep epistemological, methodological, and ethical self-questioning" (Conquergood, 1991, p. 179). Ethnographic research maintains remnants of a colonial past and diligently calls ethnographers to decolonize the white space in urban ethnography (Rios, 2015). Thus, Rios (2015) demands ethnographers to enter the research process as a multiplicity stating,

We should strive to develop multiple knowledge from multiple vantage points about the multiple realities that our participants live in and experience; reflect critically on our privileges as knowledge producers, narrators, and theory creators; and develop research with a purpose, that is translational and aims to improve the conditions of the populations we study, without perpetuating a neoliberal savior complex. (p. 260)

### **The Ethical and Moral Engagement**

Many ethnographies include explicit details of participating in and observing illegal activities (e.g., Humphreys, 1975; Venkatesh, 2008) or often position the ethnographer in the midst of moral dilemmas. Furthermore, due to the personal and intricate nature of participant observation, ethnography has been compared to a form of torture (Goffman, 1989; Whitehead, 2012). Goffman (1989) describes the corporeal nature of field work:

It's one of getting data, it seems to by subjecting yourself, your own body and your own personality, and your own social situation, to the set of contingencies that play upon a set of individuals, ... so that you are close to them while they are responding to what life does to them. (p. 125)

Knowing whether to speak up, or be complicit in activities in which one might not otherwise participate makes for challenging negotiations on behalf of the ethnographer. An ethnographer must be aware of how oneself might inherently disrupt the space or moment due to outsider status.

### **Possibilities and Limitations of Ethnography**

Depending on what ontological and epistemological assumptions one works from, an individual is likely to raise different concerns about the practice of ethnography. For example, researchers from traditional positivistic perspectives would see the reflexive element of contemporary ethnography as a significant limitation. However, if a researcher is coming from a

critical lens, this reflexivity is one of the strengths of ethnography. The following three main threads of ethnography could be viewed as both limitations *and* possibilities of ethnography: (a) the nature of the methodology, (b) navigating the self, and (c) integration of theory.

### **The Nature of the Methodology**

Depending on the size of the ethnographic study (i.e., number of participants or sites), it is likely to receive criticism for its generalizability to large data sets. Alternatively, for many ethnographers, this is not the goal. The primary aim for ethnographers is to provide detailed and culturally specific accounts for the social construction of a particular community's norms and truths. This perspective does not often appeal to policy-makers as they are "accustomed to experimental research and results expressed in tables of numbers, ethnography seems to lack rigor, since it lacks experimental controls and fails to generate the 'reliable and replicable' results too often required as the only hallmarks of legitimacy" (Lecompte, 2002, p. 286).

### **Navigating the Self**

In more contemporary ethnography, self-reflexivity is a core element in producing socially just analyses of the participants within a study. In an attempt to unveil potential hidden biases, the ethnographer strives to be acutely aware of their influence on the data collected and consequentially analyzed from outside the field. However, this constant negotiation of the self in relation to an insider/outsider binary alongside the stress and anxiety of constantly self-monitoring weighs on the ethnographer (Caputo, 2000; Chaudhry, 1997; Coffey, 1999; Hastrup, 1987, 1992; Jackson, 1987; Kondo, 1990; Stack, 1996; Strathern, 1987; Visweswaran, 1994). Youngblood-Jackson (2008) describes how the maintenance of a split subjectivity can produce forms of pleasure and "certain freedoms in the research process" (Youngblood-Jackson, 2008, p. 40). The ethnographer's awareness of their shifting subjectivity is crucial to navigating the

ethnographic process, but it might also be seen as significant limitation by positivistic researchers who strive to remove subjectivity from the very concept of social science research. From this point of view, the work of an ethnographer might be critiqued as merely one person's opinion of the social phenomena.

### **Integration of Theory**

As ethnographers craft the writing-up of the actual ethnography, theory plays a central role in the analyses. Lecompte (2002) asserts, “Failing to make good use of theory makes data collection vague and fuzzy and rigorous analysis nearly impossible” (p. 286). A common practice in writing up the ethnography is to situate the observed event into the macro and micro-theoretical discourses. By wrapping the data with theoretical analyses, critical ethnographers attempt to situate the local conversations in broader theoretical discourses. In this way, theory can help ethnographers carve out new spaces to not only liberate the subject and field site but also support researchers to go in deep (Jackson & Mazzei, 2012). Again, depending on the lens in which one makes assumptions about the purpose(s) of research, many individuals might not see the use of theory as helpful for producing practical implications.

### **Post Qualitative Disruptions**

Post qualitative inquiry is another move for qualitative methodology (Lather & St. Pierre, 2013). Lather and St. Pierre (2013) describe this mode of thinking-being as a “turn to ontology and how it might take us to some place of the ‘always-already’ that is neither too late nor too soon” (p. 629). Drawing on philosophical concepts from several continental philosophers (e.g., Foucault, Deleuze & Guattari, and Derrida) and new materialist perspectives (e.g., Barad, 2007; St. Pierre et al., 2016), post qualitative inquiry works to “keep meaning on the move” (Jackson & Mazzei, 2012, p. 7).

Rather than resorting to traditional thematic coding often used to finalize or tidy-up ethnographic studies, post qualitative approaches help to constantly re-shape the data (Jackson & Mazzei, 2012). By relying heavily on theoretical perspectives, post qualitative studies work to complicate, rather than clarify. The undertones of post qualitative work seek to disrupt and reject ways that positivistic and humanist traditions are grounded in a knowledge-seeking endeavor. Post qualitative researchers, instead, work to re-form and re-consider the very core of knowledge and being in education differently.

Lather and St. Pierre (2013) help us to dive into the new *types* of questions made possible by turning toward inquiry grounded in ontology rather than epistemology:

If we give up the scientism of positivist social science, we can no longer think many descriptors we believe we need to guarantee the value and rigor humanist qualitative inquiry- for example, systematicity, process, audit trails, the clarity of language, value-free knowledge (objectivity, bias), the accumulation of knowledge, triangulation, coding data, and *data itself*. Without these, how do we know that what we are doing is science? Does it matter in the new mattering? And who gets to define science anyway? The natural sciences seem to be telling us it has always been about entanglement. Perhaps we are behind and need to catch up! (p. 630, emphasis original)

Post qualitative inquiry works to un-make the human subject as we currently ‘know’ it. This can be a daunting and exciting endeavor. Mazzei (2013) assists qualitative researchers to re-think the nature of the voices collected in traditional participant interviews “not as a method but triggers to new assemblages” (p. 738). Researchers might re-conceptualize the traditional modes of data collection as an essentializing process which work under practices that “[sort] and [group] data that appear to be similar by considering the mangle of practice between human and non-human entities” (Youngblood-Jackson, 2013, p. 742). At the same time, conventional researchers are cautioned that the desire to produce order and clarity only works to (re)produce normalizing

privileged identities and remove any difference that inherently exists (St. Pierre, 2000). Whereas the dominant mode of ethnographic analyses is grounded in conventional humanist coding traditions, post qualitative inquiry disrupts this as even an ethical possibility. Resultantly, ethnographers are forced to completely re-configure the ontological and epistemological perspectives from which they assume the social world to be and vision for what it ought to become. St. Pierre (2014b), drawing on Foucault, asserts “Perhaps we could be-do-live something different. This is the agency, the freedom of the posts, to ‘refuse what we are,’ what we do, the world we create” (p. 5). It is in this agency, to re-imagine how ethnography(ers) might be-do-live something different that post qualitative inquiry disrupts.

### **Summary of Chapter Three**

From anthropology to education, ethnographic methods have and continue to provide an in-depth look into the diverse and community-specific ways individuals become. More than just providing background on traditional ethnographic practices, Chapter Three depicts the dominant methodological strand of conventional qualitative research; while also considering space for a new ontological dichotomy, post qualitative research. By focusing on the methodological foundations of ethnography from a humanist ontology and entrée into post qualitative research, Chapter Three is used as the jumping off point for something new. Before examining the next ontological juncture more closely in the experiences of two elementary science student teachers in Chapter Five, Chapter Four provides a glance into a preliminary inquiry that scaffolded the possibility for a more extensive study on beginning science teacher induction. Chapter Four depicts my first ‘real-world’ application of many ethnographic practices explained in Chapter Three.



## CHAPTER FOUR: A PRELIMINARY INQUIRY

This chapter provides a preliminary glimpse into my first experience conducting ethnographic work. The pieces that follow are merely slices of critical moments marking the beginning of an ethnographic endeavor in one particular school district located in Southeastern Louisiana during the semester of Fall 2015. When charged to initiate an ethnographic project in a graduate course in the Department of Sociology graduate course, I chose to focus my interests on the experiences of beginning science teachers. As my ethnographic project unfolded over the course of the semester, so did my research questions. The very trajectory of the research presented in this chapter illustrates my negotiation of what it meant to be an ‘ethnographer’ and more broadly be a ‘researcher’ for and with beginning science teachers prior to the formal ‘start’ of my more larger dissertation research.

From field note excerpts to basic statistical representations of demographic information, this chapter begins to exemplify the delicate ontological boundaries inherent in writing up an ethnographic account. Interestingly, the preliminary inquiry discussed in this chapter did not produce any findings, as I have come to understand that seeking results is often not my primary objective regardless of the project. Instead, the study opened up onto-methodological possibilities that have resulted in the central movements and foci within my larger research study of beginning science teacher induction explained in-depth throughout Chapters Five through Ten.

### **Overview of Preliminary Study**

Gaining an authentic understanding of somewhere and someone is difficult, or more accurately, an impossible endeavor. This seems to be particularly challenging within the institution of American schooling; yet, we (i.e., researchers) regularly try to ‘pin it down,’ name

it, and (re)produce fixed ‘known’ conceptions of it, whatever ‘it’ is. This preliminary study, instead, engaged the moments of difference as points of epistemological and ontological possibility for becoming-science teachers, becoming-researchers, and becoming-teacher educators (Deleuze & Guattari, 1987). My inquiry into the ways institutional culture, discourse, space, and humans (i.e., specifically science teachers) be and become intended to ignite a re-imagining of dominant modes for ‘knowing’ the beginning science teacher.

To do so, this study attempted to expose and offer educators an alternative point from which to engage the induction experiences of beginning science teachers; that is, from a non-linear, rhizomatic (Deleuze & Guattari, 1987) ontology. Furthermore, by rejecting objective, rational and scientific analyses that seek to know, name, and normalize the beginning science teacher and their experiences, I challenged myself and educators to unknow (Biesta, 2013), re-conceptualize, and re-imagine the ways *method* also constrains the ways I am expected to know the humans and personal experiences implicated within this study. To demonstrate this, I began to move between diverse ways of interacting with the data in this preliminary study: (a) thematic coding approach (Emerson et al., 2011) and (b) plugging theory and data into each other (Jackson & Mazzei, 2012). This particular ethnographic inquiry was loosely guided by the prevailing assumption that one normative form of a ‘beginning science teacher’ exists and can be fully known, understood, and (re)produced. My preliminary study aimed to complicate this particular conception embedded in many educational researchers’, teacher educators’, and teachers’ underlying assumptions that infiltrate the practices they enact. More specifically, I engaged the following preliminary research questions to expose new onto-epistemological (Barad, 2007) possibilities for the beginning science teacher:

- 1) How did institutional culture work on the subjectivities and practice of beginning science teachers?
- 2) How did beginning science teachers internalize the induction experience of becoming a science teacher?
- 3) In what ways were beginning science teachers' assumptions of what it meant to 'know science' constructed and employed in their practice?

### **Limitations of Language**

In this preliminary study, I employed familiar dominant terminology often used when conducting ethnographic research with great difficulty. For example, 'field work,' 'field sites,' 'participants,' 'suburban,' and 'urban' are often presented as fixed and isolated, yet I saw them as the exact opposite. Bridges-Rhoads (2015) contends that my tension, or feelings of "writing paralysis" is not uncommon among qualitative researchers informed by post-structural theories (p. 704). Derrida (1992) asserts, "as soon as there is language, generality has entered the scene, and the idiom compromises with some that is not idiomatic..." (p. 200). Like Bridges-Rhoads (2015) demonstrates and Richardson and St. Pierre (2005) describe, I engaged writing also as a form of inquiry. In this preliminary ethnographic research and larger study "I ... use writing to disrupt the known and the real" (Richardson & St. Pierre, 2005, p. 967).

Even as I resist certain labels of the actions enacted in this study, I continue to utilize, while also reify, the very terminology I simultaneously so strongly want to disrupt. It is my hope that this study exemplifies the ways I actively worked/lived in "the threshold" (Jackson & Mazzei, 2012, p. 6) even prior to conducting the larger study presented in subsequent chapters. Within this positionality, I wrestled with the ways we are obligated to work with the "resources

of the old language, the language we already possess and which possesses us. To make a new word is to run the risk of forgetting the problem or believing it solved” (Spivak, 1974, p. xv).

### **Mode of Inquiry**

To gain insight into the ways beginning science teachers make sense, implicitly and explicitly, of their practice and subjectivity I utilized two ethnographic methodologies. Given that this preliminary inquiry was focused on the early stages of initiating an ethnographic study, this chapter provides a unique and concentrated look into the ways I began to navigate my scholarly interests within an authentic public K-12 school setting before moving my focus to examining teacher education as also a form of induction.

While most research analyzes the phenomena after gaining formal approval to conduct research, the examination of my fieldwork for this particular project began during the formal approval process. More specifically, the brief initial twenty-four hours of field work represented in this chapter included four critical events: (a) gaining school district approval to conduct research in this particular parish; (b) getting assigned participants by the school district; (c) meeting the assigned participants; (d) observing one class and one school day with each participant; and (e) participating within a district-wide professional development session.

### **Data Collection**

Given the short duration of my preliminary inquiry, I drew many of my insights from my initial participant observation and informal conversations with the two beginning science teachers. My decision to study the particular parish in which these two teachers worked was based primarily on logistical convenience; however, my connection to the parish and field sites were a bit deeper given that both of the participants, Ms. Ister and Ms. Roberts, worked at school campuses located in the small suburban city where I currently live. My connection to this city,

emerging awareness of its complex racial history, and city discourse on education surrounded my formal inquiry, regularly re-surfaced in my thoughts and experiences even when I was not ‘doing research’ or participating in ‘field work.’

**The people.** The data collection and analysis on beginning science teacher subjectivity began long before I even *got* to meet the teachers who participated in this study. The participant selection for this work was quite literally taken into the hands of the school district leaders. Even as I wrote about how participant selection unfolded, I resisted my instinctual drive to call Ms. Ister and Ms. Roberts, *my* participants. Given that school district leaders *assigned* Ms. Roberts and Ms. Ister to me for my research project, looking back at the process now, it appeared I, unknowingly and knowingly, was forced into an ideology of ownership over Ms. Ister and Ms. Roberts. Moreover, this first initial move on behalf of the school district severely limited the possibilities to develop a close and authentic relationship with Ms. Ister and Ms. Roberts, and the school district more broadly.

**Ms. Ister.** Ms. Ister was a self- and district-identified beginning science teacher. At the time of the study, she was about 23 years old, White with long fiery red hair and freckles, recently engaged, a recent college graduate, and taught ninth and tenth-grade science at Northgate High School. While in college she earned a Bachelors degree in Biology and a concentration in Secondary Education from a local four-year university. Like most of her students, Ms. Ister grew up in the city where she worked at the time of this study. In fact, she attended all of the same feeder schools (i.e., elementary, middle, and high school) as the Northgate students she taught. Ms. Ister and her fiancé were in the process of buying their first home in a neighborhood that was zoned for Northgate.

When Ms. Ister taught and interacted with her students, she attempted to begin from a place of humility and honesty. In every moment Ms. Ister tried to be entirely open with her students regarding just about everything from buying her first home to her wavering confidence in content knowledge. Ms. Ister was enthusiastic, confident, understanding of individual student needs, flexible in her instructional decisions, and comfortable within her current school culture; yet, she refused to tell her students she is in her first formal year of teaching.

**Ms. Roberts.** Ms. Roberts was a self- and district-identified beginning science teacher. At the time of the study, she was about 40 years old, Black with red tinted hair and freckles, in her twenty-third year of formal teaching experience, and commuted thirty-five minutes from the large urban city nearby to the elementary school where she was employed each day after dropping her daughter off at daycare. Ms. Roberts holds a Bachelors and Masters degree in Elementary Education, and was amidst many new experiences. At the time of the study, it was Ms. Roberts' first year teaching third, fourth, and fifth grade science, her first year in the Sumner school district, and her first year working at Kallen Elementary. Before she began employment at Kallen Elementary Ms. Roberts taught pre-kindergarten through second grade for two years, kindergarten for ten years, first grade for five years, third grade for two years, and previously worked in the role of 'Master Teacher/Instructional Coach' for three years.

A mass-produced science curriculum manual, *Interactive Science*, comprised of teacher instructions and a student workbook informed Ms. Roberts' instructional practice. Ms. Roberts shared early on in our meeting that she "performed five days a week no matter who was or was not in the classroom." Her lesson and curriculum sequence was well-organized and strategically attempted to follow the teacher textbook manual on a weekly basis. Ms. Roberts remained

reserved and private in many of her interactions with students, colleagues, and the school principal; yet she was open to sharing her identity as a beginning science teacher.

**The places and spaces.** To describe the field sites, from which I drew meaning, I include two different perspectives of the places and spaces I encountered in my research from both a personal and impersonal account. The first account draws on public descriptions of the sites, while the second are excerpt(s) from my field notes. By describing each location in this way, I aim to demonstrate how the two discourses ran side-by-side and also interacted.

***Sumner Parish School District.*** Sumner Parish is one of the largest parishes in the state of Louisiana, with a population of 245,829, and the associated school district is responsible for all of the public schools within the parish. The U.S. Bureau of the Census (2014) describes the racial demographics for the entire parish as 84.3% White, 12% Black, 0.6% Native American, 1.4% Asian, 0.1% Native Hawaiian or Other Pacific Islander alone, and 1.6% two or more races. Furthermore, 88.4% of the parish population has received a high school degree or higher, while only 33% has received a bachelor's degree or higher (U.S. Bureau of the Census, 2014). When looking specifically at the parish school district, the student demographics proportionally resemble the entire parish population. The school district employees and parish residents both pride themselves on having one of the highest ranked public education systems in the state. The following text is an excerpt from my field notes about Sumner Parish School District.

I arrived at the school district office and found myself quickly reminded of the 'visitor' protocols present in public educational settings. As I walked up to the automatic glass doors I noticed a bulletin board, which I thought listed different office numbers, so I took a glance trying to look up the Assistant Superintendent's office location. Apparently, I appeared lost and as if I did not belong, because a White woman in her mid-forties or fifties asked: "Can I help you with something?" I responded, "I'm here to meet with Dr. Sallendar." The women directed me to check in at the front desk and then explained that I could find Dr. Sallendar's office on the third floor. As I entered the automatic glass doors

into the shiny new building, I was immediately greeted by a receptionist, again it was an older White woman in her sixties with brown hair down to her shoulders. Before I could find my way through the remaining part of the district building I had to provide the receptionist with my driver's license so that she could properly check me into their computer tracking system. I received an adhesive nametag that displayed a copy of my driver's license. Similar to my days as a classroom teacher I remembered that 'visitors' were expected to wear this nametag for the duration of their visit at the school. The Sumner district headquarters were no different. The receptionist instructed my route to Dr. Sallendar's office,

BUILDING ENTRY RECEPTIONIST: You'll take the elevator up to the third floor; turn right and then turn left and Dr. Sallendar's receptionist will tell you when you can speak to Dr. Sallendar.

MARIA: Oh okay... How do I get to the elevator?

BUILDING ENTRY RECEPTIONIST: Just go down the hall back here (pointing behind her) and then turn right.

As I navigated my way through the spotless building, I quickly noticed that every single room facing a hallway or corridor was made of floor-to-ceiling glass walls. I could see into every conference room, and office lining my route to Dr. Sallendar's office, and, in turn, every individual in those spaces could see me apprehensively finding my way throughout the building. Even the elevator walls were made of completely clear glass.

Once I entered the glass door to the Dr. Sallendar's office waiting area I was instructed by her receptionist (another White woman in her forties) to sit and wait till Dr. Sallendar was ready for me. While I waited, my attention was drawn into a nearby office, since I could see into everyone's office, which had paintings of traditional school buildings from approximately the 1960s professionally framed on the walls. The pictures did not include any landscape design or background around the buildings, only a brick building with columns. It must have been about ten minutes before Dr. Sallendar walked up to meet me.

The following field note excerpt was written after completing my meeting with Dr. Sallendar and initial steps to gain approval to conduct my research in this particular school district.

As I felt the immense weight and gaze of the system, I quickly realized that the goals and vision I had for my research project were washed away. The possibilities and restrictions surrounding my study were drawn and will continue to be drawn by the school district. When I left Ms. Ramsey's office, I proceeded down the glass-lined hallway, past Dr. Sallendar's receptionist, into the elevator (which also had glass walls), and past the receptionist at the front of the building. But before I walked out the front



door I remembered that I needed to check out with the building receptionist, which is also where I had gotten my driver's license nametag when I first entered the building. However, I found it strange that there was a different woman, also White with short dark hair and in her mid-50s, sitting at the front desk than I encountered when receiving my nametag upon arrival. She was just as pleasant and friendly, yet also held a curious look. I found it interesting that 'checking out' actually just meant I had to return my nametag to the building's receptionist so they could throw it away in their personal garbage can. As I walked through the automatic glass doors out of the parking lot to my car, I could feel a weight being lifted off my shoulders. Ironically, I remained tense and felt free at the same time.

***Kallen Elementary School.*** Kallen Elementary was uniquely situated within a rural neighborhood, but at the same time also within the larger suburban Sumner School District. The campus was surrounded by a small sporadic set of dilapidated mobile homes and sat across the street from an active railroad. The newly renovated school campus had a small student population comprised of 216 pre-kindergarten through fifth-grade students and an approximate 13:1 student to teacher ratio. The student demographics included 160 Black students, 50 White students, and less than ten multiracial students (Louisiana Department of Education, 2015) with 93% of students qualifying for free and reduced lunch (AdvancED, 2015a). According to Start Class (2015), 61.1% of teachers hold a graduate level degree, and 83.3% of Kallen Elementary teachers had greater than five years of teaching experience. The school's vision "is to provide young children opportunities in education and leadership previously unavailable to them" (AdvancED, 2015a, p. 3). The following excerpt is from my field note depicting my first visit to Kallen Elementary.

My drive to Kallen Elementary school was both familiar and new. The duration of my drive lasted about eight minutes, and the route included one main road that ran parallel to a railroad track. For the entire length of my drive on the main road, a cargo train followed on the track next me. After going under the interstate that separates the two small adjacent cities, I saw the flashing school zone traffic lights signaling my entrance to the campus. I turned off the main road and was quickly surprised that the only main building on this street was the schools' campus. This campus was tucked away off the main road and brushed up against a small, decrepit neighborhood. The main school

building looked new and updated with a large blue awning that covered the recently loaded set of school buses. I drove curiously past the buses and one small parking lot with signs reserving spaces for the 'teacher of the month' and the 'Principal.' I decided to circle a fenced-in field with an empty playground, basketball court, and large older orange building. As I drove around this block of the campus, I noticed old trucks and cars parked on the lawns of older one-story homes. The only sign of occupants was three tall, slender Black men in their fifties hanging out on the front porch of a mobile home with faded paint. One of the three men was leaning against the porch's post, while the other two sat on the floor. I continued driving around to where I saw a several other cars parked parallel next to a drainage ditch. As I made my way around the playground area, I was surprised by how desolate and rural the space felt. I decided to parallel park behind the other cars and soon noticed a sign in the drainage ditch identifying this location for faculty parking. I figured this was the best place to park my car since it was the end of the day and there weren't any other parking spaces available for visitors. Reviewing my notes and making jottings of my initial impressions of the physical campus community I was surprised by how quiet the space felt for recently completing school-wide dismissal. I gathered my things and approached the front office.

There were no students or families present on campus. Again, the quiet and peaceful nature of the school caught me off guard. I really thought that I would see families picking up their students or interacting with at least the office staff, but this was not the case. The only individuals I encountered were employees of the school preparing to leave campus for the day. I was shocked! Leaving school at 3:30 PM was unimaginable for me when I was a teacher. I wondered if this departure time for teachers was typical.

The main office for the school reminded me of the district headquarters with the floor-to-ceiling glass walls dividing each office workspace. Again, I could see the few employees still working in their offices down the hall, and they could see me waiting for Ms. Roberts and my visitor's badge. Each of the three employees (Principal, Office Assistant, and another woman in an unknown role) present in the office was a middle-aged Black woman. Out of the corner of my eye, I noticed one middle-aged White woman exiting the school campus. The office was oddly quiet.

***Northgate High School.*** Northgate mimicked many dominant conceptions of suburban schooling, yet in their annual report, the school principal describes Northgate as serving a rural population (AdvancED, 2015b). The school was tucked behind a newly constructed neighborhood just down the road from a recently built outdoor shopping and dining development. With 1,509 students, the high school was one of the largest in Sumner's school district. Northgate was recently recognized for having eight students earn the honor of National Merit semifinalists, and maintains a 16:1 student to teacher ratio. The student demographics

included 1,140 White students, 230 Black students, 70 Hispanic students, and 40 Asian students (Louisiana Department of Education, 2015). According to recent U.S. News and World Report (2015), 25% of Northgate students qualified for free and reduced lunch. Furthermore, 50.6% of Northgate teachers held a graduate level degree, and 84.3% of teachers have taught for more than five years. The school's vision was as follows:

The Northgate administration, faculty, and staff, including students, parents and community stakeholders will work together as a learning community engaged in a continuous process of strategic planning, shared decision-making, implementation of research-based learning initiatives, and assessment of student performance to promote high student academic achievement and lifelong learning for all students. (AdvancED, 2015b, p. 4)

The following excerpt is from my field note depicting my first visit to Northgate High School.

I drove about 15 minutes from my house to the Starbucks coffee shop near Northgate before starting my first class observation with Ms. Ister. The Starbucks shop and drive-thru were filled with many Northgate students and their parents. I could tell by the uniforms and identification badges worn by the high school aged students waiting in front of me in line. After getting my coffee, I proceeded driving down the road for about three minutes until I spotted a line of cars waiting to turn onto the street that leads up to Northgate. I thought how different this start to the morning was than Kallen Elementary where most of the students were dropped off by school buses and not by their parents.

After waiting for about 10 minutes in traffic, I found a visitor's parking spot near the front of the school and Ms. Ister's portable classroom. While sitting in my car, I could hear the public announcement (PA) speaker shouting something in the background. I was surprised that the speakers were outside the classrooms so the alerts could be easily spread throughout the outdoor spaces around the campus. As cars continued to flow into the school's main entrance, a line people of parents and students started to build at the front door. Once the line disappeared, I assumed the door to school had been opened to the public. I decided it was time for me to enter the building.

I walked down a narrow hallway that opened up into a large open space that fed into the other classroom hallways. This seemed to be a central hub of the school campus as it was also situated between the front receptionists' office, school library, and had many benches available for visitors and students. The front office was surrounded by large glass windows and had two separate openings for talking with individuals outside the office. The check-in procedures were quite different than my other experiences in

Sumner school district. I told the receptionist that I was a graduate student from LSU here to observe Ms. Ister for my research. The receptionist was a White woman in her forties who directed me to write my name down on a peel-and-stick nametag and then talk with Ms. Bonner in the back of the office about my observation. Two parts of this exchange had caught me off guard: 1) the receptionist did not scan my driver's license like my other check-in experiences at Kallen Elementary and the district's central office and 2) I was questioned about my work and could expect additional questioning about my presence in the school. I walked to the back of the main office to see Ms. Bonner:

MARIA: Hi, I was told to come back to talk to you about doing an observation for my research with Ms. Ister.

MS. BONNER: Oh, umm... well, have you talked with Ms. Young about this?

MARIA: No. I didn't know that I needed to contact Ms. Young. Coretta Ramsey from the district office had identified Ms. Ister for my work, so I thought that was all the approval I needed as she also had handled previous correspondence with school administrators. I have a letter of introduction from the district if you want to see it?

MS. BONNER: Oh yeah! I definitely need that.

MARIA: Ok, well I just have the digital version here on my phone.

MS. BONNER: Can you email it to me?

MARIA: Yes. (I pull out my phone and download a link to the file.) If you type your email here you will get a link to the file. (Ms. Bonner prints the document from her computer.)

MS. BONNER: Well let me see if Ms. Young is here so you can meet with her. Everything goes through her. Usually, you can only observe teachers' who have a Masters degree.

MARIA: Oh well, my research focuses on beginning science teachers, so Coretta Ramsey and Dr. Sallendar put me in touch with Ms. Ister since this is her first year.

MS. BONNER: Oh, so Ms. Ister knows you are coming?

MARIA: Yes. I have visited with her before, but this is my first time doing a class observation.

MS. BONNER: Hold on... Well, Ms. Young is in a meeting right and said to go ahead and do your observation and then meet with her when you are done.

MARIA: Okay, sounds good. (Ms. Bonner directs me to Ms. Ister's classroom down the hall.)

Before making it all the way to Ms. Ister's classroom, I see Ms. Ister talking to another science teacher while the Pledge of Allegiance and Northgate 'Thought of the day' is loudly relayed on the public announcement system.

**Home.** To further complicate the intricacies of this study, I live in the small suburban city and parish where the places above were located. This is significant because while I had physically removed myself from the schools in which I study, I was never fully removed from the discourse that formally and informally circulated throughout my day-to-day reality. These interactions and engagements took form in a variety of ways: (a) the local five-page newspaper that arrived at the end of my driveway every other day and regularly devoted over half of their publication space to local student, teacher, and school news; (b) the high school student across the street who regularly sought school advice and shared her school experiences with me; (c) the parents who asked if their daughter's teacher is doing a good job; (d) the students at Kallen Elementary who played with my dogs in our small neighborhood park; and (e) the constant cultural comparison of this particular to city to the nearby 'crime-ridden' urban city just thirty miles away. While the examples are presented as isolated experiences, they often flooded my attempt to separate 'the field' and my personal/professional reality.

**Spaces.** Beyond the fixed physical domains that surrounded Ms. Ister and Ms. Roberts, there were another set of spaces that influenced the subjectivities and practices of beginning science teachers within a moment-to-moment timeline. These were the in-between spaces that often held a variety of purposes as the definitions for what the role of a space became were constantly in flux. For example, Ms. Ister's and Ms. Roberts' classrooms often shifted between sites for respite while also being a space where pedagogical practices were employed. Other in-

between spaces in this study included: classrooms of colleagues, the hallways, the copy room, the teachers' lounge, the faculty bathroom, the vending machine, and the water fountain. As various people engaged in each of these locations, the discourse and role of these spaces became more complex.

### **Analysis and Preliminary Moments of Possibility**

Before writing up the study I knew I was confronted by the prevailing epistemological paradigm of qualitative research from the humanist tradition and the current ontological turn toward post qualitative inquiry (Youngblood-Jackson, 2013). For that reason analysis included in this chapter and future lines of flight (Deleuze & Guattari, 1987) also represent the tenuous relationship between the known/unknown, subjective/objective, true/false, valid/invalid, and scientific/unscientific binaries that saturate scholarly research.

Drawing on aspects of both methodological paradigms I hoped to also “write to change myself and in order to not think the same thing as before” (Foucault, 1978, p. 240). It is in this space that I use the threshold “both as entries and exits” to “produce something new, something different from mere themes and patterns generated by coding” (Jackson & Mazzei, 2012, p. 6). To pull myself, people, places, spaces, and events in this preliminary inquiry free from Cartesianism, I felt ethically implicated to re-imagine how we *get written* and *write into* the ethnographic story.

In the sections that follow, I present my analysis of one overarching theme (Emerson, et al., 2011) from my preliminary inquiry data combined with my first steps into *Thinking with Theory* (Jackson & Mazzei, 2012) as a mode of post qualitative inquiry. In the threshold of my thematic analysis and analysis via plugging in (Jackson & Mazzei, 2012), I embrace “the meaning and function of data” as dependent “on the meaning and function of a constellation of

other concepts which it is imbricated, for example, the concepts *reality, evidence, warrants, claims, reason, knowledge*, and, of course, *truth*” (St. Pierre, 2013, p. 244, original emphasis).

The first overarching theme describes and examines the guarded and private nature of the public school system in this study. School campuses, individuals, knowledge, and content were all regulated by someone or something. Since participant observation took place across the school district’s organizational levels (e.g., district, a specific school campus, with a specific teacher), I present the data in such a way that it also demonstrates how this regulation behaves differently with respect to its hierarchical positioning. Below I include excerpts from my field notes exemplifying this inherent complexity:

### **District**

The next stage of our conversation transformed relatively quickly as Dr. Sallendar instructed me on how to fulfill the next steps for gaining approval from the district. She explained that there were a series of protocols that needed to be completed to ensure the safety of students and proper introduction to teachers. I was expected to make an appointment with the Human Resources department for fingerprinting and full background check to gain clearance to observe within schools. I was also told that by doing this step, I would be cleared for substitute teaching within the district. Additionally, I was required to apply for a formal letter of approval from the office of the school district Superintendent. This letter of approval was comparable to my ‘passport’ and would allow me to get into the schools where I wished observe teachers. Moving forward I was expected to show my letter of approval when entering different campuses or emailing employees.

Personal and public security in the United States has always been a strategic endeavor. However, this excerpt describes the degree to which the privileged (highest ranked, predominantly White, and highly educated) employees in the district’s central office monitored and maintained the degrees of access to a large body of individuals. The two hours I spent in the central office, as demonstrated within this excerpt, were quite literally a panoptic experience (Foucault, 1977). The district’s series of checkpoints ensured the maintenance of allowing

*certain types of people and projects* to enter the very walls, which confined public schooling in this parish.

### **Kallen Elementary School**

#### **Visit One:**

Before I could get to the front office a petite Black woman with black curly shoulder-length hair met me at the front gate. She wore a white collared shirt with 'Kallen Elementary School' and her name 'Dr. Hardner' embroidered into the shirt. I recognized the name and knew it was the school's principal expecting my visit. Dr. Hardner was friendly, yet reserved. She welcomed me into the school's main office where the front office assistant would scan my drivers' license and officially check me in.

#### **Visit Two:**

...I noticed a White woman in her mid-forties greeting the few cars that were there to drop off students.

...

Public Announcement (Dr. Hardner): "The Art teacher is not here today, so please plan accordingly."

...

One White woman allowed small groups of students to enter the cafeteria for lunch at a time.

My first visit to Kallen Elementary partially paralleled the regulation of building entry seen at the district level into the building and access to Ms. Roberts. From my second participant observation session with Ms. Roberts, I realized the gatekeeper of food (e.g., school breakfast and lunch) and access to school spaces (e.g., student entry into the building) again shifted back into the hands of middle-aged White women. However, while gatekeeping and automation of school procedures remain ever-present at the school level, teachers were often under the whim of a random public announcement on the school-wide speaker. Again, while the school norms remained and demonstrated a preference toward efficiency and strict control of the students, the reality of the school day contained many bifurcations from the preplanned structures. These



moments of tension afforded generative lines of flight (Deleuze & Guattari, 1987) and began to open-up new possibilities for teacher agency even within the strict constraints of prevailing school norms.

### **Ms. Roberts**

Soon after the announcement another school employee knocks on Ms. Roberts' door and pulls Ms. Roberts into the hallway to discuss something. I could not hear the conversation from inside the classroom. Meanwhile, the students and I sat and waited for about five minutes for Ms. Roberts to come back to class. This would not be the only time Ms. Roberts left the classroom during her three class periods that morning. After a few more instances I noticed that each time Ms. Roberts left the room she always closed AND locked the door upon her return to the classroom...I slowly realized that I was quite fortunate to even be in the classroom with her students.

Teachers, especially older more experienced 'veterans,' have been historically known to privatize their practice. This is often done through shutting their classroom doors or not collaborating with other teachers. Little (1990) asserts that independence and privacy are the dominant modes among veteran teachers. Kardos (2004) describes "veteran-oriented professional culture" as characterized by "veteran teachers operat[ing] independently and go about their work with little attention to the professional needs of the small numbers of novice teachers in their midst" (p. 144). Kardos' definition is particularly interesting due to its partial incompatibility with Ms. Roberts' self and district identification as a beginning science teacher.

Even coming from an awareness of dominant assumptions surrounding the veteran teacher stereotype, this is the first time I had ever seen or heard of a teacher locking themselves and their students *into* the classroom. Traditionally, the only time teachers are asked and expected to lock their doors is during a 'lock-down' safety drill or very real threat to the lives of the students (e.g., armed gunman on or nearby campus). Ms. Roberts' need to lock her classroom door might have demonstrated the remnants of some form of previous systemic and/or self-

regulation. While I initially wanted to jump to extrapolate the ways this school and district are related to Ms. Roberts' actions, I was hesitant because she, unlike Ms. Ister, and most traditional novice science teachers, had twenty-two years of prior formal teaching experience in other school contexts. Ms. Roberts' self-regulation and intense privatization of her instruction and classroom activities continued to depict the reach of the educative panopticon.

### **Summary of Chapter Four**

The ways in which Ms. Ister and Ms. Roberts confronted and also became comfortable within their own practice as beginning science teachers emerged in this preliminary inquiry. With the help of feminist post-structural theories certain ways of knowing and teaching science began to be uncovered. Ms. Ister and Ms. Roberts provided a preview into the messy, personal, partial, and complicated realities in which beginning science teachers and their students are implicated. By entering and exiting research methodology, people, places, and spaces in the middle of things, this preliminary inquiry began to expose the ruptures of possibility for re-imagining how one becomes a science teacher.

My first ethnographic experiences with Sumner School District, Ms. Ister, and Ms. Roberts had a great influence on the larger dissertation study discussed in subsequent chapters. Most significant was the realization that traditional methodological practices in educational research (de)stabilize the authenticity of moments '*under study*.' From the ways people, places, and spaces essentially become subjectified (even when the ethnographer desperately tries otherwise) became very frustrating for me. Additionally, in this preliminary project I continued to run up against the prevailing dedication of conventional ethnographic practices to maintain fixed binaries, inside/outside, and notions of data collection/data analysis. Maintaining these binaries within the perception of a clean vacuum simply did not work for me as both a researcher

*and* human being. For these reasons, the larger subsequent study of beginning science teacher induction strives to mediate my personal and scholarly tensions of being torn within two dichotomous ontological realities.

## CHAPTER FIVE: (RE)SEARCHING FOR AND WITH BEGINNING SCIENCE TEACHERS

I began with a different vision for this study. This chapter picks up where the primary study in Chapter Four ended. More specifically, it charts the series of twists and turns which led the study to unfold as it has over the course of about two years. Driving this unique path was my desire to conduct research on the experiences of beginning science teachers. As seen in Chapter Four, Sumner School District enabled me to question the very notion of what it means to study science teacher induction and *be in* study with beginning science teachers. In addition to contextualizing the trajectory of this larger study, this chapter carefully introduces the humans implicated within. The search for participants (Samantha and June), myself, and the shadows of others enabled generative moments and unexpected outcomes that illuminate new possibilities for re-thinking how we come to know science teacher induction.

### **How Did I/We Get Here and What Now?**

This study looked fairly different one year ago. In May 2016 I proposed to conduct a (post)ethnography in the same local public suburban school district mentioned in Chapter Four (i.e., Sumner School District) using a different analytical framework. Then when Sumner said ‘no’ to a more in-depth study, I contacted another school district, which said, ‘nothing’ (i.e., did not respond to my inquiry), and then proceeded to re-examine the always-already study of my day-to-day reality as a ‘new’ site in which to begin again. The following sections examine the physical and mental shifts that triggered me to re-enter and remember my nomadic home-field.

### **One District Says No**

I began where I left off in my preliminary inquiry within Sumner School District, as it was the rational next step when following a linear pre-determined research design sequence. At the time of my preliminary inquiry, Sumner School District had previously agreed to allow me to

conduct my dissertation research as an extension of the preliminary study I began over a year ago. However, upon communicating more specific details of the regular ongoing nature of participant observation and questions discussed in the semi-structured interview protocols I had proposed to conduct in Sumner, I was essentially told by a Sumner School District representative that my proposed study was too invasive. More specifically, I was asked to revise my study design based on the bounds dictated by Sumner's Assistant Superintendent (Dr. Sallender) if I were to conduct research within Sumner School District. After receiving the rejection notification for my official second application for a 'letter of introduction' from the school district, I talked with my ongoing point-of-contact and the district-wide professional development coordinator for Sumner School District, Ms. Ramsey, over the phone about the changes I would need to make if I wanted to continue pursuing a research project within Sumner School District.

In our phone conversation, I attempted to negotiate a middle ground between my original vision for weekly participant observation to the maximum duration I could imagine being 'within reason' of conventional ethnography standards discussed in Chapter Three. However, Ms. Ramsey continued to express Dr. Sallendar's (and other members of the application review committee) concern about the personal nature of the interview questions related to the impact of their professional expectations outside of school hours. Further contextualizing Dr. Sallender's concerns was her initial request during my preliminary study (Chapter Four) conducted in Fall 2015 for me to share my 'research instrument' and to reduce the number of interview questions to less than five to avoid being 'too overbearing.' At first glance, these expectations appeared as a reasonable request from a school district administrator, but my feminist post-structural perspective prompted a different series of questions about the underlying assumptions embedded

in the ‘unspoken’ narrative behind Dr. Sallender’s demands. For example, Dr. Sallender asked for a ‘research instrument and/or survey’ *after* I had already explained ethnography to her in an email exchange and in-person. Dr. Sallender’s request signaled her deeper perception that all educational research remains in alignment with positivistic traditions. However, as discussed at many points in previous and forthcoming chapters, these are traditions of inquiry to which my moral and ethical research commitments do not resonate. Looking back at this stage of my search, there are so many aspects of these brief exchanges that signaled me toward the project that eventually unfolded from August 2016 to May 2017. Even more, when Ms. Ramsey expressed Dr. Sallender’s apprehension toward the amount and type of questions outlined in my interview protocols, I attempted to re-clarify that this study is entirely voluntary. I explained that any beginning science teacher who was interested in participating could always decline participation if the study became too cumbersome or they felt uncomfortable answering any of the questions presented. After reminding Ms. Ramsey of this, she continued to reiterate Dr. Sallender’s concerns.

Ms. Ramsey’s next move was to outline the list of items in my proposed study I would need to revise in order to conduct my study in Sumner School District: (a) reduce the number of participant observation visits from once a week to twice a semester; (b) reduce the number of questions in each of the three semi-structured interviews conducted over the course of one school year; (c) revise the types of questions asked to only focus on the ‘professional’ aspects of beginning science teachers’ work; and (d) ‘scale back on everything as much as possible.’ In the midst of my negotiation and conversations with Sumner School District, another undertone around educational research practices periodically surfaced. As evident by her pseudonym, Dr. Sallender had previously received her Ph.D. in Curriculum and Instruction as well as master’s

and bachelor's degrees in science education. Coincidentally, Ms. Ramsey had also just started a doctoral program in Curriculum and Instruction and openly discussed how she was also learning about conducting research in schools from my proposed project.

Consequently, my initial and subsequent attempt to gain approval through Sumner School District reached beyond a study of beginning science teachers in Sumner School District to the very nature of research made possible *and* intelligible by public school districts. From this conversation, it was clear that my initial proposed study would no longer take on a conventional ethnographic structure leaving me unsure about how that unconventional structure would materialize. From my preliminary inquiry Ms. Roberts, Ms. Ister, and Sumner School District had already begun to teach me to expect the unexpected of 'doing research.'

### **A Second District Says 'Nothing'**

Before deciding to revise my original proposed study altogether I attempted to gain approval to work in another local public school district, Ellsner City Central (ECC) School District. After submitting the formal paperwork to ECC's review board, the geographic region where ECC School District was situated experienced a natural disaster. Many homes, schools, and access roads became oversaturated with historic levels of rainfall causing severe flooding around the area. Given the obviously tragic events this school district was also dealing with, I realized that it was unlikely I would receive a response regarding my desire to conduct research in the ECC schools. While I might not have actually received a formal rejection notification from this second attempt, ECC's 'silent' response continued to direct the trajectory of this project.

### **Who is Always-Already Implicated?**

I looked around. I asked myself, "Maria, what are you already doing? How is it connected to science teacher induction?" At that time (August 2016) I was teaching an

undergraduate course on elementary science methods for seniors working toward a degree in elementary education. While many people would refer to my class as being full of ‘pre-service’ or even ‘novice’ elementary science teachers, I had already begun teaching the course from the point of view that the twenty-one women in this course were always-already becoming-teachers (Strom & Martin, 2017). That was when I decided that my dissertation had already begun before it formally began. For example, related to the dilemmas defining beginning science teachers I had experienced in my preliminary study with Ms. Roberts, the undergraduate students in my course had already been identified by a programmatic structure (e.g., the university teacher preparation program) and also self-identified as ‘beginning science teachers.’ As their course instructor, I had already been (and will always continue to be) implicated in their science teacher induction experiences.

This undergraduate course occurred over an entire Fall semester (August 2016-December 2016) where we met face-to-face at least twice a week for a class or at a local elementary school where the becoming-teachers would complete their science teaching practicum requirement for teacher certification. The twenty-one becoming-teachers in this course and I were already working at the threshold of research, teaching, education, and study in more ways than one. We searched for our own science teaching practice and made decisions about the science teachers we wanted to become. At the same time, I was also searching for my own practice as a researcher of science teacher induction. All twenty-two of us became implicated in each other’s lives, memories, ideas, and now this more in-depth study after the formal timeframe of the semester-long course concluded in December 2016.

Throughout the course, I had been extremely transparent about the decisions and dilemmas I ran up against in my own practice as their course instructor. We often had explicit



conversations about my own hesitation to require that they complete ‘assignments as usual’ (e.g., dictating they use a particular science lesson plan template) and even establishing a class culture where I was not the/a primary knowledge holder. It was important to me, and new to them, to have explicit discussions about the expertise and capabilities they all already held before walking in our classroom. I quickly learned that this was not a type of classroom culture they had experienced before. This course was the site that ignited the bulk of this research study; specifically, two of the undergraduate women, Samantha and June, in the class chose to continue working with me after the Fall 2016 course ended as formal participants in this study. Throughout the course, subsequent semester (Spring 2017), and a future-yet-to-come Samantha and June taught and un/taught others and me elementary science, research practices, and new modes of inquiry shaping our educative experiences.

### **What Lines of Inquiry Were Opened?**

I initially resisted adjusting my research design to accommodate these unexpected movements. At the time I experienced frustration and disappointment that ‘my’ study had not worked out as planned, but now I embrace the ways these dilemmas, or ‘stuck places’ (Ellsworth, 1997) actually foreshadowed the beautiful essence of a study-yet-to-come. Like the compounded, or double(d) weight of scientific traditions on beginning science teachers, Lather (2007) advises that post-structural researchers embrace the possibility *getting lost* within the double(d) nature of research. She states by working the borders of research; we can begin to “capture the vitality of the deviations that elude taxonomies in addressing the question of practices of science within a postfoundational context” (2007, p. 19).

There is vitality in being told ‘no.’ Sumner School District actually freed me to re-imagine this study of science teacher induction. Unlike being told ‘yes,’ being told ‘no’ actually

exposed new divergent questions about the research process, science, induction, and the silencing of teacher autonomy of their ability to even choose involvement in a research project. The school district had already decided that research (whether conducted by me or somebody else) was to proceed in a particular fashion. When ECC School District said ‘nothing’ they also caused additional questions related to the value (and importance) of research in public schools to emerge. Considering ECC’s response alongside the ethics of research, it stimulates a new series of questions related to what ‘a decision to saying nothing’ still communicates. What might this ‘silence’ communicate? ECC School District made a decision, implicitly and explicitly, to attend to the immediate life-sustaining needs of those affected by the floods in its community. For example, the critical need of returning to ‘business as normal,’ that is, maintaining public schools as a primary space for providing stability to ECC employees and students, clearly took precedence over my research project. When it comes down to the basic underlying assumption, it becomes fairly clear that research in schools was possibly perceived as something that would not benefit and/or stabilize ECC school spaces. Even saying ‘nothing,’ said something. Looking back almost a year later, this unexpected response again directed my search for science teacher induction elsewhere.

For a myriad of reasons, I learned that science teacher induction was not to be studied in the context of K-12 public schools. This is a difficult realization to accept because it raised several questions regarding the assumptions of conducting research on beginning science teachers: What does it mean to conduct research in formal public school settings? And for whom? Who benefits and at what costs? What research (if any) on science teacher induction is worthwhile? And for whom? And should it only be conducted in K-12 school settings? What does that research make possible *and* impossible? These are all questions that percolate

throughout this study and research on science teacher induction more broadly. Coincidentally, as ‘simple’ as these questions might appear, they are often left unexplored and/or ignored altogether in research on science teachers. Even though I initially viewed Sumner School District’s predetermined silencing of teacher voice as problematic, I now wonder, what if I had re-designed the study according to the constraints the school district required? What might I have learned about the district and the beginning science teachers who they were silencing? My (re)search for science teacher induction resulted in a deliberate attempt to listen to the spaces, people, and places (both silent and audible) I encountered in the search. From hereon, the (re)search led me.

Who did I think I was? Who was I to design a research study about and on others? What would it mean for me and other researchers to intentionally avoid pre-designing studies of and on science teachers? How might this shift our ethical commitments as educational researchers of science teaching? What would it mean for researchers of science teaching to allow those we aim to learn about and from guide the trajectory of the study? What possibilities would emerge if we began *without* an end in mind? Higgins, Madden, Berard, Kothe, and Nordstrom (2016), drawing on Barad (2010), raise similar questions about pre-designing research methods:

We critically address the notion that methodological design pre-exists and is separate or separable from other aspects of research, and challenge its traditional position as a means to achieve and justify the ends. We come to recognize that methodological fabric is also a fabrication – a performative and non-separable enactment of the interconnected space between theory, practice, and ethics. (p. 2)

My series of stuck places (Ellsworth, 1997) became patches within a ‘patchwork methodology’ (Higgins et al., 2016) where I grappled within the threshold (Deleuze & Guattari, 1987) of ethics, methodology, practice, and theory. Throughout the transition from a preliminary inquiry (Chapter Four) to the more thorough study with June and Samantha, I constantly bumped up

against multiple entries and exits from one patch to the next. As this (re)search progressed it became apparent that this study was sewn together with post-foundational methodologies as “nebulous, responsive, contingent, and shifting” (Higgins et al., 2016, p. 3).

### **Remembering the Home-Field**

On March 1, 2017, I was reminded of the home-field. As I sat under a hair dryer in the salon near my home I became nomadic. While I waited for my new hair color, several women of all ages and one young boy, about twelve years old, surrounded me. I did not know any of the customers, except for one. The boy had a familiar face. The boy, slightly taller and with longer hair than I remembered, was the same boy I had taught at Kallen Elementary and who had played with my dogs in our shared neighborhood park discussed in Chapter Four. While my hair color continued to set, I happened to sit next to one of the oldest women in the salon, Ms. Betty. I did not know the woman, but I quickly learned that Ms. Betty was already implicated in my (re)search for science teacher induction. In addition to her thirty-six-year loyalty to this salon, Ms. Betty had also been a K-12 classroom teacher and curriculum writer for Sumner School District for several years. As I listened to her share her commitment and involvement in the local public school system, Ms. Betty wondered what I did for work. We proceeded to exchange stories regarding our shared involvement in the local school district, public education, and working with K-12 teachers. The boy’s face and Ms. Betty were just one of the many reminders that even though I might physically remove myself from ‘the ethnographic field,’ I cannot escape the nomadic time and space shaping my home-field. My presence in the local hair salon was just one of the ‘stuck places’ where the ethnographic ‘present’ and “time itself, had become a discursive site of struggle” (Brtizman, 1995, p. 233).

Unintentionally, my home-field also contextualized the very classroom in which June and Samantha were implicated during the Fall 2016 semester. I often shared with June and Samantha (and their classmates) that the assignments submitted and the questions posed never left me. Samantha and June had always-already been in my (re)search. Their wonderings and observations often sat with me on the regular three-hour commute I made between home and away. From this nomadic space, I realized,

It is not just that I don't know where the field is, I don't know *when* it is either. My study has been peculiar in many ways, but perhaps most unsettling (at first, but not now) has been my inability to separate space and time. (St. Pierre, 1997, p. 368, emphasis original)

Unable to tie my inquiry to particular fixed and stable settings my home-field was the place where my education memories originated. There are times when I can make direct links to the first elementary school where I taught science and other moments where I maneuver a geological field site containing its own set of stories always in-flux. Because, like time, conducting 'proper' research can become difficult to navigate, "I have not been able to separate unofficial data that I collected all my life ... from data collected during the official course of my research project" (St. Pierre, 1997, p. 368). This is the smooth space where I am a nomadic ethnographer (St. Pierre, 1997), and must continue to write as a form inquiry (Richardson & St. Pierre, 2005).

### **Participants: Who According to Whom?**

According to my institutional review board (IRB) application, June and Samantha were participants in my research study. However, my relationship with June and Samantha was very different than the formalities that appeared on paper due to our ongoing involvement in each other's lives. Our lives first became entangled when June and Samantha registered for the undergraduate elementary science methods course I was teaching as part of my graduate

assistantship. Before I even met both women, I had already imagined our future work together in the course. While June and Samantha completed official informed consent forms to participate in this dissertation, I did not view them as participants in the conventional sense. Instead, June and Samantha also represented a multifaceted relationship with(in) a research study, navigating what it meant to ‘become an elementary science teacher,’ and who they were in the process of ‘growing up.’

The following descriptions of June and Samantha depict the divergent characteristics of the two women in this study and what it means to account for the subjects implicated in one’s (re)search. My position as both researcher/participant, alongside June and Samantha, revealed deeper insights into the overlapping ruptures embedded within and across our relationships. When constructing descriptions of Samantha and June, I intentionally chose to supplement the descriptions I wrote with excerpts from different data sources. In doing so, I do not aim to treat the exchange between the participants’ and my narratives as an additional site for or of analysis, but rather it is one attempt (of the many included in this study) to destabilize the authority of my written account. Furthermore, to make my ethical commitments to the study, June, and Samantha more transparent, I explicitly attend to the complexity of writing about others. The following sections reveal a unique account of the humanness concealed by the pseudonyms, ‘June’ and ‘Samantha.’ However, even in my decision to strategically offer space in this document as a site for June and Samantha to also speak for and about themselves, Britzman (1995) reminds, “in poststructuralist versions, subjects may well be the tellers of experience; but every telling is constrained, partial, and determined by the discourses and histories that prefigure, even as they might promise, representation” (p. 232).

When I proposed the opportunity for June and Samantha to ‘speak for themselves’ about themselves, they responded to the question in two very different ways. My initial invitation explained that they could ‘speak for themselves’ using any format they chose resonated with them ranging from a written narrative, story, picture, diagram, or even an audio recording. Samantha’s initial response was, “I would love to! Would it be basically a little narrative about me and your study” (personal communication, Samantha, February 27, 2017)? June’s response was, “Yes, of course! Hmm. I am going to have to think about how to approach it” (personal communication, June, February 27, 2017). After receiving Samantha’s request for further direction, I prepared a couple of prompting questions just to provide her with a more concrete picture of what a ‘profile’ on her might include. However, I intentionally included in my response, “Feel free to attack [the profile description] however you want. Don’t feel like you have to address all of these questions; they are just meant to help get you started” (personal communication, Maria, February 27, 2017). I sent the same prompts to June. Yet, June and Samantha prepared their accounts from two distinctive viewpoints. Samantha chose to directly respond to every single prompt I had sent her, while June debated multiple formats and drafts of the response. Eventually, June decided to complete a self-recorded audio clip that best resonated with ‘her person.’

For both Samantha and June I present a series of three accounts or what I refer to as a *talking triad*. I use the phrase, talking triad, to emphasize the ways each of the following descriptions were always-already superimposed on the others, even though the accounts are presented as a linear sequence within this document. Figure 6 depicts the three different elements within one talking triad.

The three accounts depicting Samantha's and June's personal backgrounds and their views on being involved in this research study are further contextualized by others (i.e., curricular materials, friends, families, mentors, systems, ideas) who lurked in the margins of our dialog.

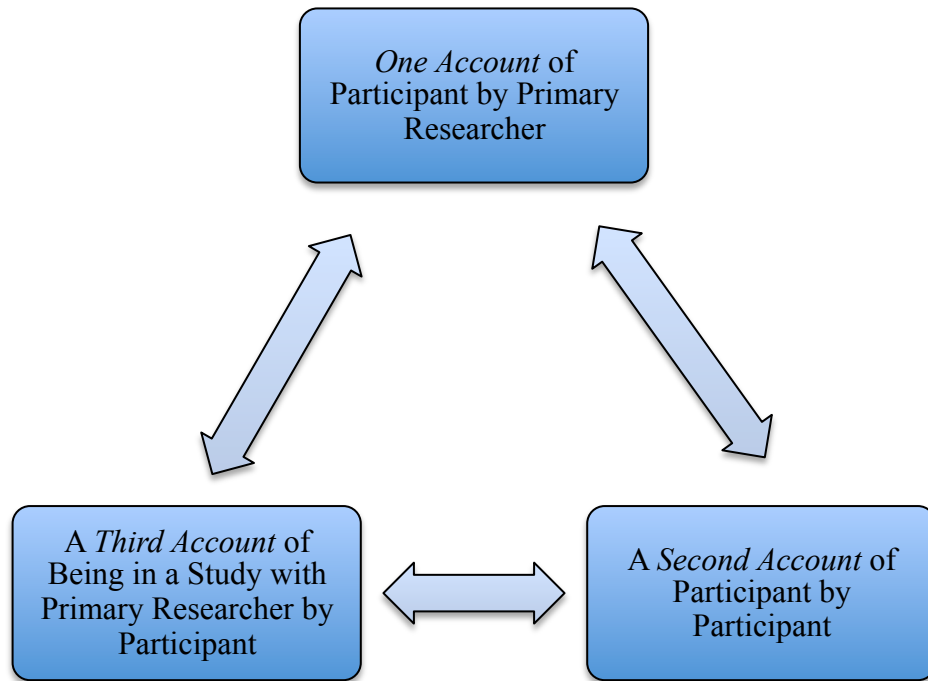


Figure 6: Participant/Researcher Talking Triad

### **Samantha's Talking Triad**

#### **One Account of Samantha By Maria**

At the time of the study, Samantha was a 22-year-old White woman in her last semester of her undergraduate degree program where she would earn a dual Bachelors of Science in Elementary Education and Special Education from the largest public university in the state, in May 2017. Samantha was in the midst of completing her student teaching placement as part of her degree and certification requirements. Since Samantha was getting a double certification in elementary and special education, her student teaching experience was divided between one 4<sup>th</sup>



grade math and science classroom and alongside the special education teacher where she worked with inclusion students across subjects areas. Samantha had known for several years that she wanted to be an elementary teacher.

While Samantha lived in the city where her university was located, Samantha's university considered her as an 'out-of-state' student since she is originally from a large suburban city near Houston, TX. The large public high school (approximately 5,000 students) Samantha attended is known to have a higher socio-economic status than many of the other schools within and around the city of Houston. More recently, Samantha's family decided to move further away from her hometown into a more rural community nearby for her brother to attend a smaller high school campus.

Throughout college, Samantha has worked a variety jobs to make additional money while completing her undergraduate degree. Utilizing a company-designed educational curriculum, Samantha spent a couple of evenings per week and summers coaching young children on how to play tennis. Additionally, if a local stationary store was in need of an extra hand, Samantha would assist from time to time. Ultimately her longest employment position has been working with a local wedding planner and event coordinator on the weekends. While not directly connected to a formal educational environment, Samantha attributes many of her classroom skills to her work experience coordinating wedding events.

Coming from a family of teachers, with the most closely related being her mother and sister, Samantha's interest in teaching began from the moment she became a big sister at the age of six. Additionally, her formal teacher preparation even began before her first year of undergraduate education during a two-year-long course called 'Principles of Curriculum and Education' (often referred to as 'Child Care' among Samantha and her peers) Samantha took

during her junior and senior years of high school. Unlike typical open enrollment high school elective courses, the ‘Child Care’ course required a formal application and was considered an honor for anyone to be given the privilege of enrolling in the course. The course was designed in relationship to the daycare center available for children of school district employees, which happened to be located at Samantha’s high school. During this course, Samantha worked directly with young pre-kindergarten aged-children and designed their daily lessons.

Even though Samantha entered her teacher education program confident of her decision, she did spend one semester where she “dabbled in business courses” (interview, Samantha, January 19, 2017). Her brief departure to a different field of study outside the education department quickly confirmed her initial decision that a degree in education was the right path for her. For example, Samantha even comically describes her experimentation with business courses as “just a little accident” in order to “just [see] what else was out there for a hot second” (interview, Samantha, January 19, 2017).

### **Samantha is ‘such a teacher.’**

SAMANTHA: So, I get to college, this was my first major choice, cause I was like ... well, just elementary [education] was, and so then, all my friends are like “Ah, you’re gonna be such a good teacher! You’re such a teacher personality. You’re gonna be great at it!” And I was like “Okay, I’m good!” (interview, Samantha, January 19, 2017)

...

SAMANTHA: Accounting was a different language to me, could not understand one bit of it. I was looking around at all the people in there, I was like, I’m not any one of these people. This is not me...So then, that’s when I figured out ... this was like August-September of my sophomore year, and so I was like very quick to realize like, I don’t need to change my major. I’m in the place where I need to be, um, and so, and it was really nice to have that because it was kinda like a um, I just felt more secure about my decision.

Like I had an experience of let me see what else is out there, then I was like wait, this is not for me. (interview, Samantha, January 19, 2017)

The external identification and feeling like ‘such a teacher’ is one that Samantha wholeheartedly embraces. During one of our first meetings, Samantha expressed how it was exciting to share the experience of becoming a teacher with her mother and sister since they could always swap stories or make suggestions for trying different instructional ideas out in each other’s classrooms. Beyond Samantha’s formal undergraduate teacher preparation program she often found herself also taking up roles that assist others in learning something new from tennis to religious studies. For Samantha, the classroom is a beautiful space where she can help others find joy in learning.

Samantha is well versed in many of the online websites and blogs dedicated to diverse platforms filled with teacher resources. Whenever we discussed Samantha’s science lesson planning it usually involved a brief conversation of the online resource platform (e.g., Teachers Pay Teachers) inspiring her instruction. Beyond being fairly familiar with the current culture of K-12 schooling, Samantha often seeks out and embraces opportunities to expand her teaching repertoire. One of the most common and influential ways Samantha does this is by simply being physically present in an elementary classroom. For example, unlike many of her peers, Samantha was given the opportunity to begin working in her student teaching placement before the official Spring 2017 semester had even begun. Rather than choosing to take the entire winter break allotted to undergraduate students, Samantha decided it would be more beneficial for her to become familiar with her student teaching context before the required student teaching time frame followed by many of her peers. Furthermore, Samantha even discussed utilizing her week of Spring Break and summer vacation to visit her aunt’s elementary school in Virginia as a potential site for employment upon graduation.

**Samantha participates.**

MARIA: I was curious to hear more, like, about why you decided to participate.

SAMANTHA: Um, I think, when you were talking about [your research] early on in the semester, you know, we all need, at one point in our lives, we all need to be, like, helping someone-

MARIA: (laughs)

SAMANTHA: You know. And so it's kinda, and I kind of like, I just need to put me in your shoes...

MARIA: O-oh! (laughs)

SAMANTHA: And I was like if I only needed help with something, I was like, I would want, I would want someone to participate. But then I was also like, no, I think this really would be helpful for me, and it's like, just, it's even that extra step-Talking about lessons and getting, um, getting more, I guess, not practice, but more feedback I feel like. And just talking out things, and just figuring out what's the right way to go, I mean, and all that stuff. So, I just figured it would be beneficial to me. (informal conversation, Samantha, January 19, 2017)

Samantha was someone you could always rely on to give things a chance. From participation in a research study to engaging in class discussions, Samantha will always be the one to 'break the ice.' Beyond her genuine efforts to develop positive relationships with others (e.g., her elementary-aged students, colleagues, instructors, or peers), Samantha enjoys participating in the life of a 'typical college student.' During football season, Samantha can be found on most Saturdays attending tailgating parties and cheering on the home team with friends. Throughout the year Samantha remains an active member of a large campus sorority, assisted with PanHellenic sorority recruitment, and served as a leader in the campus college ministry program.

**Samantha is positive and friendly.**

SAMANTHA: Today was great! (class reflection, Samantha, August 25, 2016)

SAMANTHA: I am very excited to teach my first lesson! (class reflection, Samantha, October 18, 2016)

SAMANTHA: I am super excited to plan lesson C. Since I am in a class with three people, I get to choose any sort of science lesson. This will be so much fun! (class reflection, Samantha, October 25, 2016)

SAMANTHA: Have a great weekend and Happy Halloween! (class reflection, Samantha October 27, 2016)

SAMANTHA: This semester challenged me so much, but I think that it made me grow into a more prepared teacher. Looking back you have done things different than previous teachers here at [the university]. This took some time to get used to, but overall I think we all benefitted positively from it. I am excited to see where this next semester takes all of my classmates and you! Best of luck on everything and thank you for a great semester! Happy holidays! (class reflection, Samantha, December 1, 2016)

Samantha describes herself as a ‘bubbly’ person and mindful of others’ feelings, whether it is her instructor, peers, students, or a mentor. While on the surface wishing somebody ‘happy holidays’ might appear to some as insignificant, what was noteworthy is that during our previous undergraduate course together Samantha was the only student to regularly write notes of ‘well-wishing’ into her class reflections. Samantha’s phrases of hopeful thinking often began and ended our meetings several months after the conclusion of the Fall 2016 course. For Samantha, positivity and kind words are critical traits of a good teacher. Samantha would often discuss how if she were a first-grade student yelling would not be well received. Samantha’s positive and friendly nature clearly leaves an impression on those who meet her as there were times when we would be meeting near campus, and she would happily run into somebody she knew from her university.

**Samantha is a confident teacher.**

SAMANTHA: But, it was, it was so great, and I'm so glad that I had that extra semester of being in the classroom. (interview, Samantha, January 19, 2017)

....

SAMANTHA: And I, I could really tell the difference between me and like our little group of double cert people compared to the other elementary people. Because they were really nervous about being in the classroom and we were kind of the ones that tell them, "Hey, look. It's gonna be okay. We were thrown into it [the classroom] last minute. Literally, [teacher preparation program instructors] were like okay, start going ... go meet your teacher. I would showed up the first day at my school and [the elementary school employees] were like what are you doing here?" (laughing) I was like, okay! I was like, well, there might be a communication barrier, but I got through it. (interview, Samantha, January 19, 2017)

...

SAMANTHA: I guess I had more confidence cause I just had more, a little bit more experience. (interview, Samantha, January 19, 2017)

Samantha's dedication to her future career as an elementary teacher is greatly supported by her confidence that a teaching career is just the right 'fit.' Due to Samantha's decision to earn an additional certification in Special Education, she was given opportunities to begin working in local elementary classrooms earlier and more often than many of her peers. In several of our conversations, Samantha would often make sense of her current student teaching experiences in relation to her previous classroom involvement assigned throughout her teacher preparation program. It was clear that her consistent engagement in school settings from high school and throughout all four years of her undergraduate education enabled her to often feel 'at home' in an elementary school setting. As seen in the conversation above, Samantha's confidence in her identity as a teacher was often used also to support her peers who may have been less experienced or confident entering the elementary classroom.

While maintaining high levels of self-efficacy, Samantha was mindful that a ‘good teacher’ remains open to new ideas and insights from her peers. Throughout her student teaching experience, Samantha would often seek out feedback from her mentor teacher, student teaching carpool partner, and even me for input on how she might develop her practice.

### **A Second Account of Samantha By Samantha**

PROMPT: Basically, it is kind of like an introduction of who you are, where are you from, and what type of teacher/person you are...

My name is Samantha. I was born in New Orleans but was raised outside of Houston, Texas. I am currently a senior at [a large university]. I like to say I am a Texas girl with a Louisiana twist, a great half, and half mix! I would say I am a very caring and considerate person and that is the type of teacher I strive to be everyday, whether I am teaching my students or my friends something new. I am also very enthusiastic about life, and I try my hardest everyday to carry that attitude out in everything I do! In the classroom, I am very enthusiastic about just about anything we may do, whether that is lining up and going to lunch or learning about the human body. I think that it is very important for students to have a teacher that is excited about teaching and excited for the students to learn new things. It shows the students that school can be a fun and exciting place.

PROMPT: How would you describe your physical appearance?

- Tall, I have always been tall.
- Blue eyes
- Big smile
- Healthy body type- I am not one to obsess about my pant size or being a ‘tiny’ girl. I am happy with myself!

PROMPT: What is your family background and its potential influence on your teaching?

My mom and older sister are both teachers and my grandmother, and great grandmother did a few years of teaching. You could say that teaching runs through my veins because there is nothing else I could imagine myself doing. I love working with children! I think that having four younger siblings and 10+ cousins that are all younger than me have also helped me realized my love for working with children.

PROMPT: What are you passionate about? What do you enjoy doing outside of school settings?

- I love baking and cooking when I can. I also love to spend time with my family and friends. My family and my friends are all very important to me. I am not one with a million best friends, I am happy to have a small number of close friends that I know will always have my back! I also love spending time with God and growing my relationship closer to my creator. I think that have a strong faith has helped me with my teaching tremendously!
- I currently work as an assistant to a wedding coordinator here in Ellsner City, and I absolutely love this job! It is a great little hobby to have, and I love to see all the different ideas that people have for weddings and events! I plan on working with other event coordinators wherever I move to after graduation. I have gained many skills while working as her assistant, many skills that will help me in teaching, such as, talking with clients and solving problems quickly!

PROMPT: What kinds of experiences have you already had or currently have with teaching?

- The childcare program at my high school during the 11-12<sup>th</sup> grade.
- 9<sup>th</sup>-12<sup>th</sup> grade I worked with the Sunday school at my church teaching small group lessons for grades 1-4<sup>th</sup>.



- Freshmen year at [the university], I volunteered with [the university] as a tutor. I would volunteer at a near by elementary two days a week, helping out around the classroom.
- Many observations were completed for course work. I had to travel to many different types of schools to see many different styles of teaching.
- Many pre-service teaching hours were completed in North and South Ellsner City Central parishes. During pre-teaching, I would administer standardized reading tests (Dibles), teach lessons, assist the teacher, assist the students, etc.
- Student Teaching at Collier Elementary in the 4<sup>th</sup>-grade math/science classroom and with the 4<sup>th</sup>-grade special education teacher.

PROMPT: Why did you choose to get involved in this research project?

- I thought that helping you out would be great practice for collaborating with coworkers in my future.

PROMPT: What does it feel like to be participating in this dissertation?

- Although I am very busy, I feel helpful. I'm sure me sending this to you the day you asked for it to be due isn't as helpful as it seems to be. I enjoy meeting up with you and talking about my school days and getting ideas for lessons.

PROMPT: Does participating in this type of work affect you in any way? Pros/cons?

- It is really nice to meet with someone who understands what I am going through right now, unlike close friends who do not know a thing about teaching. I am happy to have the support from you!

### **A Third Account on Being in a Study with Maria By Samantha**

PROMPT: How would you introduce me to someone? Why this way? What do you think is important for readers to know about me and/or our relationship? (professionally and/or personally)

- I would say something similar to this: “This is Maria, one of my past professors here at [the university]. She has taught me so much about teaching and she is a great source for me to go to when I need help!”
- I think it is important for readers to know about our relationship so they will not think this is a made up study and so they know that I am 100% participating on my own and I am not doing this to gain anything! Just a friend helping a friend!

PROMPT: Do you see me as a researcher? Why and/or why not?

- Yes! You are always asking me questions and wondering about how teaching is going and how everything else in the classroom works!

PROMPT: Do you see me as a participant? Why and/or why not?

- In a way, yes. You are actively asking me questions and working toward your end goal! You are doing more than just sending emails; you are meeting up with me face to face so we can talk. And not just talk about your project! I love how we can just talk about life sometimes!

PROMPT: How do you and I interact?

- I think we have a great relationship, I think that we are both open to each other’s ideas which is a great quality when working toward one goal!

## **June's Talking Triad**

### **One Account of June By Maria**

At the time of the study, June was a 22-year-old White woman in the last semester of her undergraduate degree program where she would earn a Bachelors of Science in Elementary Education from the largest public university in the state in May 2017. June was in the midst of completing her student teaching placement as part of her degree and certification requirements, in a fourth grade math/science classroom. While June decided to pursue a degree and certification in elementary education, it was not until about one week before our first formal one-on-one meeting regarding this specific study in January 2017 that June had actually decided to begin a career as a full-time classroom teacher in August 2017 after graduation in May 2017. However, June regularly re-evaluated her initial claim to pursue a traditional K-12 teaching position in August 2017. June's wavering decision provided a glimpse into the complexity of her inter-related and layered experiences with teacher education as also induction, personal family background, and the passions that fuel her being.

June grew up in New Orleans, LA and attended small private Catholic school from kindergarten through sixth grade. Then after Hurricane Katrina hit New Orleans, June and her mother moved from the urban city center to a suburban community about 45 minutes away from her father. This relocation also consisted of a move from a small private school education to one of the highest performing public junior high and high schools in the state. In fact, the new junior high and high schools June attended are currently located in Sumner School District. While in high school June was very involved in the school's theater productions and completed different hospital and veterinary medicine internships. It was, and continues to be, common for June to be to recognized by her peers, family, and teachers as the 'artistic-singer student.' Unlike her

parents and other siblings, June is the first member (and possibly the only one in the future) in her immediate family to complete college and earn a bachelor's degree.

**June sings.**

JUNE: If you asked, "What is your ideal night out on the weekend? What is your ideal evening when you get home from school, what is your" ... Because I'll tell you now, it is a struggle for me to sit down and plan. It is a struggle for me to not, literally, not put the record player on and just dance and sing all night. I literally ... Actually, I've incorporated it into my evening, like, stuff. I have an hour-at the end of the evening that I shut down, I don't do anything for that last hour before I go to bed. And for thirty minutes I literally just put my favorite music on and dance in front of the mirror.

MARIA: Oh, that's so cool.

JUNE: Sometimes I'll put on my favorite outfit. And then the last thirty minutes I-

JUNE: - like read my Bible and like say my prayers and stuff. So, but if you think about it-

MARIA: This is how June ends her night. That is amazing.

JUNE: I'm not kidding. (informal conversation, June, March 23, 2017)

...

JUNE: - my, um, my good friend from Florida, um, called me last night and she was like, "hey." Like, in the middle of my dance. She was like, "Hey what you doing?" I was like, "um, you want me to be honest?" She was like, "yeah." And I had to tell her. I was like, "I'm wearing my favorite outfit and I'm dancing in front of the mirror." Or I'm like picking out my outfit for the weekend, like what I'm wearing to work or whatever it is. But it's just like the biggest stress reliever for me, like, I just put on music and I just like, "Oh, life is good."

MARIA: Yeah. I can see that.

JUNE: And I don't need anybody because I'm having so much fun with myself right now. (informal conversation, June, March 23, 2017)

One of the first things that I learned about June back in August 2016 is the importance of singing in her life. Even five months after the course ended I continued to notice that every

single conversation between June and I had discussed the influence of music in her life. From her family history in the New Orleans music scene to recording music with friends in Bay St. Louis, MS, June's past, present, and future life endeavors are always guided by music.

Unlike many of her peers, June often shared how she 'made a living' through her singing career. In fact, June has had to be completely financially independent since her sophomore year of college. Throughout her coursework, June would travel between Ellsner City Central, LA, New Orleans, LA, Mandeville, LA, and Bay St. Louis, MS to sing multiple days a week for pleasure and her professional career. Our meetings are even arranged around her current singing schedule because her location is very dependent on the 'gig,' project, or audience scheduled for a particular day. More recently, this has increased since the nature of her employment has slightly changed due to her student teaching schedule. June was advised by her teacher preparation program not to work while completing her student teaching degree requirements, which influenced her decision to no longer dedicate her craft to only one band. As of January 2017, June began working as a freelance female vocalist for a variety of bands in need all around the Gulf Coast.

When June and I first met to discuss this study in more detail, she revealed where her musical roots originate. For June, being a musician is pretty much the 'family business.' Like June, her mother and father both 'make a living' off of their musical talents. Her mother is also a female vocalist working with a variety of bands in New Orleans. Now divorced, June's father is a well-known local musician coming from a long line of New Orleanian musicians. Even after her parents' divorce, June's current stepfather is the drummer for the same band June has been a lead singer in for several years, replacing the previous lead vocalist, June's mother. Beyond June's parents, her brother plays several instruments, or as June describes 'does pretty much

everything' for a band currently signed with a professional label and has spent the past five years touring the world. June's little sister, currently in middle school, is 'next down the line' for another family musician on the rise. Lastly, one of June's best friends or as June refers to her, a cousin, who is not biologically related but is someone June grew up with in her extended music family and continues to write and play music. Coincidentally, June's cousin actually attended one of June and my meetings as she wanted to hear about June's student teaching experiences and learn more about this side project/study in which June was involved.

From this musical lineage, June often deconstructs the influence of her family on her musical, teaching, and undergraduate education endeavors. June's familial history within the music business continued to surface when she reflected on traditional notions of employment, success, and performance.

**June is a 'flawed' perfectionist.**

JUNE: Even like, I think you can be a lazy perfectionist, which is kind of weird like, because I think-like you still want to do it right but you are still going have those moments like, I don't know, we are still all humans so it-it's-to to be a, a human with flaws entering like a world where you're supposed to create humans that are not flawed, it's like—

MARIA: That's so, oh my gosh that's a good point.

JUNE: You know, like where I don't know, I-I can think about this kind of stuff forever.

...

JUNE: It's interesting for me now to look back because, so right now at this point in my life, I'm giving myself leeway to fail, because I never did before.

MARIA: Yeah.

JUNE: Ever.

MARIA: Yeah. That's really fascinating.

JUNE: And it's interesting being so close to the point where I could be in a classroom helping students not fail. (informal conversation, June, January 8, 2017)

June has always been a 'good student' and a 'rule follower.' Because of this June attributes her ability to consistently receive A letter grades from her teachers throughout her school experiences since intentionally 'check all the right boxes.' June claims to be 'perfectionist,' while also problematizing the very notion of 'perfectionist.' For example, June often discusses how she and others can be 'lazy perfectionists' doing everything necessary to just get by according to the dominating standard and/or definition of success.

Throughout our relationship, June's idea of a 'lazy perfectionist' has evolved to represent a level of content maintained by the very structures, ideas, or traditions against which she is compared. Consequently, June is very quick to contextualize her perception of 'successful student' as a form of perfectionism only representative of keeping people content. For June, perfectionism is merely a performance and she does not necessarily believe this way of being is an authentic mode or representation of being in the world. Throughout her formal K-12 and undergraduate education, June took pride in her ability to check off every list of expectations put forth by her teachers. Yet, June believes this approach did not challenge her at all. In this way, she views herself as a 'lazy perfectionist.' She often explained how satisfying it feels to be content, but June is confident that this feeling is not genuine since it is fueled by external expectations to achieve less than what she is actually capable. For example, June emphatically said, "I did everything I was supposed to. I did well, *but I didn't do anything more...I didn't exceed what was necessary*" (informal conversation, June, January 8, 2017, emphasis added).

Alternatively, June is aware that her being a perfectionist or feeling of contentment is an imposed expectation, and therefore not her own. In this way the term 'flawed,' often used by

June, is multifaceted: (a) June sees herself, her family, and ideas about the world not fitting the ‘cookie-cutter mold’ of societal perfectionism; (b) June sees her ‘flaws’ as representative of her authenticity of being human; and (c) June sometimes refers to herself as a ‘bad perfectionist’ since in her mind perfectionism maintains her performance of the status quo.

**June is ‘not easily definable.’**

JUNE: Like I can tell you things and... I hate like I really don’t like [evaluating my mentor]... That’s why this [research process] intrigues me, like meeting up, talking, like I’ve never... I’ve always felt, too, like I’ve been the person that’s looked over very easily because, because I’m not well defined. You know what I mean?

...

I just don’t want to be overlooked because I didn’t check these boxes. (informal conversation, June, March 9, 2017)

June describes herself as not a typical college student. She is not a fan of college football, did not attend many social parties, and spent many late nights singing in New Orleans to maintain her financial independence. There are times when June gets frustrated that her life is not a typical model of ‘success,’ but mostly June views her ability to escape boxes and fixed definitions as a strength many of her peers lack (or choose to ignore).

**June (re)searches.**

JUNE: So I I typed up this like survey and so I had a little talk with [my fourth graders] before and I gave them the survey and I was like, I’m just gonna, I’m gonna put some music on for you guys, and I really want you all to think about just like yourselves, like how you’re personally like other people like, everything and had them take a survey and I’m gonna tally it up and bring the like the statistics back to them.

MARIA: Oh. Okay. Okay.

JUNE: So they can see their class like.

MARIA: Okay.



JUNE: Average of who is bullied and who feels like this.

MARIA: Oh. Okay.

JUNE: And who. Cause they're all acting tough, you know what I mean? But only like two in each class, two or three, in each class said no, they were not bullied or.

MARIA: Did you have them like pinpoint or like, what-what kind of questions I guess were in the survey? So did you make this up yourself?

JUNE: I found it and then I added some questions.

MARIA: Yeah and modified it.

JUNE: Yeah. Like I added some [questions] throughout it. (informal conversation, June, February 2, 2017)

...

JUNE: And I put, I put a sticky note in front of her and I just started talking and I was like I was um I was this level, what level was yours? And she didn't answer me. And so I kept talking and kept talking, and then I looked down at the sticky note and she had written level 2.

MARIA: Oh.

JUNE: And I was like, okay, I'm in.

MARIA: (laughs) Yeah.

JUNE: I'm in like so, I can show you the. I'm keeping this [notebook] because I'm kind of keeping it as a document of the times we like have a conversation.

(Together June and I examine a series of several sticky-notes neatly taped inside a new composition notebook June brought to our meeting.)

JUNE: And then look at what she writes at the bottom? She puts maybe. (informal conversation, June, February 2, 2017)

...

JUNE: I'm I'm going to have to bring you examples of her different handwritings.

MARIA: Oh. I got you.

JUNE: I'll show her handwriting um like what it looks like when she's fine and then when she's like having a ...

MARIA: So her handwriting changes based on her experience or mood or-or her emotional state.

JUNE: Yeah. (informal conversation, June, February 2, 2017)

...

JUNE: This is her handwriting like normally.

MARIA: Okay.

JUNE: And then I'm ... I'm gonna either take a picture and send it to you tomorrow or make you a copy.

MARIA: Okay.

JUNE: I'll show you for sure. Um, so the first part of the data, like all the messy messy messy handwriting and um and she would not do anything else. (informal conversation, June, February 2, 2017)

During the Fall 2016 undergraduate course, I quickly realized that June wanted to push herself beyond the prevailing constraints of her formal teacher preparation experience. June began to raise questions often rarely engaged by her peers, my peers, and even many scholars of education I had read during my own doctoral education. As our relationship grew, I began to see June's own intentional and unintentional practices of self-inquiry also paralleled my own work as 'the researcher' behind this study.

It is not uncommon for June to re-examine artifacts, conversations, memories, and dreams of her own personal and professional life. While many examples of this exist June almost always highlights the ways in which handwriting styles communicate diverse meanings and also her difficulty to translate everything she conjures-up in textual representation. From a composition notebook full of sticky-notes that depict a silent conversation between June and one

of her students, to analyzing the production, preparation, and lack of maintenance to her own personal planner she carries around, June often examined her lived reality outwardly from herself to the systems she (or her students) navigates.

June's intentional drive to understand *and* question her experiences also speaks to her motivation for choosing to participate in this study. When asked why she agreed to participate June explained that she felt 'being a participant' in this study created space for her to have her own journey into teaching outside of boundaries created by her teacher education program. Since June often felt that she did not fit the 'cookie-cutter mold' of teacher that many of her peers and some course instructors expected, she was looking for a place where she could be herself while also becoming a formal certified elementary science teacher. With this in mind, there were many moments in my conversations with June where she would claim that there was no way for her to share and/or examine her experiences at the level to which she discussed with me in her teacher preparation courses.

### **A Second Account of June By June**

June self-selected to give an account of herself in the format of an audio recorded response. June's audio recording was conducted alone in her car as she drove to our frequent meeting spot. Before even discussing her age or how far along in the undergraduate program she was at the time of the study, June pre-faced the complexity and hesitation embedded in her thoughts. June's description explores her personal life and experiences of 'becoming an elementary science teacher' in relation to navigating the 'the box.' June discusses the ways her 'job' and 'life' run parallel, but was often unacknowledged or lacked understanding from her peers. In closing, June shares some insight into her motivation to participate in this study, but

then also a brief description on what she felt transpired as the study progressed. To listen to June's account of herself, scan the QR code in Figure 7 or visit <http://bit.ly/2rHjzCM>.



Figure 7: A Second Account of June by June (March 26, 2017)

### **A Third Account on Being in a Study with Maria By June**

June self-selected to give an account of her work with me in the format of an audio recorded narrative. In the audio recording June discusses how she never felt we were in a research study, but more similar to a casual process navigating a ‘vocal web of thoughts.’ June explains how she did not view herself as a participant or even saw me as a researcher, because we were both participants in a discussion of questions and dreamed up new solutions. To listen to June's third account, scan the QR code in Figure 8 or visit <http://bit.ly/2qO9mB1>.



Figure 8: On Research Participation by June (May 25, 2017)

### **Shadows of Others**

Beyond June, Samantha, and my position in this study several other people, institutions, and materials also infiltrated our accounts. A university campus, close friends, mentors, previous course instructors, science textbooks, cellular group text messages, and online teacher resources

(e.g., Teachers Pay Teachers) influenced the experiences explored in this study. Intentionally and unintentionally our enrollment in the same university education program consistently percolated beneath the surface of our encounters throughout the study. Beyond our previous undergraduate course together, Samantha and June often referred the university's student teaching handbook as a source that provided multifaceted implications for decisions about their practice. Additionally, June and Samantha mentioned the valuable influence and/or difficulty of connecting with close friends, current mentors, and course instructors. All the while in the background the weight of diverse norms of schooling contextualized the possibilities and challenges when imagining our present and future involvement in education.

### **Summary of Chapter Five**

My (re)search to locate a study site comprised of beginning science teachers took an unlikely and also predictable path to the very classroom where I began my (re)search almost four years ago as a first-year doctoral student. Driven by the insights gleaned from my preliminary inquiry discussed in Chapter Four, the past year of (re)searching for and with beginning science teachers was made possible by a few simple statements. Being told 'no,' experiencing silence, and entertaining moments of wonder actually allowed a fascinating study to emerge. By entrusting the process of my (re)search for science teacher induction to those implicated (e.g., school districts, June, Samantha, local communities, and the natural world) new gleanings materialized.

## CHAPTER SIX: POSSIBILITIES OF A (POST)ETHNOGRAPHY

This study worked in-between, or at the threshold (Jackson & Mazzei, 2012), of two ontological paradigms in qualitative research. Specifically, this study not only considered the beginning science teacher as multiplicitous but also the process of doing research in education. While the core focus of research is typically conducted as means to learn and produce something new, this study examined the possibility for (un)learning and (non)sense making to occur *together*. For example, Robinson-Morris (2015), drawing on Deleuze and Guattari (1987), describes “learning as...the generation of onto-cognitive fissures and fusions that continue *ad infinitum*” (p. 204) and so then “research methods become a practice of being *inside* a research event” (Springgay & Truman, 2017, p. 2, emphasis original). It is in this regard that I intentionally chose to employ *both* conventional qualitative research methodologies *and* post qualitative modes of inquiry to study the induction experiences of beginning science teachers. The sections that follow further depict, what I refer to as, a ‘(post)ethnographic study’ that affords the exposure of new possibilities and inevitable interference of both ontological dichotomies side by side. By employing two analytical styles I approached this study as an intersectional and always-already emergent space that carves out creative ontological sites for researchers, science teachers, and science teacher educators to live/be/know *as both/and* “so that methods become attuned to ethicopolitical matters and concerns” (Springgay & Truman, 2017, p. 2).

### **Methodological Mo(ve)ments**

As discussed in Chapter Three, ethnographic paradigms have historically come in sets of ‘oppositional twos’: (a) degradational or progressional; and (b) realist or critical. A new mo(ve)ment has surfaced in qualitative research in education; that is, post qualitative inquiry.

Consequently, qualitative research in education is currently at another ontological juncture, one between traditional humanist methodologies and post qualitative lines of inquiry. This dichotomy in qualitative research could easily be presented as 'the next oppositional two' of ethnographic work in educational research; however, this study strives to do something different. Instead, I aim to use this timely juncture within qualitative research, not as a new binary from which to choose one, but rather as a generative diffraction (Haraway, 1997) that intra-acts (Barad, 2007). Haraway (1997) states, "Diffraction can be a metaphor for another kind of critical consciousness... one committed to making a difference and not to repeat the Scared Image of Same...Diffraction is a narrative, graphic, psychological, spiritual, and political technology for making consequential meanings" (as cited in Barad, 2007, p. 71). Furthermore, Haraway's (1997) and Barad's (2007) use of diffraction provides a unique challenge to ethnographers specifically, as they remain hesitant of researchers' critical reflexivity in the writing-up of experience. Instead, Haraway and Barad push researchers to move beyond a reflective or representational account of experience to look at diffractive and entangled possibilities. According to Barad (2007), diffractive methodology shifts from researchers acting as a reflexive mirror that looks in from the outside, but rather as "a way of understanding the world from within as a part of it" (p. 88). This particular study attempted to methodologically diffract from within the timely fissure of the qualitative and post qualitative dichotomous mo(ve)ment in educational research. As depicted in Figure 9, the initial ontological juncture has reverberating effects on the subsequent decisions regarding participant selection, language, and modes of analysis made within each qualitative paradigm of research.

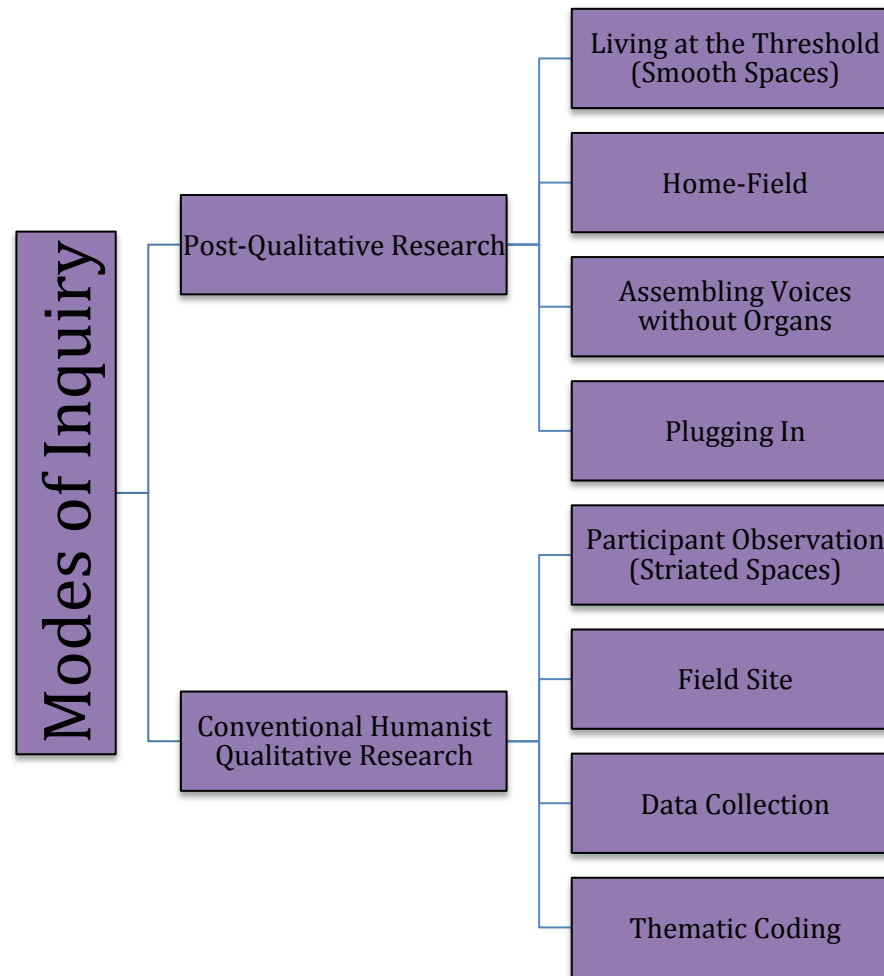


Figure 9: Dichotomies of Inquiry within (Post)Ethnography



A (post)ethnography provides diverse and multifaceted possibilities for the nature of how researchers come to (un)know the entities implicated in their study. Rather than refusing research methodology altogether this (post)ethnographic study meets the call of Springgay and Truman (2017) to reside “(in)tensions” of “whatever method is used” (p. 1). Furthermore, given that the aim of this type of inquiry “is to create a different world, to ask what kinds of futures are imaginable,” then my intentional attentiveness “to [my] immersion, tension, friction, anxiety, strain, and quiver-ing unease of doing research differently” is a necessary feature of this study (Springgay & Truman, 2017, p. 1).

In light of current calls for research on teacher education to turn to ontology (Strom, 2015), this study responds by delving into the diffractive interference (Barad, 2007) of humanist and ‘post-y’ guided research. Consequently, this new mode of inquiry generates alternative ways of asking *and* allowing beginning science teachers, teacher educators, and researchers to (re)consider how ontological openings arise when we think the subject *and* what it means to *do research* in science teacher induction anew.

### **Doing Ethnography the Right Way**

I tried. I really tried to do ethnography the ‘right’ way. I started analyzing June’s transcriptions, field notes, class reflections, science autobiography, and science curriculum planning artifacts in the conventional qualitative analysis software, Atlas.ti. One document after another, I created codes. In fact, I created exactly 98 codes before I had to stop. Each time I attempted to label, know, and signify June’s experiences as a beginning science teacher I cringed. Appendix C includes a table of the all of the preliminary codes revealed through conventional open-coding procedures discussed in Chapter Three and the number of quotations across artifacts, interviews, and informal

conversations I had analyzed before I had to stop trying to ‘code’ June in the same ways as Samantha.

This decision was not easy since I had already explained in-depth the ‘proper’ foundational way to conduct an ethnographic study in Chapter Three. However, William Doll affirmed my decision to enact a (post)ethnographic study in a recent presentation at Louisiana State University’s annual Curriculum Camp conference. In Doll’s presentation, *Musings on Method*, he confirmed my decision to (re)search the ‘both/and’ of beginning science teacher induction through a (post)ethnographic study. Doll began by revisiting Dewey’s claim that “imposing an alleged uniform method upon everybody breeds mediocrity in all, but the very exceptional” (as cited in Doll, 2017). Additionally, from Doll’s further musings related to Edgar Morin’s work on *methos*, I was reminded of the taken-for-grantedness that the very idea of an organized method necessitates disorganization. The concept that one methodology has *a* ‘right’ way depends on the existence of some perceived ‘wrong’ way. More specifically, this manufactured dogmatic image of thought (Deleuze & Guattari, 1987) requires that researchers (like myself) must *get lost* (Lather, 2007). While navigating the smooth and striated spaces (Deleuze & Guattari, 1987) of the field, I lost “*the way*,” that is, I lost a “sense of there being *a* way that is single and definite” (Higgins, 2014, p. 157). Instead of making the authoritative decision to impose a desirable method onto the implicated subjects of this study, the (post)ethnography that follows employed a mode of inquiry which witnessed June and Samantha’s humanity *from the perspective they wanted to be seen*. In light of Doll’s (2017) claim, “for there to be any sense of method, there must be an anti-method that goes with it,” does that mean the recognition of participants’ humanity is viewed as the

‘anti-method’? Is anti-methodology even in opposition to conventional methodology, or is it merely another constitutive feature of methodology left unacknowledged? There is likely no true answer to these questions. However, according to Nordstrom (2017) antimethodology “is a middle space that is created between reterritorializing forces (e.g., conventional qualitative inquiry) and deterritorializing forces (e.g., poststructural and posthuman theories)” (p. 1). Antimethodology (Nordstrom, 2017) is a multiplicity of affects and effects.

By questioning the humanity of method, I began to feel the same guilt Britzman (1995) claimed to feel after writing *Practice Makes Practice* (Britzman, 2003). Heeding advice within Britzman’s self-critique of her previous ethnographic work with student teachers, this study attempted to intentionally avoid “judging the characters I [construct] in ways that do not resonate with their own lived experience” (1995, p. 236). Whether it is in the ways researchers view their participants or the modes of methodology itself, there is clearly a ‘right’ way. However, maybe the ‘right’ way is a matter of enacting the *both/and* of ethnographic inquiry? This study, a (post)ethnography, takes the form of a both/and inquiry that intentionally hands over central research decisions (e.g., interview protocols, definitions of the self, questions explored, and the very form of data analysis employed) to the implicated participants, June and Samantha. As Massumi (2002) claims, “If you know where you will end up when you begin, nothing has happened in the meantime. You have to be willing to surprise yourself writing things you didn’t think you thought” (p. 18). This necessitated that I shift deeper into the middle, to a (post)ethnography resonate with the affirmative qualities embedded in antimethodology (Nordstrom, 2017):

When antimethodology happens to me, I have no idea what is happening or where a study is going. I have to trust in the surprises, the research events, that radically alter how I do and think antimethodology. I have to trust in the assemblage that entangles me. I have to resist that lure to think that I can somehow step outside of the assemblage and wrestle it into categories. I have to trust that I will eventually catch up to the doings of a study. This is affirmative work. It affirms wild experience and the possibilities for thinking and doing research at the limits of thought and practice. This is joyous creation. (Nordstrom, 2017, p. 9)

### **Post-Foundational Ethnography**

The aforementioned claims are uncommon in the field of educational research and specifically non-existent within research on science teacher induction. Ontological underpinnings that questioning voice, subjectivity, and conventional humanist methodology are not foreign to ‘the posts.’ Britzman (1995) and St. Pierre (1997) refer to lines of thinking as a post-foundational ethnography. In fact, after completing her critical ethnography of learning to teach (i.e., *Practice Makes Practice*) (Britzman, 2003), Britzman reflected on her earlier ethnographic work to expose the ‘hidden chapter’ that discussed her difficulty in walking the line between ethnography and poststructuralist theory. Even Britzman in 1995 wondered,

Can there be an educational ethnography that exceeds the constraints of humanism? What if the ethnographer began not just to question the discourse of others but to engage the relation between the discourses that render ethnography intelligible and the ethnographic report? (p. 229)

Now with the advent of post qualitative modes of inquiry, an educational ethnography that exceeds the constraints of humanism is possible. A (post)ethnographic study does exactly what Britzman (1995) was looking for twenty-two years ago. A

(post)ethnography is a post-foundational ethnography which can begin to address Britzman’s (1995) dilemma for “[theorizing] the modes of intelligibility that constitute

the subject” (p. 235), and thus construct regimes of truth that ultimately shape implicated subjects. From this perspective, a post-foundational approach to ethnography might afford the ability to better understand how ontological commitments driving qualitative inquiry propagate competing regimes of truth for the implicated subjects (i.e., June, Samantha, myself, and shadows of others) discussed in Chapter Five. Moreover, a post-foundational approach suggests, “the reason we might do ethnography, then, is to think the unthought in more complex ways, to trouble confidence in being able to ‘observe’ behavior, ‘apply the correct technique,’ and ‘correct’ what is taken as a mistake” (Britzman, 1995, p. 236). From foundational to post-foundational ethnography, ethnographers need not choose between either/or, but move between and across ontological commitments within “QUAL 2.0,” “QUAL 3.0,” and QUAL 4.0” (Lather, 2013, p. 635). A (post)ethnography is where a “journey of thinking differently begins” (Lather, 2007, p. 9). In subsequent sections I discuss the image of (post)ethnography I enacted, maneuvered, and experienced to conduct this study.

### **Navigating Nomadic Spaces of Inquiry within a (Post)Ethnographic Study**

Beyond the diffractive nature of this post-foundational ethnography, I navigated the multiple facets of conducting research with great hesitation. Consequently, this study traces my own hidden becoming (un)comfortable with the (un)known. The study required twisting in my chair as I typed, being trapped in a constant state of thought, cocking my head to the side with squinted eyes, gasping for air after hearing June and Samantha talk, and feeling pleasantly troubled when stumbling upon multiple ways to enact this study. These embodied experiences were what illuminated the realization that I was not just doing an ethnography, but I was a nomadic ethnographer (St. Pierre, 1997). Often

without words to describe my analytical process, I came to realize that I was always-already navigating between different formations of space; smooth and striated (Deleuze & Guattari, 1987).

For Deleuze and Guattari (1987), deterritorialization occurs when the spacial capacities become involutionary rather than evolutionary. Striated and smooth spaces are inherently enmeshed in the process of deterritorialization. Moreover, Deleuze and Guattari “explain that striated space is sedentary space, space that is coded, defined, bounded, and limited” (St. Pierre, 1997, p. 369). Striated spaces are always-already present within institutionalized entities like teacher education, the process of K-12 schooling, and research methodology. Striated spaces overcode possibility while movement within smooth spaces is “perpetual, without aim or destination, without departure or arrival” (Deleuze & Guattari, 1987, p. 353). Existing, writing, and thinking within a smooth space is what made even the very idea of a (post)ethnography arise; first, through a state of being and then through scholarly literature.

### **(Re)Reading and (Un)Writing the Known**

The diffractive nature of this study is depicted not only through analytical movements made, but also the language used to signify the material entities (human and non-human) implicated within the study. Table 1 represents the set of linguistic resources I used to (re)read and (un)write ethnographic moments from two different ontological viewpoints: humanist and post-humanist. From the language utilized to the modes of *being-in study* with June, Samantha, and theory this study’s approach to ‘know’ the beginning science teacher was engaged differently.

The organization of Chapters Seven and Eight take on a diffractive format in the sense that one can take multiple reads of the study. The dichotomous format of Chapters Seven and Eight entails two different accounts within a (post)ethnographic study. The design of the two reads of two very different beginning science teachers, June and Samantha, were designed in this way for several reasons. One being that the primary aim of a post-foundational ethnographic study is to illuminate new intersections and entanglements between humanist and post-humanist ontologies. Throughout my involvement in the study, it became increasingly apparent that this decision reflected a more critical aspect to researching science teacher induction as a response to the ethical commitments percolating among myself, June, Samantha, theory, and methodology. More specifically, June and Samantha implicitly *and* explicitly taught me to ‘know’ them from a particular point of view. They revealed diverse ways for me to ‘know’ them and their induction experiences from two very different traditions of inquiry. Based on Samantha’s and June’s reasoning behind choosing to participate in this study, I came to realize that Samantha expected our involvement (and later analysis) to be grounded from a humanist perspective, even though I had entered our relationship from a different post-humanist informed point of view. Simply put, the decision to have two different ethnographies (Samantha’s and June’s) separated into two different chapters (Seven and Eight) written and analyzed from two different ontological traditions (humanist and post-humanist) was an intentional decision to witness Samantha’s and June’s experiences as beginning science teachers from the account they wanted to be seen and understood.

Table 1: Language In-Flux

| Samantha's Ethnography (E <sup>S</sup> )  | June's Ethnography (E <sup>J</sup> )                  |
|---|---|
| Participant Observation (Striated Spaces) | Living at the Threshold (Smooth Spaces)               |
| Data Collection                           | Assembling Voices without Organs (VwO) (Mazzei, 2013) |
| Field Site                                | Home-Field  |
| Data Analysis                             | Plugging In (Jackson & Mazzei, 2012)                  |

### Enactment of Samantha's Ethnography (E<sup>S</sup>)

E<sup>S</sup> is grounded in the dominant qualitative paradigm, which is guided by humanist and representationalist assumptions. When looking primarily at the human subject, humanist ontological foundations are guided by Enlightenment thought, which assumes that the human is a rational, predictive, independent actor within a social world. Simply put, this ontological entry point assumes the beginning science teacher subject *is* a knowable entity. The following sections provide an additional overview of the research procedures conducted for E<sup>S</sup>. Reflective of the language signified in Table 1, I explain the nature of participant observation, primary field sites, the collection of data sources, and the primary style of data analysis enacted. However, before progressing any further, it is important to note that my decision to utilize conventional humanist qualitative analysis was driven by Samantha's investment and the level of importance she put on maintaining a stable, predictable teacher identity:

I think that it is important to have a teacher identity, so your students know where you stand and what you believe in. I think that without some sort of teacher identity we would not be able to defend what we do. (Samantha, Course Reflection, 11-1-2016)



## **Participant Observation (Striated Spaces)**

Participant observation was conducted primarily ‘behind the scenes’ of Samantha's student teaching experience. She and I met on a weekly basis at a local coffee shop, restaurant, or quiet location on the university campus to discuss the intricacies of her approach to science instructional planning for her fourth-grade students. When selecting a meeting location, Samantha always chose a location bound to the surrounding local city of Ellsner City Central or in relation to the university campus where she was enrolled. Our meetings always begin with a hug and cheerful, sometimes tired, greeting of, “Hey, girl!” from Samantha. Almost all of the hugs we exchanged required strategic maneuvering around the large over-stuffed name brand tote bag full of thick binders, elementary science textbooks, the university student teaching handbook, and other personal items. Depending on the location (i.e., restaurant or coffee shop) she and I would first place our food and/or drink order in preparation for two to three hours of reviewing her previous or upcoming science teaching lesson. While science teaching remained our central focus, Samantha would also share significant moments related the entire process of completing her student teaching requirement for graduation.

Early on in our relationship after Samantha had completed the undergraduate science methods course I taught, she quickly saw me as an individual who was there to help her become the best elementary science teacher she could be. Samantha saw her involvement in the study as a means to receive additional support, ideas, and guidance for maneuvering her student teaching experience, but also her career after graduation. From our first meeting, Samantha looked to me for all the ‘best next steps’ as a beginning science teacher. This caught me off guard because in our first few meetings I

intentionally explained that the aim of this study was not to see if she was doing a ‘good’ job or fitting into some mold of ‘elementary science teacher.’ In fact, I prefaced our earliest meetings in the study as just a “process where she and I were getting to know each other and ourselves.” Looking back at Samantha’s early decision to view me as the ‘expert’ from whom she should gather the right information illuminated a disconnect between our perceptions of how our meetings could (or ought) to be conducted. My perception of what might be and Samantha’s desire to continue being ‘taught’ by me could have stemmed from the very definition undergirding our assumptions of what it means to be ‘know,’ ‘be a knower,’ and to ‘construct knowledge.’ Our differing, but not divisive, entry points to participant observation necessitated that we made an unspoken agreement to balance the interests of each other. There were times where I offered and gave the instructional advice she was asking for, while there were also meetings where Samantha spent time most of our time discussing her teaching experiences.

In this way, my participant observation of Samantha’s pedagogical preparation was bound by our differing views on knowledge itself. With that said, over time I found myself shifting into the role in which Samantha desired. Since having been an elementary science teacher, it was quite easy to slip back into my previous ‘teacher position’ I enacted while employed in public schools. It was easy for me to recall science lessons I had taught or locate instructional resources to provide Samantha, but even as I became more and more like my previous science teacher self, I also knew that I had given up many of my more recent educational ideals acquired in graduate school. Why? Through my participant observation, I became the subject whom Samantha desired.

## **Field Site**

Samantha selected all of the field sites. Depending on her weekly schedule, Samantha would always select the most convenient location for us to meet. These sites shifted between local restaurants near campus to a new local coffee shop often filled with other students from Samantha's university. Each of the locations that Samantha chose were places familiar to her, and in fact, we almost always ran into somebody she knew from school, her sorority, or a student teaching friend. I did not have any personal or professional connection to any of sites where we worked, and it was often my first time visiting the specific locations Samantha chose. While most of our meetings were tied to physical spaces, our cellular text message strand would also serve as a field site. For example, there were times when I would run across a science teaching resource and would send a website link to Samantha. Other times Samantha sent me photographs of her brainstorming jottings for the science unit she was required to plan for her teacher education program. Interestingly, across each site our work together rarely exceeded conversations of science teaching practices, beyond the typical meet and greet.

### **Data Collection**

The data sources, represented in Table 2 collected over the course of this study provide a thorough account of the experiences shaping Samantha's curricular decisions during her student teaching placement of her final undergraduate semester in a university-based teacher education program. Appendices A and B include protocols for the two semi-structured interviews I conducted with Samantha at different points throughout her student teaching experience. The semi-structured interviews were completed at the beginning (January 2017) and near the end (April 2017) of Samantha's semester-long student teaching experience. Artifacts, interviews, and field notes (Emerson et al., 2011)

from participant observation provided a holistic picture the elementary science teaching expectations and decisions (implicit and explicit) Samantha was required to navigate as a student teacher. Through the conglomeration of curricular resources, personally written reflections, informal conversations, and interviews, Samantha's induction experiences even before undergraduate graduation were illuminated.

**Artifacts.** Given that this ethnographic inquiry is focused on beginning science teachers' induction, the artifacts gathered provide a look into ways Samantha's curricular materials and resources were also a constitutive element of her induction experience. Specifically, these artifacts included several written student teaching reflections, scans of the elementary science textbook pages used by Samantha, Samantha's science autobiography, Samantha's science teaching philosophy statement, previously designed 5E inquiry-based lesson plans (completed in her undergraduate science methods course), and Samantha's most recently designed science lessons, unit plans, and supplementary student task sheets (e.g., assessments, worksheets, etc.). Additionally, as mentioned earlier, there are different times when Samantha has sent me photographs of her planning process when I am not physically present. These photographs were also included in my analysis as digitally scanned copies of curricular artifacts.

**Conversations.** Throughout the study, Samantha and I had many informal face-to-face conversations, and consequently, they serve as one of the primary data sources informing E<sup>S</sup>. Our conversations were both formal and informal.

Table 2: Overview of Data Collected for Samantha's Ethnography

| Source Number | Data Type  | Amount Analyzed   | Time Frame Collected   |
|---------------|--|---|------------------------|
| 1             | Samantha's Science Curriculum Design Materials: (a) Two-Week Unit Plan on the Solar System Elementary; (b) Science Textbook Resources Used by Samantha for Unit Planning; and (c) Samantha's brainstorming figures | (a) 6 Individual lesson plans; (b) 52 science pages with preplanned '5E science lessons'; (c) 2 pre-planning sketches | January - April 2017   |
| 2             | Student teaching Self-Prepared Weekly Written Reflections  | 11 Entries  | January - April 2017   |
| 3             | Samantha's Midway Self-Evaluation  | Entire Statement  | March 2017             |
| 4             | Research Journal/Field Notes   | 10 entries  | January - April 2017   |
| 5             | Informal Planning Conversations  | 3 sessions approximately 90 minutes long  | January-March 2017     |
| 6             | Semi-Structured Interviews   | 2 sessions approximately 60 minutes long  | January-March 2017     |
| 7             | Samantha's Elementary Science Methods Class Reflections  | 17 Class Reflections  | August - December 2016 |
| 8             | Samantha's Self-Prepared Science Teaching Philosophy Statement   | Entire statement  | December 2016          |
| 9             | Samantha's Drawing of a Scientist  | 1 image   | August 2016            |

For example, for almost every single week of the Spring 2017 semester, our informal conversation surrounding Samantha's planning, verbal reflections, and discussion of memorable events related to life or more frequently her student teaching experiences were audio recorded and transcribed.

In addition to these regular informal recordings, I conducted two strategically scheduled semi-structured interviews, outlined in Appendices A and B. Unlike our informal conversations, these interviews were roughly bounded by the series of pre-determined set of questions focused on Samantha's ideas about teaching, science, and her feelings of support over during her experience as a beginning science teacher. To maintain space for Samantha's voice in the research process, I intentionally gave her free range to interpret the questions however she wanted and even the freedom to completely re-design any of the interview questions. Almost always, Samantha chose to respond to the questions as they were.

### **Data Analysis**

For Samantha's ethnographic account I examined the aforementioned traditional conceptions of data sources (e.g., field notes, artifacts, and interviews) to employ conventional open and closed coding procedures (Emerson et al., 2011). The analysis for E<sup>S</sup> abides by the foundational procedures of ethnography described in Chapter Three. More specifically, I employed Emerson et al.'s (2011) description of ethnographic analysis: (a) open-coded my field notes and artifacts; (b) kept descriptive code memos throughout the coding process; (c) began developing a code book with major overarching themes; and then (d) identified more focused codes. This thematic approach to coding the data sources implicitly and explicitly triangulated the data.

## **Validity and Reliability**

E<sup>S</sup> primarily utilizes triangulation across data sources and ultimately a final in-depth member check by Samantha to confirm the validity of findings. Rather than recruiting an external reviewer familiar with beginning science teacher experiences, E<sup>S</sup> attempts to re-center the voice of the participant, Samantha, as the only one who can fully claim her experiences with me and in student teaching to be reliable and valid.

Throughout the analysis stage and process of analysis, I would often share photos with Samantha of the overarching themes I extracted from her data sources requesting confirmation. As I moved into the writing up stage of Samantha's profile and findings I was in direct regular contact with Samantha. Thus, she was involved in several forms of member checking as the study neared conclusion. Specifically, we (a) exchanged two written drafts of 'One Account of Samantha by Maria' (Chapter Five); (b) exchanged photographs of the final themes constructed for analysis (Chapter Seven); and (c) exchanged written drafts and photographs of Samantha's final words regarding science teacher induction (Chapter Ten). Through these document transfers, we usually engaged the following series of semi-structured questions: Does this jive with you? Do you feel this adequately represents your experiences? If not, what would you tweak?

### **Enactment of June's Ethnography (E<sup>J</sup>)**

E<sup>J</sup> works on the other side of the ontological fissure of qualitative research. Post qualitative inquiry serves as the ontological entry point for this study by beginning with decentering the subject as an entity that can be known. Instead of following conventional approaches to qualitative inquiry as described in E<sup>S</sup>, Mazzei (2016) helps post qualitative researchers (and the diffractive mo(ve)ment within study) to start from a different set of

assumptions regarding ways *voice* exists within participant interviews and ethnographic inquiry. Mazzei (2016) explains,

Conventional approaches to qualitative inquiry often favor *the* voice of *a* subject, assuming that voice can speak with the authority of consciousness and experience located in a particular space and time. Voice in humanist qualitative inquiry must be present-spoken, witnessed, recorded, date-stamped, and transcribed into words in an interview transcript... This is *a voice of a subject*, still ‘there’ to search for, retrieve, and liberate, (p. 152, emphasis original)

E<sup>J</sup> drew on Mazzei (2013, 2016) and other post qualitative scholars (e.g., Lather & St. Pierre, 2013; Nordstrom, 2015) to complicate notions of data collection, representation, reflexivity, and knowledge production based on the conception that a knowable subject exists. Specifically, E<sup>J</sup> expects “authors of experience” (Wallace, in pressA, p. 2) to (un)write the (un)spoken affective experiences from the ontological standpoint that representationalism is an impossibility. As Barad (2007) and Haraway (1997) explain, the reflexive account (like I present in E<sup>S</sup>) behaves like a mirror and results in researchers getting caught up in “geometries of sameness” (Barad, 2007, p. 72). E<sup>J</sup> re-shapes and deforms ethnographic material as a diffractive practice to produce and enact something different. Consequently, June and I *work differently*. June surprised me. Before June and I began explicitly discussing this study, she taught me how to think with her. Early on in my relationship June rejected ‘the identity box:’

The question of teacher identity is interesting for different reasons, but what seems to resonate the most in my mind. It is difficult to consider an identity as a teacher when many people don't have a specific identity as a person. Is being a teacher a personal identity? This concept of identity would be very different for different people. I find or will journey to find mine through faith in God, but for others, it is possibility very different. This ties into the idea of biases that we talked about. How do these biases affect our teacher identities? (June, Course Reflection, November 1, 2016)



### **Living at the Threshold (Smooth Spaces)**

I first must find it. I must get there. St. Pierre (1997) took me. I was in it. I was in my smooth space. It is the space where thinking ‘post-y’ became possible within the over-coded and striated spaces that dominate the other world. The smooth space is a world that allows me to move between humanism and the posts. It is the mode in which I become a nomadic ethnographer (St. Pierre, 1997). In this space anything is possible. This is the field I cannot escape. As a nomadic ethnographer, I live at the threshold of the home-field. This is what enables the very thought that a (post)ethnography can even exist. June helped me arrive and stay within this space. When June and I are together, we are in a smooth space. We imagine what might be. We question what ought to be. We wonder. We zoom in and out, from self to students to society to the institution to our peers and back home again.

Some ethnographers refer to the power and pleasure of ‘homework’ (Jackson, 2008), and in some ways, I am always-already doing homework, but this study feels different. My home is everywhere. While I do have a ‘hometown,’ my home always follows me into field sites others would not claim to be a ‘home.’ What constitutes home? I always heard the phrase ‘home is where my underwear is,’ but for me, home is where my memories are. Memories of school...memories of teaching...memories of eating around the dinner table... memories of walks... memories of nature...This is my home. The smooth space is where I feel my way through the (re)search. It is where theorizing becomes an embodied experience (Barad, 2007). Many times when I work with(in) the smooth space (like this very moment), my nose begins to sniffle and my eyes become

filled with water. Being nomadic is the way I feel around the material (and non-material) forms, which trigger my ability to imagine something new while also being at home.

Like myself, June yearns to find smooth spaces. When we meet we always begin in the middle of things as if we know we are floating among the striations attempting to shape us into the perfect cookie. We exchange stories. Maybe the threshold is not just the theoretical threshold that Deleuze and Guattari (1987) describe, but the threshold marked by the desired mold. Maybe June and I both live at the threshold. This must be the smooth space. We are always able to find an entry and exit.

Now I worry. I worry that my writing is not formal enough. I worry that my thoughts are not linear enough. I worry that I keep using the word 'I' in my sentences. But, then I remind myself that this is where I must go. This is how I get lost in the work. This is the emotive process that makes a (post)ethnography possible. St. Pierre (1997) reminds me I am not alone in the struggle to write a particular kind of way while in the smooth space. St. Pierre (1997) states,

I can't even write that helpful paragraph that you expect in an essay and may have been impatient to read, the one that points the way through the text that is to come by explaining that I will first discuss this and then that and then the other. I have no idea where I am going except that I am moving toward the outside. (p. 370)

On March 8, 2017, I met with June for two and half hours. We talked. We laughed. We ate. We drew pictures of our 'crazy' ideas. I left thinking... there is absolutely no way I can 'code' her. It is too painful, and it is not what June would want. After much thought, I decided to 'analyze' June (and Samantha) from the way they would want to be 'analyzed.' June taught me this. I will not overcode them into the same

set of themes. It is not ethical to think I can even do so. Since my conversations with June are always-already post qualitative, I ‘work and think with her’ from a post qualitative perspective for E<sup>J</sup>. June even used Deleuzian terms to describe her experiences and questioned the difficulty of privileging textual representation of herself and our relationship. Just like Mazzei and Jackson’s (2009) book on re-thinking voice, June problematizes her own voice and moments of ‘silence.’ As we were leaving her favorite restaurant June said, “even though we weren’t saying anything I can guarantee you it wasn’t silent” (Informal Conversation, June, March 10, 2017). June taught me to imagine beyond the confines I placed on this study. I could not ignore the lessons June was teaching. I could not ignore the pain I felt when trying to negotiate how to ‘fit’ her into this study. That was it. I decided to listen to June and let her tell me how to ‘analyze her experiences.’

### **Assembling Voices without Organs (VwO)**

Working differently necessitated new language. St. Pierre (2013) pointedly refers to the incommensurable treatment of data in qualitative research stating,

Once the empirical is transformed into real, visible words on a page—brute, sense data—these researchers strip the words from context, manipulate them, order them in binaries and hierarchies and categories, label some words with other words (code data), and even count words. *Words become quasi-numbers.* (p. 224, emphasis original)

These are the conventional practices I employ in E<sup>S</sup>. However, E<sup>J</sup> problematizes the recognition of data as collectible entities of experiences by shifting to ways of *being in study with* “Voices without Organs” (VwO; Mazzei, 2013, 2016). What is referred to as ‘data’ in E<sup>S</sup> is conceptualized differently as “VwO” in E<sup>J</sup>. VwOs are treated “as an

assemblage, a complex network of human and nonhuman agents that exceeds the traditional notion of the individual” (Mazzei, 2013, p. 735). Rather than reifying the appearance of data as St. Pierre (2013) contends, E<sup>J</sup> depicts an affective relationship with VwOs. For example, June and I demonstrate Barad’s (2007) call to realize that “Theorizing *must* always be understood as an embodied practice” (p. 54, emphasis added). For this reason, June and I plugged in.

### **Plugging In**

The critical second element embedded in E<sup>J</sup> is a multiplicitous mo(ve)ment referred to as plugging in (Jackson & Mazzei, 2012). Before explaining the steps to plugging in, I must explain that the concept is employed in two ways. That is, as an analytical process representative of research in the post qualitative paradigm, but *also* an alternative mode of participant observation in ethnography where one *lives at the threshold*. Plugging in, or living at the threshold, cannot and should not be scaled according to Spradley’s (1980) levels of participant observation as it continues to privilege the ability for me to ‘know’ and control my affective (non)sense making in the home-field. The home-field is where I live-write-imagine from as a multiplicity who must remain (un)comfortably attuned to the reality of *always* being at home with(in) ‘the field.’ Depending on the day, moment, space, curricular artifact, place, and/or conversation, plugging into the home-field has the potential to seep into the writing of this very manuscript.

Jackson and Mazzei (2012) describe “plugging in as a *process* rather than a *concept*” (p. 1) with an attempt to “keep meaning on the move” (p. 7) through the

exposition of difference. More specifically, Jackson and Mazzei (2012) believe that “plugging in involves at least three maneuvers” (p. 5):

1. Putting philosophical concepts to work via disrupting the theory/practice binary by decentering each and instead showing how they *constitute or make one another*,
2. Being deliberate and transparent in what analytical questions are made possible by a specific theoretical concept and how the questions that are used to think with *emerged in the middle* of plugging in; and
3. Working the same data chunks repeatedly to “deform [them], to make [them] groan and protest” (Foucault, 1980; as cited in Jackson & Mazzei, 2012) with an overabundance of meaning, which in turn not only creates new knowledge but also shows the *suppleness of each when plugged in*. (p. 5, emphasis original)

These three maneuvers guide the moment-to-moment and day-to-day realities that uncomfortably force me *always* to be plugged into the home-field.

### **Questioning Validity and Reliability**

Plugging in mediates tense moments in the home-field as it *allows* for an unknowable multidimensional reality that assumes individuals and spaces as always-already to emerge. The ontological stance underpinning E<sup>J</sup>, the beginning science teacher *and* ethnographer are expected to be (un)stable and (un)make sense. By de-centering the primary subject (in this case, the beginning science teacher) as the “proper ontological unit” of analysis (May, 2005), considerations for trustworthiness, justification of enough evidence, and/or bracketing the ethnographer-self to limit data contamination all become an impossible thought. In E<sup>J</sup>, the ethnographer cannot even be considered rational and/or knowledgeable of the ethnographic mo(ve)ments that arise by being-in study. Even so, the work that occurred between June and me often explicitly enacted post qualitative

analyses in the very ways we ‘plugged in’ in *every* engagement. Whether it was crafting plans side-by-side or getting random text messages, we questioned everything. We were often lost in divergent questions of ‘good,’ ‘successful,’ and explored notions ideas so easily considered ‘right or true’ when conceptualizing what it means for someone to ‘become an elementary science teacher.’

If I am being honest, I don’t even understand the concept of judging somebody on paper. A lot of times the very first thing somebody is judged on is a piece of paper. Why? Why don’t the first thing be seeing their soul? (laughing) I don’t know because anybody can look good on paper. (June, May 7, 2017)

June begins to speak to the complexities of assuming somebody can develop a ‘valid’ or authentic understanding of others. Consequently, she and I establish ‘validity’ in our work together by also questioning it at the same time. We moved through Lather’s (1993) four frames of validation: (a) grappling with the notion of ‘truth,’ (b) examining paradoxes and uncertainties in our experiences, (c) analyzing unmediated overlappings which raise question regarding the role of underlying structures, and (d) experiencing our work as an embodied process.

### **Summary of Chapter Six**

Chapter Six puts forth a new and alternative post-foundational ethnographic framework. Rather than proposing and choosing the impossibility of doing research from a singular and stable ontological account, I chose to work differently. By intentionally adding a diffractive relationship to this study, I not only aim to *know anew* but also *unknow* conventional modes for doing research. Guided by Samantha’s and June’s ontological perspectives this study draws on two ontological dichotomies that might

and/or have typically ground(ed) research on science teacher induction.  $E^S$  and  $E^J$  intersect, intra-act, (re)write, conflict, and unite together for a non-normalizing account of science teacher induction.

## CHAPTER SEVEN: SAMANTHA'S ETHNOGRAPHY (E<sup>S</sup>)

On Thursday I met with Samantha again at a local coffee shop that I had never been to close to campus, but where Samantha goes often. I was already sitting with a friend when I saw Samantha walk in with a massive four-inch binder in her arms and big tote bag on her shoulder. She immediately walked over to where we were and enthusiastically greeted me with her typical statement.

SAMANTHA: Hey, girl!

MARIA: Hey! How are you?

Squashed between small tables and chairs, as usual, we hugged over her big tote bag and the thick three-ringed binder in her other arm. We exchanged pleasantries, and I briefly introduced my friend before Samantha, and I moved to another location in the coffee shop so we could talk more privately. From last semester till today, Samantha had always expressed interest in being outdoors. Since it was a nice day, she and I decided to discuss her planning in the small outdoor patio attached to the coffee shop. We were not the only ones who thought working outside was a good idea. Surrounded by other college students, we began:

MARIA: What in the world is that big binder full of?

SAMANTHA: It's just about a little bit of everything for student teaching.

(Samantha opens the binder and begins to flip through the disheveled pages to show me the array of materials.)

I have notes to myself, worksheets for lessons, condensed lesson plans, but a lot of it is the handbook we have for student teaching. (field notes, Maria, February 19, 2017).

...

MARIA: So, they give you that handbook at the beginning of student-

SAMANTHA: Yeah, and it has, like a lot of it's, our rubrics and stuff for-

MARIA: Okay, so for like, your evaluations?

SAMANTHA: Behavior, like how we should be acting, but I'm like-

MARIA: Oh, really?

SAMANTHA: And, like, how our teachers should be acting.



...

SAMANTHA: Well it's on... I, I think I put it in my [our] shared folder. Okay.

MARIA: I'll look in there... So, you said a lot of it is behavior for you guys, and your mentor-teachers, and?

SAMANTHA: Well yeah. It is kind of like, not behavior, but you saw what should be happening. Like, expectations, um, and then there's, like a lot of different time logs that like, we don't use. Like, it's just stuff that is in there be we don't use it.

MARIA: "I am going to have to scan throughout it. So, did you want to talk about your unit? Or...

SAMANTHA: Well—

MARIA: Is there anything in particular?

SAMANTHA: Now, I just don't know because like, what I've been doing is, I'll show you my, um, I printed out my slides. Right now I'm covering, um, Earth and the moon." (informal conversation, Samantha and Maria, February 16, 2017)

...

Samantha, like my last meeting with June, also felt slightly frustrated. She had had a tough day with her first lesson of her unit on the solar system. The majority of our conversation focused on troubleshooting potential ideas to modify her lesson for the next day. We examined her notes, her worksheets, and the PowerPoint slides she was going to use with her students. Right now, however, the biggest obstacle for Samantha to teach the way she wants is the limitation of time allotted to science instruction. In addition to the amount of time schedule for science, is the importance of maintaining those designated times. For example, Samantha said things like "Well I know they needed just fifteen more minutes of Math to really get the concept, but we had to move on to science for them do what I want.

Beyond the enemy of time, Samantha continued to refer to her lesson plan as a process of 'covering' information and then doing a "game" or "activity." She covers topics based on of the textbook order and the "cuteness" of an activity. We spent the entire duration of our hour and half-long meeting co-examining the *Interactive Science* textbook guide, the book's suggestions for a 5E lesson sequence, and brainstorming potential lesson ideas Samantha could embed in the remaining lessons of her unit plan. (field notes, Maria, February 19, 2017)

## **Overview of Thematic Findings**

Upon completing several rounds of open coding where I enacted a discovery-style analysis of Samantha's data sources as discussed in Chapter Six, it became apparent that Samantha's journey was more complex than I anticipated during the data collection process. Even after working with Samantha, she and I took for granted that she 'fit the mold' of an elementary teacher. As mentioned earlier, Samantha and her peers would often describe her as being 'such a teacher.' However, my closer re-reading of the data collected for Samantha revealed deeper intricacies between her science teaching practice and subjectivity as a past, present, and future elementary science teacher.

Samantha's series of open-coding resulted in 55 codes, which I was then able to organize in the following closed code groups (Emerson et al., 2011): (a) accounting for diverse learners; (b) attending to the self; (c) combating challenges; (d) preparation and development; (e) the research study; (f) science curriculum design; and (g) standardizing science education. From these code groups, the two most prominent threads were related to Samantha's science curriculum design and her teacher preparation experiences. In order to more adequately represent the experiences embedded in the threads above, I have revised the labels to read: (a) enacting a 'goldilocks science curriculum;' and (b) teacher preparation as a program of affirmation.

The following sections examine the two dominant threads holistically by weaving together my analysis with a variety of Samantha's data sources. However, embedded between these two central themes, I also explored how one mediating factor was a recurring site for where Samantha negotiated her 'just right' science curriculum and maintaining the responsibilities of a 'good' teacher who uses an elementary science

textbook. Lastly, these sections begin to illuminate how Samantha has navigated a process of teacher induction throughout her entire life.

### **Enacting a ‘Goldilocks Science Curriculum’**

Samantha looked for *just the right* approach to teach science. My realization of this first surfaced in a class discussion that considering the implications of standardized testing on their science curriculum. Samantha was one of the few people in the class to speak up *and* confidently assert her plans for accommodating her science teaching practice for standardized assessments. She expressed the importance of upholding the job responsibilities of being a teacher; for Samantha, strategically preparing her students for standardized tests was seen as a necessary evil. Samantha perceived the passing of standardized tests as a critical step in ensuring the success of her students' future life endeavors (personal communication, Samantha, November 17, 2016). This example is intended to contextualize the ways in which Samantha continued to make decisions about the design of her science lessons as also being implicated within the ‘proper duties of being a teacher.’ Throughout my analysis I kept revisiting a sentiment that Samantha often shared with me: she “didn’t want to do too much.” More specifically, Samantha did not want to teach science in ways that were seen as ‘too radical.’ During Spring 2017, I joined Samantha in her endeavor to find ‘just the right’ dose of ‘good’ science teaching. The narratives and analyses that follow chart Samantha’s journey of designing what I term, a ‘Goldilocks Science Curriculum.’

### **Not Too Much**

#### **Event one.**

SAMANTHA: Now I don’t like, I don’t want it to like, overdo it, cause like today when I was coming home, I was like-It would be so cool, like next year when I’m teaching this to my own students like we could go outside in the morning because

sometimes you could still see the moon in the morning. And like, 'Let's observe it. What's happening?'

MARIA: Yeah.

SAMANTHA: Like, they're just like, so like, 'This is science time.' (informal conversation, Samantha, February 16, 2017)

### **Event two.**

Everything this week went great except for on Friday when I was teaching my science lesson on the different types of rocks. I had the students break up into three different groups, and there were three different stations. Each station was a different type of rock, igneous, metamorphic or sedimentary. My plan was for the students to look at the rocks and write down observations that they notice on a chart. This was supposed to be a student-led lesson; I wanted the students to really take charge and be in charge of their learning. Mrs. Wiley did not agree, and during each the stations, she was telling the students how they should be looking at each rock. I know that this is her classroom and her rules but I was frustrated since the point of the lesson was for the students to lead themselves. I totally understand why she acted the way she did; she runs a very controlled environment where the students are rarely allowed to explore and learn thing for themselves. I just wanted the lesson to go a little differently, but the students were still excited to learn about and touch the rocks. The best part of the week was when a student came up to me and showed me a rock they found at recess. She was so excited to show me, and she said: "I wonder what type it is?" It was awesome to see her so excited about a little rock; I felt very proud to be a teacher at that moment!" (self-written reflection, Samantha, March 3, 2017)

### **Event three.**

MARIA: Yeah, I remember you saying something. I think at one point you were like, 'I don't want to go overkill, like, I don't want to scare people away from'--

SAMANTHA: And it's hard because since it was only 30 minutes, again with the timing thing, since they were only 30 minutes the lesson should have lasted two days, instead of just one day, to really get that point across and the students to really be able to understand what you're talking about. But I mean those are all things, I mean I could have that same time next year, but now I'll know, okay I'll plan one lesson, but it's really a two-day thing. We need to go through it and be super specific and cover all the important topics and whatever. But now I think it's this year has been kind of awkward or this semester has just been awkward since I didn't want to, you know, I wanted to keep in my place and not go over too much since I was under someone. (mid-way interview, Samantha, March 31, 2017)

For Samantha, ‘overdoing it’ was her attempt (and desire) to incorporate more engaging science lessons driven by inquiry-based instruction with her fourth-grade students. For many science teacher educators, inquiry-based science is the desired ‘best practice’ and often referred to as ‘reform-based practices.’ However, Samantha felt unable to even ‘scrape the surface’ of the possibilities for inquiry-based instruction due to the highly structured nature of time allotted to science. While 30 minutes of science each day might appear as the most limiting factor, Samantha felt more strongly about the inflexibility of when those 30 minutes ought to occur. Furthermore, Samantha would often imagine the potential for her science lessons to have direct connections to spaces outside of the classroom; yet, the mere idea of bringing her fourth-grade students outside for science was ‘too much.’

In Event Two, since Samantha decided that if she were unable to explore outdoor spaces, she would bring ‘the outside in’ a lesson on different types of rocks. For this lesson, Samantha even invested her own money to purchase the rock samples she incorporated into a student-driven investigation. Unfortunately in the act of students conducting their investigation the students’ observations were intentionally constrained by Samantha’s mentor teacher. More specifically, when Samantha designed lessons she hoped to empower her students to develop their own questions and make their own personal observations of the rocks; yet, she (and her students) were told that it was ‘too much.’

The complexity of Samantha’s resistance to doing ‘too much’ (good science instruction) is two-fold. On the one hand, Samantha found it important to appease and please the individual *above* her, who in the current context was her mentor teacher. On

another hand, Samantha knew full well that she was capable of designing or implementing more innovative science curricula but chose not to while she “was under someone” (final interview, Samantha, March 31, 2017). Even in this exchange, I pushed her to look beyond her current context of a formal student teaching placement to anticipate potential ways in which her curriculum design might continue to be challenged even after graduation. When prompted, Samantha only identified the time constraints of a typical day and the pacing of units throughout the school year. But here and in several other data sources (e.g., self-written reflections, informal conversation, science autobiography, semi-structured interviews, and previous class reflections), Samantha felt that once she had her own classroom that she would be free to do whatever she wanted and that she would no longer be working ‘under someone.’

Samantha’s perception of her current restriction and eventual freedom becomes even more perplexing when re-read with a Foucauldian (1977) lens. A feminist post-structural framework makes it impossible not to recognize the diverse ways in which disciplinary power (Foucault, 1977) actively circulates throughout Samantha’s teaching experience and within her subjectivity. Furthermore, her objection to doing ‘too much’ begins to raise new questions regarding the modes in which a power/knowledge (Foucault, 1970) relationship may dampen the possibilities for Samantha’s science teaching practice. In this case ‘too much’ student-driven instruction, let alone inquiry-based science, produces a particular form of knowledge deemed reasonable for these particular fourth graders and Samantha’s mentor teacher.

## Not Too Little

### Event one.

SAMANTHA: She [Samantha's mentor teacher] sits in her chair, and the ELMO's (document camera projector) on and the textbook comes out, and she highlights, and they highlight while she highlights. (informal conversation, Samantha, January 19, 2017)

### Event two.

I have also learned how it is SO important to make lesson plans that are meaningful and engaging, so you are never caught off guard with observers, and your classroom is always a classroom of active learning and not just highlighting out of a textbook. (written reflection, Samantha, January 27, 2017, emphasis original)

### Event three.

SAMANTHA: ...but now I'm like, I don't know if this is like, they're just not used to it [Samantha's style of teaching] 'cause like I, I don't, I don't want to teach them by highlighting in the book 'cause I really don't think that's like, teaching. They're just highlighting. (informal conversation, Samantha, February 16, 2017)

The three moments above depict Samantha's hesitation to do 'too little' as an elementary science teacher. Event One depicts Samantha's introduction of her mentor teacher's approach to teaching science. Samantha, having been in my undergraduate course on elementary science instruction, knows that she and I shared a similar hesitation for enacting textbook highlighting as a meaningful instruction practice. Beyond our shared experience from Fall 2016, Samantha was driven more by her philosophy that school should be fun and spread enthusiasm, rather than merely grounded in reformed-based science teaching as inquiry. For Samantha highlighting from the textbook was not something she viewed as being either fun or stimulating student interest in science and therefore it was doing 'too little.' Samantha would regularly revisit her disdain for highlighting from the textbook as motivation to find a necessary 'just right' fit for science instruction.

Event Two represents the concluding remarks from an influential day at Samantha's student teaching experience. About three weeks after she started student teaching, Samantha witnessed the flurry of anxiety when her mentor teacher learned that district personnel were on campus to conduct formal observations of all of the teachers. Samantha's mentor teacher, Ms. Wiley, was vividly distraught and unprepared for an external observer to observe her science teaching. Ms. Wiley obviously knew that highlighting from the textbook would not be considered appropriate science instruction because she recruited Samantha to help her frantically put together a more engaging science lesson for when the district administrators conducted their formal classroom observation. In this situation, Samantha was seen as the 'brain child' behind more student-driven science lessons and therefore seen as the resource for 'good' science instruction by her mentor teacher. Alternatively, Samantha viewed this exchange as pure laziness from her mentor teacher and as way 'too little' effort. Event Three confirms Samantha's view that highlighting from a textbook is 'too little' and therefore does not count as teaching. Her mentor was a teacher, but according to Samantha, she was a teacher that did not teach.

### **Just Right**

SAMANTHA: Um, I told her [Samantha's University Supervisor], I was like, 'How do we deal with issues in the classroom where we might not agree with how our teacher's teaching things when we might want to do something differently?' And she [University Supervisor], said, 'Right now, uh, try to mix the two ways you all are teaching,' and so I was ... She was like, 'Don't go too overboard, like, this is my own thoughts-' ... Whatever. 'Cause you want to respect her boundaries.' And so um, I like that answer, but at the same time I was like, 'I have no idea (laughs) how to do that.' How to mix in like-

MARIA: How to do a little bit of both? Yeah.



SAMANTHA: And so but I mean, I'm guessing just going over this information with them, and taking it sentence by sentence from the book, but just in a different format, like sort of like, her way and my way. (informal conversation, Samantha, February 16, 2017)

Samantha steered clear of designing lessons that might be perceived as 'too radical,' or in actuality, 'too student-driven.' While attempting to design 'just right' lessons Samantha struggled to imagine what a blend of 'too much' and 'too little' would look like in her specific classroom environment. She was advised to find a way to fuse her own teaching style and her mentor teacher's together; however, in this challenge Samantha intentionally worked to compromise her preferred (and more ambitious) approach to teaching elementary science. In fact, there were times when she would even have explicit conversations with her fourth-grade students about having to 'give-in' to 'more boring' lessons that previous professors in her teacher preparation program had explicitly told her to avoid.

Samantha's challenge of developing a 'just right' fit of the science lessons designed to be implemented in her student teaching placement began to also function as a process of erasure. Through Samantha's desire to mediate external pressure from her mentor teacher and her position as a student teacher she also implicitly suppressed the possibility for diverse forms of science instruction to become possible for her fourth-graders. Like Samantha's attempt to construct something (i.e., a practice, an instructional strategy, a class assignment) as intelligible for others she experience how beginning teachers are often forced to work "in the interests of producing order and recognition" (Roy, 2003, p. 20). Moreover, Samantha's intentional decision to 'not go overboard,' or as her university supervisor suggested 'avoid claiming her own thoughts,' she

intentionally strived to be a mediocre elementary science teacher. As Samantha worked to configure her science teaching practice in ways that were intelligible to others, she knowingly limited possibilities for herself, her students, and the educational experience. She found her “thought[s being] confined to maintaining ‘correctness’ of existing ideals, and the allocation of established truth values rather than the creation of new ethical and sensory engagements” (Roy, 2003, p. 23).

Even in Samantha’s work to develop a ‘just right’ science unit and lessons she also re-appropriated traditional routines of students copying notes from the science textbook at their desks to finding more engaging ways to copy down the most critical content. She often tried to get her students out of their desks to increase student engagement in her reformatted science lessons, but this decision was risky. Samantha viewed a ‘just right’ fit as reconciling the extremes of being ‘too crazy’ or ‘too lazy.’

### **Teacher Preparation as a Program of Affirmation**

Throughout her four years of undergraduate education, Samantha’s coursework has functioned as a program of affirmation in a variety of forms and definitions. A basic definition of affirmation (dictionary.com, n. d.) guides the forthcoming findings: (a) the act or an instance of affirming; state of being affirmed; (b) the assertion that something exists or is true; (c) something that is affirmed; a statement or proposition that is declared to be true; (d) confirmation or ratification of the truth or validity of a prior judgment decision. Samantha’s formalized teacher preparation experience began her junior year of high school and had continued to function as confirmation of Samantha’s long-held beliefs that she was intended to become an elementary teacher. Alternatively, a more hidden result is that in the same way that Samantha’s preparation experiences affirmed

her career trajectory, it also reinstated perceived regimes of truth for what it means to become the elementary teacher and science educator she imagined over the years. While Samantha felt as though she was in the ‘right place,’ she also had reservations about her required coursework. In ‘fitting the mold,’ Samantha also reinforced ‘the mold.’

### **I Am Where I’m Supposed To Be**

#### **Event one.**

SAMANTHA: Like my friends and me were talking about this the other day. Um, one of my good friends, she’s also in education, and, um, our other good friend is going to medical school, and one’s going to law school. And we were like, “Yeah, that’s so cool.” I’ve, I, personally, I’ve always thought being in the medical field would be awesome. But I just know it’s not the place for me, because I know I’m capable of doing it, but it would be a very hard, long journey if that makes sense. Just going through all that schooling. Um, but, I mean I know that where I am, taking these classes, learning how to become a teacher, is where I’m really supposed to be.

MARIA: I know that you had told me in the first meeting that they, that you, you know, had a lot of influence from your family members about like, their prior experience as teachers. But then also in high school, you taught in that Pre-K program-

SAMANTHA: Mm-hmm (affirmative).

MARIA: for your high school. And, you know, just hearing you say a lot like, you know, I know this is where I’m supposed to be like, in education and a teacher. Um, how long have you felt like that sure of your, your kind of decision to be in this profession, I guess?

SAMANTHA: Um, for a while, I’ve always wanted to be a teacher. And then sophomore year when I almost became a business major (laughs), I, uh, realized this is actually where I was supposed to be. This is what I’m supposed to be doing, and this is my plan.

MARIA: What do you think were really, like what were some of the core issues that you saw like, business wasn’t for me because of what? And education was?

SAMANTHA: Um, honestly, this might sound silly, but all those people sound-, looked and sounded so rigid. And I’m just more of a bubbly person, and I remember having teachers who were so excited about teaching and about us learning new things and stuff like that. And I think that you know, my personality is the personality that, that is like that. That, you know, to meet these kids and

say, “Okay, we’re gonna learn about fractions,” and make it so exciting and make them want to learn about it. And, um, I think that makes a huge difference in someone standing up at the front of the classroom saying, “Okay, we’re learning about fractions. They suck.” (laughs) You know, like, “They are terrible.” Or, “We’re learning about division, and it’s dumb.” You know, I think that someone ... I mean I know there’s different personalities in all different professions, but I think that it just really, um, I guess during that time when I would look around in that accounting classroom. I was like, “None of these people are like me.” I was like; I think I’m, you know, one of those special people where this is like, this is my job. This, teaching, is for me. (initial interview, Samantha, February 3, 2017)

In many of our interactions, Samantha often discussed the importance of having the *right* teacher personality as superseding the importance of instructional approaches. According to Samantha if a teacher evoked enough enthusiasm, love, and positivity they would make a great teacher. Studying teacher personality and characteristics traits are not new to the field of teacher education (Getzels & Jackson, 1963); however, what is new is the way in which Samantha views her personality traits (and the traits of others) as the justification for why she belongs in teaching. In this regard, being ‘bubbly’ is not considered appropriate in other professions. To be bubbly perpetuates the feminization of who *and* how one *ought* to be an elementary teacher. Samantha whole heartily embraced the confirmation that she belonged in teaching.

From this perspective, Samantha’s rationale for not pursuing a career in the medical field was due to the amount of schooling she would be expected to complete. I find this particularly interesting because of her word choice, “schooling,” since she is planning to participate in schooling as an elementary teacher. To be schooled further is not desirable to Samantha, yet she wants to maintain the schooling of others. Is Samantha right where she is supposed to be? Did her direct ‘fit’ within the profession of teaching occur by chance?

## I See Textbooks

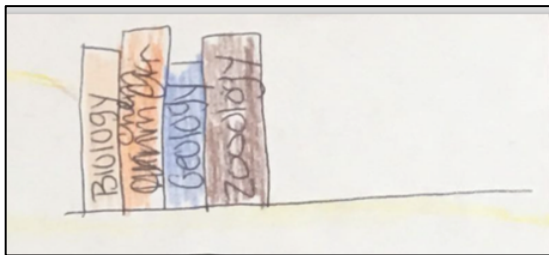


Figure 10: Science Textbooks on Bookshelf Drawn By Samantha (Drawing of a ‘scientist doing science,’ Samantha, August 25, 2016)

### Event one.

When I look back at my science education, I see textbooks. Most of my science classes were all based out of textbooks. They were very quick lessons, and there would be weeks before another lesson. I think that this is a terrible example for our students, it gives them the impression that science is not important. I feel like science, and other learning experiences that are based out of textbooks and worksheets do not benefit the students. It is as if the science facts go in one ear and out the other, no application in anyway. They do not receive the most out of their education. (science autobiography, Samantha, December 8, 2016)

### Event two.

I like how my professors have trained us to stray away from using worksheets and really strive to get the kids involved in the learning process. I think that just passing out worksheets takes away from the creative aspect of teaching. I think that my professors stress this to show that being a teacher is not easy, it takes much more work than just making copies of something found on the internet. (science autobiography, Samantha, December 8, 2016)

### Event three.

MARIA: And the topic ... So when you ... I can't remember if I talked to you about this, or somebody else, but when you get your topic to teach your unit, is it like, the, the timing of that topic, is it based on the trajectory, or like the layout of the textbook, or something else?

SAMANTHA: Um-

MARIA: Like does the district have a calendar, or there's ...

SAMANTHA: My teacher wasn't too strict about that. She just kinda told me, she said, 'We have these three chapters left in our book. You choose what you want to teach.' So it wasn't like we need to-keep a timeline or anything.

MARIA: Okay.

SAMANTHA: It was kinda like, 'What are do you feel in the mood for?'  
(informal conversation, Samantha, February 16, 2017)

Throughout Samantha's student teaching experience the elementary science textbook drove Samantha's instruction. Samantha's attempt to find a 'just right' fit also necessitated the integration of prevailing curricular norms within her classroom; the science textbook, *Interactive Science*. Samantha's unit planning on the solar system and earth materials was heavily influenced by the order of the textbook pages. It was very common for Samantha to prepare her lesson with the textbook right by her side. As discussed earlier, Samantha would often attempt to teach the textbook, but just in a different format, which often ended up being a PowerPoint slideshow.

During the student teaching component of Samantha's teacher preparation, she regularly affirmed and observed the affirmation of science instruction 'as usual.' More specifically, elementary science education was always-already an education in understanding a textbook. What does a science textbook affirm? Even after taking a course on inquiry-based science instruction and condemning the reliance on a science textbook in her science autobiography, Samantha still found that a 'just right' approach was to regurgitate whatever the science textbook said in new formats. In this way, the textbook served as the fixed regime of 'truth' *until* Samantha ran across an error.

SAMANTHA: I am also having the realization that I should have just looked straight to the state standards to help formulate my unit plan and not have looked at the textbook. There are so many errors in it!!! IT DRIVES ME CRAZY!!!  
[Samantha attached a video showing John Stewart crumbling up a bunch of papers and throwing them off a desk to her cellular text message.]

MARIA: Oh wow. Okay, now you know... for you to be able to even notice that is huge! What kind of errors?

SAMANTHA: Just little spelling errors here and there. It is just crazy to me that they would publish it with errors, like it is a textbook!

MARIA: It happens all the time and with A LOT more than just spelling errors... History and science books are usually the worst.

SAMANTHA: Those publishers and editors need to get it together. (personal communication, Samantha, February 19, 2017)

...

Today (a few days after our meeting) I received an interesting text message from Samantha regarding the *Interactive Science* textbook quality. Samantha was clearly upset by the accuracy of the textbook she was expected to use. Samantha expressed great concern of all of the errors she kept finding in the textbook. I asked her what kind of errors she was finding, and the only one's Samantha identified at this point were spelling errors. However, once she found these simple spelling errors in the book, it forced her to realize that she should have been planning directly from the state standards instead of from the science textbook. This was upsetting to her because she planned her whole unit from the perspective of the textbook. I am wondering if Samantha will choose to proceed with her original textbook plans or re-design her unit based on this new perspective. (research journal, Maria, February 19, 2017)

It was not until Samantha found spelling mistakes in the textbook that she began to question the authority it held.

### **Induction as Innate**

Samantha has always-already experienced teacher induction. Before explaining further, scholars of teacher induction might quickly say, “Yes, okay. She experienced the *apprenticeship of observation*” (Lortie, 1975). However, what if teaching ‘runs through

the veins' of individuals? What might it mean to conceptualize teacher induction in regards to those who inherently 'fit the mold' of teacher? What do prevailing conceptions of teacher induction become? As discussed in Chapter Two, current literature on induction focuses on mold-ing beginning teachers, but what happens when teachers have *already* been molded? Samantha's experiences complicate our understanding of teacher induction as innate to her very being within and outside of her formal teacher preparation.

### **A Kind of Mold/Molding Kinds**

Samantha has and continues to experience induction as a natural process of becoming who she was supposed to be. While I could continue to describe Samantha as 'fitting the mold' of an elementary science teacher, an alternative way to understand her induction experiences is that 'the mold fits her.' According to Hacking (1999), Samantha's being a 'certain kind of teacher-person' is not surprising given the idea that being 'such a teacher' is a byproduct of what Hacking calls "interactive kinds." Being a certain kind of person, in this case, 'a teacher,' is a function of an idea (Hacking, 1999). As all "ideas do not exist in a vacuum" (Hacking, 1999, p. 10), neither does the idea of inducting teachers. This conception comes through so vividly in Samantha's life long induction experiences. Throughout her life, Samantha has inhabited a particular social setting entrenched with the idea she is a 'teacher kind'. Hacking (1999) refers to this as a matrix in which physical spaces (e.g., the high school childcare center) construct more than merely social meanings. Material entities include the childcare center at Samantha's high school or the 'teacher store' she would frequent with her grandmother matter. They matter to Samantha. More specifically, they matter to Samantha's idea of 'teacher' and herself as the kind fits (and gets fitted) by 'the mold.' As Hacking (1999) puts it, "By



living that life, she evolves, becomes a certain kind of person. And so it may make sense to say that the very individuals and their experiences are constructed within the matrix surrounding the classification” (p. 11) of ‘such a teacher.’

### **‘Such a Teacher’ as Precondition**

Samantha’s induction experiences support her innate role. While this assertion originated from my analyses, Samantha also confirmed the validity of the previous claim. If induction is innate, then what is the necessary precondition? For the notion of this to be plausible, the *idea* must meet Hacking’s (1999) framework:

- “In the present state of affairs, *X* is taken for granted; *X* appears to be inevitable” (p. 12).

If *X* is Samantha’s induction experience, then we can conclude the following:

- In the present state of affairs [Samantha’s life], *teacher induction* is taken for granted; *teacher induction* appears to be inevitable.

Even before Samantha’s current state of affairs, Samantha took for granted that she would be an elementary teacher when she first became a big sister in fourth grade; coincidentally the same grade-level she taught at the time of this study. Samantha fits the pre-condition for interpreting her induction experiences as inherent to the kind of person she was meant to become. Consequently, we can also understand Samantha’s induction as an innate quality of her known and unknown subjectivity.

### **Samantha a la Foucault**

When looking across the major central themes (i.e., Goldilocks Science Curriculum and Teacher Preparation as a Program of Affirmation) and her induction as innate to her very being, Samantha’s induction experiences clearly align with Foucault’s

(1977) conception of subjectification. Samantha and her science teaching practice were quite intentionally and explicitly constructed as an effect of power/knowledge and disciplining structures shaped by prevailing traditions. The traditions shaping Samantha's induction were visible in a variety of forms: (a) the tradition of who *ought* to be an elementary teacher; (b) the tradition of familial relations to schooling; (c) the tradition of formalized elementary teacher preparation; and (d) the tradition of how science *ought* to be taught in elementary schools. These four traditions also function as institutions governing implicated subjects like Samantha; consequently, her induction experiences have been and continue to compound over time.

### **Summary of Chapter Seven**

In Chapter Seven, Samantha's conventional ethnographic study revealed two primary themes across the data analyzed. The first theme revealed how Samantha intentionally enacted of her own 'Goldilocks Science Curriculum' while student teaching. Then the second theme revealed how Samantha's formal teacher preparation functioned as a program of affirmation for supporting a predetermined role and tradition of schooling. The two conclusions interact within and across Samantha's induction experiences as innate to her very being. From the ethnographic experiences revealed, we learn how Samantha's induction aligns with Foucauldian conceptions of subjectification through her desire to be known and understand herself in relation to the pre-existing norms and traditions of elementary education.

## CHAPTER EIGHT: JUNE'S ETHNOGRAPHY (E<sup>J</sup>)

June and I always began in the middle of things (Jackson & Mazzei, 2012). In fact, our first meeting to discuss June's involvement in the research study began within multiple middles; home/away, researcher/participant, teacher/student, and friend/colleague were frequent thresholds we settled within.

This afternoon I met with June to go over the informed consent, discuss the project's involvement, and then (after she signed the consent form) we began her first initial interview. June was on her way to sing at a church in Bay St. Louis, MS from her home in Mandeville, LA. When we first began talking and throughout most of our two and half hour long meeting it felt like I was either talking to myself or an old friend. We immediately jumped into stories about life events, her concerns about getting involved in the project, and realizing that we had much more in common than we knew originally. June had just gotten back in town from a church retreat in San Antonio, TX (my hometown) the day before we met. We began to exchange stories about San Antonio, Bay St. Louis, and even our favorite coffee shop nearby Bay St. Louis called, Cat Island Coffee House. Little did I know she too had been there before and was actually going there again after meeting with me that evening!

June's main concern was her 'fit' for the 'job' [of being a participant in my dissertation]. She didn't feel like she was 100% 'right' for the job because she didn't see herself as fitting the 'teacher mold.' Also interesting, June thought that because she wasn't going to be able to hide her 'flaws' or 'imperfect' moments, I would not want her to be in my dissertation. I explained to her that this was the exact opposite of what I hoped to accomplish and that I wanted her to just feel comfortable being herself. June knew that she was going to have moments where she was going to become frustrated or lazy and did not want to have to hide these moments from me because I was conducting research. Given our previous relationship from the undergraduate course, I found that this served as a helpful touch point for creating a space for the two of us to look back on a shared experience. Like I was during the course, I also wanted to be very transparent and open about my vulnerabilities, questions, and curiosities with my own dissertation research process. I told her about the dominant narrative of 'induction' and grappled with perceptions of 'research.' For example, I even began to share with her an article I received in my email inbox during our meeting about "critical qualitative inquiry" (Denzin, 2017) sent by a colleague. I had June quickly read the abstract to get a glimpse of the ways I was trying to embrace the enactment of research as a living process that happens in a relationship. While meeting with June, I explained that I would probably try to explain many of my methodological

decisions to her so that she also gets a glimpse of and say in the research process. Interestingly, when I mentioned this to June she said, “well that is going to be up to you since I am ‘just the study.’” I quickly replied, “Not in my book. Just like you described the teacher and student as being a very human-based relationship, our work together is a very similar relationship.”

Since leaving my first meeting with June, I have not been able to think about anything else. I am constantly replaying segments of the conversation over in my head. Once my mind gets a moment to pause, I realize just how ‘wowed’ I am by June’s thoughts, our emerging relationship, and impact her views can have on the teaching profession. Today, in the midst of conversation (and afterward), I quickly forgot that June was one of my previous ‘students’ in the undergraduate course. Instead, it really felt like I was *thinking with an old friend*. When June described her thoughts, there were many moments when I felt like she was describing my own experiences and hesitations before beginning graduate school. Between our stories, it was so hard to ignore the strange diffractive and reflective relationship between our experiences. (field notes, Maria, January 8, 2017)

### **Entering a Different Plane**

We were different. We were the same. We were working with(in) another ontological plane. In each conversation, moment, message, and memory June and I found ourselves navigating *and* sitting within a plane of immanence (Deleuze and Guattari, 1987). Our interactions “reveal[ed] the ‘unthought of thought’” (Surin, 2010, p. 161). For June her being, or (as she would often claim), her person, is “an assemblage, an entanglement, a knot of forces and intensities” (Mazzei, 2013, p. 733) learning how to navigate her desires amidst the desires of others. June’s familiarity with and attentiveness to her personal complexities afforded the ability *and* interest for us to ‘go in deep.’ We relied on concepts as a counter for inquiry (Mazzei, in-press) to re-imagine what could be un/thought within and about becoming an elementary science teacher. While the sections that follow include a separate analytical commentary outside of the physical meetings where June and I worked, the dialogue between June and I also contained critical moments where we theorized together. It was within our meetings that we thought

*without* method (Jackson, in-press). Unlike E<sup>S</sup>, E<sup>J</sup> does not merely recall observations by June or myself, but rather it depicts our theoretical relationship with spaces, ideas, time, and each other.

### **To Be a Voice Without Organs (VwO)**

June's ethnographic inquiry was informed by posthumanism, therefore typical interview and data collection transformed into something different. For June's transcripts, field notes, curricular artifacts (e.g., science autobiography, science teaching philosophy statement, and elementary science lessons) images, and silences to be understood differently, "there can no longer be a division between a field of reality, a field of representation, and a field of subjectivity" (Mazzei, 2013, p. 736). Therein June and I were at home with(in) the field. While Mazzei (2013) complicates ways in which researchers might utilize the traditional qualitative interview in posthumanist ways, June taught me new ways in which our interviews and audio-recorded conversations remained within her several days after I attempted to capture a conversation through conventional transcription. For example, the following excerpts did not originate from any of our formalized meetings. Instead, June's VwO came through in various nomadic spaces, or 'spaces on the move.'

**VwO one.** I am currently at this meeting for all student teachers sponsored by the university, and considering how free we allow our conversation to be, I am struggling to sit in this chair and hear some of the things that are being said. Haha. I just wanted to share. Also, it is just a bunch of hiring representatives from different schools giving us 'advice.' (personal communication, June, February 20, 2017)

VwO One occurred around 9:00 am while June attended a required professional development seminar organized by her teacher preparation program. In the format of a casual text message between our personal cellular phones, I learned that something was not sitting ‘right’ with June’s person. Within this brief text message, several other VwOs converged: public school district expectations of newly hired teachers, norms for getting a teaching job, the unspoken expectation for June to inherently accept ‘advice’ through silence, and June’s physical squirming in her chair. The VwO above all actively occurred as June sent her text message, but they were not functioning in isolation. June’s past relationship with me, her ongoing hesitation to fully embrace her teacher preparation program, and the bodies of the women unlike her were other VwOs influencing our brief text message exchange. Further provoking new lines of thinking was June’s decision to intentionally put the word advice in quotation marks as if she was challenging the information provided by someone in power as *the* ‘right’ ‘advice.’ Advice according to who? And what did this ‘advice’ produce? Unlike her peers who were eagerly scribbling down notes in their perfectly color-coded notebooks and planners, June deliberately attempted to sit still, be quiet, and simply get through the seminar.

**VwO two.** We weren’t talking, but I know it wasn’t silent.” (personal communication, June, March 9, 2017)

We had just finished our audio-recorded meeting and were walking from June’s favorite restaurant to our cars. As we walked, we continued to discuss our shared writing challenges. Since June is someone who has frequently maintained a personal journal, she often felt like her writing could not keep up with her thoughts, and if it could, she never

felt that it did her thoughts justice. Likewise, I had decided to be intentionally transparent with my own difficulties in writing up our interactions in field notes and even in the final manuscript. She would often joke, “*you have fun with that one!*” or “*that one will probably keep you busy for a while!*” Even in these fleeting moments, it was clear to us both that our conversations were impossible to fully know, feel, and represent. VwO Two exemplifies this impossibility.

VwOs do not necessitate an audible voice. Just as easy as it was for June and me to hold a verbal conversation, we also refrained from talking with each other at times. This occurred both in face-to-face settings and across weeks at a time. There would be long pauses during face-to-face meetings and also when communicating at a distance (e.g., text messaging or phone calls). We quickly grew to trust the silence and trust the unspoken. As VwO Two reveals, just because two individuals do not talk to each other, does not mean silence inherently exists. Even though our thoughts were silent, our thoughts were always-already loud.

**VwO three.** In class right now and one of my classmates is doing a mock lesson and just said ‘writing is an extension of speaking’ made me think of our conversation...is writing an extension of speaking?... Speaking an extension of writing? Just something to think about. Haha (personal communication, June, March 14, 2017)

Again, outside of our many audio-recorded conversations, a VwO emerged. Almost a week after discussing the role of voice in our writing, a classmate’s choice of words triggered June to push our thinking further. To what extent *does* writing connect with speaking? While linked, can their relationship ever adequately support the other? And if so, does it also adequately reveal one’s thought? June helped depict how the act of

thinking and/or one's thoughts also existed as a VwO. Our collaborative and independent thinking also functioned as VwOs.

### **Life at the Threshold**

Today June and I are meeting at Cat Island Coffee House in Pass Christian, MS. After coordinating logistics (time to meet) based on several geographic locations (i.e., New Orleans, Ellsner City Central, Mandeville, Slidell, Bay St. Louis, and Pass Christian), I am just realizing the nomadic parallels between my life and June's. We both live throughout the Gulf Coast. We do not maintain a stable residence. (field notes, Maria, February 12, 2017)

...

Today's meet-up mimics a type personal geographic and spacial touch point between June and I. Today we are going to a space (Cat Island Coffee House) that intersects my entire immediate family. My husband (Donavan), my two dogs, and I are now also implicated within June, and I's research experience (June previously approved of Donovan's attendance.) Cat Island Coffee House is not just any coffee shop, but also the regular favorite spot for Donovan on his way to work. He and I have taken family friends, Donovan's potential new students, and our dogs to this space. It is unlike any other coffee shop. Time moves differently here. Cat Island Coffee House is literally in a house with a wrap-around front porch that overlooks the sandy white Gulf Coast beaches, and then off in the distance the barrier island, 'Cat Island,' the coffee house is named after. This space contains both a social and intense geological history. The reason I know this is because the horizon filling the floor to ceiling views for all Cat Island customers is one of the very field sites in which Donovan studies as part of his scientific research. Beyond the geological understandings of coastal erosion, storm surge, sea-level rise, and coastal hazards affecting the very land Cat Island Coffee House is situated on, is that ten miles away in Bay St. Louis (where June sings on Sundays) is also one of Donovan and I's favorite spots to take our dogs. The same beach that Cat Island Coffee House overlooks is the very beach my entire family sinks their toes and paws into regularly. Today this will happen again. Donovan and I will meet June at Cat Island Coffee House; I'm sure Donovan will give his overview of the geological history; we'll all swap stories of our connections to the place. (field notes, Maria, February 12, 2017)

...

Because June and I are always coordinating meet-ups in relation to close personal spaces (e.g., our homes, favorite restaurants, or near where June records music in Mississippi) our conversations always seem to be formed by the space in which we meet. In each meet-up location with June, we both find ourselves reconnected



to past, present, or future moments in both of our lives. (field notes, Maria, February 12, 2017)

The threshold was both physical and figurative. Cat Island Coffee House signified a physical convergence of human and non-human intra-actions (Barad, 2007). Cat Island Coffee House, like my writing, also lived in the figurative and emotive spaces of a philosophical threshold. My work with June involved residing within a home that was *always* both/and. However, there were limits to the threshold.

June also lived at the threshold, yet was often expected to exist elsewhere in her process of becoming an elementary science teacher. Throughout her teacher preparation experiences, June was neither expected nor assumed capable of engaging in deep thinking. In fact, there were many times June would remind me that the thoughts she and I entertained would never find their way into her teacher preparation coursework. To her peers, June already lived at the threshold, but for her to think even further beyond the norms of ‘teacher’ and ‘teaching’ would be unintelligible.

E<sup>J</sup> was also conducted by living at the threshold of inquiry. While there were many moments that illuminated this inherent quality to our work, several months into our work together June mentioned one thing that surprised me. She explained that her participation in this study carved out space where she knew her thoughts were being processed rather than passed over. June unknowingly realized that this study worked as a threshold, and thus opened a space for not just my thoughts, but her own thoughts to linger. Alternatively, if June had shared similar thoughts and questions about becoming an elementary science teacher with even her best friend, Justine (who also studied elementary education alongside June), they would be sloughed off as incoherent. From

this, I began to see that a (post)ethnography is a form of research that also lives at the threshold revealing generative spaces for both participant and researcher to trust that the other fully processes each other's complexities. Together, as student-teacher/teacher-student/researcher-participant, June and I un/made cuts and escaped boxes.

### **Maneuvering Boxes**

*The box* is an assemblage (DeLanda, 2004; Deleuze & Guattari, 1987). More specifically, the box is “a heterogeneous collective of elements both material and non-material, that come into composition in different ways at different times to produce a particular activity” (Strom, 2015, p. 2). While Strom (2015) focuses on teaching as an assemblage, June's conception of *the box* extended into all aspects of life from norms of schooling to definitions of ‘life success.’ The box, as an assemblage, “leaves space for the consideration of desire, how it produces social relations, organizations, and distributions” (Bazzul & Kayumova, 2015, p. 3), leaving it as always unstable and in flux. Each of the following moments encompassed a series of unfinished mo(ve)ments.

Rather than a formalized process of getting an undergraduate degree in elementary education and becoming an elementary science teacher, June cautiously examined her teacher preparation/induction experiences *as* an ontological engagement. For June this looked, sounded, and felt like using concepts (e.g., ‘the box’) as a *contour for minor inquiry* (Mazzei, in press) where her voice might be rethought in the threshold of her-search. Throughout June's search, we deterritorialized ‘the box’ together by theorizing a “process of un-coding habitual relations, experiences, and ordinary usages of language in order to separate the constructs of a major language that orients dogmatic thought and thereby method in a specific manner” (Mazzei, in press, p. 3-4). In the case

of E<sup>J</sup>, we made minor movements for re-thinking major language (Deleuze & Guattari, 1987) of induction as a performative act.

### **Making Cuts**

I did not know what to do. I did not know what to write. I attempted to analyze the ‘in-between’ of our conversations, but still, I could not. Again, I ran up against writing paralysis (Bridges-Rhoades, 2015). In my state of paralysis, I even sent June a personal text message communicating my challenge, as she was the only one who could fully grasp my difficulty. Each time I wrote I created another cut (Barad, 2007). Each cut produced a new material, but cuts also “[instituted] difference, [created] binaries, and [produced] hierarchies” (Taylor, in-press, p. 3). To continue writing was to continue making cuts. Even more, to continue writing was to continue making cuts *for* and *around* June. June already felt the cut both in a Baradian (2007) sense, but also in formalized processes of becoming an elementary science teacher.

In our very first one-on-one meeting, June quickly revealed how she constantly compared her induction experiences *and* personal life experiences in relation to the ‘cookie cutter’ model of production. Unlike many of her peers, June grew up in a family that was perceived by others as less than desirable for raising children. Her parents were often out till the early morning hours singing or playing concerts in New Orleans. Every aspect of her life was not as neat, tidy, color coded, or predictable as many of her peers completing the same elementary teacher preparation program. Whether it was June’s frequent observations of her peers’ perfectly printed handwriting against her free-flowing cursive handwriting, June always witnessed a tension between her induction experiences and those of her classmates. She remained quietly curious about her differences, while

many of her peers attempted to internalize every aspect of the perfect teacher image they could.

Which, that's what makes me, like, the person that didn't grow up, like 'I'm gonna be a teacher like' - It makes me hesitant, like, am I cut out for this, like, would I be a successful teacher? Would I be able to like, in my flaws, would I still be more of an official to them [her students] as opposed to not putting myself in that world to be a benefit you know? (informal conversation, June, January 8, 2017)

In the exchange above June initiated the notion that being 'cut out for teaching' as something that was an intrinsic quality somebody accepted before beginning a formal teacher preparation program. Even though June held childhood memories of 'playing teacher' with her stuffed animals, she, unlike many of her peers, continued to question teaching as her future career. Her hesitation was driven primarily by seeing herself as a flawed human being, thus causing further questions regarding her ability to make the cut as a teacher. For June, being a teacher was seen as fulfilling the cookie cutter model of perfection she had felt pressure to align with for several years as a K-12 student. To be a teacher was to maintain the prevailing standardized image of 'success' one acquires through perfectionism.

And that's what I mentioned earlier about -... Looking at everyone in our program um -... Like everybody in our program, like you see girls and it's like this cookie cutter form of what a teacher is and isn't, for me, it like creates like a scare of, scare of failure. Like you can't -...Um. Like you're, you have to be perfect... Like you can't, it's this perfect vision of what a teacher is and get it right or don't or like - ... And like I think that's one of the reasons I liked your class so much because it was like making me feel like I wasn't crazy for desiring that, where in that cookie cutter world of teachers it's easy to feel like that so... So I think that's why it was so hard for me to connect to teaching because in other aspects of life

it's easier to think like that...Like in music, I don't have to be like anybody else. Like in-... Just in my family, I don't have to be like any- there's so many other aspects where as like the school, I always always felt like I had to do this or act like this or be this or that and this this this. And because I'm a people pleaser like I struggled and fought like the whole time doing it. And I think that's why I had a hard time or maybe why I felt like I wasn't cut out for teaching or I didn't fit in, or I didn't whatever because I couldn't find my niche. Because 'this is what a teacher was.'...You know? (informal conversation, June, January 8, 2017)

While many find a sense of security in being able to predict a replicable model of being a teacher and the act of teaching, June did not. Being a teacher was to fit a pre-existing mold of perfection. June and I have yet to figure out who the need for perfection benefits. She constantly questioned her ability (and desire) to 'make the cut' as a teacher. June's questioning of her fit for the mold was initiated before she even graduated from high school. Through her regular desire to please others (i.e., people, systems, and even a piece of paper containing a checklist), or as June would say, 'please the box,' she fought with herself. Being a good musician and being a good student were two very different acts. Yet, June was both, and each was associated with two very different images of 'perfection.'

MARIA: Yeah. I was just thinking too. You talk a lot about the flaws, that everybody is flawed, which is also beautiful. I am wondering where ... Because before--it makes it sound like you thought there is like a perfect world kind of. Well, I guess you talked about the cookie cutter too.

JUNE: Because it felt like that. For me, it did when I was walking into it and when I thought about.

MARIA: Was that just the teacher ed program or the world in general? Like there was this certain cookie cutter...

JUNE: I guess for me I looked like growing up I saw my life and then I would get glimpses of other people's lives, and I thought that there was a perfect life that existed and that I just didn't have it. So it was like okay ... Obviously, as a teenager, there were moments I was angsty about that.

Now it is more understandable. One of the guys I dated for three years at the end of high school into college. He was Mormon. They look perfect. From the outside, absolutely perfect. Everything that my family and my life was never. I was like wow. They were just this ... Stepford wives, just perfect. There was beauty in that.

It made me think so much more about this concept of being flawed and being authentic and real and grounded. Having some scuff marks on you. You know.

MARIA: Yeah. I think it is always interesting to connect back to the idea of a flaw as what's authentic too.

JUNE: That is how I feel now. I think if I look at ... Well, I don't know. It's all based on perception too. That's what's tough. Some people have a seemingly perfect life, and they are perfectly happy with it. It's what suits them and its where in my opinion where God placed them, and they can do.

My perception I think of the program I think ... It was such a ... Because ... Okay, this goes back to the humanness thing. I connect it all together. Whereas some people separate it. Their life and then their career.

For me, everything was always jointed. Because of that I was take this home, human, growing up as person into college, into this career minded perfect world, don't mess up, do it right. At the same time, I was developing a perception of myself where it is okay to mess up. It's okay to ... Look at where I am now. I don't think I would be here if I didn't have all that hardship growing up.

So I am like bring on the hardship because I think it forms character and I don't know.

MARIA: Yeah, that is interesting because the idea that ... You felt like you saw so many people compartmentalizing various aspects of their experience as a teacher.

JUNE: I still see it ... I am not going to give a name, but there was a girl in our program last semester who is so on top of everything,

compartmentalizes everything, school, school, school. She had a breakdown at the end. A life type of breakdown.

A good friend of mine had to talk to her and kind of bring her back to earth about like ... “You are a person. You can’t over extend yourself this way. You have to nurture both sides.” (informal conversation, June, January 10, 2017)

At the same time that June was beginning to foster possibilities for herself to ‘mess up,’ she was also trying to make the cut as a ‘teacher.’ June always lived in tension. In this way, June (and her classmate), held “the face of a given teacher [contorted] by tics and bathed in anxiety that makes it a ‘no go’” (Deleuze & Guattari, 1987, p. 177). Unlike her classmate, June could zoom in and out amongst the phenomenological relationships shaping her ontological positioning. Since June was able to visualize the ways she moved and experienced (intentional and unintentional) cuts by her induction experiences, she was also able to locate spaces external to the machine of teacher induction to breathe. Deleuze and Guattari (1987) further explain: “The teacher has gone mad, but madness is a face conforming to the *nth* choice (not the last, however, since there are mad faces that do not conform to what one assumes madness should be)” (p. 177). June and her classmate were both ‘mad.’ The abstract machine had both “recognized” and “inscribed [them] in its overall grid” (Deleuze & Guattari, 1987, p. 177-178) as a computation toward the desirable elementary science teacher. They had been cut and therefore made *the* cut.

### **Getting Developed**

Teachers get developed by others, rather than from within oneself. During June’s induction experiences, she was required to participate in multiple ‘professional development’ seminars throughout her student teaching placement. Looking back on our

discussions of these seminars, they seemed to provoke more feelings of uncertainty for June than a sense of support. The last session seemed to leave the deepest impression in June. She could not sit still.

JUNE: I just, it's so frustrating to me. It was frustrating for me to sit there and think that these people [school district representatives leading a university organized professional development seminar] are basically judging each of us before they even know us. I get the concept of it. I understand, but to me, that's more of the corporate world. We are literally like, these are your children. These are kids. What do you tell your kid everyday? You can be whoever you want to be, sweetheart. Like that's what we tell kids, but then yet like us as teachers are told something different. I just don't, you know don't me wrong. Obviously, there's like appropriate behaviors and like you know.

MARIA: Yeah yeah.

JUNE: I'm not being clear.

MARIA: But it's how you're viewing the experience or what's coming at you. (informal conversation, June, March 9, 2017)

...

MARIA: Well what is um, well there's two things that just jumped out at me. So, you said it felt like [the professional development seminar] was very biased. Like biased toward what I guess? What were they telling you? What did it seem like?

JUNE: So, I felt like every time we talk, we think like, so we break the box. We think about teaching in ways that, or even not just teaching but humans in a career, like anything. We just think very openly, and then I sat in that room and immediately just felt like closed in by the box. And like all the check boxes that I had to make sure I check off before I start applying for jobs. Make sure I had checked off as I walked in. It just really like made me feel defeated because I also heard all my peers, because there I was again like, my peers sitting with Loft models that will now apply for Loft and get the job because they fit the description.



MARIA: Before I forget I have to say, so you just said something about like, we tell our kids, we tell the students, you know I want to ask them like, what do you want to be when you grow up? You know? My Mom just actually randomly told me, she was like, I heard something crazy today. Or like crazy inspiring like in, I need to stop doing this. She said instead of asking kids what they want to be when they grow up; we need to start asking them what problems they want to solve. And I was like....

JUNE: Ooh.

MARIA: Oh my Gosh, mother. haha

JUNE: Yeah, that's good.

MARIA: And so then I think like that made me think about, okay, so if we're asking a kid all the time, what do you want to be? What do you want to be? And then to hear you then talk about the Loft models applying for the Loft jobs, then like....

JUNE: True. True.

MARIA: What is the emphasis on being a particular thing?

JUNE: They've accomplished it. Yeah, that's true.

MARIA: But also like if that's the only way that we're thinking about it is filling specific identities –

JUNE: Right. Right. (informal conversation, June, March 9, 2017)

...

MARIA: Okay. Okay. And then there was like a panel set up with the speakers from the different districts and everything?

JUNE: Mmhmm. And they were basically just like, do this, don't do this. Do this, don't do this. And everyone was just taking notes, and I was just like checking my watch. It was literally going in one ear, I couldn't even tell you a bunch of [the information] because I just ... it was bothering me that we were supposed to like receive the information, rest easy on the fact that if we just do it we'll be fine, we'll get a job. And it just didn't I don't know. It just did not sit with me...

I don't know. It's really hard to explain like how I felt in that moment too because it just set me back. It made me feel, funny how I feel, how I felt previously in the program.

MARIA: Oh okay. When you first started out?

JUNE: Yeah. Just kind of like well here I am listening to these people tell me all these reasons why I can't be a teacher. And all they are doing is telling us how to be.

MARIA: Yeah.

JUNE: It was weird. It was weird.

MARIA: Wait say that again. You felt like all of them were telling you-you can't....

JUNE: I was sitting in that chair, and I felt like I was being told all the reasons why I can't be a teacher.

MARIA: For everybody else it was....

JUNE: This is what you be to keep teaching.

Getting developed was being told to rest easy. Getting developed was getting 'the Loft' job (i.e., a national clothing store brand) these elementary teachers set out to accomplish the necessary training. June was not a Loft model. June was not resting easy. Instead, she continued to feel a process of being phased out of the final cut for becoming an elementary science teacher. She wondered why not her?

"This is what you be to *keep* teaching [sic]" implied that this was a 'make or break moment' for the district representatives. It suggested they, June and her peers, were *already* teachers, but they could easily not continue teaching if they did not align themselves with the definitions the district set forth before reaching undergraduate

graduation. June had been a teacher, but this professional development session marked another series of cuts. With each cut, June experienced induction.

### **Attaining Certification**

June's induction experience also paralleled the formalized process of earning her teaching certificate. From completing her student teaching portfolio to taking standardized certification exams, June worried about her ability to check all of the required boxes. She was concerned that her (re)presentation of herself would not satisfy the necessary image and requirements for becoming a certified teacher. Even though June was capable of exceeding the expectations of others, she believed that checking all the right boxes was her minimum level of performance. Surfacing through modes of standardized assessment, June's minimal effort, and interest to *just* check the right boxes were her peers' highest level of attainment.

JUNE: This is a test we all knew we had to take. Most of us –Didn't have to take the first one because our ACT score made us pass the Praxis 1. So we're all studying for the Praxis 2 um, multiple subjects then the PLT (Principles of Learning and Teaching)...I'm a terrible tester, I took the ACT many times, you know, and I mean I got like one point higher each time, and then I got like one point lower the last time and I didn't do it again cause I'm like whatever. So this test (the Praxis), I was like, I didn't study, I didn't open one book. Not one book -And I passed the first time. So I passed both of them the very first time, and I didn't study at all. Where like someone that I, like, like Fatima she's someone that, I mean she is in -

MARIA: She is very focused.

JUNE: [She] does every- one of like, what I would say myself was like in high school, the person that did everything she was -To-At least that's how I see it, how I see her...And she studied, over flashcards everything, everything, everything, and she struggled. She struggled to pass it. I mean, she had to take it many, many, many,

many, many times. And still didn't. I still don't think she passed the social studies. Like at the end, like she is, I think she -Did but, it was like they had to extend the deadline- it was like a lot of pressure...And she studied, so it's like wait, how?... And I did not study at all...Like not study. Zero, didn't even open a book. I mean granted, I do pay attention in class, I do apply myself, but so does she, so it's -

MARIA: Yeah.

JUNE: Like. And the multiple subjects test, that's like um, trivia test...I mean those tests are very trivial....It's very much like -Like knowledge...It's like -. Almost taking the LEAP again. (informal conversation, June, January 8, 2017)

June compared taking the standardized test for teaching certification to the state standardized assessments (e.g., LEAP) she had taken as a K-12 student. June always achieved the normative definitions of teacher success. Even though she worried about meeting the necessary level of achievement, she always did well. She always made the cut with ease. Yet, June questioned why many aspects of her formalized certification requirements were easier for her than her classmates. If acquiring a certification in teaching is a rite of passage being identified by others as a 'teacher,' June easily gained this title.

JUNE: They have to see that I'm making progress, and see all those things. Um, but my, my ... I'm struggling now because I see so many teachers that don't check the boxes that I'm being expected to check, and those are the teachers we are working under, and it's ... So I'm just confused of what boxes am I looking at here, you know.

MARIA: Right.

JUNE: Like what is ...

MARIA: And who like, who's defining the boxes?

JUNE: Yeah. (informal conversation, June, March 9, 2017)

As June prepared her final portfolio materials, she became increasingly anxious about the likelihood that she would meet all of the necessary expectations for graduation. June felt that during the previous weeks of her student teaching placement she experienced more freedom in her science teaching practice, but then as her program deadlines began to encroach, she felt less and less confident. June was confident that she was a good elementary science teacher, but less confident that her ideas of ‘good teaching’ checked all of the standardized boxes against which she was to be evaluated. However, there were many moments where June took pride in embracing her personalized teaching practice. She felt that ‘good elementary science teaching’ did not always check the proper boxes.

### **Thinking Thoughts**

June and I thought together often. She pushed me to think beyond threshold, to think about how reterritorialization and deterritorialization (Deleuze & Guattari, 1987) occur together. I listened and attempted to make sense of the multidimensional layers entrenched in her thoughts. There were (and continue to be) many days where I have to re-read and re-visit June’s deep contemplations about engaging in school, learning to teach, teaching, getting a job, and being human. We both wondered and discussed the role of thinking in our work together, but also in our work in education in the multiplicitous being student/teacher/researcher/participant. The next series of dialog was initiated by June when she was talking about how she began thinking about the design for her fourth grade Solar System unit.

JUNE: So like now although it doesn't seem like there's a lot of detail, in my mind the details are there because I know how I think and I know how I want to create it. I don't know.

MARIA: No no no.

JUNE: What are you...?

MARIA: I'm just thinking.

JUNE: Okay. Because....

MARIA: Because I think ... first, off I realize how common and powerful the word thinking and thought are, lately. Okay, so those words are sticking out to me, and for you to say, *I know how I think*, and that, I'm just trying to connect it all up, but I know how *I think*. So this is the way of planning or thinking about your lesson behind the scene goes?

JUNE: Not necessarily. I mean I can do, if I look at a template for a lesson plan, I'm going to fill it out, I'm going to do what it's asking me to do.

MARIA: Okay.

JUNE: But I will find like I, I think one of the reasons why it would take me like hours to write a lesson plan. Just one lesson plan. Because I like thinking so creatively, and I know you can't be creative with every lesson plan, whatever they say, but to combine a way...Imagine this, combining a way for the amount of time I thought creatively, for that to be transitioned already as opposed to me having to think. Then I think, and it's oh my gosh, that's so bad. Then I have to squeeze it back into this (points to a lesson plan template). Does that make sense?

MARIA: Yeah.

JUNE: I struggle with that. I think that's why it takes me so long. Because I'm like oh I think this is, even how we talk.

MARIA: Right right right.

JUNE: Why are you having such a hard time organizing like everything we've said and to try to put it into words? Well because you basically broke the barrier and are thinking and expanding and talking.

MARIA: And now somehow....

JUNE: And now you have to bring it back there for understanding of the normal human? I'm just like I don't know. I just....

MARIA: Yeah, well you're being forced to reduce your thought to a particular way of representation....

JUNE: And not that, there's a problem with that, the problem that we, like maybe someone would look at us and not understand it at all. I would look, you would look at my planner, Justine would look at my planner and think, how do I survive? You know, I would look at Justine's planner and think, well there's jealousy pulled from the fact that it feels like it's supposed to be like that. But I think I have no clue how you do that. I couldn't if I tried. I have tried, and I failed. (informal conversation, June, March 9, 2017)

How do we make dynamic and unstable thoughts intelligible to others? June and I both struggled with this ability. It would take June hours to condense and translate her creative arts-inspired elementary science lessons into the pre-existing linear format she was expected to utilize for preparing lesson plans. Likewise, June was aware of the challenges I faced in writing up our shared experiences. We both knew it would be very unlikely that I could do them complete justice through language. As June said earlier, even the unspoken moments were not silent. If this is the case, how was I to write up this silence? June attributed her challenge of being able to quickly write up good science lesson plans to the fact she “lacked secretary skills” (informal conversation, June, March 9, 2017). While many of her peers, like her best friend Justine, were caught up color-coding every aspect of their personal planners and lesson plans, June would often pretend to keep a perfectly organized planner like her peers. One time she pulled out her planner to explicitly describe how she performed ‘good elementary teacher’ on some days and then would ‘fall off the wagon’ the majority of the time. For example, the first week of

semester visually appeared just like her peers. It had perfectly printed color-coded handwriting, detailed notes, and deadlines. Then she flipped a few pages and the rest of her planner was either blank or had giant black cursive handwriting spreading over multiple days in her planner. Yet, June surprised herself by continuing to carrying around her planner in her bag even though she found it useless. Since it was possible to demarcate the limitations of her thoughts outside our conversations amongst her peers or in relation to ‘the box’ of becoming an [perfect] elementary science teacher, June felt simultaneously trapped *and* free within her deep thoughts. She knew how she could work the edges of the box to be more malleable, but over time this work grew cumbersome.

### **Contemplating Selves**

We thought about subjectivity often, although, we never actually used the term. June and I would lose track of time exploring ways our subjectivities maneuvered ‘the box’ for several hours at a time. It was through these mo(ve)ments we explored our inter-relationship as teacher/student/researcher/participant. June and I enacted and questioned *all* of these subject positions.

MARIA:        You know. But then also I realize that [a both/and] perspective is not one many people can take.

JUNE:            Yeah, that’s the thing. And I but, you know what though, at the same time, I don’t know. I’m up for the challenge too. The more I learn to accept myself, like the more comfortable I am with like facing the world because yeah it annoyed me sitting in that meeting and listening to those people (school district representatives)...To how they were speaking, but if anything, it made me like that much more proud to be like the type of person I feel like I am more and more excited to like get out there and be like, I just toured the world playing music for two years, and now I’m in a third grade classroom kicking butt, you know? With my



students. (laughs) So I just don't, I don't want to put a barrier on my life...Just like I don't want to put a barrier on the things I do.

MARIA: Right right. Yeah, that's so interesting. This has been I feel like a theme across things that I keep reading back about is like about when you grow older or like when you're aging, you feel like more comfortable with what you're doing.

JUNE: Like that's a really, that's a big thing for me. For sure.

MARIA: And that just connected for me at least when you said like, the more I've learned to accept myself, the more okay I am with whatever I do.

JUNE: I think it's been, what's interesting too though is, I think it's been a lot of just personal family stuff too like just learning that like it's not the end all be all. Each instance, moment, I would put so much weight on and I would put so much pressure not only on just myself but the people that were close to me and my expectations were so high and I just realizing that it's okay I guess to have high expectations for yourself, but putting high expectations on another is not necessarily ever good. Now, I mean, I'm not going to say ever good, but I don't know I feel like I've learned a lot from just growing in my life. Like my personal humanness life. That's allowed me to kind of separate, or not separate, mold, like mesh together, my career and my humanness...Like not be fearful that it would hinder my ability to succeed in like a career...Because if anything now I'm like, I'll make my own career then, I'll make a whole new category. Like (laughs) you know, cause it's just not worth peeling away like the bits of you to like squeeze into something. I just don't...And I don't think at 22 you know you yet either, so you may have to alter and adjust your shoe category as you go...I mean it's really. I don't know. It's crazy. It just is. I got upset that my supervisor got mad at me that I wore Converse because that's my style. In two years I could hate Converse. It could not be in my style anymore. Like maybe I do start to like those clothes from Loft, like ironically. Everything is constantly changing and the more, like static and dynamic. The more people try to remain static like I just feel that's the kind of work or result or outcome you're going to get, is a static one.

MARIA: Gosh. Static and dynamic. Sorry, there's so much going on, and I just think it's interesting that you go back to the term static and dynamic to describe like your experience because that's what you were also teaching your students.

JUNE: Well those stuck out to me so I taught that because I could've taught anything with dance. It didn't have to be static and dynamic.

MARIA: Yeah yeah. It's just I've been thinking too about how, whether it's like, cause every, I've been struggling a lot. Everybody keeps saying like you know, like when somebody asks you where's your home? What do you say?

JUNE: Mmm.

MARIA: Like for me, I have a hometown. My parents live in San Antonio. But I started thinking really deeply. Like this morning I realized, my home is wherever my memories are. And that could be in the classroom, that could be at you know....

JUNE: Yeah, I like that a lot.

MARIA: That could be walking down in the garden, walking through nature, whatever.

JUNE: But if that were to be the case, then your home would be many places.

MARIA: Yeah. And that's what I'm realizing that my home has been and will always be many places.

JUNE: You have a dynamic home.

MARIA: Yeah.

JUNE: A moving home.

MARIA: Right. And so the whole static, dynamic part is....

JUNE: And that kind of goes back to what we were talking about, our kind of nomadic lifestyle. I mean like I'm, I travel a lot, and you travel a lot.

MARIA: Yeah, cause I was actually reading something about nomadic inquiry and how that, and I was like, this is what I've been doing. This is what I love; I live everywhere all the time.

JUNE: Yeah. That's true.

MARIA: And so, lots of people think that's crazy, but I think it's like oh my gosh. That is it.

JUNE: For a long time I didn't think, like if I'm going to use an example. When I leave like our discussions, usually I'm like yes. I'm on the right path. I'm good to go. Like even if I, like I feel good. Then I leave that big meeting with all of [the other student teachers in my program], and I'm like--Like walking around like a sloth. Like just, and not even, it's just small things. It's not like I'm going to leave here after our discussion and go like conquer the world, but I think, and I think this applies also in the classroom. Everybody always feels good when you're given validation for being yourself. You know?

Like it will always feel good. Like my little big [refers to a fourth-grade student by name] who can't stop moving around. Like why is that a bad thing, you know? That's him. He likes to move around. Which I was kind of looking up different cool ways of managing that and I found some cool ones, but it's just like it just feels good, whereas a lot of people would look down upon a conversation, this crazy conversation, I would have to get validation for it. It's nice. And that's what would keep you coming back when you get the validation for something. That's the key. The reoccurrence of it, you know? I just....

MARIA: Yeah, it's so... I don't know. It's so, I guess, but I don't even know what to say, June, there's just so much going on. I'll just tell you what I drew right now

(I refer to the scribbled notes and conceptual drawings in my personal notepad I had been taking.)

During all of our meetings, I would scribble notes and drawings that resonated with our conversation. Figure 11 is one example where we talked in depth about my jottings. As depicted above, there were many times in my conversations with June where I did not know how to respond or ask the 'right' next question due to the level of depth at which she often communicated her experiences and her ideas with me. At the moment, the only way I knew to keep our conversation on the move was by sharing my jottings with June, so we discussed Figure 11. Figure 11 provided a shared language for June and me to

continue theorizing together. I did not know what would happen after I shared these jottings with June, but she continued to move and think with me.

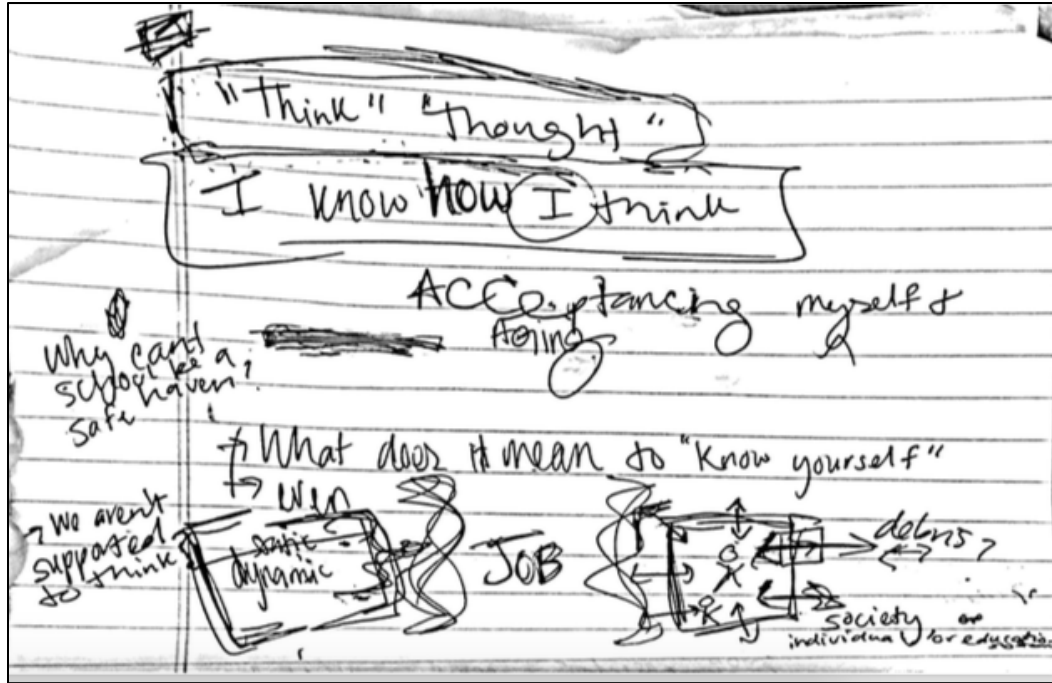


Figure 11: Jottings Between June and Maria (artifacts, June, March 9, 2017)

JUNE: Okay.

MARIA: I drew a box with lots of arrows that are going in and out.

JUNE: Right.

MARIA: So I'm feeling like we, what we are doing, is figuring out how to maneuver, go in and out.

JUNE: Yeah.

MARIA: Often.

JUNE: Yeah.

MARIA: So it's like fitting within the box, moving out to like breathe kind of.

JUNE: Mm-hmm (affirmative)...Now do you think as you enter and exit the box, would it create, you know, would it?

MARIA: I know what you're saying.

JUNE: Creating holes to where at one point there would be no more lines?

MARIA: Oh my gosh, June.

JUNE: You know?

MARIA: I don't know why I wouldn't think that. Oh my gosh. I didn't even think about that.

JUNE: At some point would you maneuver enough to reach....You'd like wedge it out, so it's so much easier.

MARIA: Or like, sorry, now I'm getting like crazy. (laughter) What debris do you take with you?

JUNE: Yeah, that's true. But if that's the case what would you bring back with you into the box?...Because at one point wouldn't everything just not be segregated anymore?...But then are there thousands of other boxes or is it just everybody else's individual box existing or is that just...Or is that the individual box?... Are there individual or are there many? Is that the individual box? Is that society's box? Or the education system's box?

MARIA: I don't know. I have no clue, June.

JUNE: (laughs)

MARIA: Oh my gosh.

JUNE: (laughs)

And I think what I struggle with now that I have this decision to make the potential space for [time to think], I don't want to because I even see it some days I fall into it, some days I might feel like a need a day, I'm like no. I know me. I'm going to push that on, and then you get, but this world has a way of beating you very easily. At least if you don't think like it does... You know if you think like it does you fit through the machine fine. But I don't want to just fall into, I mean you know this too. I can very well graduate in two months; I could have a job in August. I could teach. But I don't want to be the one sitting in that, whatever

vertical planning meeting, thinking to myself, this is all pointless because no one's on the same page as me. I'm not gonna like, no one is thinking like this, so how am I supposed to.... That's why, these thoughts, imagine in our [teacher preparation] program, you know. I would never have been able to express of this stuff amongst all my peers. Ever. And how long has that been?... But I mean like I've been this way since all the years of my schooling, you know. How come no teacher? Now, my theater classes did that for me. Like I was in talent and theater in high school. Well, I just meant, if teachers, imagine if teachers had seen that kind of stuff in me and was able to help me bring that back, like help me, help me with the fluidity outside the box.

...

MARIA: Right. Right. Yeah. And so looking for somebody that helps like to navigate the fluidity.

JUNE: I don't know what that looks like. I don't know if that looks like smaller classes. I don't know if that looks like more of a like a pull, like pull outs, I don't know but, it's gotta be possible... But that may never be like necessarily reachable, even in my lifetime... Based on how education's state system is based on how it all works.

MARIA: And I feel like there's this divide between what we desire and what is possible.

JUNE: Yeah. True. (informal conversation, June, March 9, 2017)

Figure 11 is a VwO. It does not speak, but it is not silent. Figure 11 moved in and out of being present within our deliberation of how to un/make sense of our selves.

Through drawings like the scribbles present in Figure 11, June and I better understood each other's thinking. There were times, like this, where one of us would quickly pull out a piece of paper to literally create maps of our ideas. Whether ideas about the world, our humanness, or the next science lesson up for possibility, June and I actively reconfigured the ways we knew our selves.

### Induction as Performative

Today, June is meeting me on her way back to her home in Mandeville, LA from singing at a church in Mississippi.

At breakfast this morning, I was talking with Donovan about my meeting today. He has heard about my meetings with June many times before today and can clearly see my enthusiasm for meeting with her and any other prospective dissertation participants. He jokes that I am going to have pick just the right out fit out for my meeting.

DONAVAN: Let me guess. You are going to wear boots, jeans, and some kind of cozy sweater with your glasses?

MARIA: No. Maybe. Probably, but no glasses.

MARIA: I am concerned that since we are meeting at Starbucks, the background noise might be too loud for the recorder to clearly pick up our conversation if we complete the first interview today. Let me try it out here with you now.

(I get out my phone and open the Voice Memo application, and we practice talking to check the sound quality.)

MARIA: Okay, it should be fine. Let me go get ready for the meeting now.

(I shower and put on jeans, brown boots, and cozy brown sweater.)

DONAVAN: Wait. You are even putting on make-up?

MARIA: Yes. I mean I was June's previous 'teacher' last semester....

DONAVAN: So, you're going to put on your 'teaching necklace'?

This is a running joke between the two of us. He says that whenever I am 'teaching,' I almost always tend to wear a 'teaching necklace.' I don't have many necklaces, so he is usually referring to my brown beaded necklace with several five gold rings dangling from the bottom. I do wear this necklace often and usually when I am teaching. This necklace actually goes back almost ten years to when I first started teaching elementary school in San Antonio. Many of my students (?) have made comments about this necklace as well. (field notes, Maria, January 8, 2017)

In preparation for my meeting with June, I still felt the expectation to perform ‘teacher.’ Here I found myself living at the threshold again. Not just physically in the town where I sleep at night but within the ontological state of being-researcher attempting to attain a participant who also happened to be labeled by others as my ‘student.’ Alternatively, as seen in the previous pieces, our relationship quickly removed these conventional boundaries where territorialization of a particular subject position had the great likelihood of enactment. Even though my work with June erased these expectations between the two of us, June continued to experience induction into becoming an elementary science teacher as a performance. Or as Roy (2003) described, we “mov[ed] beyond a critical approach, we [were] driven to the performative edge of those boundaries, and [could] experimentally observe how we [were] constituted at their conjunctions; we enter[ed] a praxis” (Roy, 2003, p. 29).

### **Playing the Part Well**

Given all of June’s questioning of herself and her ability to make the cut as an elementary science teacher, I began to wonder if her level of hesitation was visible to her peers or previous education professors. Filled with hesitation and confidence June knew exactly what she was doing. June recognized the necessity to perform a certain elementary science teacher positionality that misaligned with ‘her being’ to earn her degree in elementary education.

MARIA:        Okay. Um. So I guess, in that, so one of the things I was thinking about too is that, do you feel like- I mean, you kind of alluded to it a little bit but do you feel like others in your program or your cohort have seen you as like somebody who might st- have struggle through the program?



JUNE: No...I don't think um, I think I play the part pretty well. (laughs)...Um, I feel like I've done everything I'm supposed to do, but I bet if you ask everybody in my pro- in the same program as me, if they thought that June is gonna like be a teacher or probably like pursue something artistic like music or something, they'd probably pick music. But I think if you asked them do you think- if she does choose to pursue teaching, do you think she would be, you know like just as good as everybody else as or you know, whatever- I think they would say yes...I think- I don't think anybody looks down- down to me or anything like that. (informal conversation, June, January 29, 2017)

June performed 'elementary science teacher' well unless, of course, she was wearing her infamous Converse shoes. Many schools would love to employ her as an elementary science teacher. However, June's mode of performativity was not merely 'putting on the right show;' that is, ascribing to a representationalist perspective of what already exists. For June, performativity was not just an act; instead, it was a way of being in *and* outside of 'the box world.' More specifically, June's induction as a posthuman form of performativity insisted "on understanding thinking, observing, and theorizing as practices of engagement with, and as part of, the world in which we have our being" (Barad, 2007, p. 133). While 'playing the part well,' June also contested the boundaries and apparatuses confining and signifying 'her person.' Induction as performativity is a "contestation of the unexamined habits of mind" (Barad, 2007, p. 133) necessary for becoming an elementary science teacher. As June worked at the edges of 'the box,' she regularly moved in and out in order 'to breathe' fresh, or perhaps, *different* air. In doing so, 'her person' also experienced moments in her induction as producing a diffractive response. For example, even though she performed 'good elementary science teacher' well, she saw how this resulted in different configurations of light and darkness. Consequently, June experienced induction "not [as] a static relationally but a doing—the

enactment of boundaries---that always entails constitutive exclusions and therefore requisite questions of accountability” (Barad, 2007, p. 2007).

### **Questioning Obligation**

Who or what was June obligated to and when? These seemed to be a set of questions underpinning many of June’s induction experiences. June wondered: (a) Was she obligated to be a teacher even after attaining her bachelor’s degree in elementary education and if so, was she obligated to be a certain kind of elementary teacher? (b) Was she obligated to institutionalized schooling even after completing undergraduate education? But ultimately, June wondered at what point was she allowed to be obligated to simply be herself? At what point could June be obligated to nurture her being and why was she unable to do that in becoming an elementary science teacher?

**To good teaching.** If induction was a performance for June, then she was obligated to be a good elementary science teacher according to ‘the box.’ Even in her ability to perform good teacher, there was one observation conducted by her university supervisor that continued to illuminate June’s ontological battle.

JUNE: Yeah. And for me, what was funny was, I went home proud of myself, but I went home doubting if I had checked the boxes. Does that make sense? ... Like I made the decision I was proud of... But I didn’t know if I made the decision that the university would’ve been proud of because we’re supposed to teach.

MARIA: Oh Gosh. Yeah, I just thought, I mean the reason I’m just gasping is because the way you ended. ‘The university wants us to teach,’ but what you did is kind of like a huge, you know, beautiful moment of teaching, but then you still perceived it as not teaching.

JUNE: Mm-hmm (affirmative). Yeah, I perceived it as a failed lesson in the eyes of like the evaluation...

Yeah, I had the struggle [within the delivery of a lesson], but I think that it's good to feel that struggle. You have to ultimately choose what's true to your core...It's why I left proud as opposed to; now I left a little worried because I was like there went that observation... (informal conversation, June, March 9, 2017)

**To schooling.** Wearing her black Converse shoes, June expressed that she had finally made up her mind regarding the first path to follow in August after graduation. While June enjoyed teaching and enjoyed working with her students, she decided that seeking out a position as a full-time elementary classroom teacher would have to wait. She explained, “this will be the first time in my life that I won't be obligated to school.” (informal conversation, June, March 23, 2017)

June was confident that she *could* get hired as a full-time classroom teacher and perform well but desired a different path. For example, instead of going to the teaching job fair organized by the university for all the student teachers, June chose to travel with her band to sing in Memphis. June's decision to pursue a music career was influenced by many aspects from living logistics (e.g., lease agreement timing) to the realization that this was the first time in her life to do anything she wanted. By becoming a full-time classroom teacher, June felt she would continue to merely check the 'right' boxes and become somebody else's definition of 'successful.'

**To June's being.** June chose to stop pushing herself into the box.

JUNE: Maybe I'd be able to formulate my thoughts better in written format. Maybe I'd be able to, you know? Instead, I just worked my whole, instead of like foster, now I'm learning to just foster and nurture me.

MARIA: Mm-hmm (affirmative). Wow.

JUNE: Whereas before I was just pushing it all. Work on this. Work on this. Work on this. Work on this person... Work on this person that gets it all done. Work on this person that gets three days. Work on this person that, you know, is respectful and all these things to your teacher. Work on this. Work on this. Work on this. Work on this. Work on this, and now I'm like why did I spend so much time working on that? (laughter) Like if only I had spent more time working on me. (informal conversation, June, March 9, 2017)

Throughout June's life, she strived to be the perfect student, until she came to realize that she no longer *desired* to be the perfect teacher, even though she knew it was an impossible feat. During the past four years of June's undergraduate experience in an elementary education degree program, she also experienced induction in the profession. Many educators and educational researchers discuss the experiences of beginning science teachers, or a novice, to be limited to the first three years of formal classroom teaching experience (outside of undergraduate preparation, or a 'pre-service' stage), but for June her induction experiences did not resonate with her ontological foundation. June finally chose to embrace an obligation to herself. To be obligated to herself meant that June could finally find peace within and outside of the box.

### **June a la Biesta**

June's 'person' was "not entirely determined by existing orders and traditions" (Biesta, 2013, p. 18). While at times she had to navigate existing orders and traditions of teaching as perfectionism, June also actively worked to escape these external conceptions of who (or what) she *ought* to become. Interestingly, through several micro-moments June felt (and saw) her teacher preparation program continue to direct her being elsewhere. Rather than experiencing induction after undergraduate graduation, June's induction experiences into the profession *were* the undergraduate teacher preparation

program. Moreover, June experienced induction through subjectification as a “*supplement* to the existing order...*divid[ing]* and redistribut[ing] the existing order” (Biesta, 2010, p. 547, emphasis original) inherent to the process of becoming an elementary science teacher.

Like Biesta (2013) describes, June intentionally avoided inscribing herself into a fixed conception of being. By

avoiding certain other words and concepts, most notably the notion of *identity*—which has more to do with the ways in which we identify within existing orders and traditions than with ways of acting and being that are ‘outside of this...,’ (Biesta, 2013, p. 18, emphasis original)

June carved out her own space to be and un/become as such. In fact, as June theorized her own process of un/becoming an elementary science teacher she even questioned the authority of ‘speaking’ about her experiences, as she always-already knew that her words were partial or in-flux. June’s recognition of the elements informing how *we* (she and I) engaged the very notion ‘understanding’ her induction experiences further depicts Biesta’s (2010) account of the differences between ‘identification’ and ‘subjectification.’ For June, identification was *the box*; whereas, subjectification was her need to carve dynamic pathways in and outside of *the box*. The dissonance, or the tension of residing in the middle (Springgay & Truman, 2017) between identification and subjectification (Biesta, 2010) was June’s own ontological juncture of inquiry framing her induction experiences.

## Summary of Chapter Eight

June and I lived at the threshold of ‘the box.’ As VwOs we made *and* experienced agential cuts. Whether as a ‘Loft model’ or on the cookie production line, June found herself un/becoming an elementary science teacher. In E<sup>J</sup>, June showed us how generative thinking without method (Jackson, in-press) can be for re-conceptualizing induction experiences of beginning science teachers. Through posthumanist performativity and processes of unbecoming an elementary science teacher June continues to depict expansive ways to re-think research and teacher preparation as induction. Further, E<sup>J</sup> shows how ‘June a la Biesta’ maneuvers between the dichotomies of identification and subjectification. Through our (re)search together we examined our multiple selves as student/teacher/researcher/participant producing new material at every turn.

## CHAPTER NINE: ‘NEW’ MATERIAL

Samantha and June might appear as their very own dichotomy, but by taking a diffractive (Barad, 2007) look at their accounts assumptions regarding science teacher induction can be further deterritorialized (Deleuze & Guattari, 1987). Throughout this study, June and Samantha continued to reveal multiple intersections across each of their own experiences, but also across the three overarching dichotomies framing this study. From the concept of induction, the mode of inquiry, and conception of the subject, June and Samantha provide accounts of induction that remind researchers of science teacher induction and science teacher educators about the complex intra-actions (Barad, 2007) between ‘instruments of analysis’ and the ‘outputs’ of research and practice. The sections that follow re-examine Samantha and June’s induction experiences as also another provocative juncture for negotiating the ‘new’ material produced within the in-between-ness of this study. Whether in research or in science teacher education, the “practice[s] we enact matter—in both senses of the word” (Barad, 2007, p. 91). This chapter takes a diffractive look back across the preceding chapters as an apparatus for viewing the ‘new’ material generated in this study.

### **Deterritorialization through Diffraction**

I began to see something I did not anticipate. I should have known this would happen again. I should know that I cannot ever fully know what happens next. While I have employed a ‘Slow ontology,’ or “state of being in which scholars choose to live writing and research” (Ulmer, 2016, p. 20) throughout this study, I still feel the pressure to maintain a certain epistemological ‘academic pace’ to predict and/or know what is yet-to-come. This is an impossible endeavor, which I do not desire to know. Rather, by

maintaining a philosophy of slowness, researchers of science teacher induction might begin to deterritorialize ways in which beginning science teachers are known, produced, and developed. As Deleuze and Guattari (1987) state, “deterritorialization puts everything else to flight” (p. 129).

By framing and following multiple junctures of thought, the dichotomous relationships presented in this study also serve as an overarching apparatus for seeing science teacher induction anew. Whether it is a definition of induction, methodology, and/or subject, each decision functions as an apparatus permitting different understandings to materialize. However, Barad (2007) cautions,

diffraction patterns depend on the details of the apparatus: for example, it depends on the number of slits..., the spacing between slits, the size of the slits, and the wavelength of the light source. (Barad, 2007, p. 91)

Each feature of the apparatus affects the materiality of the corresponding response. Depending on which ontological feature of induction, inquiry, and subjectivity researchers of science teacher induction employ, *something and somebody* is produced accordingly. With this in mind, I have attempted to proceed through this study with great caution and hesitation. The following sections revisit these dichotomous apparatuses that through previous chapters, specifically  $E^S$  and  $E^J$ , have resulted in a diffractive and re-active response.

### **$E^S$ and $E^J$ as Apparatus**

Each ontological juncture demonstrates critical features of both Foucault (1980) and Barad’s (2007) concept of the apparatus. For Foucault, an apparatus is solely discursive. It relies on the said and unsaid “heterogeneous ensemble consisting of



discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions” (Foucault, 1980, p. 194). If we look at how this definition aligns with the concept of teacher induction, modes of inquiry, and the subject we can begin to see how each central dichotomy is implicated by various forms of a Foucauldian apparatus. However, possibly more compelling is the way in which Barad (2007) extends the notion apparatus to include the material structures (e.g., physical instrumentation and measurement tools). Barad (2007) explains that apparatuses are “not passive observing instruments” but are “productive of (and part of) phenomena” (p. 98). Given that apparatuses are productive, in that they, *make* some kind of ‘new’ material, the definitions of teacher induction, traditions of inquiry, and views on the subject all have significant power for making certain ‘kinds’ (Hacking, 1999). Furthermore, if  $E^S$  and  $E^J$  are conceptualized as an apparatus then they construct, shift, and (un)fold ‘new’ ways we might engage the notion of science teacher induction, and the mere meaning of what it means to become an elementary science teacher. But is this really something ‘new’? Or something that has been over-coded (Deleuze & Guattari, 1987) to the point of re-signification for the purposes of constructing a particular ‘face’ of the novice science teacher (Wallace, in-pressB)?

### **The Concept of Induction: Innate and Performative**

At this point, June and Samantha have depicted multifaceted forms in which teacher induction works, exists, and is experienced. Rather than viewing June’s and Samantha’s induction experiences in opposition to each other as two disconnected themes, new materialist perspectives afford an alternative conception of entanglement.

More specifically, if we shift away from siloed research findings to understand induction as innate and performative together, a critical question emerges: How do these induction experiences reinforce, stabilize, and re/produce the other?

Figure 12 depicts the intra-active relationship between teacher induction as a concept, but also as a productive relationship. For example, beginning science teachers like Samantha are constantly inducted into normalizing definitions and processes of becoming an elementary science teacher. They might experience their life and elementary teacher preparation program as an affirmation of their ‘innate’ qualities. Since this is often the prevailing model of how teachers, like Samantha, experience elementary teacher induction, it also reinforces a norm of ‘Othering’ toward those teachers, like June, who must perform ‘elementary science teacher’ to survive the formalized expectations of becoming an elementary science teacher. While these experiences appear contradictory to the other, the two conceptions of induction necessitate the existence of the other. In this way, Samantha’s and June’s experiences depict the two central constitutive properties of teacher induction: (a) elementary science teachers who must perform and (b) elementary science teachers who are *expected* to hold an innate quality. If we then understand induction as innate *and* performative as fundamental to teacher induction, how might how teacher education and research practices respond?

### **The Mode of Inquiry: Post-foundational Ethnography**

June and Samantha are evidence that studies of teacher induction cannot merely use the same research paradigms they have historically relied upon.

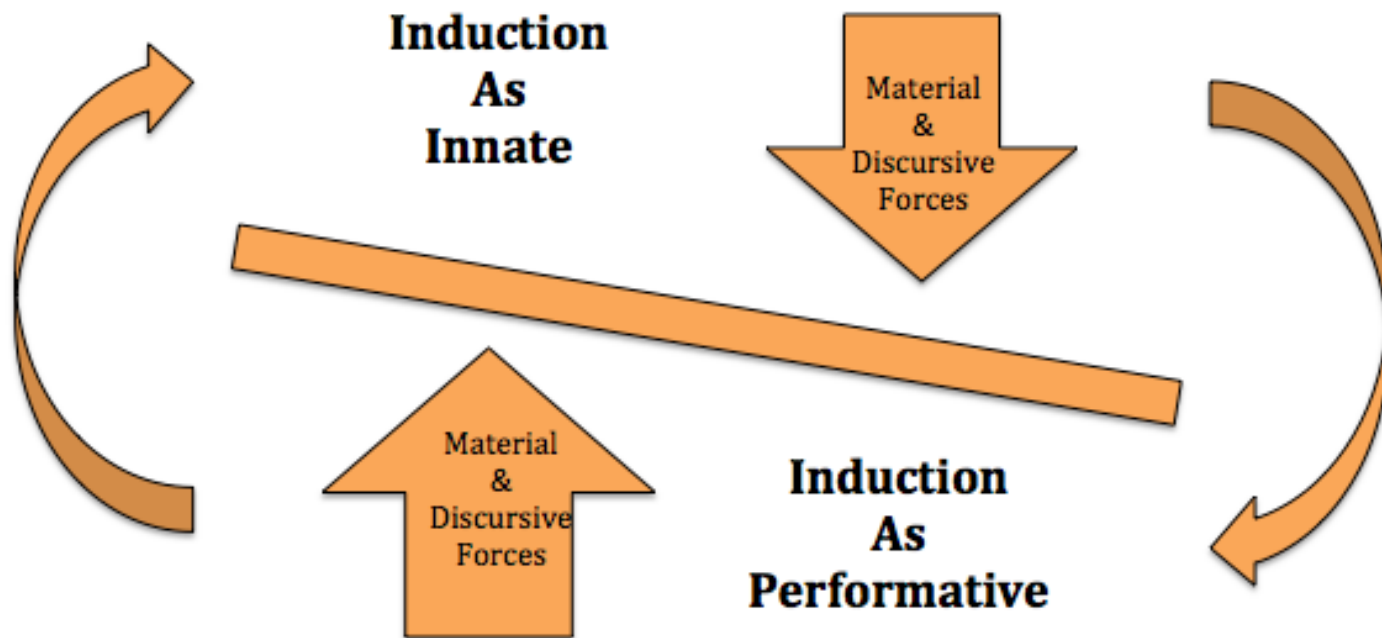


Figure 12: The Re/Productive Relationship of Induction

As discussed in Chapters Five, Six, Seven, and Eight, Samantha and June participated in this project from two different, yet also intra-dependent ontological assumptions; that is, Samantha desires to find a ‘just right’ fit into pre-existing traditions, while June intentionally moves in and out of those same traditions of becoming an elementary science teacher.

Before being able to maneuver these alternative entry and exit points, future and current researchers must recognize ontological and epistemological assumptions as entrenched in the material ways in which one lives; rather than intentionally reinscribe the dehumanization of prevailing ways we ought to ‘know’ others. For example, throughout this post-foundational approach to research, I often felt a sense of surprise by its outcome, observations, questions, and new vexations illuminated in the process of ‘writing up’ this study. Most prevalent was the fact I would not be able to recognize the depth and complexity of June and Samantha’s induction experiences if I had not familiarized myself with diverse ontological assumptions. Even after recognizing the complexity to Samantha’s and June’s induction and research experiences, I still remain so surprised by how seemingly ‘simple’ this study’s conclusions might appear.

Listen to the implicated. Participants, friends and family members, science textbooks, school districts, interview protocol structures, and communication platforms all become implicated in the ‘writing-up’ and, therefore, should not be taken-for-granted. Rather, *getting lost* (Lather, 2007) can be a productive space to embody a *Slow ontology* (Ulmer, 2016, emphasis original). From being told ‘no’ to being told ‘nothing,’ this study was made possible by being “rich in loss” (Lather, 2007, p. 13). Not only had I lost *my way*, but I had also lost *the way*. It is my hope that the ‘new’ materials produced

through this study trigger others to work at the margins of ‘representationalism’ (Barad, 2007) in science teacher induction. To make such a move from “lovely knowledge” toward “difficult knowledge” (Pitt & Britzman, 2003) might enable researchers of science teacher education and induction to “[accept] loss [as] the very force of learning, and what one loves when lovely knowledge is lost is the promise of thinking and doing otherwise” (Lather, 2007, p. 13). Post-foundational ethnography, like this study, generates knowledge differently and, resultantly, generates different (and often difficult) knowledge (Lather, 2007). Samantha and June *both* teach researchers of science teacher education and induction that there is an inherent “necessary condition of tentativeness” (Lather, 2007, p. 42).

From my own tentativeness in my work with/in E<sup>S</sup> and E<sup>J</sup> three new materials for educational researchers to consider emerged:

- (a) Participants do not always want to be understood from the same underlying ontological and epistemological assumptions.
- (b) Even though participants may agree to informed consent, being an *object* (or even a ‘subject’) of study may not necessarily align with their philosophical beliefs about how they want to engage in the research process.
- (c) Participants may have different goals and/or desires for their research engagement than the researcher who initiated the study.

With these tentative provocations in mind, how might researchers of science teacher education and induction engage their practice otherwise? And in doing so, what new possibilities for science teacher education and induction might unfold?

## The Subject: Samantha and June

As Samantha and June were becoming elementary science teachers, they were also unbecoming one as well. Figure 13 depicts two examples for how Samantha and June experienced and enacted processes of un/becoming an elementary science teacher.

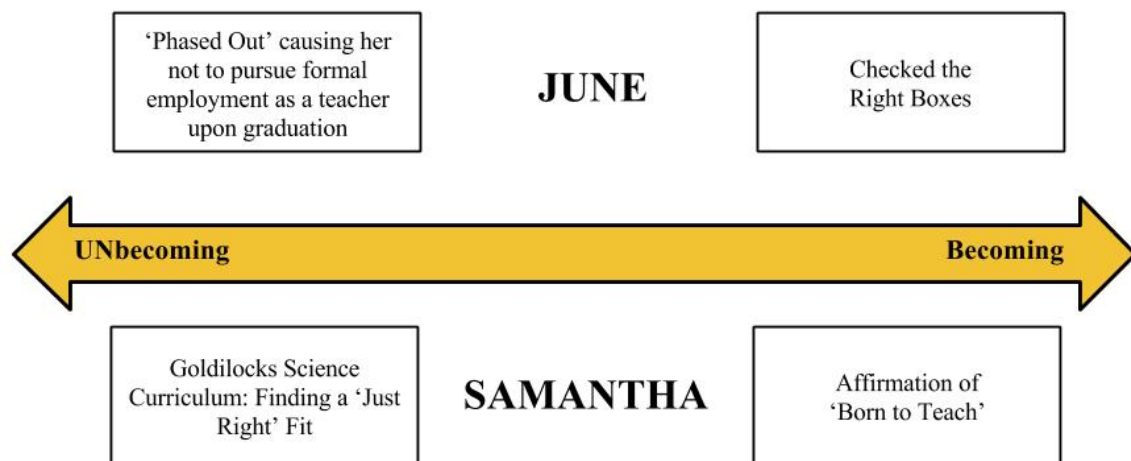


Figure 13: Un/Becoming an Elementary Science Teacher

Even so, there is an important distinction to make regarding the notion of 'un/becoming' in the context of this study. Becoming *an* elementary science teacher is significantly different than the deleuzoguattarian influenced notion of becoming-teacher (Marble, 2012; Strom & Martin 2017). While becoming-teacher resonates with this study,  $E^S$  and  $E^J$  (at this point in time) align more closely with conventional formalized processes of 'becoming *a* teacher.' Marble (2012) explains this as following a typology where teacher candidates, or pre-service teachers, gain a particular set of skills and practices in preparation for their formalized 'transformation' into teachers upon undergraduate education. While  $E^S$  and  $E^J$  provide a more nuanced look at this formalized transformation in progress, they are still broadly couched within conventional conceptions of teacher development, a pre-condition for 'becoming *an* elementary

teacher.’ Even so, Samantha and June experienced this phenomenon very differently, but also share a dynamic process of ‘unbecoming *an* elementary science teacher.’

Samantha’s sense that becoming an elementary science teacher was something she was ‘born to do’ alongside her need to accommodate her instructional approach to be a ‘just right’ fit reflects how she *becomes* and *unbecomes* an elementary science teacher. In her process of ‘unbecoming’ Samantha felt the need to limit herself and her practice to the prevailing school expectations as something that merely came ‘with the territory’ of becoming an elementary science teacher. Samantha saw ‘giving up’ on whatever she deemed ‘too much,’ or science instruction that would be perceived as ‘too radical,’ within her teaching context as a necessary evil within her induction into becoming an elementary science teacher. At the close of the Spring 2017 semester, Samantha received an offer of employment at Collier Elementary, the same school campus and in the same grade level position (4<sup>th</sup>-grade science, social studies, and reading) where she completed her student teaching experience. While this is not unheard of, Collier Elementary’s offer of employment *and* Samantha’s decision to accept the position continues to reinforce and replicate the ways Samantha experiences induction as a multifaceted process of affirmation.

June also navigated processes of un/becoming *an* elementary science teacher. However, she encountered herself and her experiences from a different mode of being. Rather than simply recalling observations, June heavily relied on her longstanding ability to theorize her experiences and observations. Since June’s childhood, she desired to see and understand ‘the reality,’ of life and was not interested in pretending there was always a ‘simple happy ending,’ (informal conversation, June, May 22, 2017). Consequently,

June “found a place of sanctuary in ‘the theorizing,’ in making sense out of what was happening. [She] found a place where life could be lived differently” (hooks, 1994, p. 61). From these early experiences, June often looked beyond the veil of a standardized lock-step process for becoming an elementary science teacher and theorized her own hesitation within the simple story of becoming an elementary science teacher. June was able to perform the proper steps of becoming an elementary science teacher when necessary, but also questioned the underlying assumptions to even enact a performance. Through her ongoing theoretical moves (alongside me and by herself), June found a space to have her own journey; that is, through a practice of allowing herself to unbecome an elementary science teacher *at the same time* she was expected to become an elementary science teacher. At the close of the Spring 2017 semester, June confirmed her earlier decision made in March 2017 to not seek out employment as a full-time classroom teacher but has signed to up to substitute teach in Sumner School District to see different schools and grade levels settings. However, her primary focus is on making her own music album in hopes of acquiring a recording deal. Sometimes June wonders if she was ‘phased out’ of the profession before she graduated, but ultimately June followed a path that finally allowed her to be free to be herself whenever she wanted.

### **Affordances and Constraints of Study**

Affordances and constraints of any study depend upon a variety of entities. For this reason, a series of critical question must first be explored: (a) Who (or what structure) is asking the question of a study’s affordances and constraints? (b) What type of response is this person (or structure) seeking? (c) How do my ethical, moral, and political commitments inform the response I choose to provide? (d) Should my voice be



the one re-centered? If not, whose then? With this in mind, I explore the affordances and constraints of this study from the perspectives of Samantha and June. As I have mentioned multiple times, Samantha and June had significant roles in guiding this research on science teacher induction. In addition to attending to Samantha's and June's perspectives here, my decision is also shaped by the different ontological underpinnings which influenced their subjectivities and induction experiences. For example, as evident in Chapters Six and Seven, Samantha's views are informed by conventional humanist perspectives which privilege knowledge *over* being; while in Chapters Six and Eight, June depicts how 'her person' is always in flux according to the different human and non-human entities in which she is implicated. While this decision was an intentional 'methodological' choice, it further depicts how such a choice structures a particular relationship with/in the research study. Like Lather (2007), this choice "invited the women ... to see themselves being studied" and engage an explicit conversation(s) of "looking-at-being-looked-at-ness"(p. 42). From this conversation, the following affordances and constraints of this study were crafted in collaboration with Samantha and June.

### **According to Samantha**

Samantha shared bullet point-style thoughts. In alignment with previous conversations with Samantha, her claims, found in Table 3, were presented fairly succinct and matter-of-fact.

Table 3: Affordances and Constraints by Samantha

| E <sup>S</sup> Affordances   | E <sup>S</sup> Constraints   |
|--|--|
| <p>We conducted regular face-to-face meetings.</p> <p>We had a pre-existing relationship, which strengthened our comfort-level with each other.</p> <p>Maria acted like ‘a researcher’ since she always had questions to ask me.</p> <p>Maria always checked with me regarding what she had written and provided the opportunity to change any part I did not like or felt was an inadequate representation.</p> <p>Maria analyzed many different aspects of my teaching practice. She used interviews, conversations, lesson plans, the elementary science textbook, and resources I used for planning.</p> | <p>Maria did not conduct any classroom observations, which could have contributed to a more in-depth perspective.</p> <p>Maria did not work with many participants and consequently has a limited picture of beginning science teacher induction experiences.</p> <p>Each person has their own opinion, so my story is only one opinion when others might have different experiences.</p> <p>Although our meetings were regular, I wish our schedules had allowed us to meet up twice a week, especially during the beginning of the Spring 2017 semester.</p> |

### According to June

For June the affordances and constraints of a study are dependent on the goal of the research and the researcher. However, the following responses further contextualize June’s perspective regarding this study and wondering if we ‘achieved the goal’ of this research study.

### **Affordances.**

Um, I guess the s-, the ... The strengths of [the study] was just like the freedom in it. Um, the freedom to think and question and just ... Basically in my opinion what science inquiry is...just kind of the freedom of it all and not being scared to kinda think about things that maybe not everybody would think about or understand, or ... Or maybe anything that wasn't even worth anything some dead end, you know, but it didn't matter. (informal conversation, June, May 21, 2017)

### **'Constraints.'**

I mean ... I guess. I don't know. Like, I, it, like it really could be even not even be considered a constraint. It's just ... Like, I guess I don't know if I felt ... 'Cause one of the ... I remember one of our conversations, and we talked about like, we can think like this all day long, but like ... You have to...you have to be able to like ... Be able to kind of make the walls permeable, where like you can enter in and out of it?...You know and like, pull at it ... So I like, I wonder if we, we succeeded in that or not?...You know? Or like if it's still in the process. I guess that's how I feel...Like it's not an ended process like there's not that like feeling of like, boom. But I'm starting to realize in my life that those feelings, I don't know if they even exist or if they do they're very few and far between...You know? 'Cause as much as we want to think like ...Yeah, as much as you want to think ... Like, I think everybody in their heart like likes ... Wants to have that movie come to happy ending...Or like have it resolved. You know? (June, informal conversation, May 21, 2017)

....

I basically mean the only constraint was not having a constraint, but that was never the goal, to begin with. (laughs) Like if your goal was to ...You know, close [the study] out and like, boom, put this to the books and bam, like don't revisit it kind of. Or is it an ongoing thing? (June, informal conversation, May 21, 2017)

### **Intra-active Provocations for Science Teacher Induction**

Just as teaching can transgress (hooks, 1994), this study depicts how the act of theorizing and inquiry can also be a transgressive practice. Within this study, theorizing is not merely an analytic tool, but a way of being in the (re)search. E<sup>S</sup> and E<sup>J</sup> demonstrate how theorizing is not just a practice for researchers, but also participants. In multifaceted forms, June and Samantha both exemplify Dillard's (2012) claim that "everyone theorizes. It's how human beings make sense of our lives and work" (p. 19). While

Samantha's theorizing reinforced her subjectivity and practice, June's theorizing moved her to live differently. These two enactments of theorizing speak to the seduction of theory (Dillard, 2012). Regardless of ontological or epistemological underpinnings, theory seduces us into particular ways of thinking and being (i.e., researcher and/or participant) in the (re)search. As Samantha, June, and I 'looked at the being looked-at-ness' inherent in this study, our theorizations influenced the affordances and constraints we discussed. Samantha's and June's perspectives on  $E^S$  and  $E^J$  begin to illuminate two very different theoretical histories of 'good' research.

While theory itself might be seductive, I would argue that research methodology tends to be much more tempting. Methodology has the power to implicitly maintain theoretical traditions which holding their own complex histories. Samantha provides affordances and constraints associated with conventional traditions of inquiry influenced by positivism, which is also often associated with 'Scientifically Based Research' (SBR) (Van Cleave, 2012). Alternatively, June reminds us of something we often already 'know,' but at times intentionally remove from the research story to represent more 'legitimate' research practices. Side by side, June and Samantha provide a methodological conversation that rarely occurs together. Additionally, June addresses central tensions in identifying a concrete list of 'affordances and constraints' to a study; that is, the mere fact that *it depends*. For this reason, I revisit Samantha's and June's responses as an entry and an exit for identifying possible affordances and constraints of the conceptual and methodological elements of this study as perceived by the field of science teacher induction. More specifically, these aspects are considered in relation to

recent propositions for future research and practice put forth by Luft and Dubois (2015) in their edited collection, *Newly Hired Teachers of Science: A Better Beginning*.

### **Affordances Related to the Intersections of Research, Practice, and Theory**

According to Luft and Dubois' (2015) primary call, "There are many more questions to answer, and these need to be grounded in teachers' experiences and practices as well as a theory about new science teacher learning" (p. 200). This study begins to address and extend Luft and Dubois' call in more ways than one. From Samantha's and June's accounts of their induction to designing science curricula for their fourth-grade classrooms, this study provides a theoretically informed perspective of beginning science teachers induction experiences. In doing so, however, many new questions emerged. Table 4 begins to communicate some of these new questions in direct relation to Luft and Dubois' (2015) propositions for future work in science teacher induction. However, as I attempted to address the many the nuances of theory, practice, and research, it is now quite clear that the field of science teacher education and induction *cannot* rely on only *one* dominant "theory about new science teacher learning" (Luft et al., 2015, p. 200). For example, this study heavily integrates and makes many of my theoretical and methodological decisions transparent; however, I remain hesitant that feminist post-structural theory would be deemed 'adequate' or appear to some as 'proper' use of theory to understand the intersections of practice and research Luft and Dubois seem to suggest. Even so, the act of theorizing science teacher induction is assumed to be reserved for researchers of science teacher induction, but this study carves out more expansive ways for beginning science teachers, themselves, to theorize their own practice and induction experiences. Furthermore, this study extends the Luft and Dubois' (2015) call for

researchers and practitioners of science teacher induction to also include beginning science teachers' critical engagement within research, practice, and theory.

Table 4: Propositions and Provocations for Science Teacher Induction

| <i>Newly Hired Teachers of Science: A Better Beginning</i> (2015) Propositions |  | Provocations   |
|--|--|--|
| 1  | Newly Hired Science Teachers Need to be Part of a Continuum of Learning                    | What if the continuum is non-linear and not bound to a particular time and space?  |
| 2  | There Needs to be a Focus on Science When Supporting New Science Teachers                  | What space in science teacher induction is available for new science teachers to negotiate definitions of science?                                   |
| 3  | Institutional and Personal Relationships Are Important for New Science Teacher Development | How might we also create space for new science teachers' to engage a critical relationship with their subjectivity, teaching, and science education? |
| 4  | There are a Variety of Ways to Support a Newly Hired Science Teacher                       | How might the prescription of 'support' reinscribe a 'banking model' (Freire, 1970) of teacher induction?  |

### **Affordances Related to Beginning Elementary Science Teachers**

Much of the existing research in science teacher induction focuses on secondary science teachers. For this reason there is a pressing need to attend to the unique experiences of elementary science teachers (Luft & Dubois, 2015). Within this study, June and Samantha begin to provide an in-depth glimpse into the induction of two elementary science teachers. Increasing the level of insight of this particular study is that it depicts examples of why elementary science teachers also choose to stay or leave the profession upon undergraduate education. Additionally, by providing a 'behind-the-scenes look into beginning elementary science teachers planning and induction

experiences within university preparation, this study provides insight into Luft and Dubois (2015) call to explore “How [the induction of elementary science teachers] is programmatically different from secondary science induction support” (p. 201).

### **Affordances Related to Methodological Decisions**

This study relies on a diverse set of data sources for more nuanced understandings of the material outcomes (i.e., on elementary science teachers’ practice and subjectivity) from two beginning science teachers’ induction experiences. From written reflections, interviews, and elementary science curriculum planning artifacts and observations, this study provided an in-depth study of the socialization (Creswell, 2013) of two elementary science teachers within the same university preparation program. Furthermore, the participants in this study were previously enrolled in the same elementary science methods course immediately preceding their student teaching. While the participants originated from the same teacher preparation program, their socialization into the profession of teaching often contradict each other, and also thus provide very different insights into the induction experiences of elementary science teachers.

Throughout data collection and analysis I worked closely with participants to build an intentional commitment to reciprocity (Creswell, 2013; Hammersly & Atkinson, 1995). For example, I had many explicit conversations with the two participants regarding similar questions around “who owns the data” (Creswell, 2013, p. 95) and attempted to alleviate any reservations participants had throughout the duration of the study. From these intimate and honest conversations, the participants and I developed authentic relationships, which strengthened the nature of participant responses and their engagement in the study. My relationship with the participants extended beyond

particular moments in the field to also the writing-up and analyzing their induction experiences. Throughout continuous member checking, I worked with participants to establish a holistic cultural portrait comprised of both the emic and etic (Creswell, 2013) views.

### **Constraints Related to Intersections of Research, Practice, and Theory**

At first glance, some may say this study is too theoretical and does not provide any concrete approaches to the implementation of streamlining science teacher induction. While research, practice, and theory are intentionally woven together, the study does not examine various forms or levels of support as called for by Luft and Dubois (2015). Rather, the study is driven by an alternative goal to re-conceptualize the very notion of a desirable support structures (e.g., teacher education programs) as also the intentional re/production of particular practices and subjectivities of beginning science teachers. Instead of meeting Luft and Dubois' (2015) call to the demarcating boundaries of beginning science teacher induction, this study only further blurs those boundaries. Consequently, this study creates more questions than answers.

### **Constraints Related to Beginning Elementary Science Teachers**

Elementary science teachers are often characterized as “not [having] a strong science background” (Luft & Dubois, 2015, p. 201) and therefore tend to trigger calls to increase their scientific content knowledge. This study does not assess participants' levels scientific content knowledge. The study, instead, focuses its attention *away* from scientific content knowledge to examine the nature of science teachers' negotiation of teaching scientific content in particular ways. Consequently, some may contend that I am



reinforcing a gap in elementary science teachers' conceptual understandings of scientific knowledge.

This study works with only two beginning science teachers (who some induction scholars might contend are not even in their induction phase), which provides an extremely limited picture of elementary science teacher experiences. Even more, one of the participants, June, might be interpreted by science teacher educators as an 'an outlier' since she did not pursue full-time employment as a classroom teacher upon graduation. According to this perspective, June's experience is not representative of the elementary science teacher norm and therefore not worth using as a generalizable 'data point.'

### **Constraints Related to Methodological Decisions**

The limited number of participants likely produced some methodological constraints for science teacher educators or researchers interested applying research findings across large populations of science teachers. To be clear, this was not the aim of this particular study, but I realize it is one of the significant limitations to researchers or practitioners interested in the scalability of research findings. Amplifying the previously mentioned constraints of this study is that I enacted two different modes of analysis within  $E^S$  and  $E^J$ . This decision had the possibility to lead to increased variability of the findings and at times might be seen as relying too heavily on participants' own analyses of their induction experiences. However, given that this study was informed by the methodological foundations of ethnography and post qualitative inquiry discussed in Chapter Three, the level of participant input and analysis decisions are warranted.

## Summary of Chapter Nine

In this chapter, I took a diffractive approach to employing  $E^S$  and  $E^J$  as two separate and also intra-acting apparatuses to see what materializes across the dichotomies contextualizing elementary science teacher induction. Across the concepts of induction as performative *and* innate initiate further examination of affordances and constraints for re-imagining ways beginning elementary science teachers might un/become. However, in sharing each of these features, I also attended to ways the mere visibility of any ‘new’ material greatly depends on the apparatus (i.e., who are you are, what tools you use, where you are at, and what you desire) with which one chooses to employ.

## CHAPTER TEN: OUR LINES OF FLIGHT

This was never *my* study. It unfolded alongside many of the entities implicated within the (re)search (i.e., field site locations, participants, analysis decisions); therefore this study is representative of a collective experience amongst researchers, participants, elementary science education, ideas, theories, induction practices, teacher preparation, and modes of knowledge de/construction. As depicted in Figure 14, these human and non-human intra-actions are messy, complicated, and always on the move. For that reason, we—Samantha, June and I—present five intersecting lines of flight (Deleuze & Guattari, 1987) intended to keep things on the move and ‘in tension’ (Springgay & Truman, 2017). In doing so, we hope to perturb two overarching possibilities: (a) enact an ethics of hesitation in science teacher education and induction; and (b) expand prevailing conceptions of science teacher education and induction to embrace diverse ontological assumptions. Informed by E<sup>S</sup> and E<sup>J</sup>, Samantha, June, and I independently constructed a series of possible movements for both science teacher educators and researchers of science teacher induction. All five of our lines of flight traverse research, practice, and theory by shifting underlying assumptions of science teacher education and induction from discourses of *ought* to *might*.

### **Shift From Ought to Might in Science Teacher Education and Induction**

Like this study, beginning science teachers work in tension (Springgay & Truman, 2017). They reside within a juncture where things happen *to* them, at the same time that they are expected to happen *for* others. I think this is a symptom of science teacher education and induction centering its attention on ‘the oughts’ of becoming a science teacher or as Sammel (2010) claims, the ‘causal promise in science education.’



Figure 14: Our Lines of Flight

Questions of ought in science teacher education and induction surface as ruins of privileging one dominant (and therefore legitimate) image of ‘Scientifically Based Research’ (SBR) in education. That is, science as a strict linear methodology that privileges Western Modern Science (WMS) and a perception that objectivity can exist. Problematic in this image of ‘good SBR’ are the remnants of a discipline shaped by diverse vectors of power (Higgins, 2017; e.g., sexuality, gender, race, class, capitalism). However, epistemological traditions of education research tend to be driven by such perceptions of science. By putting sole focus ‘the oughts’ (i.e., good SBR) of science teacher education and induction, the ‘mights’ are intentionally left to the wayside (or in many cases made unintelligible by those people and practices deemed intelligible). Since

questions of ought are seen as supporting ‘good’ SBR and thus ‘scientific,’ they exclude questions deemed ‘less scientific’; questions of might. Consequently, future possibilities for science teacher education and induction are intentionally overlooked.

In the case of working with(in) science teacher education and induction, one must first consider how the questions we ask are connected to philosophical traditions of inquiry (May, 2005) that make certain ideas (and people) thinkable and others unthinkable. For example, May (2005) revisits the foundations of philosophical inquiry by considering the following questions: How should one live? → How should one act? → How might one live? → For Deleuze, the question becomes, “How [might we] think about things in ways that would open-up new regions for living” (p. 3). In the context of science teacher education and induction, I find this trajectory of inquiry particularly helpful for thinking about *actions* in research, practice, and theorizing anew. For example: How should one become an elementary science teacher? → How should one teach elementary school science? → How might one become an elementary science teacher? → How might we think about things in ways that would open-up new regions for becoming an elementary science teacher? In Figure 13 I further map out potential intersections of *might* and *ought* in relation to science teacher education and induction. More specifically, these questions perturb ways science educators and researchers might begin engaging new lines of flight.

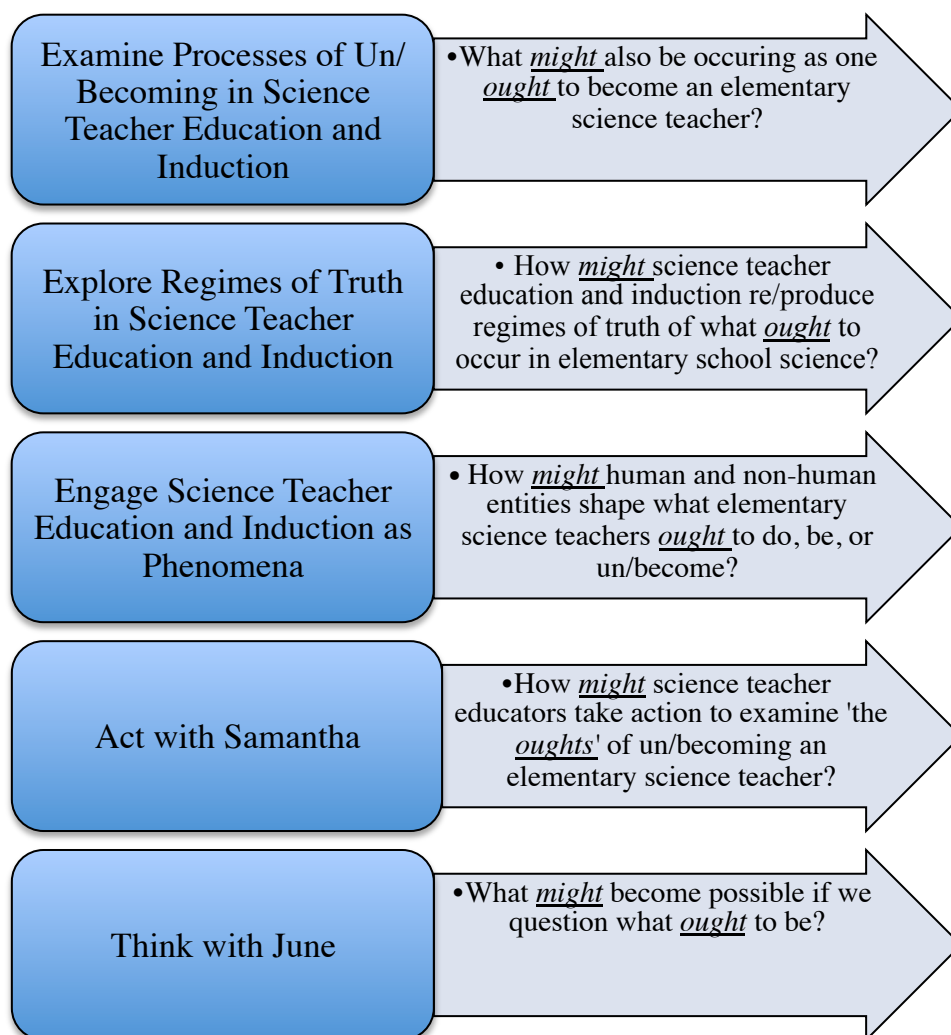


Figure 15: Lines of Flight for Science Teacher Education and Science Teacher Induction

### **Examine Processes of Un/Becoming in Science Teacher Education and Induction**

For Samantha and June, the experience of becoming and unbecoming an elementary science teacher occurred simultaneously. Through un/becoming, beginning science teachers also experience subjectification (Davies, 2006), and thus also become an intelligible Teacher subject (Madden, 2016, capitalization original). Beginning science teachers' un/becoming is initiated by cultural myths regarding a particular set of discourse comprised of "ideal images, definitions, justifications, and measures for

thought, feelings, and agency” (Britzman, 2003, p. 222-223) for becoming an elementary science teacher. In this regard, science teacher educators might begin their work by acknowledging that a constitutive property of becoming an elementary science teacher is subjectification. Consequently, beginning science teachers’ implicit and explicit education and induction entails the expectation that beginning science teacher subjects *must lose* some undesirable aspect of themselves to become a desirable elementary science teacher. This is often chalked-up to the pressure for science teacher educators to get, or convince (Sammel, 2006), beginning science teachers to “[envision] oneself as science teacher” as “critical in becoming a professional” science teacher (Davis et al., 2006, p. 631). Whether it is a study assessing science teacher self-efficacy through induction (Haigh, & Anthony, 2012), increasing pedagogical content knowledge for elementary science teachers (Goodnough & Hung, 2009), or proper enactment of Nature of Science (NOS) instruction (Herman, Clough, & Olson, 2013), the ways beginning elementary science teachers *ought* to un/become has been deemed knowable. Since the negotiation between questions of *ought* and *might* contextualize the ‘types of professionals’ beginning science teachers ought to become is often taken-for-granted, an ethicopolitical hesitation is essential to our work with, on, and for beginning science teachers.

Generative space for thinking of science teacher education and induction in more liberatory ways for the beginning science teacher subject emerges between the tensions of *ought* and *might*. Within this space, beginning science teachers and science teacher educators might be able to create and navigate their own journeys of un/becoming, rather than continuing to re/produce and maintain obligations to prevailing discourses of how

one ought to become an elementary science teacher. This is a paradox in which science teacher educators must reside. Instead of enacting science teacher education and induction practices that maintain the façade of a ‘right’ way to become an elementary science teacher as a process of persuasion (Sammel, 2009), living within conflicting paradoxes opens exciting possibilities for science teacher education. By working from and within diverse ontological paradigms, science teacher educators are enabled to give up the isolated dualism that intentionally re/produce those who ought to become and unbecome elementary science teachers. For example, by maneuvering multiple conceptions of ontology in science teacher education and examining processes of un/becoming, science teacher educators are challenged to engage in ethicopolitical questions from post-humanist perspectives of becoming which escape Enlightenment ideology. Deleuze and Guattari (1987) discuss

[Becoming] [as] a movement in which a subject no longer occupies a realm of stability but rather is folded into a nomadic mode of existence in which one is always an anomaly that is inaccessible to any form of definition. (Bruns, 2007, p. 703)

The enactment and embodiment of a multiplicitous lens of un/becoming an elementary science teacher initiates one to ask: Un/becoming-what? Un/becoming for whom? Un/becoming for what purposes? Un/becoming under what conditions? Un/becoming at what costs?

### **Explore Regimes of Truth in Science Teacher Education and Induction**

Truth is a thing of this world: it is produced only by virtue of multiple forms of constraint. And it induces regular effects of power. Each society has its regime of truth, its ‘general politics’ of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable



one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true. (Foucault & Rabinow, 1991, p. 72-73)

‘The oughts’ of science teacher education and induction function as a regime of truth. The truths of becoming an elementary science teacher continue to maintain remnants of ideological pasts (e.g., scientific traditions that shaped notions of racism, ableism, and conceptions of gender and sex). One of the central perceptions embedded in conceptions of ‘truth’ is that of strong objectivity (Harding, 1993). When in actuality, perceptions of strong objectivity (Harding, 1993) are a figment of the white heteronormative man’s imagination and therefore maintains particular definitions of what can and ought to be considered ‘true.’ Given the normalizing function of ‘objectivity,’ and therefore ‘truth,’ certain people and experiences can easily become deemed legitimate and illegitimate. E<sup>S</sup> and E<sup>J</sup> both begin to highlight ways in which particular regimes of truth percolate throughout elementary school science and becoming an elementary science teacher as also inherent to the socialization of beginning science teachers.

Two regimes of truth were made visible in Samantha’s induction experiences. The first preceded her undergraduate teacher education program and the second occurred during her student teaching placement. As she attempted to enact a ‘Goldilocks Science Curriculum,’ Samantha tried to avoid doing ‘too little,’ by attempting to find a mediating compromise between the science textbook and her vision for ‘too much’ ‘radical’ (or ‘good’) science instruction. Consequently, Samantha’s science curriculum still essentially maintained ‘science education as textbook education.’ Science education as textbook

education is one example of how regimes of truth persist in the elementary school science.

E<sup>J</sup> also depicted different regimes of truth within June's induction experiences. One of the most significant occurred during a professional development session likely intended to be a 'support' for beginning science teachers on 'how to get a job as an elementary teacher.' However, June experienced this professional development session as a direct regime of truth pushing her further away from being seen by potential employers as an 'intelligible elementary science teacher,' further amplifying her pre-existing hesitation to seek employment in an elementary classroom upon graduation. Secondly, June felt fortunate to have stumbled upon a literal hidden pathway for earning the necessary course credits for graduating with a degree in elementary education. While almost all of her peers were being advised to take a specific pre-set series of content-specific courses outside the education department (e.g., earth science for future teachers, English for future teachers, history for future teachers, etc.), June learned she actually had the freedom to take other courses that would also count toward a degree in elementary education, but those options were not public knowledge. So instead of taking 'English for future teachers,' June took a course on poetry, which greatly enhanced her relationship with the subject area. For June, even the 'required' course load for her degree in elementary education functioned as a regime of truth. Through June's induction experiences, we see how particular regimes of truth within "conventional programs of teacher education and professional development do not promote complex learning by teachers or students" (Fieman-Nemser, 2001, p. 1014).

From E<sup>S</sup> and E<sup>J</sup> the depth to which regimes of truth function within science teacher education and induction is made visible. In fact, Samantha and June show science teacher educators how certain beginning science teachers are made legitimate and others illegitimate. To maintain a commitment to the ethicopolitical entanglements of science teacher education and induction, it is critical that we begin to explicitly explore the manifestation of the aforementioned (and other) regimes of truth alongside beginning science teachers.

### **Engage Research and Education with Science Teachers as Phenomena**

“We’[ve] literally been trained away from ourselves” (Dillard, 2012, p. 18). Alternatively, at each turn in this study, I followed whatever happened next. If I was told ‘no,’ I wrote about it. If I saw a connection, I wrote about it. If I felt uncomfortable, I wrote about it. If I felt stuck, I wrote about it. If I did not have anything to write, I wrote about it. At each turn, something still kept this study on the move. Just as the study happened to me, I happened to the study. This is how I (and I hope others who work with science teachers) intend to keep my being and research moving in some direction (not necessarily forward). By engaging the re/search as embodied, emotive, and always-already emergent, science teacher educators and beginning science teachers might keep their selves *and* their practice on the move. Whether in the form of designing elementary science curricula or moving in and out of ‘the box,’ June and Samantha provide two dynamic images of movement in un/becoming an elementary science teacher. When science teacher educators and researchers move *with/in* the re/search, things materialize.

Barad’s (2007) notion of phenomena provides an entry *and* exit for researchers, science teacher educators, and beginning science teachers to embody an ethicopolitical

commitment inherent to “*practices of knowing [as] specific material... that participate in (Re)configuring the world*” (Barad, 2007, p. 91, emphasis original). Rather than viewing beginning science teachers (i.e., humans) as understandable through proper representation, researchers and practitioners might examine (and work out of) the complicated entanglements beginning science teachers experience with non-human and/or non-living (e.g., quantifiable measurement, teacher evaluation rubrics, or best practices of elementary teaching, ideas) as phenomena. Then science teacher educators and researchers of induction are enabled to begin to consider “the primary ontological units are not ‘things’ but phenomena” (Barad, 2007, p. 141). More specifically, Barad explains phenomena as:

dynamic topological reconfigurings/entanglements/relationalities/(re)articulations of the world. And the primary semantic units are not ‘words’ but material-discursive practices through which (ontic and semantic) boundaries are constituted. This dynamism *is* agency. Agency is not an attribute but the ongoing reconfigurings of the world. (p. 141)

E<sup>J</sup> and E<sup>S</sup> provide multiple ‘middles’ (Springgay & Truman, 2017) for science teacher educators and researchers to re-engage our work as a more-than-human event. Samantha and June intentionally and unintentionally depict the urgency in science teacher education to “understand science teaching and learning as a part of a larger assemblage of materialities and discourses” (Bazzul et al, in-press, p. 5). Similar to the ways June talked us through this image of un/becoming an elementary science teacher as phenomena through posthuman performativity, Bazzul et al. (in-press) discuss how science teachers and students have “always already been oriented by material entities” (p. 2).

In doing so, science teacher educators and those implicated in their induction might act and think anew.

### **Embrace the Contradictions of Inquiry to Do Something Otherwise**

Samantha and June helped me work differently. While this study drew on interactive (and at times contradictory) perspectives the outcome of the (post)ethnographic study which transpired also highlighted Samantha's and June's own interactive contradictions. Rather than fabricating a more 'logical' or 'pure' ethnographic research study, this particular (post)ethnography found life within the messy thresholds of non/linear methodologies, theories, and practices. Figure 16 provides a visual framework of three prominent implications for future research and practice of science teacher education and induction offered by this (post)ethnographic study.

The implications, or framework, demonstrated in Figure 16 are not necessarily intended to suggest another series of 'oughts' for research and practice, but rather the moments (as also movements) employed in this (post)ethnography offer additional 'mights' for science teacher education and induction to consider. More specifically, a (post)ethnography provides the following mo(ve)ments for researchers and practitioners: (a) employ a participant's methodology; (b) enact several practical hesitations; and (c) work at the thresholds of theoretical contradictions. These mo(ve)ments do not occur in any specific order as they all always-already occur at the same time. Each of the three gestures generates alternative movements for another. For example, to embrace the intersections and contradictions of multiple theoretical perspectives I implicitly and explicitly enacted several hesitations through the study.

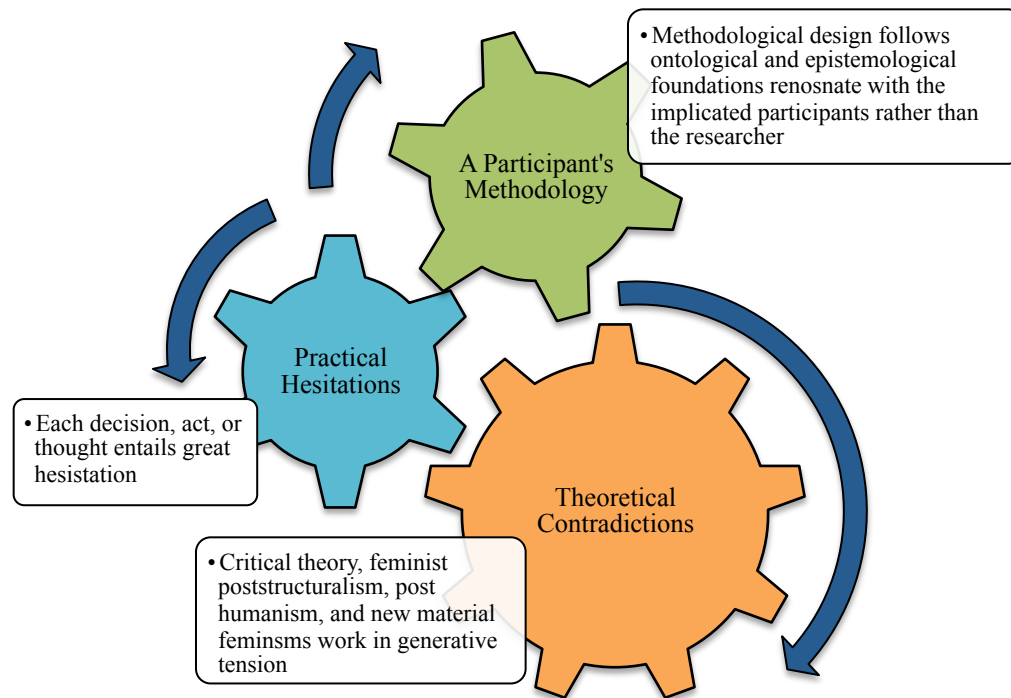


Figure 16: (Post)Ethnographic Mo(ve)ments

For me (and maybe for other educators and researchers) practical hesitations surface in the very questions I posed, the decisions regarding our (June, Samantha, and I) ‘next move’ in the research process, or even the deliberate time and space where I wondered with/in (and about) participant experiences. It is my hope that researchers and practitioners embrace the subtle stops, gasps, ‘huhs,’ emotions, and ‘gut’ reactions intricately embedded in the daily taken-for-granted practices of science teacher education and induction. More specifically, when those responsible for the education and induction of science teachers go about making decisions regarding how beginning science teachers *ought* to be inducted, this study exemplifies an array of reasons they might consider hesitating in doing so. In the event of planning a professional development sequence, science teacher outreach program, research study, assessment of science teacher ‘effectiveness,’ or the very act of declaring what beginning science teachers ‘ought to need’ ... hesitate. Take a moment, or more realistically, a series of several moments to

examine the ethicopolitical underpinnings inherent to the very work of science teacher induction. Simply put, science educators and/or those working in science teacher induction might move toward embracing the dis/comfort of not knowing what do or who science teachers ought to become. Regular hesitations, like these, foster space for science teacher educators to become un/comfortably attuned to the ethics of induction. This is a beautiful space from which to work anew. Whether it is an emotive response or strategic methodological decision regarding the ontological or epistemological assumptions employed, Figure 16's (post)ethnographic mo(ve)ments offer practical and theoretical levers that expose an array of new possibilities for beginning science teachers, researchers, and practitioners.

### **Act and Think Slowly**

The previous lines of flight and/or implications for doing research otherwise contextualize the final contributions by Samantha and June. This decision was deliberate and continues to model how researchers of science teacher education and induction might begin to re-think the material outputs of one's research. More specifically, this decision works to illuminate ways voices and 'silences' claim, reinscribe, and/or might escape power/knowledge structures over the implicated subjects. Samantha's and June's involvement in crafting possible implications for the field of science teacher education and induction intends to deliberately give them the 'last word' regarding next steps for science teacher educators and those individuals interested in their induction into the profession of science teaching. I hope those reading will Slowly (Ulmer, 2016) heed *their* call for action and thinking.

### **Act with Samantha**

My advice would be to get in the classroom for the first-hand accounts. I think [researchers of science teacher induction and science teacher educators] should go into college classrooms and their students' field experience locations to see what future science teachers are actually learning. Then go into the classrooms of current science teachers to see what effective methods of science teaching they are doing in their classrooms, so [science teacher educators] can pass on those skills to their students. Maybe also have those effective science teachers come explain their methods to the class of future educators.  
(Samantha, personal communication, May 15, 2017)

### **Think with June**

Know yourself and the perspective you are working from.<sup>1</sup>

...

Develop a relationship with the participants you are working with.

...

Consider the diversity of ways of doing and being a researcher and then recognize that same level of multiplicity in the ways beginning teachers navigate their experience.

...

Everyone's being is so different, so there will always be variation.

...

Depending on your perspective as a researcher, you have the ability to ask different questions.

...

Most importantly, remembering that like not only these people aren't just beginning science teachers, but they're like beginning adults, like ... They're still so... It's like the thought of, you know, becoming this, this career almost is what many people think about it, when like they haven't even become like the person that they are yet, you know?... So it's like ... If there is ever moments where questions don't seem to get answered or if things just aren't ... Like, if there's confusion amongst like research or I don't know, data, whatever you want to call it ... It could be because ... It could be rooted in confusion of like, their soul. Like, they're just not, you know ... (laughs) Like, they don't know. And I think it's all connected, so you can't possibly get, get stuff with like you know, the strict boxes ... like getting any of that straight if what's inside of it isn't straight.  
(June, informal conversation, May 21, 2017)

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<sup>1</sup> Even though June advises researchers and teacher educators to 'know' themselves, I think she would add the caveat that even 'knowing oneself' might also be recognizing their inability to fully 'know yourself.'



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## **Appendix A**

### *Initial Interview Protocol with Beginning Science Teacher In-Depth Semi-Structured Interview Protocol*

#### **Background Information**

- How long have you been a teacher?
- Describe your teacher preparation program.
- Why did you decide to become a teacher?
- What experiences or people influenced your decision to become a teacher?
  - Describe them.
  - Why do you think they were so influential?
- How would you characterize your relationship with science?

#### **Views on Professional Role**

- How would you describe your job:
  - To your colleagues?
  - To your family?
  - To a stranger?
  - To a student?
  - To a students' parent?
- Do you enjoy teaching science?
  - Why or why not?
- How would you describe the purpose of education?
  - What or whom do you think influenced your perspective?
  - Do you find your thoughts about education changing?
    - If so, how?
- What surprises have you encountered as a beginning science teacher?

#### **Views on Practice**

- Describe your ideal science classroom.
  - Do you feel like this is possible in your classroom?
    - Why or why not?
- Describe your approach to teaching science?
- Describe a typical science class.
- How do you make decisions about the science curriculum you use in your classroom?
- Do you feel like you are a successful science teacher?
  - Why or why not?
- How do you define science?
  - Do you feel like this definition is communicated in your practice? Why or why not?

#### **View of Professional Support**

- What types of professional development experiences have you participated in?
- Describe the types of supports you have received from:
  - Your school? Your district? Your colleagues? A mentor?
  - Other entities?

## **Appendix B**

### *Follow-Up Interview Protocol with Beginning Science Teacher In-Depth Semi-Structured Interview Protocol*

#### **Views on Professional Role**

- How would you describe your job:
  - To your colleagues?
  - To your family?
  - To a stranger?
  - To a student?
  - To a students' parent?
- Do you enjoy teaching science?
  - Why or why not?
- How would you describe the purpose of education?
  - What or whom do you think influenced your beliefs?
  - Do you find your beliefs about education changing?
    - If so, how?
- What surprises have you encountered as a science teacher?

#### **Views on Practice**

- Describe your ideal science classroom.
  - Do you feel like this is possible in your classroom?
    - Why or why not?
- Describe your approach to teaching science?
- Describe a typical science class.
- How do you make decisions about the science curriculum you use in your classroom?
- Do you feel like you are a successful science teacher?
  - Why or why not?
- How do you define science?
  - Do you feel like this definition is comes through in your practice?

#### **View of Professional Support**

- What types of professional development experiences have you participated in?
- Describe the types of supports you have received from:
  - Your school
  - Your district
  - Your colleagues
  - A mentor
  - Other entities?

**Appendix C**  
*June's Preliminary Code Book*

| Code Name  | Number of Quotations |
|--|----------------------|
| 'Hummaness' of Students                              | 4                    |
| 'Hummaness' of Teachers                              | 6                    |
| 'Mastery' of ____ Outside of Formal Education        | 2                    |
| Affinity for Being 'Teacher'                         | 1                    |
| Affinity for Science                                 | 2                    |
| Attempt to Overcome Challenge                        | 1                    |
| Becoming a Teacher as Intrinsic                      | 2                    |
| Career Interests                                     | 3                    |
| Classroom Actions: June                              | 15                   |
| Confidence Levels in Content Knowledge               | 2                    |
| Content as Status Quo                                | 5                    |
| Cookie Cutter Model of Teacher Preparation           | 5                    |
| Decision to Major in Education                       | 1                    |
| Definition of Science                                | 3                    |
| Definition of Teacher                                | 2                    |
| Disconnect with Image of Perfect Teacher             | 1                    |
| EDCI 3125 Question to Ponder                         | 24                   |
| EDCI 3125 Reflection                                 | 20                   |
| Examining Language                                   | 6                    |
| Example: Gendered Image of Teacher                   | 3                    |
| Example: Image of Perfect Teacher                    | 2                    |
| Explicit Discussion of Research Process              | 7                    |
| Familial Lineage of Teachers                         | 1                    |
| Family Background: June                              | 13                   |
| Gendered Image of Teacher                            | 8                    |
| Getting a 'Job'                                      | 5                    |
| High School Labels of Identity                       | 1                    |
| Image of Perfect Teacher                             | 16                   |
| Image of Science and/or Scientist                    | 16                   |
| Image of Science Education                           | 7                    |
| Importance of Praise                                 | 2                    |
| Increase in Affinity for Science                     | 2                    |
| Increase in Self-Efficacy as 'Teacher'               | 8                    |
| Influence of Mentor                                  | 8                    |
| Influence of Pre-Existing Student teaching Placement | 3                    |
| Norms  |                      |
| Instructional and Curricular Planning                | 4                    |
| Instructional Preparation Time                       | 1                    |
| June's Connection to Music                           | 7                    |
| University Student teaching- Specific Expectations   | 4                    |
| Maria Shares Self                                    | 15                   |
| Monetary Costs                                       | 2                    |

| Code Name   | Number of Quotations |
|---|----------------------|
| Moving Between 'Worlds'   | 7                    |
| Must 'Love' Kids  | 1                    |
| Nature of Science   | 2                    |
| Navigating 'Chaos'  | 1                    |
| Navigating 'Failure'  | 9                    |
| Navigating Comfort Levels   | 5                    |
| Navigating Expectations   | 2                    |
| Navigating Geographic Locations   | 5                    |
| Navigating New Educational Experiences  | 7                    |
| Navigating Personal Interests and Desires   | 2                    |
| Navigating Students with Special Needs  | 3                    |
| Navigating Students' Diverse Cultural Backgrounds                                       | 1                    |
| Navigating Time   | 3                    |
| Observations of Mentor  | 4                    |
| Obstacle to Teaching  | 1                    |
| Opposition to School Science Practices  | 1                    |
| Overlap Between Maria & Participants' Experiences                                       | 15                   |
| Overlap in Teacher Role and Future Life   | 1                    |
| Perfectionism   | 3                    |
| Personal Outlook: June  | 31                   |
| Planning Actions: June  | 1                    |
| Previous High School Activities   | 8                    |
| Prior University Classroom Field Experience   | 5                    |
| Reference to EDCI 3125 Coursework   | 22                   |
| Resistance to Perfect Elementary Ed. Teacher Image                                      | 18                   |
| Response to EDCI 3125 Course Design   | 19                   |
| Role 'Trying Things Out'  | 1                    |
| Role and/or Influence of Colleagues (e.g., hallway neighbors, grade-level team, & PLCs) | 3                    |
| Role of 'Sense of Identity as Teacher'  | 2                    |
| Role of 'Thinking'  | 8                    |
| Role of 'Writing'   | 5                    |
| Role of Class Schedule Design   | 2                    |
| Role of Grading, Assessment, and Evaluation   | 27                   |
| Role of University Teacher Preparation Program  | 32                   |
| Role of Science Fair Projects   | 4                    |
| Role of Science Memories  | 8                    |
| Science as Inquiry  | 3                    |
| Scientific Method   | 4                    |
| Shift in Thinking   | 3                    |
| Shift in Thinking Due to Increase in Age  | 5                    |
| Shift in Thinking Due to Motivation   | 2                    |
| Source of Support: Peers  | 3                    |
| Student teaching Science Instruction: June  | 15                   |
| Teacher Certification and/or Education Degree   | 14                   |



| Code Name                                   | Number of Quotations |
|---|----------------------|
| Teaching to the Test                        | 1                    |
| The SENSE of Functionality in the Classroom | 1                    |
| The SENSE of Overwhelm                      | 1                    |
| Valuing of Collaboration                    | 11                   |
| Waning Affinity for Science                 | 3                    |
| Zoom In: Classroom to Self                  | 1                    |
| Zoom In: Peers to Self                      | 4                    |
| Zoom Out: Self to Classroom                 | 6                    |
| Zoom Out: Self to Peers                     | 9                    |
| Zoom Out: Self to Research Process          | 1                    |
| Zoom Out: Self to System                    | 4                    |

**Appendix D**  
*Institutional Review Board (IRB) Approval*

**ACTION ON EXEMPTION APPROVAL REQUEST**



**TO:** Maria Wallace  
Education

**FROM:** Dennis Landin  
Chair, Institutional Review Board

**DATE:** July 11, 2016

**RE:** IRB# E9969

**TITLE:** Deterritorializing Dichotomies in Science Teacher Induction: A Post <+> Ethnographic Study

Institutional Review Board  
Dr. Dennis Landin, Chair  
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Baton Rouge, LA 70803  
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**New Protocol/Modification/Continuation:** New Protocol

**Review Date:** 6/28/2016

**Approved**   X   **Disapproved**           

**Approval Date:** 7/11/2016 **Approval Expiration Date:** 7/10/2019

**Exemption Category/Paragraph:** 1, 2a, 4b

**Signed Consent Waived?:** No

**Re-review frequency:** (three years unless otherwise stated)

**LSU Proposal Number** (if applicable):

**Protocol Matches Scope of Work in Grant proposal:** (if applicable)

**By:** Dennis Landin, Chairman 

**PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –**

**Continuing approval is CONDITIONAL on:**

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects\*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

*\*All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at <http://www.lsu.edu/irb>*

## **Vita**

Maria Ferris Greene Wallace, a native of San Antonio, Texas, received her bachelor's degree from Millsaps College in 2009 and masters degree from Trinity University in 2010. Thereafter, she taught 3<sup>rd</sup> - 6<sup>th</sup> grade science in Houston, Texas and Dorchester, Massachusetts. As her interest in the complexities of education grew, she made the decision to enter the doctoral program in the School of Education at Louisiana State University. She will receive her Ph.D. in Curriculum & Instruction in August 2017 and plans to begin work as an Assistant Professor of Education at Millsaps College upon graduation.