

READING AND PROCESS: A DIFFRACTIVE APPROACH TO MITIGATE TENSIONS IN
REFORM-MACHINE \$CHOOLS

by

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(Under the Direction of Elizabeth A. St. Pierre)

ABSTRACT

Reform-Machine \$chools (RM\$) are produced and maintained with positivist theories of school reform whereby standardized test scores and other numeric data are the representative truth as “matters of fact” used to evaluate teacher effectiveness and school performance. Schools with higher accountability pressure due to lower performance scores also face higher rates of teacher attrition. Higher teacher attrition has a destabilizing effect that recreates the conditions for school improvement “failure.” I conducted this study in one middle school in a district that has experienced many initiatives and programming changes during the last ten years. My interview participants included experienced math and ELA teachers in grades six through eight. My goal was to develop more nuanced discussions of how accountability and teacher attrition work together within challenging school contexts and to find ways to mitigate the accountability tension forces that produce frustration for teachers.

I describe my inquiry approach as *reading and process* as the particular attunement I adopted with an ethic of care for how knowledge claims can be made, the ontological orientation they require, and the possible effects they can produce. Reading and process disturbs old habits of thinking and diffractively produces a field for bringing new ideas in relation. I relied on the

concept of *diffraction* as a tool to guide a series of analytical experiments with data from interview transcripts. By using multiple diffractive iterations of analyses, I found that in an entanglement of forces in tension that operate at varying intensities, immanent resistance and ethical practices of care can emerge in the instances of need.

The ontological orientation for this study is based on Alfred North Whitehead's (1929/1985) process philosophy, which allowed a generative analysis of reality as encounters in immanent and ongoing relations. I used Whitehead's process theory in this study to reconfigure typical descriptions of teacher-accountability interactions—in which each element retains a static identity—toward thinking how teacher practice operates within a field of multiple tension relations which provides the space for more caring possibilities to be enacted.

INDEX WORDS: Reform-Machine Schools; accountability; diffractive analysis; teacher retention; entanglement; process theory

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DEDICATION

This work is dedicated to the educators in Clarke County School District who I have worked with for over nine years. This dissertation is especially for my people at Burney-Harris-Lyons Middle School who teach me what caring *response-ability* looks like every day.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	v
LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER	
1 READING AND PROCESS: A DIFFRACTIVE APPROACH FOR INQUIRY IN REFORM-MACHINE \$CHOOLS	1
Getting a Hold on a Problem	1
Reform-Machine \$chools (RM\$).....	3
Persistent Problems Require Different Approaches	6
Reading and Process is a Diffractive Approach to Analysis	11
Summary of the Study	14
2 RELATIONSHIP BETWEEN ACCOUNTABILITY AND TEACHER ATTRITION IN RM\$	17
Background of a Displaced Problem	17
How Accountability Structures the Teaching Environment	19
Creation of Reform-Machine \$chools	25
Anecdotes Provide an Entry into Complex Problems.....	27
This Can't be how Accountability is Supposed to Work.....	35
Reading and Process with Materializing Educational Problems	39

3	THEORETICAL JOURNEY AS READING AND PROCESS	41
	The Contestable Grounds for Facts of Matter.....	41
	Reading and Process with Materializing Problems	45
	Including the Much-at-Oneness of Reality	46
	Whitehead (Un)settles-Settles Metaphysical Assumptions Simultaneously	48
	Thinking with Leaps and Porous Boundaries	52
	Etho-Ecology as an Ontology of Caring.....	56
	Reconfigurations for Environmental Disturbances.....	63
	Toward an Inclusive Space that Holds the Pragmatic and the Potential.....	68
4	WEAVING THEORY AND PRACTICE THROUGHOUT THE INQUIRY	
	JOURNEY	71
	Overview of the Research Design.....	71
	Inquiry Approach.....	79
	Interviews as Apparatus of Capture	84
	Different Interview Approaches and Their Effects.....	88
	Visual Incitements to Think	93
5	DIFFRACTION PATTERNS OF TIME-ENTANGLED FORCES IN RM\$.....	98
	Study Description.....	98
	Analysis for Pragmatic Recommendations	100
	Ontological Orientation	103
	Reading and Process: A Diffractive Practice for Inquiry in Complex Contexts .	105
	Analysis with Time-Entangled Forces.....	106
	Diffractive Analytical Process - Part I.....	107

Diffractive Analytical Process Part - II.....	111
Diffractive Analytical Process Part - III	114
Representing a Field of Tensions in RM\$	118
Re-Figuring Teacher Practice and Time	127
6 PHANTOMATIC FACETS OF EXPERIENCE WITHIN RM\$	130
Beyond the Capacity to Care	130
Persistence of Reform-Machine \$chools	134
Getting Into/Out of the Infinite Loop Simultaneously	136
REFERENCES	145
APPENDICES	
A ROUND 1 INTERVIEW GUIDE.....	158
B ROUND 2 INTERVIEW GUIDE.....	160
C ROUND 3 INTERVIEW GUIDE.....	162
D ROUND 4 INTERVIEW GUIDE.....	164
E RECOMMENDATIONS FOR TEACHER SUPPORT	166

LIST OF TABLES

	Page
Table 1: Moving from frustration toward creative practices of care	113
Table 2: Mapping effects of district leadership churn toward resistance	115

LIST OF FIGURES

	Page
Figure 1: “Your Unpredictable Sameness”	93
Figure 2: Forces of Time They are A-Spiralin’	110
Figure 3: Field of Tensions Operating Within RM\$.....	119
Figure 4: Mapping of Initiative Programming and Teacher Recommended Practices.....	121
Figure 5: Tension Effects on Teacher Practice in RM\$.....	122
Figure 6: Complexity of Effects for Teacher Practice in RM\$.....	125

CHAPTER 1

READING AND PROCESS: A DIFFRACTIVE APPROACH FOR INQUIRY IN REFORM-MACHINE SCHOOLS

Getting a Hold on a Problem

Sometimes in encounters, one recognizes an entity as it emerges and seems to conform to a pattern of influence. *Reform-Machine Schools (RM\$)* are produced within an assemblage of tension forces which assumes that market-based economic theory holds the answers for accountability programming and practice to improve schools. The illusion of the certainty of science promotes problematic research and accountability approaches to “fix” the “gaps” for “underperforming” schools. The Every Student Succeeds Act (ESSA) Title I law (2015) provides access for “market-based” for-profit educational service providers to “compete” for schools’ Title I funds. In my state, the *Georgia’s Systems of Continuous Improvement* framework mandates an ongoing process of implementation, monitoring, and evaluation of programs that reinforces a culture of change before enough time in practice can be enacted. More changes provide more money for educational service providers when schools and districts are challenged to show improvement. As educational improvement efforts operate in these conditions, an aggressive mode of accountability programming implementation is fueled by capitalistic interests following education budgets. This mode of improvement for the sake of accountability underpinned by economic theory operates as a force that prioritizes datafication and documentation over *response-ability*—the ability to respond (Haraway, 2016a) with ethical caring practices.

Thinking about accountability mandates and the problematic way they structure school environments and teaching practices was my critical entry point into the persistent problem of high teacher attrition in schools that are challenged to demonstrate academic improvement. It was helpful to me to understand how capitalist interests drive educational policies that generate constantly changing accountability programming initiatives, which produce the stressful environment of RM\$. Teachers and schools are held accountable. The for-profit educational service providers authorized by federal education policy are not. This point of critique is what Pignarre and Stengers (2005/2011) described as “a reliable hold” with problems in order to transform them into a space that will allow new possibilities with the pragmatic responsibility for their consequences.

Can we be satisfied with analyses that always come back to the same thing: it’s capitalism’s fault. The question is thus one of knowing what today one can “gain” by putting capitalism center-stage and calling it into question. (p. 14)

However, remaining in the thinking space where one can only shout, “Capitalism is ruining our schools!” and “Standardized testing is inherently racist and classist!” does not bring difference for educators at the school-level who are too busy trying to get it all done to be able to grapple with the problem and find ways to resist with care. It is often easier to resign from teaching due to eroded trust and dissatisfaction.

RM\$ are produced and maintained with positivist theories of school reform whereby standardized test scores and other numeric data are the representative truth as “matters of fact” used to evaluate teacher effectiveness and school performance. The problem persists as schools with higher accountability pressure due to lower performance scores also face higher rates of teacher attrition. Higher teacher attrition has a destabilizing effect that recreates the conditions

for school improvement “failure.” The structured inequity within this relationship is the important reason I conducted this study.

To that end, this study is based on an anti-deficit description of schools that have been disparaged for too long. The descriptions of schools as failures have been generated by a capitalist reform-machine project. I propose that a better name for Title I schools that are “underperforming” should point toward how they continue to be re-*con*-figured as failing schools that need *more* expensive school improvement schemes. I suggest *Reform-Machine \$chools* (RM\$: the \$ = makes money for some) as an ethical term I created that indicates their mode of accountability reproduction. In my study, I interviewed five math and English Language Arts (ELA) teachers at four different times over the course of two years to find out how they were responding to the increasing programming changes due to the school’s “underperforming” status. In addition, I am a science teacher in this school so I was able to experience the accountability demands and the tensions they created. I will describe the study in more detail at the end of this chapter and in subsequent chapters, but next I describe the environment of RM\$ and the theoretical approach I developed in order to engage in the persistent problem of high teacher turnover in a school challenged to demonstrate academic growth.

Reform-Machine \$chools (RM\$)

Reform-Machine \$chools are Title I schools that have high numbers of students living in poverty and are “underperforming” academically. Due to their low academic performance ratings, they implement an increasing number of improvement initiatives. School reform policy and school improvement initiatives are based on a capitalistic deficit frame that continuously designates students, teachers, and schools as failing. It is never the reform entities and their mechanisms themselves, always the students, teachers, and schools who are held accountable

and labeled “underperforming” based on standardized test scores. School improvement initiative implementation changes from year to year because of the mandate to show student academic improvement, especially for economically marginalized and racialized student groups. These changes exert a great deal of pressure on educators and contribute to high teacher turnover in RM\$.

In RM\$, time-pressure priorities are placed on the generation of student data and documentation of intervention practices. This time-entangled force was commonly discussed in teacher interviews I conducted for this study and evident through my own experience as a teacher in different Title I schools. Eberle (2019) described the emergence of datafication practices in modern society as a “danger residing in being unreflective about how we use statistics and norms to put the individual under erasure” (p. 35). I came to appreciate the importance of the concept *datafication* that represented a tension force on teacher practice which emerged, amplified, and shifted throughout programming implementation. The situation in RM\$ is more dire than just being put under erasure or questioned; prioritizing datafication is violent in the ways it produces failing students, teachers, and schools. After reading process-oriented theory related to more ecological modes of analysis (Green, 2016; Pignarre & Stengers, 2005/2011; Schrader, 2010; Stengers, 2005; 2002/2011), I was able to think productively about how accountability forces place a datafication priority on assessment and documentation for math and ELA teachers in RM\$. For example, students spend increasing amounts of time using electronic platforms that diagnose, offer practice, re-test, and report progress. Data on the students’ use-time and performance scores are surveilled, discussed, and documented in data meetings each week. Adding to this problem, math teachers in my study reported that the practice of concept delivery by electronic programming is not synchronized with the content

spacing for their math classes which creates more confusion for students learning math. Math teachers reported a sense of alienation with increasing electronic platform programming use as it disconnects them from student learning, despite being held accountable for it. In this study, the term *datafication*, as documentation and testing practices for accountability's sake, represents a force in tension with creative and caring practices as described by teachers in my study. This understanding provoked the question, how can accountability practices be implemented with a higher priority on caring practices to increase both teacher and student satisfaction when accountability measures dominate?

According to Howe et al. (2004), educational programming and implementation planning should “start by trying to understand communities themselves as complex systems and how the [failure] is recurrently produced by that system” (p. 1562). Educational policy and practice derive their research validity from “scientific” methods based on the illusion of certainty and are incapable of addressing the persistent problems of structured inequity. The problem of RM\$ is perpetuated by this dogmatically narrow conception of reality. The problems of poverty and education cannot be solved with approaches that reproduce inequity. Schools designated as failing have more accountability programming and have higher teacher attrition than those that are not. More accountability reforms driven by eager capitalistic entities who follow education budgets and offer “fixes” to the “gaps” do not help and cannot hope to approach the root inequity that spirals out into an assemblage of problems connected with economic disparity, inadequate health care, food and housing insecurity, and on and on. However, I do believe that education can play a part in mitigating disparity if structured in regenerative and ethical ways. In this study, I approached this problem through continuous reading of theoretical texts and engaging as a

teacher-researcher at the study site. I will describe the study shortly. First, however, I explain why I used an approach different from those found in most conventional social science studies.

Persistent Problems Require Different Approaches

The validity of research in educational policy and practice is grounded on an illusion of certainty and a static version of reality that is not shared by all of science itself. Philosophy of science scholar, Donna Haraway (1976/2004), critiqued this view of science early in her career:

It seems that the task of contemporary history and philosophy of science is to rediscover for the age a humane sense of scientific research and theory. For it is a fact that the history of science does raise passions, and the basic perspective adopted toward the status of scientific worlds does condition our poetry and our politics. Surely much of our dis-ease with modern science comes from appreciation of the inadequacy of the old view of progressive, control-oriented, objective descriptions of nature (or of meter readings, if nature herself is hiding or dead). (p. 2)

According to Haraway and other philosophy of science scholars who share a Whiteheadian process oriented relational view of reality, science in all its practices and policies produces only partial understandings of nature. It is the ontological difference between the “belief” with a Cartesian fear of uncertainty that nature can be discovered, essentialized, and controlled (Bordo, 1986) and accepting that our understandings of nature are always in process yet specific to our particular modes of engagement with nature. Thinking with Haraway, Barad, and Stengers our modes of engagement produce particular “facts that matter” in a field of entangled forces. The ethical work in this study as well as in the science it represents is to interrogate the assumptions that authorize “facts” to stand as evidence and to take responsibility for how their effects map across our communities. The consequences of “facts,” such as numeric scores that designate

failure, are never shared equally. Haraway (1991) continued to critique the myth of objective science and the “facts of matter” they create by arguing that “science is a contestable text and a power field” (p. 185). Haraway’s position is not a rejection of science but a project to regenerate ways of learning and living together and finding ways through the problems that modern approaches to science and society have created. The particular problem of high teacher attrition in Reform-Machine Schools (RM\$) is perpetuated by an unquestioned and narrow conception of reality, science, and scientific method that can only recognize and reproduce the same conditions. Schools designated as failing have more accountability programming and have higher teacher attrition than those that don’t. High turnover in schools challenged to show improvement destabilizes the educational environment, making it harder for them to show improvement. However, the question of how and why the relationship between accountability and teacher attrition materialize are not easily answered due to the situational, local, and specific complexity of RM\$.

Haraway (2016b) wrote “the relation is the smallest unit of analysis” (p. 116). A unit of analysis in a process ontology of immanence is not a stabilized object with *a priori* relations but emerges in a multifaceted relationality that immanently occurs in encounters. Thinking with a process-oriented ontology of immanence powerfully opens the field to transform a problem within an assemblage that resists categories, and as Tsing (2015) wrote, “contaminates” all that are engaged. Further support to embrace the complexity in problems, neurobiologist Einstein (2012) wrote “approaches that demand accounts of complexity [are] good science” (p. 147). For me and this study, this means that it is not possible to think that individual teachers, students, and schools are effective or not based on evaluation and testing data. Indeed, there are complex causes for dissatisfaction that lead to teachers leaving their schools. My goal in this study was to

engage the complexity in all of its “much-at-oneness” (James, 1911/1996, p. 50) in order to open my thinking to this problem. Therefore, I did not set out to study teachers but to study the relationality of accountability and teachers working in the complexity of RM\$. Relationality in a process-oriented ontology of immanence cannot be distinguished, standardized, or objectively separated into knowledge schemes, but that’s exactly what positivist social science requires. In other words, positivist studies cannot account for the ongoing complexity of relations that always already form and re-form. Positivist theories of knowledge cannot approach what I call *phantomatic encounters* that dissipate within a flow such that all that is left to measure and count are effects separated from their relational ontology. Why do teachers leave? It’s hard to say. Unfortunately, positivist social science practices that pervade schools can only evaluate teachers using a numeric scale and count them at the end of the year. All positivist theories can do is cut and force-fit outcomes into categories that offer no information about the reality in RM\$. In chapter 3, I describe the theoretical journey of this study and how I made connections among concepts that helped me to understand the flaws in positivist influences in educational theory and research as well as appreciate the possibilities of a process-oriented ontology of immanence. Below I summarize the ontological conditions that were necessary to think-with in order to approach the relationality of accountability forces and their effects on teachers.

Ontological Orientation

My goal was to develop more nuanced discussions of how accountability and teacher attrition work together within challenging school contexts and how to mitigate the accountability tension forces to promote higher teacher satisfaction in their schools. However, accountability forces and their enactions exist continuously within schools challenged to demonstrate increased performance, and the enactions emerge and amplify as they enfold within a constantly moving

and shifting entanglement of teacher practice expectations. For me, the reality of “walking and dwelling” (Johnson & Larsen, 2013, p. 15) with this problem as a pragmatic mode of inquiry existed in a “phantomatic ontology” (Schrader, 2010) which allowed the specters of recognition to paradoxically exist with an attunement to diffractive patterns of difference. Indeed, the effects of previous encounters remain immanent as affective memories in the non-form of specters which condition teacher responses to further emerging accountability requirements as they are implemented.

Pignarre and Stengers (2005/2011) wrote about the importance of recognizing the particular “hold” that theory can provide in order to remain and learn with difficult questions. The theoretical hold for this study is based on Alfred North Whitehead’s (1929/1985) process philosophy, which allowed a generative analysis of reality as encounters in immanent and ongoing relations. I intended from the beginning of this study to address not just the isolated barriers to teacher retention in school improvement projects but also the emergent entanglement in which these events come to be. In many policy reform descriptions, there is an underlying assumption that teachers are fixed in their performance level and can be “effective” in any classroom or school context. That ontological assumption reduces the potential for solving the problem of high teacher attrition in RMS and continues to mis-represent the ongoingness in the complexity of teacher practice. My use of process-oriented theory combined with thinking with an ontology of immanence is described in detail throughout subsequent chapters as it became helpful in bringing forth analytical strategies related to the mitigation of frustration tensions that teachers experience in practice. Whitehead’s process philosophy enabled a shift from thinking about reality as what is “out-there” that can be observed, evaluated, and counted as essential things toward thinking how different forces appear, amplify, and disappear through relations in

multifaceted ways. In opposition to common metaphysical assumptions of separate identities for static things, Whitehead described his relational theory of reality: “Accordingly it would seem that every material entity is not really one entity. It is an essential multiplicity of entities” (Whitehead, 1920/2015, p. 23). I used Whitehead’s process theory in this study to reconfigure typical descriptions of teacher-accountability interactions—in which each element retains a static identity—toward thinking how teacher practice operates within a field of multiple tension relations which provides the space for more caring possibilities to be enacted.

Phantomatic Ontology. In this space of possibility, it became important to think with a *phantomatic ontology* (Schrader, 2010) of becoming —where shifting and non-linear encounters affect *how* one can think—as I engaged the tension forces of accountability. These tension forces *enfold* and structure teacher practice but also allow immanent potential to reorient priorities during programming implementations. Thinking with an ontology of immanence requires different concepts. For example, my use of the term *phantomatic enfolding* designates an ontological premise that accountability tension forces materialize, endure, subside, and affect differently within a relational assemblage. The use of the term “unfold” would suggest a linear logic of time (Barad, 2010) within accountability initiative implementations that have an inert existence as objects in static temporality. As I mark terms with quotations, I signal the dissonance between the ontological field I use for this study and the words as used in traditional educational studies which “assume one-to-one correspondence between scientific theories and reality” (Barad, 2007, p. 41). Thinking things “unfold” limits possibilities and perpetuates the problem of the linearity of time. My understanding of ontological differences and their effects developed throughout the study as an ongoing process of reading theoretical texts in the realm of speculative philosophy related to the concepts of entanglement, immanence, and diffractive

relations that produce different ways of engaging persistent problems. I discuss details of speculative theories I read and how they changed my thinking in chapter 3. However, at the start I thought about the phantomatic effects that condition our habits of mind as well as those that exist in reality. Past experience, especially traumatic experience, emerges in our present as specters that haunt us. These hauntings are present from our past, yet we think these things are “over” and we deny their influence. In my interview discussions with teachers, they called on traumatic memories entangled with the problems they faced in their present practice, as well as the obvious future-orientation of teaching work. These phantomatic forces materialized to create new effects in ongoing and unpredictable ways. I relate some of these accountability hauntings as anecdotes in chapter 2 to help illustrate how teacher accountability enactments can affect teacher attrition.

Reading and Process Is a Diffractive Approach to Analysis

In order to honor the complexity of this problem, I needed to think with a different ontological orientation that I found in the new materialist scholarship. This ontological turn for new approaches to inquiry requires rigorous reading as an ongoing, grappling process (St. Pierre, 2018; 2019). I engaged these issues through continuous reading of theoretical texts as a teacher-researcher at the study site. I describe my inquiry approach as *reading and process* to map a philosophical journey as I dwelled with the problem. By reading and process I mean the particular attunement I adopted as an ethic of care for how knowledge claims can be made, the ontological orientation they require, and the possible effects they can produce. Reading and process is taking a path and making connections in new ways that disturb old habits of thinking so the problem can take different forms. In a diffractive manner, reading and process moves and produces a field for bringing new ideas in relation. I did not have an analytical plan ahead of

time. The project “results” materialized through analytical processes using diffractive experiments that were generated by reading theory.

In this study, *reading and process* is the name I gave to the practice of reading speculative philosophy texts while conducting my study. In this way, the ideas I read helped me to open and transform the structures of my thinking for the problem of teacher practice in RM\$. Reading with theory as an approach to inquiry has been described as “intra-actions with data” (Jackson & Mazzei, 2012, p. 127); “ongoing construction of a cabinet of curiosities” (MacLure, 2013, p. 180); “becoming-with the data” (Fenwick & Edwards, 2013, p. 59); and a way to engage inquiry for “generative potential” (Dunk, 2020, p. 233). This study began with the intention to find out how educator retention could be promoted as part of implementing school improvement initiatives in high accountability contexts. However, through continuous theoretical reading and iterations of analytical approaches within a commonly stated problem by teachers as “never enough time,” the problem shifted from constraints of time *diffractively* toward generating teacher practices of resistance and care. Diffraction as a “new” approach to thinking was originally described by Haraway (1993/1996).

I am less interested in the critical practice of reflection, of showing once again that the emperor has no clothes, than in finding a way to diffract critical inquiry in order to make difference patterns in a more worldly way. Reflection displaces the same elsewhere; diffraction patterns record the passage of difference, interaction, and interference. (pp. 429-430)

I engaged diffractive thinking as ongoing analysis which opened regenerative possibilities toward rethinking time as an entangled force, rather than a limited resource. In a similar way, Mazzei (2014) described a diffractive approach as “This means that in a diffractive process of

data analysis, a reading of data with theoretical concepts (and/or multiple theoretical concepts) produces an emergent and unpredictable series of reading as data and theory make themselves intelligible to one another” (p. 743). Through diffractive reading of interview transcripts, I appreciated how time articulates differently across multiple entangled events within educator practice. Barad (2010) described the potential for materializations of phenomena when thinking *spacetime mattering* differently.

This “beginning,” like all beginnings, is always already threaded through with anticipation of where it is going but will never simply reach and of a past that has yet to come. It is not merely that the future and the past are not “there” and never sit still, but that the present is not simply here-now. Multiple heterogeneous iterations all: past, present, and future, not in a relation of linear unfolding, but threaded through one another in a nonlinear enfolding of spacetime mattering, a topology that defies any suggestion of a smooth continuous manifold. Time is out of joint. Dispersed. Diffracted. Time is diffracted through itself. (p. 244)

By using multiple diffractive iterations of analyses, I found that in an entanglement of forces in tension, that operate at varying intensities, immanent resistance and ethical practices of care can emerge in the spatial-temporal-mattering instances of need. Thinking of how tensions phantomatically emerge, amplify, seem to dissipate, yet remain as forces allowed me to also think how tension forces could be mitigated. I discuss how I came to think with the types of tension forces and their effects on teacher satisfaction in chapter 5. Briefly, they include tensions between caring practice as teacher response-ability and datafication practices for accountability priorities; tensions between programming change and stability; tensions between flexibility and inflexibility for practice requirements; and tension effects between high satisfaction and high

frustration. Together, they create a field of forces that influence implementation of programming. I used the patterns of tensions that structure teacher practice in RM\$ to create diagrams which represent the field of forces and the potential within. In chapter 6, I describe how I used these diagrams as a tool to provoke discussions with teachers and administrators to help reorient thinking about how we can implement accountability programming in regenerative ways. However, before I was able to develop these ideas through iterations of analysis during the study, I had to inquire by reading philosophical texts to understand the potential and the limitations of different images of thought (St. Pierre, 2019).

Summary of the Study

I conducted this study in one public Title I middle school in a small southern district that has experienced a high amount of initiative and programming changes over the last ten years. I used a site-specific case study design to start as a conventional structure to begin the inquiry because the methods of collecting data I proposed were familiar to the authorizing groups (IRB and the school district) who allowed me to conduct this study in the school. The justification for a conventional case study design included the need for context-dependent arrays of details that unfold iteratively in an ongoing manner throughout implementation (Flyvbjerg, 2006, p. 238; Heck, 2004, 195; Yin, 2018, p. 5). Flyvbjerg (2006) wrote that the value for using a case study approach is not that it can “prove anything,” rather a case study allows one to remain in the context in order to “learn something” (p. 224). Since previous studies designed to generalize findings have not been successful in providing information to improve teacher retention in Title I school contexts, especially as they become RM\$, my initial case study approach to learn how accountability materializes in different ways justified research practices to include everything I thought was relevant. I used document analysis to collect material for thinking about how

accountability programming implementation unfolds during the year and interview conversations to discuss with teachers how they responded to these accountability enactments over time. These inquiry practices, along with weekly analytical writing allowed me to document how things “happened.”

Through this study, I intended to elicit the complexity of teacher responsibilities related to school improvement policy implementation so I could compose an account of the implementation of the school improvement initiatives as they “unfolded” during one school year and to document the practices of support as capacity building that arise as needed. In addition, I intended for this study to inform inquiry approaches using process-oriented theory to study local practice and policy implementation. Since research practices to approach complexity have not been adequately described for a specific context, I relied on *reading in process* as my primary inquiry approach with writing of analytic memos throughout to elicit the complex process-orientation that Whitehead and other immanence scholars have described. In other words, I did not use conventional social science research “methods” intended to guarantee the truth of the study.

I began by conducting interviews with teachers at my school to find out how they were responding to the accountability programming implementations. Math and English Language Arts (ELA) are targeted domains for school improvement reforms and these teachers are subjected to higher pressure to produce academic growth than teachers of other school subjects. I used purposeful sampling and emailed teachers at this school who had been teaching math or ELA for more than five years to invite them to participate in my study. These teachers were selected because they are considered experienced and perform additional roles within the school such as grade level chairs, School Improvement Leadership Team (SILT), sports team coaches,

and special event coordinators. They represent a diverse combination of racial, cultural, gender, age, and prior job experience categories. I conducted one-on-one interviews with these five teachers at key points over the course of two academic years to study their perceptions of and responses to processes of school improvement initiatives as they unfolded throughout the first year of the study implementation.

Qualitative interviewing is an accepted research method to use when one is interested in finding out what other people think and have to say about topics a researcher is interested in. In conventional qualitative methods, interviews are recorded, transcribed, and then analyzed using coding processes to make “sense” of the data. My intention for the interviews was not to produce stable facts of truth but to engage in discussions of the problems we teachers were facing together that year and to generate ideas toward re-thinking the conditions of the problems. As Stengers (2016) wrote “a constraint is what forces one to think, to imagine, to try—and to move forward” (p. 429) in a caring process for how “we” navigate the effects of problems together, despite our different points of concern. The interview conversations allowed us to generate ideas together. In chapter 3, I describe the pragmatic decisions I made throughout the study and the effects of the strategies I used to conduct, transcribe, and analyze the conversations with teachers.

Next in chapter 2, I describe how accountability policies structure the teaching environment in RM\$, and I relate anecdotes from my personal experience to illustrate some of the problematic ways assumptions in education leadership theory and practice related to teacher evaluation (as one mode of accountability) can shift to increase teacher turnover. These memories were my own incitement to question the theoretical approaches used in accountability schemes related to school leadership training for implementing accountability practices.

CHAPTER 2

RELATIONSHIP BETWEEN ACCOUNTABILITY AND TEACHER ATTRITION IN RMS

Background of a Displaced Problem

I begin with a discussion of some of the conventional rationales for why high teacher attrition¹ is a problem. High educator attrition has been increasingly targeted as an object of study for a multitude of reasons which have been analyzed separately but seldom linked together to provide descriptions of the complex factors in which school improvement practice occurs. Most traditional policy studies have used a meta-data approach across large districts and relate the terminal data points of student test scores, educator evaluation scores, and school quality ratings that simply cannot represent the ever-changing entanglement of tasks educators are expected to perform, much less begin to describe the constantly shifting contexts within which they endeavor to teach children. In order to prioritize this issue, teacher attrition is framed as an economic problem with some estimates calculated at a loss of 2.2 billion dollars a year (Borman & Dowling, 2008, p. 370) and is connected in school improvement discourse as a major factor entangled within the school context that affects student achievement (Ronfeldt et al., 2013, p. 32). Research on teacher attrition is regarded as significant because of reform imperatives to improve so-called underperforming schools (Mehta et al., 2012, p. 5) and to slow down the costly “revolving door” of teacher turnover (Ingersoll & Strong, 2011, p. 202).

¹ Attrition is defined and measured multiple ways across education policy research. Oftentimes teachers are objectified in these studies as “leavers,” “movers,” or “stayers.” Since there is no rigid agreement that is universal, I use attrition as a generalized condition of a teacher not continuing to teach at the same school without categorizing or counting. My purpose in this dissertation is to discuss the complexity of forces within high accountability contexts that influence teacher satisfaction.

Ingersoll and Strong (2011) found that “between 40% and 50% of new teachers leave the field within five years” (p. 202).² In addition, according to their review of empirical research articles, they reported that the most common reason new teachers gave for leaving a school or the teaching field was lack of support from administration (p. 202). Sutchter et al. (2016) reported that 55% of teachers who left their positions cited dissatisfaction as the most crucial factor for leaving (p. 49). In reality, a lack of administrative support and dissatisfaction are broad categories that hide the complexity of events that materialize in a multitude of ways within a specific school context, which operates in a specific district governance structure that is implementing state and federal accountability policies.

The issue of teacher attrition has been identified as a major barrier to student and school success, and education policy researchers and reform advocates suggest this problem can be addressed through improved teacher training (Carver-Thomas & Darling-Hammond, 2017; Goldrick, 2016; Marinell, 2011). The “lever” for change in “underperforming” schools continues to be placed onto the training and evaluation of teachers. However, I argue this is a displaced problem. What are the forces that bring failing schools and ineffective teachers into manifestation as the problem to fix? These schools have been produced through neo-liberal economic frames and are maintained by monuments to accountability that are reinforced by those who gain financially from their continuation. The paradox maintained is that the discourses “sound” true and are repeated in the education field as part of school-improvement practices but the discourses continue to reproduce conditions that generate failure.

² Currently there is a data lag (even prior to the COVID disruption) since the last Schools and Staffing Survey (SASS) reported by the National Center for Educational Statistics (NCES). Since 2011, the SASS has been replaced by the National Teacher and Principal Survey (NTPS). Using the NCES Datalab and data from the 2015-2016 NTPS, I was able to create a query with the factors of “difficulty in filling math teacher vacancies” and the “number of economically disadvantaged students” and found a correlation trend exists between high poverty and high difficulty filling math teacher positions. The same correlation did not exist for ELA teacher positions.

How Accountability Structures the Teaching Environment

Many research and reform models assume a direct relationship between teacher effectiveness and student achievement (Goldrick 2016, Grissom et al., 2017; Ingersoll & Strong, 2011; Papay et al., 2017) to help explain variations for high and low teacher attrition. These models are limited in addressing the complexity of why teachers stay or leave a school or the profession itself. Teacher attrition research studies indicate a disparity in the magnitude of the effects due to instability created by attrition on schools when factored by location, poverty level, race, language status, and proficiency on standardized tests (Holme et al., 2018). Schools with higher accountability structures due to lower performance scores also face higher rates of teacher attrition. My goal at the start was to develop more nuanced discussions of how accountability and teacher attrition work together within challenging school contexts. Further, how can accountability forces be mitigated to increase teacher retention despite the school's accountability status?

Logical Positivism and Its Monuments

Educational policy studies seeking to address the problem of high teacher turnover exhibit tacit underpinnings of logical positivism in assuming the methods of scientific inquiry can be translocated with certainty onto social contexts to produce reliable results (St. Pierre, 2016, p. 116; Steinmetz, 2005). According to Lincoln and Guba (1985), positivism became a force for social science with *A System of Logic*, published by John Stuart Mill in 1843 (p. 20) and social research continues to center on objective, value and context-free knowledge in an ontological state that can be described as “a single tangible reality ‘out there’ fragmentable into independent variables and processes, any of which can be studied independently of the others;

inquiry can converge onto that reality until, finally, it can be predicted and controlled” (Lincoln & Guba, 1985, p. 37).

It was important for me to understand how the formation of positivism was a response focused on the certainty of method and mathematics, that in appearance allowed “predictive capacity using causal relations and context-free theories” (St. Pierre, 2016, p. 116). Logical positivism is the unspoken theory researchers implicitly adopt when seeking to find certainty in “what-works” for accountability reforms. Positivism and its “hegemonic and domitory pretensions of certain versions or accounts of method” (Law, 2004, p. 4), and therefore the epistemology it maintains in educational research, reifies as a monument of accountability, leaving educators and their students that enact educational practice in challenging school contexts in the continuously produced shadow of failure. The logic is circular in that the failing conditions that reformers identify enable the reproduction for the needs of reform programming to materialize and provide “evidence” of failure continuously. How is it possible to insist on this system of comparative accountability when the targets of reform are not equipped at the same socio-economic level to offset the deficit conditions the reformers have themselves defined ? Approaching this question brought me to inquire into unexamined underpinnings of logical positivism in education policy that reproduce reform schemes by fixing identities of failure. How did logical positivism become the model for educational research? Lincoln and Guba (1985) described how positivism, its concepts, and methods, could be so universally accepted:

If it is difficult for a fish to understand water because it has spent all of its life in it, so is it difficult for scientists to understand what their basic axioms or assumptions might be and what impact those axioms and assumptions have upon everyday thinking and lifestyle. (Lincoln & Guba, 1985, pp. 19-20)

Where Are All the Effective Teachers?

When complex problems like high teacher turnover are studied in the paradigm of logical positivism using practices that narrow-down the factors at play for the myth of predictive capacity to develop interventions using linear models of cause and effect, the problem as described persists. In many research-based reform descriptions, there is an underlying assumption that teachers are fixed in their performance level and can be “effective” in any classroom context. This assumption is hidden in policy work and continues to miss an understanding of the ongoingness in the complexity of educational practice. One can be judged effective (via student test scores, observations, etc.) in a subject with a particular combination of students and struggle in the same subject but within different schools and different classrooms even on the same day. The abundance of material resources, the strength of the collegial network, the instability of the curricula and test regimes, the perception of support by colleagues and the administration, the mood of the students, external events, all, and more factor in as entangled in the school organizational context. However, these factors are never fixed and stable; they vary in duration and intensity and are just some of the forces that affect educators in practice.

Varied perceptions of teacher effectiveness are in play in schools with high accountability structures and high teacher attrition. In my experience as a science educator in both middle and high-level Title I schools in the south for twenty years, I am intimately acquainted with accountability practices that are mandated by Local Educational Agency (LEA) and State Education Agency (SEA) policies which are implemented as a constellation of initiatives in response to poor performance on end-of-year standardized tests. Sometimes these initiatives work at cross-purposes with each other and sometimes their intention to improve student

learning diverges into more accountability pressure and change of programming rather than providing ways to build support for improved practices. How these accountability measures are implemented varies within the same school over time and in response to shifting tension forces generated by external accountability pressure. If a school district is dependent upon competent and committed teachers, then a more complex picture of the work teachers do and their perceptions of the work they do *within* their specific schools is warranted. After analyzing teacher perceptions about the role of teacher evaluations, Holloway and Brass (2018) suggested that teachers from their study “positioned RTTT’s accountability mechanisms as the very modes by which they knew themselves and their quality” (p. 362). This reinforces the connections with accountability structures, their implementation, and their effects on teacher satisfaction in lower-performing schools. How do teachers and principals respond when their value is equated with numeric performance scales (p. 370)? My prior experience suggests that there is a substantial difference in educator responses that is dependent on the overall school-level performance ratings, as well as their students’ achievement. There is a “demoralizing effect” for teachers (Santoro, 2018) when one’s students do not perform well and other school-context factors interact over time with these performance issues that can amplify or mitigate these forces that affect educator decisions to stay or leave their school.

Study Site

Most research on educator attrition has taken place in large urban school districts using easily accessible, quantitative data; however, this study took place in one middle school in Clarke County School District (CCSD) located in Athens, Georgia. The population the district serves is just over 12,000 students. Like Athens, CCSD is economically, ethnically, and racially diverse. In Georgia, as reflected by national data, the rate of educator attrition for high poverty

schools is twice as high at 12% in comparison to 6% for low poverty schools (National Center for Educational Statistics, 2016, p. 1; Tio, 2018, p. 49), and 44% of teachers in Georgia leave the profession within the first five years (Owens, 2015, p. 2). Ongoing high teacher attrition is one important factor that perpetuates educational inequity in this district. Since 2017, the state has continued to implement “Georgia’s Systems of Continuous Improvement” framework which places priority on development of professional capacity and retention of staff (Georgia Department of Education, 2017). The district has identified educator retention as a strategic priority due to an upward trend in attrition during the last few years. According to the CCSD 2018-2020 strategic priorities, as part of the goal to enhance professional capacity, the district strives to “retain mission-driven and diverse faculty and staff by reducing resignations and other departures by 5% annually.”³ During the last three years, a new superintendent made major changes in the academic framework for instruction, which caused some tension in the community.

I chose to study one middle school for two reasons: First, I taught there for two years prior to the study and intended to remain teaching there throughout the study. Second, it met the criterion as a school challenged to increase academic performance and educator retention. At the time of the study, this school had almost 700 students in grades six through eight, employed fifty-six teachers, and had a higher poverty rate than the district average. The school’s College and Career Ready Performance Index (CCRPI) rating as calculated by the Georgia State Department of Education (2018) was 65.1 (on a scale of 100).

³ From the time I wrote the proposal for this study, which was approved by both the University of Georgia IRB and the IRB of Clarke County School District, the data for teacher retention in CCSD schools disappeared from the district website. After I filed an open records request in January of 2022 for current teacher retention and attrition rates during the last three years for both the district and all the middle schools, I received the following response from the human resources officer: “The data that you requested does not exist.”

In this context, accountability policies structure the school's organization and work with multiple improvement initiatives designed to increase student achievement. School improvement initiative implementation changes from year to year. These changes exert a great deal of pressure on educators and contribute to high teacher attrition in underperforming schools. Intensified teacher evaluation practices put into place generate an atmosphere of threat for many teachers.

When schools implementing school improvement initiatives are faced with increased accountability structures, they risk higher teacher attrition. Because teachers leave these schools at higher rates than less challenging schools, it is imperative to understand how the policies designed to improve outcomes for students might create unsustainable contexts for teachers. Schools experience higher rates of teacher attrition for a multitude of reasons which have been studied separately but seldom linked together to provide the complex context in which school improvement occurs. Most traditional policy studies have used a single factor cause and effect approach, including the terminal data points of student test scores at end of grade examinations, educator evaluations, and school quality ratings that simply cannot represent the ever-changing complexity of tasks educators are expected to perform. My experiences of teaching in high accountability schools have led me to understand there is a dynamic complexity of factors that interact to stabilize teacher retention or promote teacher attrition. What I needed was a change in thinking to develop an inquiry approach that did not use pre-existing methods and could more likely offer provocation to adjust accountability demands toward regenerative modes of responsible practices for teaching children.

To that end, this study is based on anti-deficit descriptions of low-performing schools which have been disparaged for too long. The descriptions of schools as failures have been generated by a capitalist reform-machine project. I believe a better name for Title I schools that

are “underperforming” should point toward how they continue to be re-*con*-figured as failing schools that need *more* expensive school improvement schemes. I offer the concept *Reform-Machine Schools* (RM\$: the \$ = makes money for some) as an ethical term to indicate their mode of accountability reproduction and to counter the prevailing descriptions of the schools, their teachers, and their students as failures in need of correction.

Creation of Reform-Machine Schools (RM\$)

As I described in chapter 1, Reform-Machine \$chools are Title I schools that have high numbers of students living in poverty who are determined to be “underperforming” academically based on standardized test scores. Due to their low academic performance ratings, they implement an increasing number of improvement initiatives. School reform policy and school improvement initiatives are based on a capitalistic deficit frame that continuously designates students, teachers, and schools as failing. It is never the reform entities and their mechanisms themselves but always the students, teachers and schools that are held accountable and labeled “underperforming.” School improvement initiative implementation changes from year to year because of the mandate to show student academic improvement, especially for economically marginalized and racialized student groups. These changes exert a great deal of pressure on educators and contribute to high teacher turnover in RM\$. In RM\$, the accelerating cycle of improvement programming required by the State Department of Education—*Georgia’s Systems of Continuous Improvement*—mandates an ongoing process of implementation, monitoring, and evaluation that continuously demands data (Georgia Department of Education, 2017). Reinforcing the reform programming turnover, programs are initiated, monitored, dropped, and replaced before enough time in practice has been enacted to adequately gauge success.

The state and district structure of accountability and improvement is set by federal educational policy. For Title I schools, the SEA receives and distributes federal educational funding to LEAs, who allocate funding to local schools designated as “schools implementing comprehensive support and improvement activities and targeted support” (U.S. Department of Education, 2015). While this “sounds” good—more money for schools with higher needs who are required to demonstrate better performance—the policy is written to allow competition for the funds by “for-profit external providers.” According to the 1965 Elementary and Secondary Education Act (ESEA) reauthorized in 2015 as Every Student Succeeds Act (ESSA) Title I - Improving Basic Programs Operated by State and Local Educational Agencies, Part A, Section 1003. School Improvement, (b) Uses:

Of the amount reserved under subsection (a) for any fiscal year, the State educational agency—(1)(A) shall allocate not less than 95 percent of that amount to make grants to local educational agencies on a formula or competitive basis, to serve schools implementing comprehensive support and improvement activities under section 1111(d); or (B) may, with the approval of the local educational agency, directly provide for these activities or arrange for their provision through other entities such as school support teams, educational service agencies, or nonprofit or *for-profit external providers with expertise in using evidence-based strategies* [emphasis added] to improve student achievement, instruction, and schools.” (U.S. Department of Education, 2015, SEC 1003)

A capitalist competitive mechanism is structured into the 2015 ESSA law that opened opportunities for “market-based” for-profit educational service providers to compete for the federal educational funding. There is big money in education budgets that attracts profit-minded capitalist schemes causing education reform to become an aggressive mode of improvement

functioning. More changes equal more money for educational service providers when schools and districts are desperate to show improvement. This sets the environment for RM\$. Market research blogs confirm the market-generated frenzy: “The United States for-profit education industry is massive, exceeding \$270 billion in revenue in 2020” (Kolmar, 2021) and “predicted to reach \$1.96 trillion in 2025” (Wood, 2021, June 21).

Capitalist influences are only part of this problem. The theories that underpin the implementation of accountability practices produce high stress environments within schools when the positivist ontological assumptions in which they operate are not interrogated. Next, I describe how my experiences in RM\$ have informed my critique of reform processes and how they incited my desire to inquire into the theoretical foundations driving accountability frameworks for educational research, policy, and practice.

Anecdotes Provide an Entry into Complex Problems

In this research project, my plan was not to see what types of programs work for teachers, but to talk with teachers about their responses to the complexity of multiple improvement programs being implemented simultaneously. I wanted to begin to identify key modes of accountability practices that amplify teachers’ stress and frustration and then to conceive intervention strategies to promote their satisfaction with teaching as their profession and hopefully within the same school. This section offers anecdotes to help illustrate the multi-faceted relationship between accountability implementation and teacher dissatisfaction. I use anecdotes because ongoing memories—specters of experience—intruded as I wrote this formal academic text, the dissertation. Those specters have driven this study from the beginning and are the evidence that bring it to life.

Before I continue, I want to offer an argument for the “validity” of anecdotes: There is a strong anti-anecdotal political force in the science that is adopted in educational policy research fields desiring a “legitimized” mode of authority and certainty. This scientized mode of epistemology depends on assumptions of distanced objectivity and supposedly *uninterpreted data-that-speaks-for-itself* (St. Pierre, 2016, Whitehead, 1929/1985) which prioritizes statistical models with the exclusion of subjective experience. Of course, that argument maintains the objective/subjective binary and assumes that the researcher can somehow not be in her study. The fervor for statistically relevant data constrains inquiry at the start and limits the chance of asking how and why questions. In agreement with justification to study phenomenon at the single-case level with anecdotal evidence, Flyvbjerg (2006) wrote: “formal generalization is overvalued as a source of scientific [knowledge] whereas ‘the force of example’ is underestimated” (p. 228). In this study I was interested in how and why accountability forces interact to affect practice in ongoing ways and in how and why teachers grapple with the tensions to generate data for accountability’s sake *and* provide caring practices for students and colleagues. These questions cannot be answered with meta-data approaches using surveys that have already limited what can be said (Despret, 2016; Haraway, 2016b; Medin & Bang, 2014; Subramaniam, 2014). In the next section I relate two anecdotes as examples to open the problem and help illustrate how implementation modes of accountability unintentionally produced high turnover in two different schools.

“Let me start with an anecdote” (Rheinberger, 2000, p. 271)

Anecdote 1: How Data Encounters Can Amplify Attrition

This anecdote illustrates one instance of how accountability forces provoked unintended responses. It is a narrative of an actual *data encounter* that occurred in a rural middle school

where I once taught with teachers who were committed to improving the lives of their students through education. Overall, the teaching staff related well and enjoyed working together with their students despite a marked lack of resources. One winter day a few years ago, a dozen or so teachers of various subjects were assembled for a grade level meeting at which an administrator delivered a focused presentation about the most recent test data for the school. Here I pause to provide some background information. The data were from the *interim diagnostic tests* which are computer-based assessments given three times during a school year. The testing developers claim their tests *precisely* measure student growth in math, reading, and language use. The tests are adaptive, which means that students who correctly answer questions are presented with increasingly difficult questions. Anyone who has taught school knows that students are very clever when it comes to these types of assessments that have no real accountability mechanisms for them, just for their teachers—meaning there are no grades attached to their performance on the tests. Students endure a lifetime of standardized testing that does not change anything for them in their experience. Indeed, students also experience “platform fatigue” which reduces their desire to continue with high concentration during testing. Hence, decreased testing motivation is a force underlying score outcomes, but that factor is ignored in school reform models and unaddressed in high-accountability contexts.

Back to the encounter... Using graphs and charts, the administrator informed the teachers that the students did not show significant growth in math, reading, and language—despite all the intense literacy/math initiatives that had been implemented across the curricula to that point. The silence was palpable as the teachers were subsequently informed that their school had the lowest growth measures, by far, in the district (and the highest percent of students living in poverty in the district was not mentioned). Agitation and dismay began to manifest as the teachers were

reminded that this particular testing was *so reliable* that it could *accurately predict* student performance on end-of-year assessments. The final statements delivered in the presentation were how the district was going to be *looking more closely* at lesson plans and classroom instruction to make sure that *teachers* were doing everything in the instructional framework of best practices.

The teachers *heard*, in other words, that their students were going to massively fail the end-of-year state tests, despite their hard work of implementing extended and targeted interventions with students day after day up to that point. With forces of disillusionment and threat affecting everyone in unique ways, the teachers left the meeting and headed to their classrooms within seconds of the arrival of students for the next period in the same time-crunch mode in which most planning meetings occur. No one uttered a word in the meeting or in the hallway as they left.

That is, until later, at the teachers' lunch table. There conversations began with statements about which nearby districts were hiring and which had higher school ratings—and therefore, more affluent families. Further talk decried the unfairness of the test scores that served to push more intense scrutiny onto the teachers. The remarks continued to oscillate from the unfairness of the blame to *where else* they could practice in schools with students having just slightly less neediness and slightly more motivation to test well. Worse, a few teachers even discussed different career options.

This scenario suggests how intentions to “precisely diagnose” student skill growth for intervention, as if that is possible, can unintentionally produce increased evaluation stresses in an already high accountability working environment. The data that was designed to *inform* teacher practice was translated into teacher effectiveness recriminations and the threat of more surveillance mechanisms. Realizing students are not making progress despite their significant

efforts is profoundly discouraging for teachers. The rationale for interim testing is to provide data earlier in the year, rather than at the end of the academic year when it is too late to provide interventions for students in reading and math. The unintentional consequence is that with earlier data—especially as it used to compare schools—to predict student outcomes in schools struggling to show improvement places the blame on teachers. It should not be surprising, then, that some teachers think about relocating earlier too. This unintentional emergence of an affective threat-mode of accountability is illustrative of how policy implementation can spill over beyond its purpose and become a force to promote teacher *relocations*.

“There is a strong body of evidence indicating that teachers are often the preferred source of ideas for other teachers.” (Fullan, 2016, p. 62)

The quote above provides an entry point for how teacher mentoring programs have positive potential to support new teachers. Ironically, as illustrated in this anecdote, collaborative influence shifted toward higher teacher turnover due to unintentional forces of accountability. Instead of teachers helping each other creatively plan lessons and provide sound behavior expectations for their classes, teachers collaborated to decide how to get out of their “underperforming” school. Indeed, many teachers struggle in response to continuous tensions and changing priorities that are exhausting to navigate. Doris Santoro (2018) wrote about this problem for teachers in her book, *Demoralized*, that described encounters of teachers practicing within high stress environments that undermine professional and personal capacity to remain in classrooms. These types of stories are familiar, yet we seem unable to understand *how* to make schools different for everyone, including teachers.

The question becomes how can a school that is categorized by standardized testing as low-performing create a collective and caring culture of responsibility (Noddings, 2016) in order

to improve student learning, with support from the district and even the state department of education? DeBray et al. (2003) stated that “The interaction between the two accountability systems [I say oftentimes conflicting systems] is crucial to understanding how schools incorporate state standards, and hence, how the reform plays out in terms of school improvement and student outcomes” (p. 60). So far, almost two decades into implementation of intensified federal and state accountability policy in The No Child Left Behind Act (NCLB) and Race to the Top (RttT) legislation, a mix of teacher-focused accountability in a threat-based culture is present in many schools designated as failing (based on standardized testing accountability metrics). As a result, high levels of teacher attrition in these schools have become a difficult issue with no solution (Ingersoll et al., 2016, p. 49). My long-time mentor remembers when our district was focused on teacher support, and a sense of trust existed. In the high-stakes testing accountability environment, many districts labeled as “needing-improvement” are contorted with test-based and metric-driven evaluation practices and revolving initiatives that lack sufficient ways to support teachers’ ability to improve learning. While my mentor is a fantastic role model for many teachers, she will retire. When she does, I worry that no one will remember how to resist the misaligned accountability pressures. Who will model to new teachers how to keep their priority on the diverse needs of students rather than datafication for accountability’s sake? The policy turn for continuous improvement through capacity-building (GA DOE, 2018) can push teachers beyond their capacity. It’s not clear how we can, instead, prioritize regenerative and caring practices to promote higher teacher commitment.

Phantomatic Evaluation Violence. At the start of this study, I thought about the phantomatic effects that condition our habits of mind and that exist in reality. Past experience, especially traumatic experiences, emerge in our present as hauntings. These hauntings are

present from our past, yet we think these things are “over” and we deny their influence. In my interview discussions with teachers, they brought up traumatic memories because they were entangled with the problems they faced in their present practice, as well as the obvious future-orientation of teaching work. These phantomatic effects materialized to create new effects in ongoing ways. Below, I relate another anecdote to illustrate how accountability framed with positivist values in teacher evaluation practices can appear and amplify as a force that leads to turnover—especially when weaponized. Phantomatic values haunt evaluation encounters that seem invisible in the rubrics used to evaluate teachers but continue to produce violent effects with the assumption that things exist separately, individualized, and can be objectively measured.

Anecdote 2: The Assumed Exactitude of Classroom Management

One day in the middle of a spring term at a Title I high school, I was sitting with a small group of students in one of my biology classes when the new assistant administrator walked in with their iPad. Indeed, there is always a threshold moment⁴ when a teacher is occupied with students and then an administrator walks in suddenly. And in such events teachers cannot help but pause—a deer caught in headlights moment—as the evaluator’s gaze is perceived and processed. The moment extends in surreal fashion as normalcy shifts to a threat mode of awareness in which everything one is doing is now being highly scrutinized. In this particular threshold moment, I shifted my attention from my group of students to take in all that was happening in my room from an evaluator’s perspective. Despite the fact that one student was walking around talking with other students, I decided to continue to facilitate the group I was sitting with. When that group was ready to continue on their own, I moved to the next group. This continued for twenty minutes as the administrator sat at the back of the room and entered

⁴ The concept space of “threshold moments” was described to me by a fellow doctoral student, Shin Ae Han, in her study to theorize hesitancy moments in preschool classrooms. I look forward to citing her work.

information on their iPad. When they walked out, I continued to rotate and facilitate different groups until it was time to wrap things up and prepare to change classes. I did not worry too much because after all, I was an *experienced* science teacher. In fact, I often delivered professional learning workshops for the district biology teachers. In other words, I was confident in my abilities to manage and teach high school science classes.

Later that day, I received my electronic evaluation notice which reflected high points for content and pedagogical knowledge supporting differentiation but low marks for classroom management. I was incensed and emailed to schedule a conference to discuss the evaluation. When the appointed time came, I asked how it was possible to score high on content, pedagogy, and differentiation but low on classroom management. Their reply had two points of “fact as evidence” for the low mark and stated that the “*evaluation stands on this evidence*”:

- One student used the f-word, and I did nothing about it.
- Another student was walking around the room disrupting the other groups, and I did nothing about it.

Here, it is important to include the context of what happened before the administrator walked in. The student walking around my class that day was a well-known, bright, and charismatic person who enjoyed disrupting and debating classroom expectations. Each day brought tension between his need to socially engage classmates and my need to keep lessons flowing in order for my students to demonstrate academic proficiency on assignments and the state end-of-course tests. My “effectiveness” as a teacher depended on it. More importantly, I cared about the students being successfully prepared for college. However, on that day as the student arrived, he told me it was his last day at our school because he was moving to another state to live with his other parent. Understanding that caring would look different that day, I

relented my usual strict expectations and gave him permission to walk around and talk with the other groups because he wanted to say goodbye to everyone. In spite of his daily drama, we were all going to miss him.

The next day when I explained this context of what they observed, the administrator's reply was "Ok, but you did nothing about the profanity in your classroom." I argued, "I did not hear any profanity and if *you* did, where *you* were sitting, why didn't *you* address it?" I mean, we are all in this together, right? *Evidently* not. I was told the evaluation would stand due to the factual observational evidence demonstrating my lack of classroom behavior management. So, in this incident, at least, the good teaching practice of addressing unpredictable moments in different teaching contexts was seen as a deficit. It seems the antecedent context in the classroom and students' unpredictably manifesting needs are not taken into *account* as part of the multifaceted complexity of teaching. Even more disturbing, I discovered after discussing the situation with my colleagues that they all were observed and scored low on classroom management that same day. We all wondered if our sudden low scores on classroom management were due to legal issues stemming from an incident (Aued, 2018). Did the district and principal need *evidence* that they were not negligent; that the incident occurred due to teachers not managing behavior in their classrooms? Indeed, there were subjective values informing the "objective" facts of the matter. And the weaponized evaluation practice we experienced served to threaten our confidence as experienced teachers and erode our trust. As one might expect, I and several others resigned at the end of the year.

This Can't be How Accountability is Supposed to Work

These are just a few of the experiences that brought me to inquire into the theoretical approaches used in accountability schemes related to school leadership programming and

training. Obviously embedded in the above evaluation encounter is the question of how values—the need for the administration to prove it was attending to problems—influenced the facts in my evaluation. I’m interested in the conditions in which something observed by an evaluator becomes a “matter of fact,” the objective truth that really occurred, when there is conflicting evidence not observed and/or acknowledged. Of course, different accounts can be argued effectively as points of consideration. However, I want to inquire into the conditions for some “matters of fact” to stabilize and reign as truth, the objective truth of evidence for what evaluators observe.

These anecdotes from my personal experience illustrate some of the problematic ways assumptions in educational leadership theory and practice related to teacher evaluation (as one mode of accountability) can increase teacher turnover. Educational leaders are *trained* to conduct teacher observations in a particular mode that emphasizes *objectively real* “look-fors” on rubrics without questioning *why* they matter or what matters can be seen or “measured.” Our response as objects of study is co-dependent on our context and the measurement agency that determines our effectiveness. By that I mean that the instruments used in evaluation have been produced with particular ontological assumptions that make “cuts” that limit what can be measured. Things that cannot be counted, such as the working relationships a teacher builds with students in ongoing ways, are not measured by evaluation rubrics used by administrators on their brief walk-through observations. The stated goal of teacher evaluation practice to “support the continuous growth and development of each teacher” (Georgia Department of Education, 2021) was not evident in the encounters I described. There are indeed gaps between the stated intentions of accountability and the implementation of accountability practices.

Internalization of Accountability is Not the Same as Responsibility.

I had the honor of working with a veteran high school science teacher midway through my twenty-year career who demonstrated in words and practice on a daily basis that she works to provide opportunities for successful growth with all of her students. I mentioned her earlier. She became my and many other educators' long-term mentor by modeling practices that provide meaningful instruction, ways to build trust with students through assignments aligned with her assessments, and the importance of frequent feedback to show students how they are improving. Her students learn to work hard academically, despite lower pass rates overall for the school on the mandated end-of-course (EOC) tests. Most importantly, they know she cares about them and their future.

On the surface, this mentor's perspective speaks to the example of how strong *internal* accountability, driven by personal responsibility can interact with school-level expectations for accountability to enhance practice that is also aligned with the state mandates (Ablemann & Elmore, 2004, p. 148). However, the school where she works has experienced multiple administrative turnovers that have affected her view of whom to be accountable to. We have all heard teachers worry about test scores and evaluations and have seen how these forms of accountability are misused at times or "held over teachers' heads" in threat-based accountability manifestations. Despite being counter-productive, fear-based accountability responses are frequently used by administrators who are desperate to demonstrate academic improvement for their schools. Elmore (2004) addressed the disconnect between policy and practice that materializes as a "capacity gap" when "the threat of such measures [test-based accountability] is supposed to be enough to motivate students and schools to ever-higher levels of performance" (p. 206). The need to increase student academic success requires that internal accountability be

developed before any external accountability goal could be realized (p. 206). This point seems lost in the ever-expanding school improvement reform process; yet the ontological framing of independent teachers developing internalized values aligned with accountability demands is an inadequate approach, not only for improving student learning, but also for perpetuating the conditions for high teacher attrition. In this study, through reading theoretical texts, engagement as a teacher at one Title I middle school, and analysis of teacher interview conversations, I realized the ontological shift required was from thinking “internalized accountability” toward thinking how caring practice manifests immanently, in the moment of need, as *response-ability* (Haraway, 2016a). In subsequent chapters I describe how this approach developed as *reading and process*, whereby I continuously read theoretical texts to think as I conducted the inquiry practices of interviews and analyses over a two-year period to study how accountability policies and programming are implemented at the school level and how teachers respond to the effects of accountability in their practice.

Thinking in this disconnected space between accountability policy intentions and implementation, I turned to scholars in the realm of new materialist scholarship to understand how to resist the dogmatic reasons we are given for how schools, teachers, and students could be continually produced in the shadows of failure. I was able to unsettle the assurances of the evaluation measurement agencies by thinking with a *phantomatic ontology* which includes the presence/absence of teacher qualities and experiences in complex high accountability environments—RM\$. The concept of phantomatic ontology was developed by Shrader (2010) to address complex environmental problems that do not manifest and unfold in traditional empirical ways of thinking space, time, and matter. Past, present, and future effects emerge, amplify, or seem to disappear without certain causes yet remain as relational tensions. Phantomatically, the

anecdotes I described above influence my thinking as a teacher in practice and continually influence evaluation and other accountability experiences. During interviews and subsequent transcription events, I assimilated stories that teachers described of their past accountability experiences in different contexts. All of these memories of experience continue to influence teachers in the present as they must be future-oriented with the goal of teaching students to prepare them for their futures. The accountability impacts—evaluation and test scores—persist in our effectiveness formations as an illusion built by numbers.

Reading and Process with Materializing Educational Problems

My approach to exploring theoretical assumptions throughout this study became *reading and process*. By reading and process I mean the particular attunement I adopted as an ethic of care for how knowledge claims can be made, the ontological orientation they require, and the possible effects they can produce. I engaged these issues through continuous reading of theoretical texts and as a teacher-researcher at the study site. In the next chapter I describe reading and process as the way I followed citational pathways of ideas that are relational in how they move toward new possibilities for thinking. For example, reading Whitehead, I followed traces from William James who regarded the theoretical assumptions in his own field of psychology to be reductive. James' *radical empiricism*—attunement with materializing moments of experience—was engaged by Whitehead to theorize experience as operating through an extensive continuum, or a field of immanent possibilities. Reading Whitehead and James was affirmational and justified my position that the theoretical assumptions in educational research and policy recreate the conditions for failure under their own terms. Reading Deleuze and Haraway, I found important traces from Whitehead's process-oriented ontology of immanence. Deleuze's ideas leave all grounding behind toward perpetually unstable conditions for thought

while Haraway's ideas are ethically engaged with real problems on the ground as *Staying with the Trouble* (2016a). Deleuze and Haraway take very different journeys with their ideas, but the ontological assumptions in their thinking followed from Whitehead. It was reading and process that helped me develop the concepts of Reform-Machine Schools and phantomatic enfolding. Reading and process helped me conduct diffractive experiments with interview transcripts which lead to the creation of diagrams that pragmatically represent tension forces in RM\$ and how they can be mitigated.

CHAPTER 3

THEORETICAL JOURNEY AS READING AND PROCESS

“We forget how strained and paradoxical is the view of nature which modern science imposes on our thoughts... Is it not possible that the standardised concepts of science are only valid within narrow limitations, perhaps too narrow for science itself?”

(Whitehead, 1926/1933, p. 104)

The Contestable Grounds for Facts of Matter

The anecdotes I related in chapter 2 of my experiences as a teacher encountering accountability forces were the incitement of my inquiry. They caused me to question the theoretical approaches that are used in accountability schemes related to school leadership training for implementing accountability practices. The validity of research in educational policy and practice is grounded on an illusion of certainty and a static version of reality that is not shared by all of science itself. Philosophy of science scholar, Donna Haraway (1976/2004), critiqued this view of science early in her career:

It seems that the task of contemporary history and philosophy of science is to rediscover for the age a humane sense of scientific research and theory. For it is a fact that the history of science does raise passions, and the basic perspective adopted toward the status of scientific worlds does condition our poetry and our politics. Surely much of our dis-ease with modern science comes from appreciation of the inadequacy of the old view of progressive, control-oriented, objective descriptions of nature (or of meter readings, if nature herself is hiding or dead). (p. 2)

According to Haraway and other philosophy of science scholars who share a Whiteheadian process-oriented relational view of reality, science in all of its practices and policies produces partial understandings of nature. It is the ontological difference between the “belief” with a Cartesian fear of uncertainty that nature can be discovered, essentialized, and controlled (Bordo, 1986) versus accepting that our understandings of nature are always in process yet specific to our particular modes of engagement with nature. Thinking with Haraway, Barad, and Stengers, our modes of engagement produce particular “facts that matter” in a field of entangled forces. The ethical work is to interrogate the assumptions that authorize “facts” to stand as evidence and to take responsibility for how their effects map across our communities. The consequences are never shared equally. The view of science as a method to uncover the absolute path to truth with a capital “T” is flawed. Later, Haraway (1991) boldly wrote

Why should we be cowed by scientists’ descriptions of their activity and accomplishments; they and their patrons have stakes in throwing sand in our eyes. They tell parables about objectivity and scientific method to students in the first years of their initiation, but no practitioner of the high-scientific arts would be caught dead *acting on* the textbook versions. Social constructionists make clear that official ideologies about objectivity and scientific method are particularly bad guides to how scientific knowledge is actually *made*. Just as for the rest of us, what scientists believe or say they do and what they really do have a very loose fit. The only people who end up actually *believing* and, goddess forbid, acting on the ideological doctrines of disembodied scientific objectivity enshrined in elementary textbooks and technoscience booster literature are nonscientists. (p. 184)

Haraway (1991) continued the critique of the myth of objective science and the “facts of matter” they create with “science is a contestable text and a power field” (p. 185). Haraway’s position is not a rejection of science but a project to regenerate ways of learning and living together and finding ways through the problems that modern approaches to science and society have created. The particular problem of high teacher attrition in Reform-Machine Schools (RM\$) is perpetuated by an unquestioned and narrow conception of reality, science, and scientific method that can only recognize and reproduce the same conditions. Schools designated as failing have more accountability programming and have higher teacher attrition. High turnover in schools challenged to show improvement destabilizes the educational environment, making it harder to show improvement. However, the questions for how and why the relationship between accountability and teacher attrition materialize are not easily answered due to the complexity of the situations in RM\$.

In order to honor the complexity of this problem, I needed to think with a different ontological orientation that I found in new materialist scholarship. This ontological turn for new approaches to inquiry requires rigorous reading as an ongoing, grappling process (St. Pierre, 2018; 2019). I engaged these issues through continuous reading of theoretical texts and as a teacher-researcher at the study site. Below I describe this inquiry approach as *reading and process* to map the philosophical journey as I dwelled with the problem. By reading and process I mean the attunement I adopted as an ethic of care for how knowledge claims can be made, the ontological orientation they require, and the possible effects they can produce. Reading and process is taking a path and making connections in new ways that disturb old habits of thinking so the problem can take different shapes. As I described in chapter 1, I used Haraway’s (1993/1996) term, *diffraction* to indicate a thinking practice aligned with a process-oriented

ontology of immanence to bring ideas and experiences together to produce new patterns of thought. In a diffractive manner, reading and process moves and produces a field for bringing new ideas in relation. I did not have an analytical plan ahead of time. The project diffractively materialized through the analytical process.

By using multiple diffractive iterations of analysis, I found that within an entanglement of forces in tension that operate at varying intensities immanent resistance and ethical practices of care can emerge in the spatial-temporal-mattering instances of need. Thinking of how tensions phantomatically emerge, amplify, seem to dissipate, yet remain as forces allowed me to also think how tension forces could be mitigated. I discuss in chapter 5 how I came to think of the types of tension forces and their effects on teacher satisfaction. Briefly, they include tensions between caring practice as teacher response-ability and datafication practices for accountability priorities; tensions between programming change and stability; tensions between flexibility and inflexibility for practice requirements; and tension effects between high satisfaction and high frustration. Together, they create a field of forces that influence implementation of programming. Further in chapter 5, I describe how I used the patterns of tensions that structure teacher practice in RM\$ to create diagrams which represent the field of forces and the potential within. In chapter 6, I describe how I used these diagrams as a tool to provoke discussions with teachers and administrators to help reorient thinking about how we can implement accountability programming in regenerative ways. However, before I was able to develop these ideas through iterations of analysis, I had to inquire through reading philosophical texts to understand the potential and the limitations of different images of thought (St. Pierre, 2019). I found new materialist scholars helpful in that work.

Reading and Process with Materializing Educational Problems

Reading and thinking with new materialist scholars was a helpful entry point to engage the theoretical reconfigurations that are necessary to inquire into problems that conventional social science research methods have not been successful in solving. In this research project, I studied the problem of educator retention in one “underperforming” Title I school in the southern United States that was implementing required school improvement initiatives due to rigid accountability mandates.

With the desire to move beyond frustration with the deficit discourse that perpetuates the conditions promoting failure (such as the churn of programming and educators), I turned to reading philosophy of science scholars such as Donna Haraway, Karen Barad, and Isabelle Stengers to try to inquire differently about schools living the violent effects of reform. Their work resonates with me because they question the assumptions of logical-empirical research methods with new materialist theories. The new materialist theories offer varied approaches to inquiry for thinking inclusively about relations among entities without imposing a human-centric view that human beings exist separately from the rest of nature. New materialist scholars vary in their emphasis; however, all are concerned with ontological reconfigurations of engaging materiality that do not presume fixed identities and static relations while also providing a working space beyond simple critique (Coole & Frost, 2010; Dolphin & van der Tuin, 2012; Keller & Rubenstein, 2017). I also found the work of Alfred North Whitehead helpful, and the ontological approach I found in reading Whitehead’s process philosophy together with new materialist scholars enabled a generative analysis of reality as encounters in immanent and ongoing relations. This ontological turn for new approaches to inquiry requires rigorous reading as an ongoing, grappling process (St. Pierre, 2018; 2019). Through a journey of continuous

reading Whitehead's texts; *Science and the Modern World* (1926); *Process and Reality* (1929); *Adventures of Ideas* (1933); and *Modes of Thought* (1938), I was able to shift from a conventional qualitative case study approach on teachers and accountability towards process-oriented inquiry in an educational setting.

Including the Much-at-Oneness of Reality

There is no easy access to reading Whitehead because his concepts diffuse and evolve in different problem spaces. Rather than try to describe Whitehead's complicated speculative theoretical approach, I highlight several of his key points that are pertinent in this research project. In the preface of one of his most well-known publications, *Process and Reality*, Whitehead (1929/1985) wrote that he concisely constructed his work in opposition to "prevalent habits of thought" that have regulated theoretical work related to domains of science. These theoretical constraints have long plagued research and effectively limit what can be called legitimate knowledge. Whitehead focused on habits of thought that leave metaphysical assumptions invisible, as if a foundation of knowledge could be so certain. Throughout his extensive career, Whitehead (1920/2015) lectured and wrote that questions about reality were in no way answered and persisted due to a general acceptance of "an ingrained tendency to postulate a substratum for whatever is disclosed in self-awareness. Namely, to look below what we are aware of for the substance in the sense of the 'concrete thing'" (p. 19). According to William James (1904/2019), whose thinking inspired Whitehead, there is no deep structure or idealized essence that can be uncovered; what becomes is "pure experience" in the spaces between percept and concept that assemble as reality in process. James (1911/1996) distinguished percept from concept as:

The perceptual flux as such, on the contrary, *means* nothing, and is but what it immediately is. No matter how small a tract of it be taken, it is always a much-at-once, and contains innumerable aspects and characters which conception can pick out and isolate, and thereafter always intend. It shows duration, intensity, complexity or simplicity, interestingness, excitingness, pleasantness or their opposites. Data from all our senses enter into it, merged in a general extensiveness of which each occupies a big or little share. (p. 49)

Our experience consists, according to James and Whitehead, of the engagement with this perceptual flux, and *meaning* follows through action of cognitive processes that interrupt the flux to categorize and systematize as modes of epistemological control. Our habits of mind set the reduced structure for the categories and the systems, despite the immanent potential. Further reductive thinking sustains problems with the insistence of an outside-oriented notion of reality that seems stable in form due to habits of thinking. William James (1904a) described his worldview philosophy that is derived from patterns of experience as *radical empiricism* and stated its conditions as follows:

To be radical, an empiricism must neither admit into its constructions any element that is not directly experienced, nor exclude from them any element that is directly experienced. For such a philosophy, *the relations that connect experiences must themselves be experienced relations, and any kind of relation experienced must be accounted a "real" as anything else in the system ...* Now, ordinary empiricism, in spite of the fact that conjunctive and disjunctive relations present themselves as being fully coordinate parts of experience, has shown a tendency to do away with the connections of things, and insist on the disjunctions. (p. 534)

In alignment with this ethical approach to include a wider realm of possibility, Haraway (2016b) wrote “the relation is the smallest unit of analysis” (p. 116). A unit of analysis within a process ontology of immanence is not a stabilized object with *a priori* relations but emerges within a multifaceted relationality immanent in encounters. Thinking with a process-oriented ontology of immanence opens the field for power to transform a problem within an assemblage that resists categories, and as Tsing (2015) described, “contaminates” all that is engaged. Neurobiologist Einstein (2012) wrote “approaches that demand accounts of complexity [are] good science” (p. 147). For me and this study, this means that it is not possible to think that individual teachers, students, and schools are either effective or not based on evaluation and testing data. Indeed, there are complex causes for dissatisfaction that lead to teachers leaving their schools. My goal was to engage the complexity in all its “much-at-oneness” in order to open my thinking for this problem. Therefore, I did not set out to study teachers but to study the relationality of accountability and teachers working in the complexity of RM\$. It is precisely because relationality in a process-oriented ontology of immanence cannot be distinguished, standardized, or objectively separated into knowledge schemes that problems in RM\$ persist. Positivist theories of knowledge cannot approach phantomatic encounters that dissipate within a flow, and all that is left to measure and count are effects separated from their relational ontology. Why do teachers leave? It’s hard to say. All positivist theories can do is cut and force-fit outcomes into pre-existing categories that offer little information about the reality in RM\$.

Whitehead (Un)settles-Settles Metaphysical Assumptions Simultaneously

In *Adventures of Ideas* (1933/1967), Whitehead outlined the general problem of the rational/empirical epistemological binary that emanated from the systematization “when Plato and Aristotle defined the complex of general ideas forming the imperishable origin of Western

thought” (p. 104). Throughout his lectures, Whitehead carefully described the limitations in texts from Descartes, Locke, Hume, and other philosophers as they were brought into conversation regarding the problem he called *theories of the bifurcation of nature* (Whitehead, 1920/2015; 1929/1985). This problem consists of the dualistic framing of reality either in an empirical logic—sensation of external reality; or a rational logic—interpretation in the mind; with both realms complicated by further reductive understandings of reality:

All modern philosophy hinges round the difficulty of describing the world in terms of a subject and predicate, substance and quality, particular and universal. The result always does violence to that immediate experience which we express in our actions, our hopes, our sympathies, our purposes, and which we enjoy in spite of our lack of phrases for its verbal analysis. We find ourselves in a buzzing world, amid a democracy of fellow creatures; whereas, under some disguise or other, orthodox philosophy can only introduce us to solitary substances, each enjoying an illusory experience. (Whitehead, 1929/1985, pp. 49-50)

Whitehead described the prominent “muddled” missteps in structures of thinking that led to illusions of unity in ideas, rendering that “the scientific expression of these facts has become entangled in a maze of doubtful metaphysics” (pp. 23-25). The difference elaborated by Whitehead in his speculative philosophy is that rational and empirical modes are bound together, just as James (1904a; 1904b) described in his *radical empiricism*.

Reading Whitehead together with Deleuze’s *Difference and Repetition* (1968) helped me to understand their critique of Hume’s theory, the unity of associations. In *Process and Reality* (1929/1985), Whitehead wrote: “Hume has confused a ‘repetition of impressions’ with an ‘impression of repetitions of impressions’” (p. 134). Repetition as a frequency measure does not

justify causation because the empirical scheme cannot be detached from the rational mediation it requires (p. 133). It is *how* we see *what* we think we see in encounters as they conform to an already established pattern of thought. We have been trained to think structures or rational logics condition our perception. In my educational experience, the practice is called “calibration to a norm” and when one resists, they might be identified as “difficult.” Pertinent here is the violent logic of binary thinking that authorizes the mind to be distinct from the body or human to be distinct from nature. Whitehead described these prevailing assumptions as the “bifurcation of nature” and they are “fatal to a satisfactory cosmology” (p. 290). These uninterrogated assumptions condition theory and practice in education, as well as science, causing “findings” to be limited to possibilities which are already recognizable. Bordo (1986) wrote that individualist and binary foundations of thinking emerged with Descartes.

Descartes provides the first real phenomenology of the mind, and one of the central results of that phenomenology is the disclosure of the deep epistemological alienation that attends the sense of mental interiority: the enormous gulf that must separate what is conceived as occurring “in here” from that which, correspondingly, must lie “out there.” (p. 443)

Critique against dualistic philosophy is an entry point into new materialist theories. According to many scholars in this area, the problematic metaphysical framework for Western rationalism flows from Descartes’ *Discourse on Method* first published in 1637.

I think, therefore I am-- was so firm and so assured that all the most extravagant suppositions of the skeptics were incapable of shaking it, I judged that I could accept it without scruple as the first principle of the philosophy I was seeking. (1637/1998, p. 18)

Deleuze (1968/1994) wrote that Descartes' *Cogito* set the model for a rational human being separated from rather than entangled with the rest of nature. Even though there have always been critiques of the *Cogito*'s access to the truth through impoverished rational thought (Bordo, 1986; Einstein, 2012; Haraway, 1976/2004; St. Pierre, 2020; Stern, 1965), it has largely remained intact. With a note of humor, James (1911/1996) wrote:

But the new philosophy of Descartes, which displaced the scholastic teaching, sweeping over Europe like wildfire, preserved the same encyclopædic character. We think of Descartes nowadays as the metaphysician who said "Cogito, ergo sum," separated mind from matter as two contrasted substances, and gave a renovated proof of God's existence.

(p. 13)

Deleuze (1968/1994) refuted Descartes' onto-epistemology of "natural good sense" as follows: "There is indeed a model, in effect: that of recognition. Recognition may be defined by the harmonious exercise of all the faculties upon a supposed same object." (p. 133). Importantly "the form of recognition, has never sanctioned anything but the recognisable and the recognised; form will never inspire anything but conformities" (p. 134). In other words, Deleuze argued that "good sense," based on a Cartesian ontology, allows us to know only what we already recognize and imagine already exists. In this way, knowledge is based on repetition in a system of recognition. Difference is always representation of an Other that circles back conditioned by recognition within the reductive Cartesian image of thought. Whitehead's priority was to inquire into this habit of thinking. Deleuze (1968/1994) described a different kind of empiricism that is not part of the conventional rational/empirical epistemological binary. Deleuze's (1968/1994) *transcendental empiricism* follows from Whitehead and involves thinking in the work of posing questions and problems through encounters with the real.

Do not count upon thought to ensure the relative necessity of what it thinks. Rather, count on the contingency of an encounter with that which forces thought to raise up and educate the absolute necessity of an act of thought or passion to think. (p. 139)

My point is that persistent problems need new or unrecognizable modes of thinking. Here is the invitation to think toward a more generative image of thought that does not return to habits of thinking with a pre-formed logical structure that has already placed value-laden boundaries to close down what can be thought within problem spaces. The theoretical work that looks at habits of thought was described by Whitehead (1929/1985) as analysis of “actual entities” into the “prehensions,” or the reproduced “subjective forms” of concrete experience (p. 19). “An actual entity is at once the subject experiencing and the superject of its experiences. It is subject-superject, and neither half of this description can for a moment be lost sight of” (p. 29). Deleuze and Guattari (1991/1994) wrote that immanent thought is creative and importantly, “if thought searches, it is less in the manner of someone who possesses a method than a dog that seems to be making uncoordinated leaps” (p. 55). So, in both Whitehead and Deleuze, thought is not understood as a model of recognition with the rational mind—separate from the world—conforming to an established pattern that already exists. They argued thought is entangled experience within materializing encounters, always in process of becoming, open to immanent possibilities. With these ideas forming a space to inquire differently, I continued to read as I conducted my study.

Thinking With Leaps and Porous Boundaries

Old constraints in philosophical thinking were the problem spaces of possibility for Whitehead. Using classical and Enlightenment philosophical texts, he described a speculative philosophy as a process of experimentation with propositions to demonstrate a relational

ontology that does not rely on a bifurcation of rational and empirical modes of experience. Whitehead (1929/1985) acknowledged he was indebted to William James for furthering his speculative scheme (p. xii). James (1911/1996) used terms such as “perceptual flux” within “a much-at-oneness” reality that then is “mediated” by the intellect to explain his work as *radical empiricism*:

Boundaries are things that intervene; but here nothing intervenes save parts of the perceptual flux itself, and these are overflowed by what they separate, so that whatever we distinguish and isolate conceptually is found perceptually to telescope and compenetrates and diffuse into its neighbors. The cuts we make are purely ideal. If my reader can succeed in abstracting from all conceptual interpretation and lapse back into [their] immediate sensible life at this very moment, [they] will find it to be what someone has called a big blooming buzzing confusion, as free from contradiction in its “much-at-oneness” as it is all live and evidently there. (pp. 49-50)

Through the ideas of James, Whitehead, and then Deleuze flow the work within new materialisms to test, experiment, and play-with the abstracted concepts operating as “unified” truths and their relations to particular perceptual flux in reality. One of the major relations that Whitehead approached was the *Concept of Nature* as an ongoing inquiry into metaphysical questions raging in rational and empirical knowledge realms of science. His critique of the “cuts” that have been made to divide reality are also relevant to the enviro-socio-political problems engaged by new materialist scholars. However, the point is not to remain with a critique of intellectualism as a rational activity or for a rejection of empiricism, but it is to bring the ethical task of making the stakes explicit in such work and in *theorypractice*⁵ (St. Pierre, 2016). Further,

⁵ St. Pierre (2016) wrote “The idea that theory and practice are inseparable—one might write them together as *theorypractice*—and material as well is crucial in the new empiricism” (p. 112).

it is important to resist the tendency of thinking “self-contained matters of fact capable of being understood apart from interpretation as an element in a system” (Whitehead, 1929/1985, p. 14) without asking how this comes into being. In critique of value-free assumptions that produce “matter of facts,” Whitehead wrote that

Our habitual experience is a complex of failure and success in the enterprise of interpretation. If we desire a record of uninterpreted experience, we must ask a stone to record its autobiography. Every scientific memoir in its record of the “facts” is shot through and through with interpretation. (p. 15)

Whitehead (1929/1985) engaged this limitation in empiricism that ignores the role of interpretation as ongoing philosophical work: “Rationalism is an adventure in the clarification of thought, progressive and never final. But it is an adventure in which even partial success has importance.” (p. 9). The assumptions that allow unexplained matters of fact to stand are an ongoing matter for inquiry.

In his lectures, Whitehead (1929/1985) critiqued the essentialist dogma of traditional philosophy and insisted that philosophical inquiry should pose questions with concepts of relational processes as an ontology of immanence (p. xiii). Scholars working in the new materialisms also use a Deleuzian ontology of immanence to cultivate a space for generating *different* ideas. Robinson (2009) wrote that Deleuze’s ontology of immanence is an iteration of Whitehead’s philosophy of process (p. 13). Indeed, Deleuze (1968/1994) wrote in *Difference and Repetition* that his work to bring a-categorical notions, as open and multiple, was in relation with the “empirico-ideal notions that we find in Whitehead, which makes *Process and Reality* one of the greatest books of modern philosophy” (pp. 284-285). Whitehead (1933/1967) stated the two fundamental issues that complicitly produced “dogmatic fallacies” (p. 223) in thinking are

limitations of language to represent reality and reliance on abstracted Cartesian rationalization without inclusion of the particular modes of subjective encounters as experience (p. 228).

Whitehead's approach was to engage thought experiments by working metaphysical hypotheses to open problems to the different effects they could produce. He emphasized that "a great deal of confused philosophical thought has its origin in obliviousness to the fact that the relevance of evidence is dictated by theory" (p. 221). Whitehead and Deleuze belong to what some have called an aberrant philosophical lineage of philosophers of immanence, which includes Spinoza, Bergson, and more recently, many new materialist scholars. It can be difficult to understand a philosophy of immanence when one has been trained to think in a Cartesian model of rationality. By that I mean, as a science educator I have been trained to think that what counts as evidence is what can be measured—data. However, in this logic of what authorizes truth, the methods are not questioned as they make the cuts which create the boundaries within which we see the world. This structure of thinking has persisted since Enlightenment philosophers formed their description of valid scientific thought. Accepted methods of social science research in education rely on these value-infused assumptions of logical positivism (St. Pierre, 2016, p. 116; Steinmetz, 2005). Whitehead (1938/1968) rejected these ontological foundations and did not set up a new structure for a reality of being but a more inclusive non-structure of becoming which he termed "assemblage" (p. 2).

States of things are neither unities nor totalities, but multiplicities.

(Deleuze & Parnet, 1977/1987, p. vii)

Whitehead invented many concepts whose meanings are unstable across his work as he engaged different problems. Resisting a metaphysical essence, his concepts are used as tools to critique and account for conventional justifications of knowledge claims. Isabelle Stengers

(2002/2011) described his project as the need for speculative work to engage “a certain deliberate amnesia with regard to the obviousness of obstacles, and active indetermination of what the terms of the problem ‘mean’” (p. 15) as a creative force to open a problem toward “the invention of the field in which the problem finds its solution” (p. 17). It was through the process of reading with Stengers that I understood that the concepts themselves are not so important; rather, it is how the concepts *transform* the conditions of a problem (p. 17) and help examine the habits of mind that legitimize or disqualify thinking (p. 27).

Through reading Whitehead, Deleuze, and Stengers, I found other notable philosophy of science and new materialist scholars who have acknowledged Whitehead’s process philosophy as a mode for thinking out of the constraints of conventional social science research in order to resist its violent effects. The shift is from thinking about what is “out-there”—being as static—so it can be observed, evaluated, measured, counted as essential things, toward thinking how an assemblage produces a multiplicity of effects. This notion of relational materiality, nature as reality in process, imbricated as assemblage, was the ontological realm of Whitehead’s speculative philosophy. Further, according to Whitehead, when our methods stem from habits of mind that prioritize systematization and categorical thinking, we foreclose creative possibilities. Assemblage and process as the environment of experience “surpasses us in every physical dimension” (Whitehead, 1938/1968, p. 7). Every idea implies “the notion of other existences, connected with it and yet beyond it” (p. 7).

Etho-Ecology as an Ontology of Caring

As I described at the beginning of this chapter, reading and process was my approach to inquiry and involved taking a path through reading with scholars and making connections with ideas that resonated in my specific problem context. This approach does not take new concepts

and apply them to a ready-made framework or to experience. With reading and process a framework dissipates, becomes a non-structure for thinking, and instead makes connections with concepts and their materializing “fact of mattering.” Reading and process moves and shifts along the terrain that forms as connections are made, bringing ideas in relation, in an ongoing manner. The project becomes through the process. Didier Debaise (2006/2017), a former student of Stengers, wrote about his engagement with Whitehead which provided me with an articulation of the focus I had been following in my own reading:

There are distinct lineages of readers of Whitehead in accordance with different approaches. Each reader inherits one particular movement out of all the movements that the original work tangles up. These tangles are the transformative power of the system to which one must become sensitive. An adequate reading cannot avoid taking a particular path. (p. 1)

The approach I took became the effects of the Cartesian “bifurcation of nature” that Whitehead (1920/2015; 1929/1985) and others described, and I was driven by curiosity about how the effort to disorient and refuse that traditional thinking has been picked up by *materialist speculative* philosophers. Isabelle Stengers, Donna Haraway, and Karen Barad think with each other as they think with problems as an *ethic of care* for how concerns get articulated in theorypractice. Stengers (2005) wrote about an *ecology of practices* for thinking within the milieu and not toward transcendent illusions that critique-only produces as reified grand narratives.

“With the surroundings” would mean that no theory gives you the power to disentangle something from its particular surroundings, that is, to go beyond the particular towards

something we would be able to recognize and grasp in spite of particular appearances.

Here it becomes clear why ecology must always be etho-ecology. (p. 187)

This etho-ecology mode of thinking within a problem space involves resisting the power and seduction of habits of thought that limit the imagination and as Stengers emphasized, “what you are responsible for is paying attention as best you can, to be as discerning, as discriminating as you can about a particular situation” (p. 188). When dwelling with a problem, Stengers (2016) recommended a Whiteheadian approach that allows “common sense brooding” (p. 428) as resistance and commitment to open the provisional understanding of the constraints in the problem. Stengers (2016) wrote “A constraint is what forces one to think, to imagine, to try—and to move forward” (p. 429) in a caring process for how “we” navigate the effects of problems together, despite our different points of concern. The reading and process approach I have used in this study authorizes dwelling with the contradictory “much-at-oneness” that James and Whitehead insisted is reality in process. Haraway (2016a) also described a different way of thinking about the problem of human effects that engage responsibility as an ethic of care to *cultivate together* within problems. This collaborative approach for thinking enables engaging ideas within specific contexts that shape-shift when on the move toward another entangled site of becoming. Haraway (2016a) termed her approach *SF* and gave homage to Stengers and Whitehead as philosophers who inspired her adventurous sense of worlding (p. 12). *SF* stands in for a multitude and signifies multiple modes of approach with phenomena: *Science fact* with *speculative fabulation* with *speculative feminism*, etc. (p. 3). *String figures* is Haraway’s (2016a) process approach and she described it as:

I try to follow the threads where they lead in order to track them and find their tangles and patterns crucial for staying with the trouble in real and particular places and times. In

that sense, SF is a method of tracing, of following a thread in the dark in a dangerous true tale of adventure where who lives and who dies and how might become clearer for cultivating of multispecies justice. Second, the string figure is not the tracking but rather the actual thing, the pattern and assembly that solicits response, the thing that is not oneself but with which one must go on. Third string figuring is passing on and receiving, making and unmaking, picking up threads and dropping them. SF is practice and process; it is becoming-with each other in surprising relays; it is a figure for ongoingness in the Chthulucene. (p. 3)

Haraway's (2016a) wording reconfigurations move to resist the pitfalls of language limitations in theory and, at least, to bring (dis)closure toward problematic structures of thinking. At its best, these reconfigurations engage creative possibilities. Human *becoming-with* as multispecies engagements, as collective *response-ability* toward *sympoietic* endeavors that leave behind ineffectual polarized notions of separate individuals responsible for themselves (p. 33). However, making connections also involves making cuts. Next, I describe how I read to think as I grappled with how to find ways to get hold of the complexity of the problems in RM\$.

Ethical Disclosure in Boundary-Making Practices

Whitehead, in *The Concept of Nature* (1920/2015) and *Nature and Life* (1934/2011) stated that the reliance on “the ultimate data of science” was founded on uninterrogated perceptions of nature (1920/2015, p. 43). Perception itself becomes a problematic endeavor as it entangles with bifurcated notions dealing with sensation and cognition of distinguished causes in an outside-oriented reality of matter: “the object of such a metaphysical science is not to explain knowledge, but exhibit in its utmost completeness our concept of reality” (p. 31). Whitehead insisted that all of these relations are nature in process, as an ethical ontology within nature.

Like Haraway's method of String Figures, through ongoing reading I made connections with Karen Barad's (2007) agential realist ontology that takes an account of materiality as being reconfigured through specific boundary-making cuts by apparatuses as "the specific material conditions of possibility and impossibility of mattering" (p. 148). Following Barad, what is at stake is a view of matter as it makes every distinction reconfigured as an *ethico-onto-epistemology* for any project that seeks to understand and represent findings as facts of matter without explaining how that comes to be. Barad's agential realism uses a relational ontology—an entangled understanding of processes of mattering—and informs new materialist work to allow openings toward difference in empirical studies. This is an imbricated speculative empiricism that calls for emphatic elaboration of the relational conditions of inclusion/exclusion. Barad (2007) described the thesis of agential realism as follows:

This relational ontology is the basis for my posthumanist performative account of material bodies (both human and nonhuman). This account refuses the representationalist fixation on words and things and the problematic of the nature of their relationship, advocating instead *a relationality between specific material (re)configurings of the world through which boundaries, properties, and meanings are differently enacted* (i.e., discursive practices, in my posthumanist sense) *and specific material phenomena* (i.e., differentiating patterns of mattering). This causal relationship between the apparatuses of bodily production and the phenomena produced is one of agential intra-action. (p. 139)

Ethical practices of boundary-making are part of all inquiry, especially when it is necessary to write up the phenomena "found." What makes agential realism ethical is the openness of articulating the "measurement agencies" (Barad, 2007, p. 140) used in methods and the analyses. Using models of physics experiments, Barad elaborated on the condition of

complementarity as the phenomenon present for any empirically derived characteristic or factor, which through the process of capture, forces the exclusion of other characteristics or factors. Attempts to represent understandings must indeed include that which is also possible that couldn't be observed, or that which was thought impossible and excluded. Any method includes/excludes simultaneously. Therefore, according to Barad (2007) and others, these are all entangled.

What is the root of complementarity? It is the impossibility of drawing any sharp separation between an independent behavior of atomic objects and their interaction with the measuring instruments which serve to define the conditions under which the phenomena occur. In other words, the inseparability of objects and agencies of observation is the basis for complementarity. (p. 308).

Sheer disclosure is the ethic of care that insists on emphatic description of complementarity and the boundaries that are enacted. Barad described the philosophical distinction between theory enacting a methodological Cartesian-cut, with its implicit separation of observer, method, and object; and the agential-cut that is elaborated specifically within the phenomenon. In Barad's (2007) account, "scientific practices are specific forms of engagement that make specific phenomena manifest" (p. 336). Barad's theory that "phenomena are material entanglements that 'extend' across different spaces and times" (p. 317) displace attempts for certainty in results. Not addressing un-natural boundary-making emphatically leads to reductive analytic attempts which lack an ethical mode of representation for a complex set of issues (p. 318). According to Hollin et al. (2017), while Barad's work continues to engage thinking with transdisciplinary new materialist work, her elaboration of complementarity as "ethics of exclusion" has been under-realized (pp. 921-922). Research practice with an ethic of care is in

confluence with Stengers' (2005) *etho-ecology* and Haraway's (2018) *response-ability*, the "capacity to respond—that is also collective knowing and doing, an ecology of practices" (p. 61). These ideas have been engaged by Barad (2012) as entangled in practice because "matters of fact, matters of concern, and matters of care are shot through with one another" (p. 69). If we can reorient our thinking as an ethical ontology for becoming with nature, we can learn to not problematize the complexity in flux but engage with it as part of problems in all kinds of natural environments. Halewood (2005) wrote that

science, philosophy, the humanities, and social theory all require a renewed conception of nature (in the broadest sense of the word), one that goes beyond strict scientific limitations, beyond any form of biological essentialism or reliance on some notion of the ultimate laws of physics or nature. (pp. 57-58)

Strict mechanized views of how nature "works" are inadequate in science. Thinking with the concept of complementarity demands the inclusion of a wider range of factors into the inquiry approach and attunement for how they matter. Recently, ecological modes of analysis have been recommended to help address the complexity in educational problems (Peck & Reitzug, 2014; Redding & Searby, 2020). However, to move a problem out of a stuck place requires an ontological shift in thinking and an attunement to how possibilities materialize.

In the next section, I discuss two examples of work I made connections with because they challenge the theories being used in their particular complicated environmental sites. The ideas in these papers resonated with the critique I was forming for how educational problems cannot be approached with reductive theories. Like RM\$, these "sites" have been violated by an overlay of economic rationality and dogmatic inquiry practices that have allowed the problems to continue without offering any *real difference* toward interventions. However, the authors of the

articles bring the problems to a wider field out of the conventional static ontology to explore the contradictory enviro-socio-political impacts on the scientific practices with which they were approached. These papers helped move my thinking toward understanding the problem of high teacher turnover in high accountability environments as being produced in a field of tension forces that condition practice and implementation. The first example is “Responding to *Pfiesteria piscicida* (the Fish Killer): Phantomatic Ontologies, Indeterminacy, and Responsibility in Toxic Microbiology” (2010) by Astrid Schrader and the second is “Calculemus *Jasus Lalandii*: Accounting for South African Lobster” (2016) by Leslie Green. Both papers use the theories of Haraway, Barad, and others to ethically reconfigure the institutionalized frames of problems with more materializing complexity.

Reconfigurations for Environmental Disturbances

Phantomatic Ontology

Schrader (2010) used Barad’s work to mobilize the concept of *phantomatic* to re-think taken-for-granted scientific objects of study, especially when the agent *performs differently* than expected, resisting enactments in conventional modes of scientific practice. In other words, the relationality within the phenomenon extends beyond any apparatus of capture or measuring agency. *Pfiesteria piscicida* are aquatic organisms that do not easily fit scientific classification, and they don’t sit still and remain the same while under observation. Where and how they show up remains an epistemological “gap” in research about their activities. Most scientific sources describe *Pfiesteria* as microscopic dinoflagellates who “usually” exist as algae-like. They sometimes remain dormant in the sediment, but they also can transform into toxic predatory collectives depending on particular environmental conditions that have not been empirically established. According to the U.S. Department of Agriculture (n.d.), *Pfiesteria* are “associated”

with fish-kills and their “cells shift forms” when excrement is present in water. Typically, the toxic fish-kill events occur in rivers near high concentrations of animal farms. However, conventional scientific methods have not been able to establish with certainty patterns for how these fish-kill events materialize. According to Shrader (2010), *Pfiesteria*’s responsiveness is phantomatically indeterminate.

Phantoms do not emerge “as such”; they appear as traces and are associated with specific matters of concern. Importantly, a phantom is not an empty signifier, whose meaning is simply deferred until the controversy may become settled. Phantoms are “agentially real”; they contribute to their own materialization and make demands on us to be accounted for. Responsibility in scientific practices hinges on how their “agencies” are taken into account. (p. 279)

The problem of *Pfiesteria* and their entanglement with fish-kill events has unhinged accepted scientific models of life cycles and the classification of distinct organisms. Schrader (2010) described how *Pfiesteria* has been found to embody multiple life forms in dozens of stages:

Which of the morphs actually belongs to the fish killer is part of the ongoing dispute. In addition to a multidimensional environmental space (different temperature, salinity, organic and inorganic nutrients), *Pfiesteria* inhabit multiple temporalities in this picture.

Is there any way to tell where *Pfiesteria* end and their environment begins? (p. 281)

Shrader used Barad’s concepts of *intra-action* and *agential realism* to think about re-configurations that are necessary if one is determined to inquire into problems that conventional scientific methods cannot address. Shrader’s (2010) point, with her concept of *phantomatic ontology*, was that “differences here concern the variability of relations through and between space and time” (p. 298) that disclosed the limitations of traditional empiricism in complicated

contexts. Stengers (2002/2011) would suggest that the solution could be engaged by “the invention of the field in which the problem finds its solution” (p. 17). Here the researcher must pose problems in a wider field of possibilities and resist thinking habits as a “rounded-in view of the whole of things” (James, 1911/1996, p. 99). The problem of fish-kills cannot be attributed to one organism alone; humans, hogs, fish, and a multitude of relations create the conditions. The potential for fish-kills is entangled with socio-economic-political issues that allow land use practices near rivers to contaminate water quality. Water temperature increases due to climate change also stress aquatic organisms. It bears repeating: “The relation is the smallest unit of analysis, and the relation is about significant otherness at every scale. That is the ethic, or perhaps better, mode of attention, with which we must approach cohabitings” (Haraway, 2016b, p. 116). Thinking with a phantomatic ontology does not provide answers but it does offer ways to ask different questions. Instead of asking why teachers stay or leave, I am asking how do tension forces emerge and affect teachers, thus creating contradictory conditions for their practice in RM\$.

Refusing Economic Scripts

In a related problem of environmental disturbance, Leslie Green (2016) described how the problem of declining lobster populations along the coast of South Africa due to an ongoing complex of pressures was approached by different interests creating a field of tensions between biologists, fisheries management research, government agencies, activists, and of course, the lobsters themselves.

J. lalandii's kelp forest ecology, off the Cape of Storms, is embroiled in an ongoing struggle to survive contests over the distribution of rights to harvest lobster biomass. At the center of the struggle is the figure of the TAC: the annual Total Allowable Catch –

which, in turn, is derived from an accounting of the lobsters as money in a national bank account. Yet that particular lobster logic is bedeviled by the lobsters themselves, who, amid slowly heating waters, growing sewage discharges, decreasing oxygen, increasing corruption, and extreme human predation, have been exiting the bank, both by walking out and dying in the millions on the beach during increasingly frequent harmful algal blooms and, in significant percentage, by migrating south, against the ocean currents, to an area away from the high-take catch zones where the lobster factories are. (Green, 2016, pp. 139-140)

Violence begins when economic principles are imposed with conventional ecological modeling to address disputes *over* other living organisms. Green (2016) elaborated the theoretical issue as follows: “by scripting relations of commodity and control, it is already enrolled in specific human values [that form] the knowledge economy: technical efficiency, economic productivity, and scientific objectivity” (p. 145). This problem persists because the lobsters are objectified and viewed in terms of biomass—the weight of their living matter measured as they are extracted and converted into monetary units. In this situation, lobsters are disarticulated from their ontological relations within kelp forest ecosystems. “Thinking with the lobsters,” Green (2016) pursued the problem of why lobsters might be resisting the efforts of fisheries management as a “walk out.” Indeed, the lobsters had not been consulted and did not agree to the quota policies that were imposed on their very lives.

To explain the problem of *accounting* for the responses of lobsters, Green (2016), problematized the use of banking and military metaphors, the violent separation of “biomass” from nature, and the insertion of a “neutral” economic rationality (p. 145). Better counting

methods to inform the Total Allowable Catch policy did not offer a just solution to this complicated problem of over extraction and ecological disturbance.

Educational reformers, too, overlay a model of economic efficiency onto educational practice with unsatisfactory results. How does adding more *accountability* structures—testing and documentation practice— answer the problems in RM\$? Theories that reduce the complexity of educational practice to effectiveness ratings based on test scores objectify teachers, and those metrics disarticulate the relationality of the teaching environment. Like the lobsters, teachers are not consulted as to what conditions they will accept in order to stay or leave for “places and spaces that offer well-being” (p. 147).

I am not suggesting that teachers are like *Pfiesteria* in that they are phantomatically indeterminate or that teachers are like lobsters in that they are leaving in high numbers for less toxic environments (or am I?). I am suggesting that the tension forces within these enviro-socio-political fields can be better approached from a more inclusive ontological space that can move thinking toward possible mitigation efforts. I want to use research to look for clues as to how a system is changing and to raise different questions for how to live and work together. Aquatic ecologist and entomologist, Kelly Murray-Stoker, described her approach to research as a process for getting acquainted with an insect community to see what the organisms need in order to survive changing times. Data is a clue to the changes but cannot stand in for the ongoing relationality we participate with (personal communication, 2022).

Instead of simply counting teachers once at the end of the year to see if they disappear or continue to serve as objectified “workforce capital” when it is too late to address the problem, we might support their *well-becoming in practice*, especially in contradictory spaces like RM\$. Reform schemes hold teachers accountable for all social issues through logical positivist and

economic-laden metrics which measure their “effectiveness.” Using economic strategies to leverage change hides the complexity of the problem and limits the possibility of regenerative changes. Economic rationality objectifies teachers as “resources” because, as Sachs (1999) asserted, “they are stripped of their own worth in the present in order to be strip-mined for somebody else’s use in the future” (p. 11). As teachers are evaluated and *become* their effectiveness ratings in the scheme of educational reform the uneasiness of “not-good-enough” drives many new teachers out of the profession. This is one of the violent effects of accepting impoverished economic theory as a way to truth. If our reform conversations frame the need for change in a narrow field of interchangeable individual people and things that can be improved with “more-effective” schools, leaders, and/or teachers to produce more-effective students, we miss the creative potential.

Toward An Inclusive Space That Holds the Pragmatic and the Potential

Fenwick and Edwards (2011) agreed it is important to address materiality in educational policy analyses. They wrote “it is the human-centricity of much policy research that we would argue constrains analysis and neglects the influence of material devices, technologies, embodiments, and spatialities upon educational activity” (p. 710). Encounters with materiality have not been adequately engaged in policy research, and if they have at all, it has been in the form of “ideology critique” that remains in a structure of epistemological stagnation in a game of the same—unresolved problems (p. 713). Fenwick and Edwards promoted using the concept of multiplicities to understand policy implementation contexts with “this suggestion of multiple ontologies—that is, observing the proliferation of practices and meanings as different *worlds*, not just different *worldviews*—may prove useful in tracing enactments of educational policy” (p.

722). I agree and believe that approach resonates with a phantomatic ontology that allows simultaneous paradoxes to coexist.

How does an approach to inquiry that begins with a commitment to reading with Whitehead impact a study? Proceeding carefully and diplomatically as Stengers (2005) explained (p. 184), in order to avoid reified critique that easily generates a mobilization of defense (“Don’t you want to improve student learning?” and “Poverty is not an excuse.”) and paying close attention for immanent meaningful diversity in all materializing forms as present possibilities was my challenge in this approach to inquiry. If one suspends their unquestioned acceptance of a logical system of independent causes and effects in a linear relation toward predictive certainty, perhaps the paradox of “more and less” in its “all-at-oneness” works as an attempt toward ethical theorypractice. I would like to articulate how forces can be generated in the “all-at-oneness” and materialize as events.

In my study, the moments that took thought on an adventure were not planned or authorized by pre-existing research practices. The new, previously unthought, came sometimes in the middle of a meeting, standing in the hall monitoring class changes, dealing with student resistance, *and* sometimes while listening and transcribing an interview. Thought or meaning was not in the words (data) but in the ongoing reading of Whitehead, James, Deleuze, Stengers, Haraway, and Barad along with encounters with the real experiences of teaching while conducting a study. What has become important is the project space for an ethic of care to create a different ontological structure of thinking to emerge, from being in identity toward becoming-with (Haraway, 2016a) the surroundings in the “much-at-oneness” (James, 1911/1996) that elude easy description.

Thinking of how tensions phantomatically emerge, amplify, seem to dissipate, yet remain as forces allowed me to also think how tension forces could be mitigated. I discuss in chapter 5 how I came to think of the types of tension forces and their effects on teacher satisfaction. Together, they create a field of forces that influence implementation of programming. Further, I describe how I used the patterns of tensions that structure teacher practice in RM\$ to create diagrams which represent the field of forces and the potential within. In chapter 6, I describe how I used these diagrams as a tool to provoke discussions with teachers and administrators to help reorient thinking about how we can implement accountability programming in regenerative ways. However, next is chapter 4 where I describe how I continued to grapple with the tension in my study between the language of conventional social science methodology and the theory I was reading and thinking with as I traversed paradigmatic boundaries, struggling to remain in a space open to possibilities.

CHAPTER 4

WEAVING THEORY AND PRACTICE THROUGHOUT THE INQUIRY JOURNEY

“You inspire me to be curious with my imagination and critical of my methods.”

(James Murray, personal communication, 2018)

Overview of the Research Design

Theoretical Conditions

In the same way I am interested in disrupting how accountability enactments create unintentional effects within Reform-Machine Schools (RM\$), I am interested in how qualitative research enactments create opportunities for what can be thought differently—in more provocative, affirmative, and regenerative modes. Reading and process as I have used it in this study authorizes dwelling with the contradictory “much-at-oneness” that James and Whitehead insisted is reality in process. Haraway (2016a) also described a different way of thinking about the problem of human effects that engage *response-ability* as an ethic of care to *cultivate together* within problems. This collaborative approach for thinking enables the engagement of ideas within specific contexts that diffract and move toward different entangled sites of becoming.

When reading with speculative philosophers like Whitehead, James, Deleuze, Stengers, Haraway, and Barad who think with a process-oriented ontology, thought is not understood as a model of recognition with the rational mind—separate from the world—conforming to an established pattern that already exists. Those scholars argued thought is entangled experience within materializing encounters, always in the process of becoming and open to immanent

possibilities. With these ideas forming the space to inquire differently, I continued to read as I conducted my study. I wrote about what I was “doing” in the initial stages of this study using conventional qualitative inquiry descriptions. However, the ongoing thinking developed on the “ragged edge” (Whitehead, 1920/2015, p. 47) or “liminal spaces” (Kuntz, 1019, p. 125) of these conventional qualitative practices which extended out with new theoretical concepts toward post qualitative inquiry (St. Pierre, 2016; 2018; 2019). I argue this was possible because of the diffractive method of *reading and process* I used in this study.

In alignment with this ethical approach to include a wider realm of possibility, Haraway (2016b) wrote “the relation is the smallest unit of analysis” (p. 116) and Einstein (2012) wrote “approaches that demand accounts of complexity [are] good science” (p. 147). For me and this study, this means that it is not possible to think that individual teachers, students, and schools are either effective or not based on evaluation and testing data. Indeed, there are complex causes of dissatisfaction that lead to teachers leaving their schools. My goal was to engage the complexity in all of its “much-at-oneness” in order to open my thinking for this problem. It was one thing to want to inquire into how to study the complexity within RM\$, it was another to actually do it. In the beginning of the study, I was living in a tension space between two worlds—one pragmatic as doing and the other as thinking with the immanent possibilities that had not come into being. It was not until I completed a series of analytical experiments (described in chapter 5) that I understood how theory and practice work together to produce difference.

However, in the beginning I encountered the tension space between qualitative research and post qualitative inquiry. I had to grapple with the disarticulations in my study between conventional methodology and the theory I was reading and thinking with. I traversed paradigmatic boundaries, struggling to remain in a space open to possibilities despite knowing

the *incommensurability* within this theorypractice (St. Pierre, 2018). However, this space provided the conditions for experiments to take a leap. I encountered a shifting phantomatic ontology that allowed seemingly contradictory forces to exist simultaneously in possibility within the flow of experience. While I understand that post-qualitative thinking cannot occur together with conventional humanist theories, I do appreciate how they generate tensions together within a phantomatic ontology of experience. Rather than try to eliminate the incommensurability from my study description and the theory I was using to approach problems in RM\$, I left the tension space apparent in the descriptions below. The descriptions illustrate the struggle in the writing for my university's Institutional Review Board (IRB) and the school district research proposals that are imbued with positivist reform discourse, as I critically refuted the reform discourse and moved toward process-oriented thinking as a new structure entangled by phantomatic transversals.

I began by conducting interviews. Qualitative interviewing is an accepted research method to use for finding out what people think about research topics. In conventional qualitative methods, interviews are recorded, transcribed, and then analyzed using coding processes to make “sense” of the data. My intention for the interviews was not to produce stable facts of truth but to engage in discussions of the problems we educators were facing together in our school and to generate ideas toward re-thinking the conditions of the problems. The interview conversations became provocations for thinking about how we could generate ideas together. Stengers (2016) wrote “A constraint is what forces one to think, to imagine, to try—and to move forward” (p. 429) in a caring process for how “we” navigate the effects of problems together, despite our different points of concern.

In my research proposal, I wrote that I would conduct a “sociomaterial process-oriented case study” in the specific Title I school in which I teach in order to study the factors affecting school improvement policy implementation and teacher responses over the course of two academic years. Using Whitehead’s process theory, the ontological assumption in this study is the reconfiguration of typical teacher-accountability interactions in which each element retains a separate identity toward sociomaterial encounters in process of becoming toward difference. Understanding the problem in the ontological space of process and immanence allows different insight and access, hopefully, as intervention before the terminal effects of teacher turnover.

There have been a few gestures toward this more fluid and inclusive notion of social and material interactions in policy research theory. Inclusion of mechanisms of materiality for educational policy studies as a *sociomaterial approach* has been recommended by Fenwick and Edwards (2011) to shift thinking out of self-contained matters of fact that have not been helpful in moving the problem: “it is the human-centricity of much policy research that we would argue constrains analysis and neglects the influence of material devices, technologies, embodiments, and spatialities upon educational activity” (p. 710). Immanence has been engaged as *processual sociology* by Abbott (2016) to describe the social world in fluid plurality as “an approach that presumes that everything in the social world is continuously in the process of making, remaking, and unmaking itself (and other things), instant by instant” (p. ix). In this study, I combined the insights of these ontological premises, *sociomaterial encounters*, as points of ongoing analysis within the context of a local middle school enacting school improvement initiatives.

Concept of Sociomaterial Encounters

The concept of sociomateriality as analytically relational is increasingly used in information systems (IS) studies to represent human-technology interactions that sometimes

retain notions of individual agency that pre-exist relationship but increasingly invoke a Baradian notion of entities constituted in entanglement (Parmiggiani & Mikalsen, 2013, pp. 87-89). Barad (2007) explained this entangled notion as *spacetime mattering*: “phenomena are material entanglements that ‘extend’ across different spaces and times” (p. 317). As such, what is at stake is the view of the social world and the material world—not separate but together—reconfigured as sociomaterial encounters. In this study, sociomaterial encounters are described as entangled and indeterminate ontologically open spaces of possibilities (DeLanda, 2013, pp. viii-ix).

Whitehead (1929/1985) developed a process-oriented approach in which he insisted that all relations are nature in process, and ontologically as nature because “there are no brute, self-contained matters of fact capable of being understood apart from interpretation as an element in a system” (p. 14). I further engage the notion of sociomaterial encounters as process in immanence using the work of Tsing (2015), who explained her notion of relationality as “encounters by their nature are indeterminate; we are unpredictably transformed” (p. 46). This is an ontological difference at the onset of the study—sociomaterial encounters as process toward creative difference.

Pragmatic Conditions

I used a site-specific case study design as a conventional structure to begin the inquiry because the methods of collecting data that I proposed were familiar to the authorizing groups (IRB and the school district) who allowed me to conduct this study at my school. The justification for a conventional case study design included the need for context-dependent arrays of details that unfold iteratively in an ongoing manner throughout implementation (Flyvbjerg, 2006, p. 238; Heck, 2004, 195; Yin, 2018, p. 5). Flyvbjerg (2006) wrote that the value of using a case study approach is not that it can “prove anything”; rather a case study allows one to remain

in the context in order to “learn something” (p. 224). Since previous studies designed to generalize findings have not been successful in providing information to improve teacher retention in Title I school contexts, especially as they become RM\$, my beginning with a case study approach to learn how accountability materializes in different ways justified the research practices to include anything I thought was relevant. I used methods of document analysis to collect material for thinking about how accountability programming implementation unfolds during the year and qualitative interviews to talk with teachers about their responses to accountability actions over time. These methods, along with weekly analytical writing, allowed me to document how encounters happened.

In this study, I intended to elicit the complexity of teacher responsibilities related to school improvement policy implementation so I could compose an account of the implementation of the school improvement initiatives as they “unfold” during one school year and to document the practices of support as capacity building that arise as needed. In addition, I hoped this study could inform other inquiry approaches using process-oriented theory to study local practice and policy implementation. Since pre-existing methods for approaching sociomaterial complexity have not been described for a specific context, I relied on *reading in process* as my primary approach with writing analytic memos throughout the study to elicit the complex process-orientation that Whitehead and other scholars of immanence have described.

However, as expected, there was difficulty in determining how points of critical engagement, as sociomaterial encounters, would emerge within this study. Freeman (2017) described *diagrammatical thinking* as a reading approach to analyze dynamic relations in states of becoming as a “moving composition” (p. 95). The analytical strategies described in chapter 5 were developed through reading and writing descriptions of interactions of policies, initiatives,

educator responses, and material realities of implementation in process as they emerged and produced entangled effects as socio-material encounters. As practice throughout the study, I wrote memos to document my ongoing analysis of interviews, the school environment structure, and the processes of initiative implementation. I used writing as a practice of inquiry (Richardson, 2000; Richardson & St. Pierre, 2005) for insights into links between the literature and practices of decision-making during the implementation of the project and to provoke ongoing analysis of initiative implementations that were fluidly intra-acting with educators integrated with material realities. This means the theory, analysis, and the writing occurred simultaneously (Freeman, 2014). I documented everything in my research notebooks initially and then used diffractive thinking with reading in process through analytic memowriting in an electronic research document as my journal of events.

After obtaining permission from my doctoral advisory committee, the school district, the school principal, and the University of Georgia Institutional Review Board (UGA IRB), I began the study in the Fall of 2019 by sending emails to selected teachers with five or more years of experience at my school inviting them to participate in my study. Other sample selection criteria were that participants teach in the high-accountability subjects of mathematics and English Language Arts (ELA) and that they served on different committees in leadership roles so I could combine diverse perspectives on school programming. The first five teachers I contacted replied that they wanted to participate in the study and subsequently completed the informed consent process. At that point, I stopped recruitment and began conducting one-on-one interviews with those five teachers to discuss their perspectives on responsibilities, their responses to accountability program implementation, and to elicit their needs for support. I expected to interview participants individually at four key points during the school year to inquire with their

emerging thoughts about the school improvement processes they were experiencing them. However, the COVID-19 pandemic began in the spring of 2020, just as I was scheduling the third-round of interviews. Due to stay-at-home orders and UGA IRB orders to stop all in-person interactions, the interviews became virtual, and the study extended into a second year.

During the course of the study, I collected and analyzed documents and other artifacts used at my school for teacher professional training related to implementation of school improvement initiatives. I wrote analytic memos throughout the study to document the process of conducting teacher interviews, transcribing interviews, and my own experiences as a teacher and researcher in a high accountability school environment.

A key feature of this study is that I continued to read texts by scholars in the philosophy of science who I considered relevant to issues of ethics and ontological possibilities because they challenge the assumptions defining relationships between empirical and rational theories which produce knowledge. This method of reading and process helped me generate multiple diffractive analytical points that I discuss in chapter 5 and their implications in chapter 6. Below I describe the details of how I conducted this study. I began with the following, rather conventional, research questions.

Research questions

1. How are school improvement initiatives enacted throughout a school year in a challenging school context?
2. How do teachers interpret and respond to school improvement initiatives in a challenging school context?
3. How might innovative practices emerge to support teachers throughout school improvement initiative implementation?

Inquiry Approach

Aside from explicit racism and domination,

why should anyone think that knowledge and power are unrelated?

(Medin & Bang, 2014, p. 55)

Reading for Anti-Colonizing Approaches

Along with the goal of reconfiguring the ontological assumptions in my approach to the problem of teacher retention in RM\$, I needed to conduct interviews with participants at my school that were ethical—in which teachers would not be exploited for “data.” And through the process of the study, I wanted to generate ways of thinking out of the deficit frames of “failing,” “underperforming,” or other “effectiveness” ratings. I found an ethico-ontological confluence with the speculative-empirical philosophy I described in chapter 3 and the scholarship of Indigenous ways of knowing. Like philosophies of immanence, Indigenous knowledge systems, while quite varied in their approaches, are often based on a relational ontology and non-linear time flows. Different Indigenous research scholars have offered ethical and pragmatic entry points for conducting inquiry with a community of colleagues who are already experiencing threat-based accountability forces. Teachers are frequent “objects” of study due to being identified as the reason for school failures. Indigenous ways of knowing, which are context specific, do not recognize the bifurcation of nature that separates subject and object, experience and emotions from thinking, theory from method, power from knowledge (Johnson & Larsen, 2013; Johnston, McGregor, & Restoule, 2018; Medin & Bang, 2014; Smith, 2012). Māori scholar, Linda Tuhiwai Smith (2012) summarized the potential threat imposed on participants by researchers as:

Research in itself is a powerful intervention, even if carried out at a distance, which has traditionally benefited the researcher, and the knowledge base of the dominant group in society. When undertaking research, either across cultures or within a [minoritized] culture, it is critical that researchers recognize the power dynamic that is embedded in the relationship with their subjects. Researchers are in receipt of privileged information. They may interpret it within an overt theoretical framework, but also in terms of a covert ideological framework. They have the power to distort, to make invisible, to overlook, to exaggerate and to draw conclusions, based not on factual data, but on assumptions, hidden value judgements, and often downright misunderstandings. They have the potential to extend knowledge or to perpetuate ignorance. (p. 178)

Wary of the damage researchers can do by unintentionally reinforcing the values that produce deficit frames when using research practices that objectify teachers as resources for data extraction, I used the above quote as a caution that informed my study practices to prioritize the teachers' control and ownership of knowledge (Johnston et al., 2018, p. 2) over my need for data. Throughout the study, I grappled with questions of how to provide conditions that generate ownership *with* participants and for ways I could *give-back* in a mode of reciprocity to demonstrate my appreciation for sharing their time and practice experiences. I do not presume to call my work Indigenous research, but I did learn from and embrace Indigenous theoretical approaches that seek to “challenge ‘essentialized’ or binary conceptions” (Johnston et al., 2018, p. 1); recognize I can only claim to know partially and relationally within the multifaceted reality of a specific context (p. 7); and keep the commitment to remain engaged in the struggle:

This is research that is embodied and performative; it requires us to walk and dwell. This entails more than conventional participant [methods], but rather an attunement to the

embodied landscape as a primary way of coming to know ourselves in relation to others.
(Johnson & Larsen, 2013, p. 15)

This ethical invitation resonates with my understanding of Haraway's (2016a) collaborative approach that works with the commitment for "staying with the trouble" and "becoming-with" others to engage in problematic and often polarized situations. This approach for conducting interview conversations and dwelling with the transcriptions was a pragmatic response to support the co-generation of ideas for creating possibilities to change the tense environment of RM\$.

Engaging the Problem Space

Site. As described in chapter 2, accountability policies structure the school organization in which my participants and I work, with multiple improvement initiatives operating at the same time that are intended to increase student achievement. School improvement initiative implementations change from year to year and now have accelerated to change within a single academic year. These changes exert a great deal of pressure on educators and contribute to high teacher turnover in RM\$. However, this middle school that was the site of this study is considered by many teachers to be the most "stable" of the district's middle schools because it has retained the same principal for several years, despite the high frequency of school leadership changes in the district.

Role. I was engaged as middle school science teacher at this school, and in addition to teaching, I attended and took notes at all required content, grade-level, professional learning, and faculty meetings. I was a faculty member on the school's Local School Governance Team (LSGT) and the School Improvement Leadership Team (SILT). I served as Lead Mentor for the new-teacher and mentor partnerships; and I participated in many family-engagement events held after school during the study.

Participants. I conducted this study in one middle school in a school district that has experienced many initiatives and programming changes during the last ten years. Math and English Language Arts (ELA) are targeted domains for school improvement reforms, and teachers in those content areas experience more pressure for their students to demonstrate academic growth than those in other academic subjects. My interview participants included five experienced math and ELA teachers in grades six through eight. All these teachers have more than five years of teaching experience and participate in multiple committees such as grade level chairs and School Improvement Leadership Team (SILT). In addition, they coach sports teams and coordinate special events at the school. They represent a diverse combination of racial, cultural, gender, age, and prior experience categories. I conducted one-on-one interviews with these five teachers at three key points in the first year of the study to elicit their responses to school improvement implementation processes. The final member checking interviews occurred in the second year of the study due to changes caused by the COVID pandemic.

Expanding the Problem Space

In previous chapters and above, I described the study site, participants, and my role as written in my research proposals for IRB and the school district approval. That information is considered important in school accountability discussions and includes pertinent details that *can be measured*. The following is a different description of the school that includes what *cannot be measured*.

Importantly, there is a fluctuating network of committed educators in the school where the study took place who trust and believe in their principal; however, they do not trust the district leadership. The teachers are stressed and frustrated due to complex and constantly changing expectations and mandates from the district. In the first week of pre-planning in 2019,

teachers attended long meetings and were given instructions for multiple different policies, programming systems, and accountability tasks (54 new things to do; I *counted*). All those requirements were presented the first week, and each generated more tasks that were added during pre-planning week and throughout the year. However, only one hour was devoted to content lesson planning. It was the last item on the list; yet it is so important. What teachers are asked to do in RM\$ like this one is not sustainable. So why do we stay? Some of the reasons my colleagues gave when I asked them “What keeps you committed?” are provided below to help illustrate the contradictory, yet affirmative forces teachers described.

- “I mean, students. Getting to interact and see them grow and hear their insight. It’s gratifying and I love my coworkers too,”
- “The people here are great. I like the people I work with. There’s always support and warmth, and like, ‘what can we do?’”
- “I came to teaching from [another field] because I really felt like I wasn’t serving my community.”
- “I have a voice here.”
- “I say to my students, ‘Y’all, I love math.’ I don’t expect you to love math. I expect you to find success in it.”
- “As you very well know, we serve. One day we are mothers, another day we are sisters, and counselors, whatever the day requires us to be. In addition to teaching of course. So, it’s rewarding. And to see when I am out and some kids who had me and to come and just tell me what they are doing, it’s just priceless.”

Most importantly, we—my colleague-participants and I—all work together for the academic success for our students. Teachers at my school value their colleagues despite their struggles.

They are often able to find humor while prioritizing student engagement and academic success. However, they did describe troubles related to the school board and the school district that threatened our accreditation status. One teacher responded:

“It’s embarrassing. So obviously it’s having an effect on us, we’re embarrassed that the school board and the superintendent, and all those people over there in that office, that they couldn’t come together to come up with a common goal to serve these kids. It’s like, oh wow our superintendent is going to leave us halfway through the year. It’s almost like a teacher leaves halfway through the year; it affects the kids.”

Interviews as Apparatus of Capture

Interviews are one of the primary methods for conducting qualitative research to understand phenomena and events as interpreted and described by participants with different and multiple perspectives (Marshall & Rossman, 2016, p. 141; Patton, 2015, p. 426). I used an unstructured interview guide approach to allow for flexibility in addressing the multifaceted characteristics related to my phenomena of interest (Patton, 2015, p. 438). The advantage of an interview guide is that it provides enough structure to ensure important topics are addressed but allows the freedom to explore the participants’ perceptions and experiences in a more conversational manner—and as in depth as warranted (p. 439). I had planned to conduct semi-structured, one-on-one interviews focused on questions about teachers’ experiences of accountability programming implementation four times during the year of study. I originally planned to conduct 60-minute interviews with 4-6 educators at four different points during one school year because responsibilities for initiative implementation phase in and intensify at different and overlapping times. The timing for the interviews was justified as follows: First round of interviews to occur in September to establish teacher perceptions at the beginning of the

year; the second round of interviews to occur in December as a follow up and reflection activity because the educators have experienced their responsibilities in an ongoing manner; the third round of interviews to occur in February because this is the time in the school year when accountability pressure intensifies and has been identified as a critical decision-making time for educators to stay or leave; the fourth round of interviews to be conducted in May as follow up and discussion of teacher experiences of implementation at the end of the academic year. This schedule was interrupted due to the COVID-19 pandemic. The descriptions of the actual interview timings and processes are described in the section “Different Interview Approaches and Their Effects.”

I call my approach participatory in that I was and continue to work as a colleague sharing experiences with participants while we teach in the same school. Even though I alone developed and conducted the study’s plan, I wanted to include the ideas and experiences of other teachers in this school. The identities of the participants were kept anonymous, and the interviews were conducted one-on-one to assure confidentiality. The questions were prompts for discussion and were not meant to generate text data to uncover matters of fact. However, a conversational approach to interviewing allowed us to generate ideas together. Multiple rounds of interviews allowed continuation of discussions when called for and the ability to attend to events in process over time. For example, in response to a question during a round-two interview, one participant remarked “it’s funny, that came up today...” In this way, multiple interviews over time can “capture” moments when accountability forces amplify for teachers. I continued to develop the questions for the subsequent interview protocols by reviewing the transcripts for each participant before their interview to be sure to address any questions or events that had been brought up previously and to see how things were changing or stabilizing for the participants.

I experimented with questioning strategies with the intent to mitigate any unequal power dynamic within the interviews to de-privilege my interests as the researcher. The presentation mode of the interview questions made a difference in unique ways, depending on the context in the moment. These were intentional multiple modes of questioning strategies to enhance engagement and to elicit sense-making preferences of participants. For example, I used different strategies to present questions so that participants could select questions they wanted to talk about in their preferred sequence. All four interview guides can be found in the Appendices. Unintentionally, there were multiple modes of conducting interviews that shifted once the pandemic ensued. The first two rounds were face-to-face as planned. The third-round interviews were by phone and the fourth-round interviews were conducted using Zoom as the final member-checking activity.

Context of interviews. The after-school context intruded intermittently during the interviews, and I was able to appreciate that while listening to the audio recordings. Despite the closed classroom door, many things were going on in the background simultaneously—much like in Wes Anderson movie scenes. In a couple of interviews the sound of laughing and loud footsteps could be heard as the cross-country team ran laps up and down the hall outside of one participant’s classroom due to the heat advisory conditions. The coach could be heard calling out times and motivating the team to keep up the pace. Besides many intercom announcements for after school program students to “report to the office for checkout,” or the dreaded “[teacher] if you are still in the building, please report to the office”; custodians interrupted every interview. During the second round of interviews, one custodian just looked at me with narrowed eyes because, evidently, I was disrupting his schedule for cleaning classrooms. All of these

“interruptions” and more were classic after-school events that were amplified out of the background in the audio recordings as part of the much-at-oneness of the interview environment.

Co-Generating Ideas. Throughout the study, I looked for ways to access potential for reciprocity in process to support my colleagues such as volunteering on their committees during family engagement and other events in order to participate in a network of support as I recognized its importance in our interview conversations. Surprisingly, all of the participants expressed gratitude for allowing them the opportunity to participate in the study because it gave them space to make sense of their frustrations and to prioritize caring practices. In this way, reciprocity opportunities were generated in the process—not planned ahead of time. They manifested with ethical research choices that allowed space for giving back and becoming part of the support network. I made the following note after one of the first-round interviews:

After turning off the recorder, I thanked my participant again. As they were walking out of the door, they remarked affirmatively: “I feel like I have been to a therapy session.” This might be one of the unanticipated outcomes, that through the grappling conversations about our work, we are taking the time to dig into the struggles and some of the underlying thoughts about possibilities that provide support pathways for resistance and care in our practice.

Interviews themselves operate as interventions (Patton, 2015, p. 495) with power to bring multifaceted modes of experience into conversation. After many rounds of analyses, I have come to see this as an important need for opportunities to reflect on and develop more caring practices for students and ourselves that can provide a higher possibility of engaging students. This mode of co-generation was an outcome of making ethical research choices and strategies for relinquishing researcher power over participants during the interviews and de-prioritizing *my*

need for “data.” I believe there should be some structure for working with participants but that the researcher should be open to what participants and conversations need. Through the process of reading, thinking, and writing during interview and transcription processes, ideas emerged in conversations with regenerative power for caring practices as encouragement. Also, I continue to carry the thoughts of my colleague participants as I go about my practice. I carry their thoughts and concerns as I interact in meetings. Their priorities and ideas became my points of listening and focus. What is important? What will make a difference? These ideas endured in my analyses and practice.

I found the following quote by Puig de la Bellacasa (2017) to perfectly describe the potential impact of the interviews in the way they were conducted: we should “value research methodologies for the caring relational entanglements they produce” (p. 65). Each interview became a different mode of engagement with my participants. I did not intend for this to be the case, but the differences materialized through a desire to continuously enact decolonizing approaches to mitigate problematic research effects of extracting data from participants. The COVID-19 pandemic seemed to intensify this approach. The following descriptions of the interview processes were developed from analytic memos I wrote throughout the study.

Different Interview Approaches and Their Effects

First Round of Interviews - September 2019

The first round of one-on-one interviews lasted between 45-60 minutes and were conducted after school in participants’ classrooms. They found that time and place to be most convenient for them. I read questions on my interview guide (Appendix A) and audio-taped the interviews. In hindsight, the first round of interviews was highly structured in that I wrote the questions, I asked the questions, and I controlled the sequence of questions. In the second half of

the interview process, I invited participants to use paper and writing utensils that I provided so they could write while they were thinking and fill in details as they were talking about them. My intention was to engage colleagues in a concept-mapping strategy to represent the complexity of their teaching responsibilities. I thought this would help them elaborate their thoughts by “writing it all down” as they talked about their responsibilities and involvement in school initiative programming or other school level priorities. One participant seemed to fully engage in the concept-mapping activity whereas all other participants verbally affirmed (“ok”) but did not make a sustained effort or attempt to use this strategy. I found letting them ignore the materials and continue to speak in their own way was sufficient, especially since the interviews were recorded. By relinquishing control of the process, I found during subsequent interviews in the first round that the teachers wanted to talk about things that they were concerned about and elaborated accordingly. By giving more control to the participants, I found they spoke more conversationally about how tensions manifested among the priorities mandated by the district, administration, and their conception of what is most important about their practice. This generated a more relational view of how accountability forces were affecting their practice and emotional well-being than a concept map of all their duties could illustrate. Importantly, I realized the method of mapping the complexities of our practice was not a task for my participants but, rather, a task for me to bring the “much-at-oneness” into a coherent discussion in this dissertation.

Second Round of Interviews - December 2019 & January 2020

Things stand out at different times for varied reasons. If I had waited until the end of the year to talk with my colleagues, I would have missed so much that had, by then, receded into the constant flow of experience and been forgotten. I would have especially missed the insight into

how teachers' desire for caring practices is always embedded in the space of possibilities. Caring practices seem displaced by datafication priorities in RMS\$ but are also phantomatically present as evident in the interview conversations. I discuss this further in chapter 5. Prior to the second round of interviews, I reviewed the transcriptions of the first round of interviews and made notes about follow-up questions I should have asked and, for example, questions that might help me understand the conditions that existed when a colleague said they decided to act. I kept the question of how to get to the entangled nature of practice environments in mind.

The second round of one-on-one interviews lasted 45-60 minutes and were conducted after school in participants' classrooms again. With the intention of leveling the power relationship between myself as researcher and my participants, I typed up the second-round questions (Appendix B), cut them up into separate strips, and placed them in an envelope.⁶ After initial greetings, I reviewed the consent documentation, turned on the audio recorder, gave the envelope of questions to the participant and explained the process. They could take the question strips out and group them as they made sense and as they wished to discuss them. The process worked well in engaging the participants and gave them some ownership of the process and their meaning-making sequence. I explained my stance as they were taking the question strips out, "there is no one idea of truth or information, I think it can be built in process." One participant's response was "Yeah, and I feel like there're questions here I want to answer together." This comment helps demonstrate how different forces interact in relation in an entangled reality for different participants. It also later became an analytical approach I describe in chapter 5.

⁶ The inspiration for this interview strategy came from observing a family interview protocol during a LISELL-B Bilingual Family Workshop. More details can be found in a paper by Kayumova et al. (2015).

Third Round of Interviews - April & May 2020

Due to the COVID-19 pandemic interruptions, I conducted the third round of interviews on the phone. I shared a google document with questions in a grid without ordering them as an attempt to give participants control over the sequence and relation of topics embedded in the questions (Appendix C). I recorded the following notes in my journal:

After the last interview today: A phone interview during the week of school closeout on a Wednesday. My participant had opened the google doc with the questions and seemed to go through them rapidly at first. This mode of interview was not especially ideal as it presented all the questions at once without the physical sorting activity with question strips that the previous face-to-face round presented with. This was not the only interview that I observed this response with a seemingly harried approach to the questions as they were presented in chart form in a shared document. I think now that I should have asked the questions.

This memo reminded me how easy it is to slip back into a controlling mode of interview practice when one thinks the “data” might be “compromised.” Later (in a future-present moment), thinking back (to a present-past moment), I realized it was a highly stressful time for us due to the uncertainty of the pandemic, with the isolating lock-down mode of quarantine, and the frequently shifting expectations for virtual teaching which generated feelings of inadequacy for supporting our students. I wonder if any mode of interviewing would have been adequate in those circumstances. Of note, for this round of interviews I thought I would focus on district churn and its effects on teachers and students because I was originally looking into the effects of accountability and leadership churn as key forces and events. However, the pandemic displaced the drama of the superintendent leaving and the AdvancEd accreditation inquiry as forces of

stress. There was a tone of stress and frustration for not meeting students' needs at this time despite the shift in decreased accountability forces at the beginning of the pandemic when teacher evaluations and state End-of-Grade (EOG) tests were suspended. I was surprised at the teachers' responses to the question of how they felt about the elimination of teacher evaluation and standardized tests. Some participants said they thought their students were *finally* going to show growth on the tests this year and that they appreciated the final teacher evaluation scores as affirmation of their demanding work all year. These thoughts did not persist into the next year of the study as stress and expectations amplified during the 2020-2021 academic year due to "pivoting" back and forth between virtual and face-to-face teaching as it became "normalized" when COVID cases went up and down in our community.

Fourth Round of Interviews - May 2021

After I completed and transcribed all interviews, I developed a summary for my participants for the final member-checking interviews (Appendix D). I had hoped to complete the last round of interviews in person to avoid the results of the round-three interviews (stressful tone and abbreviated responses). Despite the teachers' vaccine status and the in-person mode of teaching for the spring that would have allowed socially distanced in-person interaction, I elected to complete the final interviews through Zoom to avoid an IRB re-submission because UGA's COVID process for in-person research required elaborate documentation and review. It turned out that the Zoom interviews were more conversational than the previous round a year ago by phone, perhaps due to our "naturalized" experience with teaching virtually all year and a generalized acclimation to most social interactions occurring digitally.

Visual Incitements to Think

As part of my member-check interviews with teachers, I showed images from an art installation as a provocation to think about unrealistic expectations in high-accountability educational contexts.



Figure 1

“Your Unpredictable Sameness” (Olafur Eliasson, 2014)

Images are used with permission from Studio Olafur Eliasson (2016).

I included the images above in the presentation slides I made for the member-check interviews with the following quote from the installation site:

Two mechanical arms are mounted near one another. Each of these arms has a circular joint in the middle and a small lamp at the end. The arms are attached to motors which rotate the arm upwards and then release it, allowing it to swing like a pendulum. The momentum transferred through the circular joint causes the lower section of each arm to spin and twirl unpredictably, its movements emphasised by the lamp at the end. Identical inputs lead to two different results; these continue to play out in parallel as the swinging arms gradually come to a standstill. (Studio Olafur Eliasson, 2016)

My text on the slides stated the following: Moving with a critique of fidelity in *practice expectations* for implementation of educational programming, if two identical mechanical apparatuses cannot replicate motion and cast light without difference, how do we expect teachers to produce sameness in practice with children? The reflections and discussions generated with

these images of the unpredictable light patterns, despite the sameness of mechanization, were very insightful for re-thinking the concept of “fidelity” as it is used with evaluation in educational practice. Further, one participant had the following insight:

“You can’t use output to judge the quality of input. Which is quite literally what educational... like teacher efficacy, data, school improvement, and school report cards. Because that’s exactly what it does; it looks at the output and makes an inference about input. And then they run with it.”

This encounter and my colleague’s response completely disrupted our thinking and exposed the vulnerability in reform discourses that place the accountability lever onto *effectivizing* teachers using test scores.

Data as Provocative

My data records ended up consisting of twenty interview transcripts, a digital collection of relevant school improvement implementation documents from the district and the school, local newspaper articles relevant to the relationship between the school district and the community, two notebooks filled with daily meeting details, and forty-four weekly journal entries as analytic memos. The memos document both my own encounters in the school organizational context as well as my ongoing analysis of the study practices and data interpretation with readings related to process-oriented theories. The purpose of the collected data types is to support nuanced descriptions of processes of school improvement policy and programming implementation that can help to identify potential intervention points in order to create more regenerative working environments. I worked to demonstrate the multifaceted complexity of the environment in which the teachers practice in order to reconfigure the discussions and implementation of programming related to school improvement efforts toward a

regenerative mode of education that does not disparage students, families, teachers, and communities.

Assurance for “Rigor”

In inquiry, the concept of credibility, or trustworthiness becomes contingent on the nature of reality from which the theoretical framework flows (Freeman, 2014, p. 828). According to Lincoln and Guba (1985), “We have noted repeatedly the likelihood that facts are, in the first instance, theory-determined; they do not have an existence independent of the theory within whose framework they achieve coherence” (p. 307). In this process-oriented approach, external validity or transfer reliability were not the goals. “If there is to be transferability, the burden of proof lies less with the original investigator than with the person seeking to make an application elsewhere” (Lincoln & Guba, 1985, p. 298). The goal was to generate new understandings as context-dependent accounts that are “uniquely configured” (Freeman, 2011, p. 543). However, for some research audiences, as well as for the participants and community of this study, it was necessary to provide activities that “minimized misrepresentation and misunderstanding” (Stake, 1995, p. 109). I used three practices to support a collaborative sense-making process: prolonged engagement, member checking, and rigorous reading. Prolonged engagement as immersion in the field increases the trustworthiness of the study (Freeman et al., 2007, p. 28; Hall & Freeman, 2014, p. 568; Lincoln & Guba, 1985, p. 301). I was an engaged teacher-researcher and immersed in the site both prior to and during the study, and I thought of my practice of “dwelling” with the data as close reading (Freeman, 2017, p. 122). I used member checking practices to support a fair representation of participants’ ideas (Freeman et al., 2007, p. 28; Lincoln & Guba, 1985, p. 301; Stake, 1995, p. 115). Member checking has been described by qualitative researchers as ethical engagement with the participants to allow them to respond to the interpretations of their “data”

(Lincoln & Guba, 1985, p. 314). Most importantly, I continued rigorous, scholarly reading (St. Pierre, 2019, p. 8); because assurance for rigor, as due diligence with theory, requires reading to prepare for the study as well as for thinking and decision-making throughout.⁷

Representation

According to St. Pierre (2013), what counts as data depends on the ontological, epistemological, and methodological framework (p. 223). Ethical practices of boundary-making are part of all inquiry at some point, especially when writing up the study. Perception itself becomes difficult to explain because it is entangled within artificially bifurcated notions dealing with sensation and cognition of associated causes in an outside-oriented reality of matter. Whitehead (1920/2015) wrote, “the object of such a metaphysical science is not to explain knowledge, but exhibit in its utmost completeness our concept of reality” (p. 31). Whitehead insisted that all relations are nature in process, and ontologically within nature. What is at stake is the view of the social world and the material world reconfigured as entangled sociomaterial encounters. Any theory or method includes/excludes simultaneously. Barad (2007) described the term *ethico-onto-epistemology* as the imperative to represent findings as ““facts of matter” *along with the assumptions for how it became so.*

Anticipated contribution. This study is working against dogmatic generalizability; however, some affirmative outcomes might manifest. These include inquiry approaches for understanding sociomaterial process and complexity, a different reality described away from failure narratives, and suggestions of how to offer support for regenerative practice.

Moving with the Flow. By using multiple diffractive iterations of analyses, I found that within an entanglement of forces in tension that operate at varying intensities, immanent

⁷ The necessity of rigorous scholarly reading as due diligence prior to and throughout a study, as a “definition” for an approach to inquiry was suggested to me by Elliott Kuecker, a fellow doctoral student, in 2019.

resistance and ethical practices of care can emerge in the spatial-temporal-mattering instances of need. Thinking how tensions phantomatically emerge, amplify, seem to dissipate, yet remain as forces allowed me to also think how tension forces could be mitigated. I discuss how I came to think-with the types of tension forces and their effects on teacher satisfaction next in chapter 5. Briefly, they include tensions between caring practice as teacher response-ability and datafication practices for accountability priorities; tensions between programming change and stability; tensions between flexibility and inflexibility for practice requirements; and tension effects between high satisfaction and high frustration. Together, they create a field of forces that influence implementation of programming in RM\$. I used the patterns of tensions that structure teacher practice in RM\$ to create diagrams which represent the field of forces and the potential within. In chapter 6, I describe how I used these diagrams as a tool to provoke discussions with teachers and administrators to help reorient thinking about how we can implement accountability programming in regenerative ways.

CHAPTER 5

DIFFRACTION PATTERNS OF TIME-ENTANGLED FORCES IN RM\$

“A fresh instrument serves the same purpose as travel; it throws things in unusual combinations. The gain is more than a mere addition; it is a transformation.” (Whitehead, 1926/1933, p. 144)

Study Description

Schools designated as “low-performing” experience higher rates of teacher attrition for a multitude of reasons that have resisted description in current literature. Considering the violent terminal effects of deficit narratives from these studies that continue to reproduce “failing schools” and “ineffective teachers,” my question is how can more ethical inquiry approaches be developed to consider the ignored complexity of Reform-Machine Schools (RM\$)? As an engaged teacher and researcher, I conducted interviews with five experienced math and ELA teachers over the course of two academic years to study how school improvement initiatives are enacted and how teachers interpret and respond to changes in programming. The purpose of the interviews was to elicit points of intervention to increase teacher retention in one middle school implementing accountability programming to improve student academic success.

After conducting the interviews, I relied on the concept of *diffraction* as a tool to guide a series of analytical experiments with data from interview transcripts described below. I use Haraway’s (1993/1996) description of diffraction to indicate a thinking practice aligned with a process-oriented ontology of immanence: “Reflection displaces the same elsewhere; diffraction patterns record the passage of difference, interaction, and interference” (p. 430). Using multiple

diffractive iterations of analysis, I found that within an entanglement of forces in tension that operate at varying intensities, immanent resistance and ethical practices of care can emerge. I used the patterns of tensions that structure teacher practice in RM\$ to create diagrams which represent the potential within the field of forces that can be used to provoke discussions for reorienting priorities for accountability programming implementation.

I started with a process-oriented study design to inquire into the problem of high teacher attrition in a Title I middle school that, at the time of the study, was implementing ongoing accountability mandates as part of its school improvement growth plan. I conducted this study in one middle school in a district that has experienced a high amount of initiative and programming changes during the last ten years. Math and English Language Arts (ELA) are targeted domains for school improvement reforms, and teachers in those content areas experience higher pressure for their students to demonstrate academic growth than teachers in other academic subjects. My interview participants included a diverse group of experienced math and ELA teachers in grades six through eight. I conducted one-on-one interviews with five teachers at four key points over the course of two academic years to study their perceptions of and responses to processes of school improvement initiative implementations as they unfolded throughout the year. Engaging diffractive reading in the inquiry was my ongoing analytical practice for regenerative possibilities. This study began with the intention to find out how educator retention could be promoted as part of implementing school improvement initiatives in high accountability contexts. However, through continuous theoretical reading and iterations of diffractive thinking within a commonly stated problem of “never enough time,” the problem shifted from constraints of time diffractively toward generating teacher practices of resistance and care.

Data for the first part of the analysis described below consisted of fifteen interview transcripts, a digital collection of relevant school improvement implementation documents from the district and the school, local newspaper articles relevant to the relationship between CCSD and the community, two notebooks filled with daily meeting details, and forty-four weekly journal entries as analytic memos. The memos document both my own encounters in the school organizational context as well as my ongoing analysis of the study practices and data interpretation with readings related to process-oriented theories. The purpose of the collected data types is to support nuanced descriptions of processes of school improvement policy and programming implementation that can help identify potential intervention points in order to create more “sustainable” working environments. Importantly, my intention with this analysis was to honor the multifaceted complexity in RM\$ to reconfigure the discussions and implementation of programming related to school improvement efforts toward a regenerative mode of education that does not disparage students, teachers, and schools.

Research questions

1. How are school improvement initiatives enacted throughout a school year in a challenging school context?
2. How do teachers interpret and respond to school improvement initiatives in a challenging school context?
3. How might innovative practices emerge to support teachers throughout school improvement initiative implementation?

Analysis for Pragmatic Recommendations

I developed a list of eleven pragmatic recommendations for administrators through an inductive process that targeted teacher needs for support from the interview transcripts. To

generate these actionable recommendations, I studied all three interview transcripts for each participant. I was able to organize the multiple suggestions and needs identified by teachers into eleven major points of recommendation. To confirm this grouping and to establish a frequency reinforcement of their importance, I conducted another close reading of the first, second, and third rounds of interview transcripts; then I recorded instances as frequencies for each recommendation. In this way, I felt prepared to present the recommendations to the participants in one-on-one member check interviews for their confirmation and discussion. Appendix E contains a list of the recommendations with example quotes from participants that demonstrate precise ways these recommendations were communicated as needs for support. To protect the teachers' confidentiality when a quotation would identify an individual in this school, I summarized the statements without revealing the specifics of the teaching assignment. In all quotes, I have altered any specific manner of speaking or turn of phrase that could be identified with a particular participant. The pronouns "they" and "them" are used to shield any gender identities of the participants.

Despite all the protections for the identity of participants, I did not share the document with the quotes of the participants or administration. For the member-check interview processes, I only shared the list of recommendations. During the member-check interviews with each participant, I provided a chart with the eleven recommendations, and I asked them to indicate their agreement status by typing on the shared document or talking through their responses. When each participant reached the end of the list, I asked them to rank their top three recommendations. The complete list can be found as part of the 4th round interview protocol in Appendix D. All the recommendations were agreed on, and different teachers ranked different recommendations as the most important. Below is the list.

1. Demonstrate trust for teachers as professionals.
2. Increase coherence and consistency in programming.
3. Increase coherence and transparency in communication.
4. Increase time and flexibility for creative teaching practices.
5. Increase time to adjust to changes.
6. Reduce the number of things to do.
7. Provide all resources necessary for success.
8. Decrease threats as a tool for compliance.
9. Build cooperation and support among teachers.
10. Differentiate PLs for more relevance.
11. Increase numbers of support teachers in classrooms.

I developed the list of teacher recommendations as a pragmatic analysis process.

Extending the analysis to work with the process-oriented theory I was thinking with was a difficult task because of the entangled nature of responses. For example, desire for more teachers and support personnel was entangled with needs for more time, flexibility, resources, ways to enhance social-emotional needs of students, and how documentation priorities displaced needs for care. The entanglement of tensions in the interview conversations endured as a phantomatic pattern of forces that appeared, amplified, and disappeared in the flow of practice. The following recurring themes were also presented in the member-checking interviews:

- Accountability forces create the structure of RM\$ and manifest as stresses of time and threat onto teachers and students.
- Reform demands for accountability are in opposition with creative ways to support students' learning.

- Programming changes require ongoing material and training support with more time because introducing, planning, and assimilating all need embodied experience as *repeated* implementation to develop habits of practice. Programs are initiated, monitored, and dropped before enough time in practice has been enacted to demonstrate success.

Ontological Orientation

The theoretical hold for this study is based on Alfred North Whitehead's (1929/1985) process philosophy which allows a generative analysis of reality as encounters in immanent and ongoing relations. As described above, I intended from the beginning of this study to address not just the isolated barriers to teacher retention in school improvement projects but also the emergent entanglement in which these events come to be. In many policy reform descriptions, there is an underlying assumption that teachers are fixed in their performance level and can be "effective" in any classroom or school context. This ontological assumption reduces much educational policy research to effects detached from their entangled processes and continues to mis-represent the ongoingness of the complexity of teacher practice. The use of process-oriented theory offers an approach to consider generative aspects within a dynamic context. Whitehead's process philosophy enables a shift from thinking about reality as what is "out-there" that can be observed, evaluated, and counted as essential things and moves toward thinking how encounters materialize in relation in multifaceted ways. In opposition to common metaphysical assumptions, Whitehead described his relational theory of reality: "Accordingly it would seem that every material entity is not really one entity. It is an essential multiplicity of entities" (Whitehead, 1920/2015, p. 23). Using Whitehead's process theory, the ontological assumption in this study is the reconfiguration of typical teacher-accountability interactions in which each element retains a separate identity toward sociomaterial encounters in process of becoming toward difference.

Understanding the problem in the ontological space of process and immanence allows different insight and access, hopefully, as intervention before the terminal effects of teacher turnover.

There have been a few gestures toward this more fluid and inclusive notion of social and material interactions in policy research theory. Inclusion of mechanisms of materiality for educational policy studies as a *sociomaterial approach* has been recommended by Fenwick and Edwards (2011) to shift thinking out of self-contained matters of fact that have not been helpful in moving the problem: “it is the human-centricity of much policy research that we would argue constrains analysis and neglects the influence of material devices, technologies, embodiments, and spatialities upon educational activity” (p. 710). Immanence has been engaged as *processual sociology* by Abbott (2016) to describe the social world in fluid plurality as: “an approach that presumes that everything in the social world is continuously in the process of making, remaking, and unmaking itself (and other things), instant by instant” (p. ix). In this study, I combine the insights of these ontological premises, as *sociomaterial encounters*, as points of ongoing analysis within the context of a local middle school enacting school improvement initiatives.

Concept of Sociomaterial Encounters

The concept of sociomateriality as analytically relational is increasingly used in information systems (IS) studies to represent human-technology interactions that sometimes retain notions of individual agency that pre-exist relationship but are increasingly invoking a Baradian notion of entities constituted in entanglement (Parmiggiani & Mikalsen, 2013, pp. 87-89). Barad (2007) explained this entangled notion as *spacetime mattering*: “phenomena are material entanglements that ‘extend’ across different spaces and times” (p. 317), and as such, what is at stake is the view of the social world and the material world as not separate but together, reconfigured as sociomaterial encounters. In this study, sociomaterial encounters are

described as entangled and indeterminate ontologically open spaces of possibilities (DeLanda, 2013, pp. viii-ix). Whitehead (1929/1985) developed a process-oriented approach insisting that all relations are nature in process and ontologically within nature because “there are no brute, self-contained matters of fact capable of being understood apart from interpretation as an element in a system” (p. 14). I further engage the notion of sociomaterial encounters as process in immanence using the work of Tsing (2015), who explained “encounters by their nature are indeterminate; we are unpredictably transformed” (p. 46). This is ontological difference at the onset of this study; sociomaterial encounters as process toward creative difference.

Reading and Process: A Diffractive Practice for Inquiry in Complex Contexts

My experiences teaching within RM\$ has led me to understand there is a dynamic complexity of factors that interact to support and stabilize teacher retention or lead toward high teacher attrition. The project to articulate *how* forces are generated in all the “much-at-oneness” that manifest as events was elusive. In my study, the moments that took thought on an adventure were not planned or authorized by pre-existing research practices. The new or unthought came sometimes in the middle of a meeting, standing in the hall monitoring class changes, dealing with student resistance, *and* sometimes while listening and transcribing an interview. Thought or meaning was not in the words (data) but in the ongoing reading of Whitehead, James, Haraway, Stengers, and Barad with encounters during teaching. It was the reading and process, ongoing with thinking with theory as experience at the site.

I recorded ideas as they came to be realized across my experiences with the interviews and transcription processes as my journal of events. Jackson and Mazzei (2012) described reading with theory as an analytical approach and “intra-actions with data” (p. 127). Other scholars have described it as the “ongoing construction of a cabinet of curiosities” (MacLure,

2013, p. 180); “becoming-with the data” (Fenwick & Edwards, 2013, p. 59); and a way to engage inquiry for “generative potential” (Dunk, 2020, p. 233). Mazzei (2014) elaborated a diffractive approach as “This means that in a diffractive process of data analysis, a reading of data with theoretical concepts (and/or multiple theoretical concepts) produces an emergent and unpredictable series of reading as data and theory make themselves intelligible to one another” (p. 743). Below I describe encounters with interview transcript data that helped me to diffractively generate new ideas that pushed my thinking for this problem forward.

Analysis With Time-Entangled Forces

I have often *felt*—as embodied knowing in an empirico-rational process of experiential understanding—that the biggest constraint on teachers is a lack of time. Indeed, the teachers in my study also said this multiple times. I recorded the following notes in my research journal after transcribing the second round of interviews. “There is real trauma within teaching practice that stays with us. Frustration is constantly present; it just changes over time with different events in duration and intensity.” There are complicated contradictions in the way everyone perceives, interprets, and responds to situations and time demands in schools over time during teaching practice. Often, teachers attend meetings where there are expectations for documentation that teachers didn’t know they should have already known to do. This is a recurring experience where the district expects practice before training or during training as participants find out they are not doing what is expected. Another problem is a lag in communication. These are *time-support lags* because the district expects practice before training or during training. There are so many ways to find out you are not doing adequately all the things that are expected. This is a place where teachers can speak up in resistance.

In the spiraling-shifting of expectations, datafication needs are always ahead of teachers knowing what they should have already done without providing them the time to do it. The refrain is “Why haven’t you...?” This problem became apparent during pandemic teaching because administrators assumed teachers had intuitive knowledge of how to teach virtually and face-to-face *simultaneously*. In one interview, a participant explained there was no list or otherwise written expectation for a monitoring process they were responsible for. I replied, “There’s no list? Well, that’s good actually.” I was thinking that if that was the case, teachers couldn’t be held responsible, but I was wrong and wrote the following memo during the transcription:

Now I am thinking no, it’s *not* good. There is so much shifting of expectations in every area of education that it is extremely difficult to know exactly what one should be doing and how to do things. The ongoing assumptions that are communicated *after the fact*, that result in teachers having to *re-do tasks*, when time is critical, and being told in authoritarian tones that one has not fulfilled an obligation, sometimes with the threat of contract breach, that leads to anxiety and frustration which build in intensity.

Below is a description of how I tried to make sense within the complexity of these time-entangled stress forces. I conducted a series of analytical experiments after I had completed and transcribed three rounds of interviews with the five teachers at my school.

Diffractive Analytical Process - Part I

After reading about “spacetime re(con)figurings” with Barad (2010, 2007) and Dunk (2020), I started looking for instances in the transcripts that could be interpreted differently from a commonly accepted notion of linear time. Through a close re-reading of the transcripts from the first three rounds of interviews, I appreciated how time articulates differently across multiple

entangled events during discussions of educator practice. I found in the fifteen interview transcripts ample data provocations to re-think time as an entangled force rather than a limited resource. I found resonance with Barad's (2007) conception of diffraction:

A diffractive mode of analysis can be helpful in this regard if we learn to tune our analytical instruments (that is our diffraction apparatuses) in a way that is sufficiently attentive to the details of the phenomenon we want to understand. (p. 73).

While re-reading interview transcripts, I also thought with my own experiences and with attunement to anything that *seemed* connected to time that might be re-conceptualized. For the first experiment, I began pulling quotes that included any reference to time and pasted them free-verse fashion in a spreadsheet page. This step helped me think about the statements in a wide-open context that brought different associations of resonances and dissonances, even as I was aware that I was disarticulating the statements from their conversational flow. Second, I typed notes and re-read excerpts from *Meeting the Universe Halfway* (Barad, 2007). This analysis became a back-and-forth process of reading interview transcripts and reading about waves as forces creating differential diffractive patterns as they flow through apparatuses of capture. Although many use Barad's work with diffraction as a model to think with, this approach was originally described by Donna Haraway in a lecture in 1993.

I am less interested in the critical practice of reflection, of showing once again that the emperor has no clothes, than in finding a way to diffract critical inquiry in order to make difference patterns in a more worldly way. Reflection displaces the same elsewhere; diffraction patterns record the passage of difference, interaction, and interference. (pp. 429-430)

Diffracting notions of time helped open a pathway for thinking about the frustrations of a “lack of time” by asking the question, what does *queering time* produce? I developed this analysis in the flow from interviews to transcriptions to analysis with memories mediating my thinking about time as an agentic force that seemed to be connected to many constraints and stressors that influence teacher practice. While my representation of the analytical process uses the analogy of flow, it was a nonlinear entanglement of intensive inputs in a multitude of modes, more related to a view of heterotopic assemblage⁸ of teacher practice—difficult to articulate. Tracing forces was like picking up threads and trying to match them up with other threads, all the while weaving together multiple ideas. Below is a collage I produced as an experiment using excerpts of transcripts, memos, and related school documents to develop an unsettled and “spiraling out of control” representation of time-space-matter forces on teachers.

⁸ The term “heterotopia” was used by Michel Foucault as “counter-sites [which] are simultaneously represented, contested, and inverted” (1967/1986, p. 24). Heterotopic assemblage, as I extend its use here, is my gesture toward inclusivity for *spacetime mattering* in all of its material-discursive phantomatic effects.

Diffractional Analytical Process - Part II

As I explained in previous chapters, teaching environments are more complex than represented in most policy research on RM\$. Stresses on teachers are often entangled with time pressures. Below is an example of the types of remarks made frequently by teachers in this study:

“I think that we are so overwhelmed during our planning, that we don't necessarily have the time to do everything that we really need to take care of. We are constantly working outside of school hours, in order to be effective.”

The initial focus of this analysis became time-limitations as a commonly stated problem that interfered with performing all the tasks and duties required by the district and school level administration, especially for the middle school math and ELA teachers. I continued to re-read each series of transcripts, placing importance on references to time. The first experiment with the transcripts brought forward the point that time is not a mere linear flow but a force that is always moving and spiraling outward as it drives the pace of practice and initiative outcomes. As forces of time amplify and generate feelings of inadequacy for teachers, they can also result in teachers quitting mid-year. Losing those teaching partners interrupts practice flow, generating more frustration. Expectations in the out-of-sync-time demands amplify frustration. This is not just imagined, there were frequent terse emails stating “...this should have been taken care previously...” and “I work seven days, so you should be able...”; these operate as continuous threats to one’s conceptions of competency.

“We received emails at two o’clock in the morning. We received emails at one o’clock in the morning, threatening us and telling us what we weren’t doing. It was constant. And I said you said we were working on the environment, that we have professional decorum

and all these different things, but that doesn't mean that you can say whatever you want to people and get away with it. But people are afraid. People are afraid to speak up because it's so political."

Education has become an aggressive mode of improvement functioning in RM\$. There are so many forces in the flow that we forget how to stop and turn and engage with our colleagues in supportive ways. Remaining stuck in the "lack of time" problem allowed the frustration to endure. Grappling with these ideas and the expectation that diffractive thinking can lead to a generative pathway within a problem, I remembered that Kuntz (2019) explained that reified thinking re-establishes the tenacious binary power positions that result in alienation and frustration that leads us to throwing up of our hands and leaving.

We are immersed in intra-active contexts that do not adhere to the subject-object distinction from which reification finds its descriptive meaning. That is, we are relationally different. We are different things. The necessary assumption of the humanist subject and representationalist logic bind analyses of reification to an unhelpful place of stasis. (Kuntz, 2019, p. 112)

For thinking to move beyond this stuck place of critical analysis, Kuntz (2019) wrote that the goal to disrupt dogmatic "exploitive relations" will require generative experimentation within an ontology of becoming: "Practices of inquiry are necessarily situated in a liminal space, operating at the limits of convention, with the aim of creating that which normative logics of governance cannot anticipate" (p. 125). Below is an example of an iteration of reading the time quotes while thinking about how time can be imagined differently in educational contexts. In the work of contemplating, reading, and writing, I recorded in my spreadsheet the following first step in thinking diffractively out of the problem of spiraling frustrations.

Table 1

Moving from frustration toward creative practices of care.

Quotes relating problems as imagined with linear production model of time	Thinking Diffractively becomes....	Quotes relating desire for creative practice
<p>That's a lot. I agree and I think that is absolutely something we should say. Not that I feel like it is the fault of administration, or a fault of the district, it's just something that needs to be brought forward, you know to the forefront of...we don't have that time to do this amazing thing, because to do it right... And that's exactly why...</p> <p>But where's the time to actually do it right? That is never built in. It's like let me give you a meeting and we are going to give you ten things to do and get them done.</p> <p>I think that beautiful things, beautiful systems, beautiful interventions, but... Who? How? When?</p>	<p>This is where there are contradictions with the amount of work and the interventions that are expected to be implemented but continue to be added on top of all of the other expectations becomes unrealistic. There are dogmatic demands that are inconsistent with the time that exists.</p> <p>Meeting students' needs in real-time becomes impossible with the prioritized data demands. What if instead of a data-driven action plan, we implemented a creative and caring-driven action plan?</p>	<p>Are there any challenges you are grappling with?</p> <p>On the math side though, it's a good challenge, I really like trying to figure out how to help my English language learners find success. Because it's so frustrating that they understand the concepts, then it's a matter of the language. The way that the Milestones presents it. I am like, this isn't fair, you know? This kid does know ratios. They just didn't understand the question you asked because you wrote a paragraph about it instead of just maybe...you know? And I know part of it is language too, and I do lots of vocabulary too, but it's frustrating to me. But I enjoy the challenge of trying to figure out how to help them. And as I'm exploring that, I usually find other differentiation tools that I am able to use with my classes when it's not an English language barrier, but it helps them too.</p>

The third column excerpt represents the desire of teachers to implement improvement practices with a care-driven approach to student needs that are not out-of-sync or alienated from the teaching learning relationship within the classroom.

From this abductive-inductive insight into time-forced frustrations that were frequently described with caring ideas for supporting students in their learning, I re-appreciated the entangled nature of teaching practice as articulated in the interviews. Keeping time forces as a cue into practice complexity, I developed a color-coding approach to highlight key forces that were interacting together as a multiplicity. The highlighting scheme worked to help me map-together the entanglement of intensifying and shifting modes of time forces, tensions, needs for support, and resolutions toward caring responses throughout the transcripts. Below is the discussion of the subsequent analysis.

Diffraction Analytical Process - Part III

Iteratively re-reading transcripts, I used highlighters to color-code instances of time, tensions, and their possible resolutions, needs for support, and caring ideas that teachers articulated in the interviews. A clean factor analysis of this multiplicity is not possible because everything phantomatically varies in becoming, presence, absence, intensity, and relationality. In the interview transcripts care, caring ideas, and passion for care are always in relation with time, tensions, and needs for support. They are frequently entangled in the same conversation yet produce differential diffractive patterns as effects of this relationality. The following transcript excerpt demonstrates one example that I identified through a time-entangled frame and further analyzed as multiple forces in play together. The color-codes became: **Time** / **Tensions** / **Needs for support** / **Resistance and care**

Table 2

Mapping effects of district leadership churn toward resistance in interview conversation.

<p>Quotes representing a time-entangled frame related to district leadership churn: This occurred between researcher and participant, in dialogue from an audio recorded interview, as colleagues teaching within the same school.</p>
<p>How do you think the district operations are affecting our school?</p> <p>I'd say specifically, our superintendent is being replaced, is perhaps the most accurate way to say it.</p> <p>Yeah. I heard that on the news. I was surprised, actually.</p> <p>So, he said in the board meeting, if that's the way it is, then I guess we have to just talk about how I leave this position. The board took it and ran with that. Things have been tense for so long, I don't feel like they actually affect our school very much. Right now and haven't since there has been tension. I worry that with changes come all of the other changes to all of the other things that we are supposed to be doing, which may start this year or may start next year, whichever. I don't think they affect our school. They stopped doing the walk-throughs, after the third one or something. But I am very worried that any of the things we are starting like towards AVID, or the work towards equity, or the work on like, even our instructional framework. Like whether it's good or bad, like if we stick with something, it's going to have a positive effect and if we keep changing stuff up it's not going to work as well.</p> <p>No, I think that is very profound in that sometimes it's not so much one strategy is better than the other, it is about consistency. I find that some of my worries are that a lot of things have been put in place, are they going to find somebody from outside that will decide to change it all up? Because their views are different. I don't know. It's a question.</p> <p>Yep. It's like new leadership is going to change it out, do this, flip that... Because there were so many changes as this superintendent came in. That's what I think, who knows, because that's part of it. And we are like, if the district wants to change what we are doing, I think we have a good case to say we need to stick with what we are doing. Because it's working for us. Like, we see results in our test scores. We see results in the classes in the fall, in the work.</p>

The above example represents *how* time-entangled forces in a district implementing major instructional, operational, and personnel changes generate differential diffraction patterns of effects. The new superintendent is leaving, which implies more changes. I wrote a memo

during transcription as I was thinking with this conversation: "Have we gotten so used to the board being dysfunctional that we say that it is not affecting us?" Slowly listening and typing the conversations from this interview, I could appreciate the paradox between saying the board operations do not affect practice at the school level, while also feeling apprehensive about the changes that will likely materialize with new leadership, *again*. This was the second superintendent change in three years. Entangled within the *timespacemattering* forces, teachers intensify as resistance forces for prioritizing care when they resolve to speak up for what is working with their students. Constant change unsettles conditions for teaching and learning, creating higher stress and frustration. From this point, my next question was, how can I represent these ideas coherently to provoke discussion with school leadership entities.

Further Provocation

This study started with the goal to inquire about school improvement implementation practices and their effects on teachers in order to identify potential intervention points for creating more sustainable working environments. In all the interview sessions, stress-inducing forces operated in tension with how students' needs were described along with desires to practice with care. Teachers described situations when they felt stretched *beyond capacity* to respond to the mandate to keep lessons rolling due to pacing and testing time constraints while attending to the emotional needs of students. The resulting thought by one teacher was that we need better de-escalation training so that there could be a *quicker* resolution, so they could get back to the paced lesson. Why was the agency of district pacing guides prioritized over the diverse needs of the students? Social-emotional learning needs are ingressive throughout: The need for caring practices happen spontaneously—in the middle of things as we discussed in one interview:

“You are getting to what... it’s not just teaching the math lesson according to the standards, you are getting to all that social-emotional and the behavior things that are all crowding in on that.”

“Social-emotional has to be a part of the classroom no matter what.”

“And stopping to use those teaching moments that sometimes it’s so hard when you are like, I’ve gotta get to that exit ticket!”

“Well even just an interruption yesterday during fifth period. We had the emergency responder drill? I had a class of thirty-two kids and they actually got very upset real quick. They were like, what is that? What does that mean? What is going on? What’s happening? But that took fifteen minutes *after* the drill to just talk through it. And then they wanted to know about the other drills and how would they know the difference? I needed to stop and explain to them because they’re anxious about it.”

Another issue embedded in these conversations was that teachers often think there are experts and strategies for all the problems we face. It seems to me that ongoing experience *over extended periods of time in practice* brings strategies *in the moment*—in the living present—that *sometimes* work. It will always be important for the caring practice to be in the entangled environment, in the moment of need. However, as often is the case, it is difficult to bring care to the moment when teachers are under a lot of stress. Time is relational in education contexts, but more than as a benign constraint. Time forces intensify in educator practice producing tensions with accountability initiative programming implementation, needs for support and resources, and desires to provide caring instruction. Thinking within these phantomatic time-entangled forces and the tensions they create in RM\$ helped me move to a final analytical experiment for

mapping accountability reform mandates in relation with teacher recommendations across tension fields.⁹

Representing a Field of Tensions in RM\$

When forces of time create a tension between datafication for accountability's sake and caring practice for response-ability's sake, how can accountability practices be implemented with a high priority on caring practices? To approach this question, I conducted a mapping experiment to represent the field of tension forces that structure implementation programming in RM\$. A phantomatic ontology assumes that tension forces do not operate in linear progressions as they emerge, amplify, or seem to disappear as time-pressure priorities. I began with the assumption that any diagram I created would be dangerous in the way it seems to represent static binary positions.

It is important to understand that the tension poles provide a field of movement rather than fixed positions (Freeman, 2017, p. 47). The diffractive analytical processes in the experiments described above already pointed to the tension patterns between caring practice and datafication in implementation of programming and also between change and stability in initiative programs. I set up these two poles as axes on a circle to represent the field in which accountability programming, teacher practices, and teacher recommendations could be mapped as they relate to the time-entangled tension forces. I added a third axis to represent the tension forces between flexibility and inflexibility in demands for teacher practice. The structure of the field that I developed for the time-entangled tension forces provided space to represent zones of teacher satisfaction and teacher frustration as a way to think about how program implementation can be adjusted to mitigate teacher frustration. The zone of high teacher satisfaction includes

⁹ Profound appreciation goes to my son James Murray, an architect, for listening generously and for suggesting the double dialectical structure to create this productive field of analysis.

mitigation of programming implementation toward poles of caring practice in sync with students' needs, flexibility to develop creative lessons, and stability in programming. The zone of high teacher frustration includes prioritization of datafication practices, inflexibility in providing instruction, and frequent changes in programming. The first diagram I produced (Figure 3 below) represents the field of tensions that provided a space to map the accountability practices as categories of initiative programming and the teacher recommended practices in relation together.

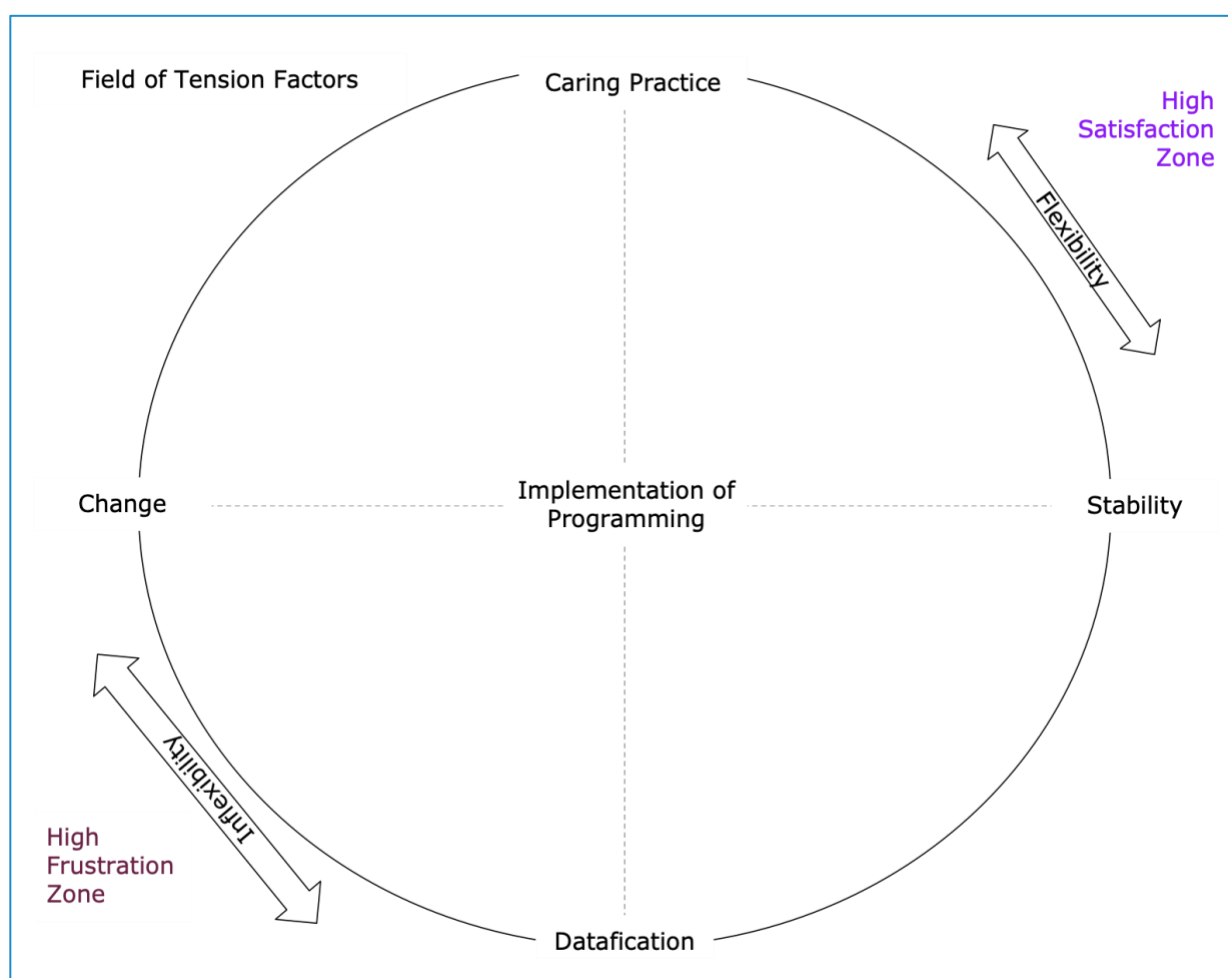


Figure 3

Field of Tensions Operating Within RM\$

For the next task, I mapped the mandated accountability forces as initiative programming categories onto the diagram. These initiative programming categories included practice mandates for state and district testing; math and ELA curricula; teacher evaluation as the Teacher Keys Effectiveness System (TKES); improvement and student support as the Multi-Tiered System of Supports (MTSS) and Response to Intervention (RTI); and the district instructional frameworks for teacher practice. There are multiple and complicated programs in each category. The map locations of the accountability programming categories are dependent on mitigation of the tension between caring practice and datafication priorities in implementation as well as their phase of implementation in the tension between change and stability. I mapped the teacher recommended practices in the same way according to their relations within the field of tensions. The teacher recommended practices that serve to mitigate accountability forces include priorities for providing the time, material, and training supports for the teachers to develop creative and engaging lessons; allowance for pedagogical inquiry; and relationship building with teachers through affirmation, respect, and trust. For example, teacher statements like “One way you can demonstrate trust for teachers as professionals is having more time and flexibility for creative things” prompted me to place “trust” in the high satisfaction zone in relation with caring practice and flexibility. These recommendations are represented in distinct locations, but they are not fixed because of their relational ontology of becoming into being. The result is the second diagram below.

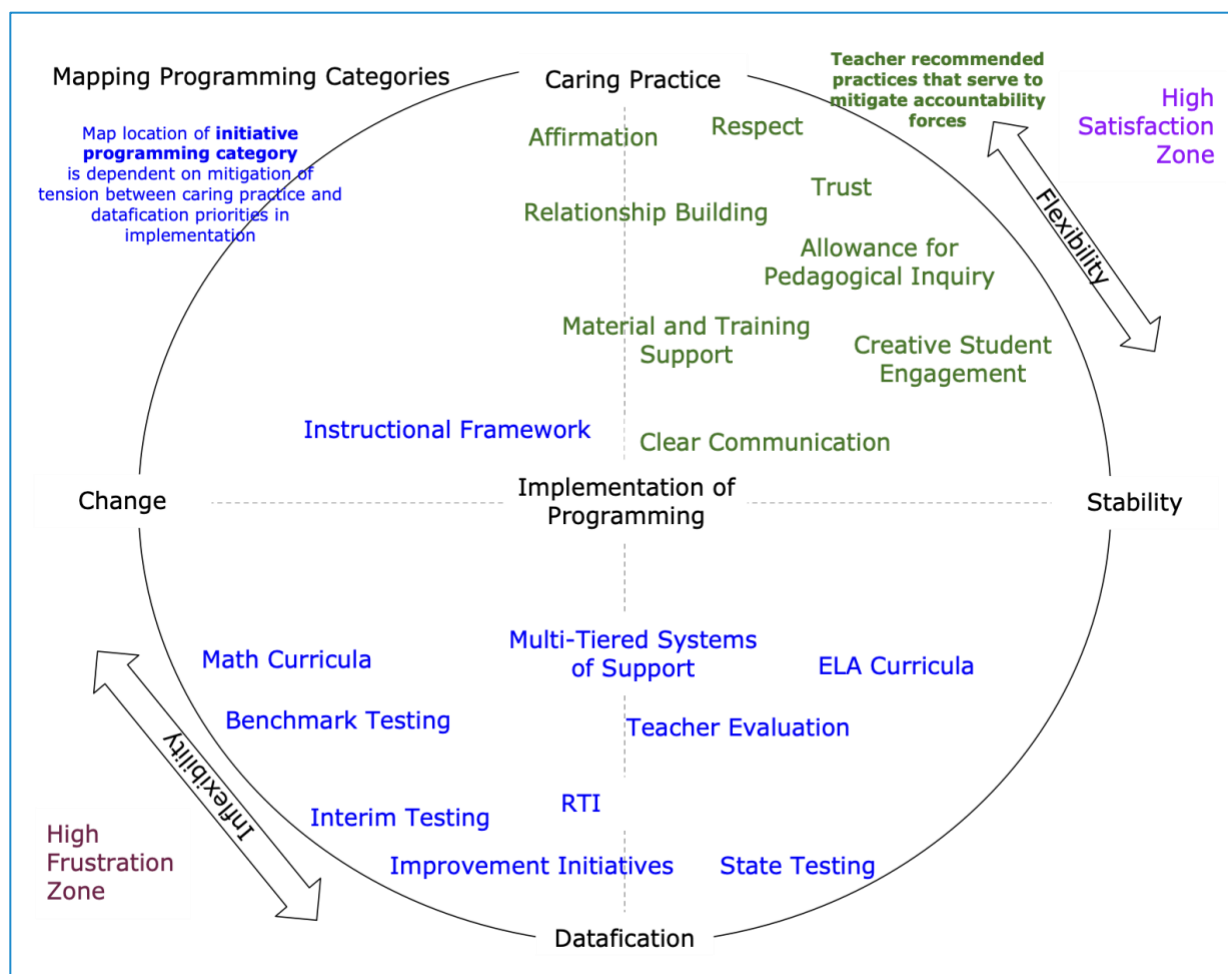


Figure 4

Mapping of Initiative Programming and Teacher Recommended Practices

The initiative programming categories in blue are accountability mandates. When these multiple programs are implemented simultaneously with inflexible priorities on datafication (increased testing and documentation) with frequent changes in programming (destabilizing to teachers and students), teachers are practicing in a high frustration zone. The teacher recommended practices in green create a provocative field of relationships that suggest modes to mitigate accountability forces toward higher teacher satisfaction.

However, in order to include the work teachers do on a daily or weekly basis which is missing from the previous map, I created a third diagram to map a list of teacher practice

requirements and responsibilities enacted during this two-year study onto the tension field. These duties include planning and teaching lessons; developing differentiation for English Language Learners (ELL) and Exceptional (EXC) students; grading and providing feedback; monitoring students; contacting parents; training for programming; and meeting for content data teams, grade levels, and individualized student support (RTI). Again, the map locations of teacher practice requirements are dependent on the mitigation of tension forces between caring practice priorities and datafication priorities in implementation as well as their phase of implementation in the tension between change and stability (Figure 5 below).

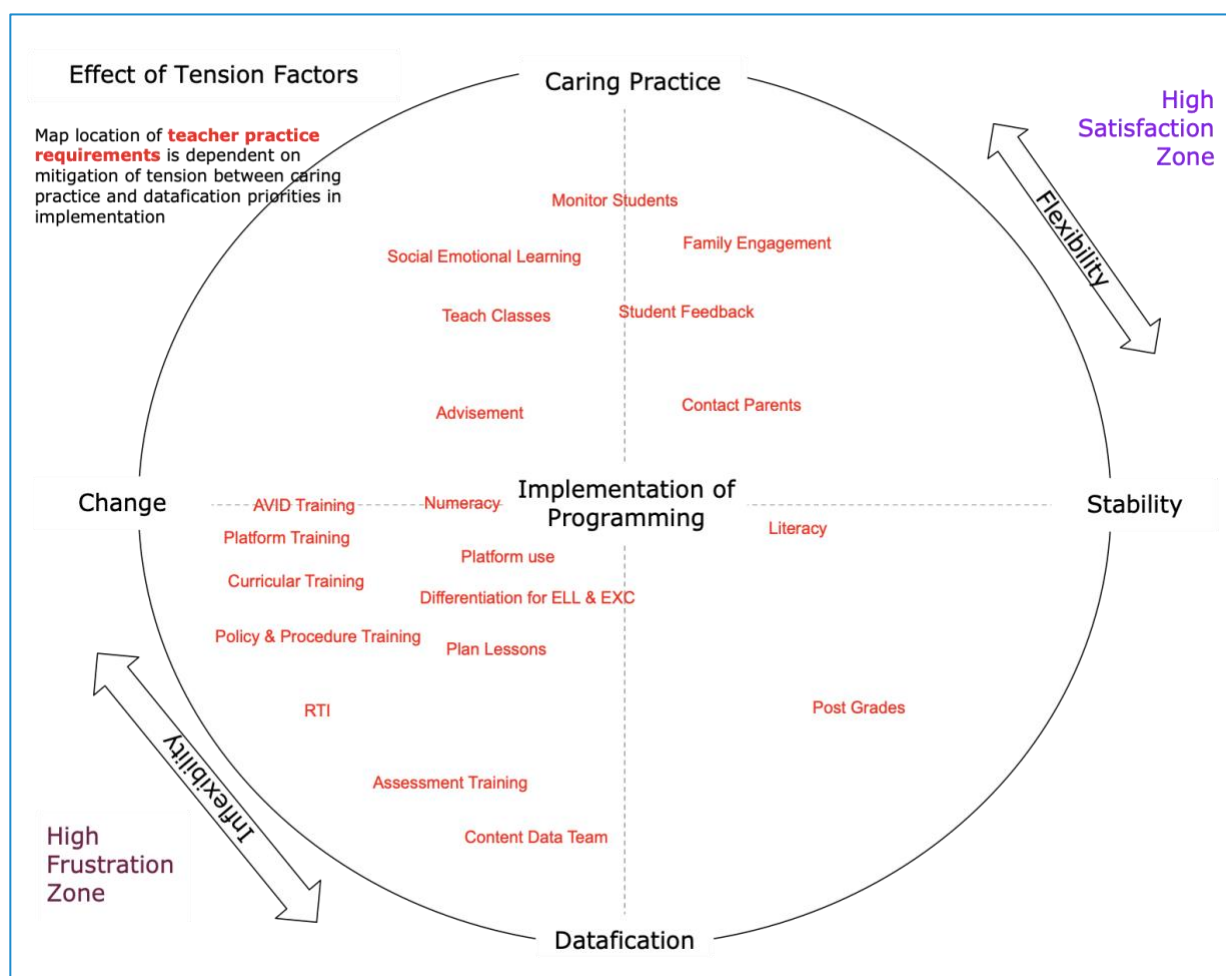


Figure 5

Tension Effects on Teacher Practice in RM\$

The teacher practice requirements in red represent categories of typical duties performed on a daily or weekly basis. I placed teacher practices such as monitoring students, teaching classes, providing feedback on assignments, social emotional learning, student college and career readiness advisement, parent contact, and family engagement at positions near the caring practice pole. However, their positions also depend on how the administration mandates these practices within the tensions between flexibility and inflexibility and between change and stability in the expectations for implementation. I define student monitoring as teachers' presence in hallways, cafeteria, and bus or carpool areas as a caring practice because teachers in schools help maintain a safe and respectful environment for all students. In addition, as part of student monitoring in these spaces, teachers can engage informally as part of building relationships with students.

I placed duties related to policy and programming trainings, lesson planning and differentiation for ELL and EXC students, development and inclusion of numeracy and literacy strategies for intervention, posting grades, and content data team requirements for practice toward the datafication and inflexibility tension poles because the monitoring and documentation priorities exceed the time for the actual implementation with the students. Monitoring as used in programming implementation is a datafication practice when the priority is placed on data extraction of scores from intervention platforms to evaluate student learning. Teachers are mandated to continuously upload scores into other platforms and spreadsheets as a *process of monitoring* student learning that is disarticulated from the *students' process of learning*. With a priority on datafication, RTI implementation involves students working on intervention platforms while teachers surveil, monitor, upload data, and document the process. The RTI process implemented with a high priority on datafication leads to teacher alienation and high frustration because these approaches do not work for many students. Alternatively,

implementation with students for a math intervention with a priority on caring practice would involve sitting down with the students to work math problems together to elicit error patterns and model the correct approach. This is one example of how the time-entangled forces can be mitigated toward higher teacher satisfaction in RM\$.

My goal with this analysis was to honor the entangled complexity of the teaching environment in RM\$. To do this, I needed to combine all the duties, accountability programming mandates, and teacher recommendations together. The final diagram overlays teacher practices onto the second diagram that mapped the initiative programming categories and teacher recommendations to represent the complexity of influences operating in a field of tension forces in RM\$. The map positions for all the duties, programs, and needs for support exist in a field of movement depending on a multitude of tension forces that phantomatically emerge, amplify, seem to dissipate, yet remain to affect teacher practice responsibilities. I have represented these teacher responsibilities as they tended to emerge in one school during the two years of the study. However, all are entangled as relational and dependent on time priorities as they are enacted. The diagram is complex because the accountability environment and expectations for teachers are complex. See Figure 6 below.

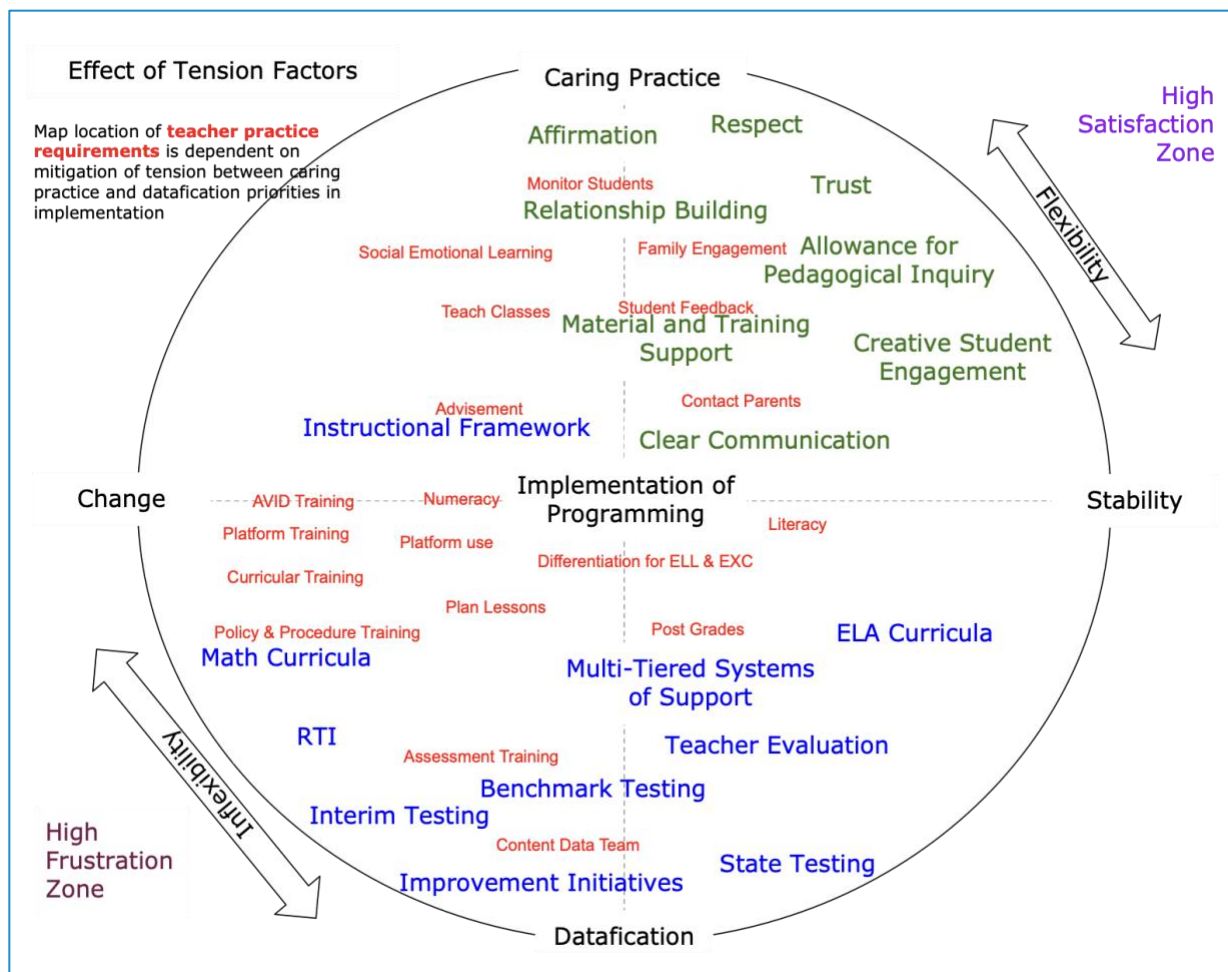


Figure 6

Complexity of Effects on Programming Implementation for Teacher Practice in RM\$

This representation approaches the reality of demands on teachers who practice in schools challenged to demonstrate academic improvement based on standardized test scores. The expectations are impossible to maintain when inflexible priorities are placed on datafication and the programs change frequently due to lack of immediate improvement. One teacher in my study stated “Engaging kids is the first part of what we do and that requires a lot of thought and planning.” The time to think and plan is a need that is ignored in RM\$.

Rather than maintain a binary between caring practice and accountability, my intention in these diagrams is to provoke discussion and provide opportunities for mitigation of frustration in

the implementation of the programming in RM\$. Freeman (2017) described the danger of allowing the representation of the constituting forces to become reified forces:

A crucial problem for dialectical thinkers is how to work with multiple constitutive transformational relationships in a way that overcomes the inherent limitations of dialectics. This is because, like categorical thinking, identification of the concepts believed to be constructing “the way things are” risks reinforcing their presence and power rather than producing the desired change. (p. 54)

During this study, I dwelled with the constantly changing modes of datafication and how they produced further alienation from caring and creative practices for teaching children. Through multiple analyses of the interview transcripts and writing in my journal of events, creative and caring processes of support became a diffractive theory of practice that can interfere and disrupt the illusions of linear-logical models of school improvement and the spiraling-outward of time-force-frustrations. In this space of possibility, it is important to think with a phantomatic ontology of becoming as one engages the tension forces of accountability that structure teacher practice to realize the immanent potential for reorienting priorities in program implementation. The purpose of the diagrams is to provide visual images of the relationality of the complex forces that are difficult to separate and explain and offer one approach to get “a hold” for thinking about the problem of RM\$ in new ways. One of my colleagues stated “That puts words to, I think, the greatest generators of stress and feeling overwhelmed, which can lead to feeling discontented.” I was able to use these diagrams with other teachers and my administrator to engage discussion about how the existence of the forces can be mitigated with awareness of their effects. I describe the highlights of those conversations in chapter 6, but below

I summarize further incitement to think about regenerative approaches for teachers and their practice.

Re-figuring Teacher Practice and Time

In this chapter, I have described my process of reading philosophical texts and dwelling with interview transcripts while challenging my own habits of thinking. After conducting interviews with teachers, I relied on the concept of *diffraction* to guide a series of analytical experiments. Each experiment brought new questions and insights. The first experiment I conducted helped represent affective modes of time-entanglements as “Forces of Time They are a-Spiralin’.” This first step to think differently with problems of “too much to do” and “not enough time” allowed me to make associations among multiple time-entangled forces.

Afterward, I was able to use any mention of time in interview transcripts as cues to look beyond the critique and appreciate teachers’ desire to prioritize caring practices that better connect with students’ needs. Thinking with a Whiteheadian process-oriented relational ontology, I used the time-entangled conversational units to appreciate the tension patterns that helped me develop and represent the environment of RM\$ as a field of forces provoking discussions of mitigating the frustrating effects of accountability programming implementation. This is a start. By honoring the complexity of a problematic environment, provocative discussions can help move the field forward toward regenerative practices.

Karen Barad (2010) wrote

The past is never closed, never finished, once and for all, but there is no taking it back, setting time aright, putting the world back on its axis. ...The trace of all reconfigurings are written into the enfolded materialisations of what was/ is/ to-come. Time can’t be fixed. (p. 264)

It is not enough to challenge the positivist theories underpinning school reform policy and practice, it is imperative that we pause and generate different understandings of time and practices of creative caring that are possible with our colleagues and the children around us and stop being victims of one-way flows of time *con*-ceptions. Disrupting notions of linear time allows us to make choices instead of reacting in a spiral of implementing and collecting and recording data and, all the while, relying more on technology. We are always in the entangled present as past-present-future. What matters in the ongoing present before us? Can teachers learn to let go of threat-driven mandates and collectively authorize and generate creative caring into our practice? Rosi Braidotti (2006) described a Deleuzian concept of *endurance* to articulate a “sustainable self” through

A philosophy of immanence that rests on the idea of sustainability as a principle of framing, synchronising, and tuning a subject’s intensive resources, understood environmentally, affectively, and cognitively. A subject thus constituted inhabits a time that is the active tense of continuous “becoming”... Deleuze shoots “endurance” through with spatio-temporal forces and with mobility... the enfleshed intensive or nomadic subject is an in-between: a folding-in of external influences and a simultaneous unfolding-outwards of affects...a subject in process. (p. 135)

A colleague of mine insists we should not desire sustainability because it reproduces and maintains the same problematic conditions. *Regenerative practices*¹⁰ can work toward the difference we desire, and teachers are no longer identified by evaluation rubrics as effective or non-effective objects who just need more time to get it all done. Through diffractive analyses of

¹⁰ Grateful acknowledgement goes to Christina Hylton, a specialist in education for regenerative development, who challenges my thinking on many concepts, especially for thinking *regenerative* practices instead of “sustainable” conditions which keep the problematic structures intact.

time-entangled forces in tension, teachers can become reimagined as regenerative subjects who are always in process through faithful caring practices in the living present.

CHAPTER 6

PHANTOMATIC FACETS OF EXPERIENCE WITHIN RM\$

“Something has to change. The current view about standardisation is at odds with the notion of complex systems” (Hawe et al., 2004, p. 1561).

Beyond the Capacity to Care

As I explained in chapter 5, educational contexts like Reform-Machine \$chools (RM\$) are complex systems operating in a field of multiple tensions. Therefore, saying “something has to change” is a paradox because it assumes there is a single thing which, if changed, will fix a problem. That argument can’t be made in a process ontology of immanence in which what exists is completely entangled, inseparable, and phantomatically becoming into being. The problem for RM\$ is that time-entangled tension forces and continuously reproduced designations of failure create the high frustration environment that leads to high teacher turnover. The tension field I created to think about time-entangled forces operating in RM\$ was intended to provoke discussion for how to think differently about reform policies and practices. I argue that my series of diffractive experiments is productive in bringing the phantomatic forces into conversation for a pragmatic response. However, can the argument rise to the level of state and federal policy makers to acknowledge the absurdity of the high accountability environments they helped to create in RM\$? Or how much flexibility do local RM\$ have to re-think and re-design how they structure their teacher practice and student learning environments? Should the pressure be placed on district and school administrators to *response-ably* find ways to mitigate these tensions?

In the following account, I bring together the tensions among teachers, a superintendent, and the conflicting and violent demands of equity and reform discourses to demonstrate what happens when teachers live and work in those entanglements. The local newspaper published the following description of the former Clarke County School District superintendent's plan for how teachers can close the achievement gap:

Means [the superintendent], speaking to a crowd of about 100 who had gathered on a weeknight, explained a solution to this modern-day segregation of students: Rather than pull them out into special classes, students would stay, and their teacher would work with other experts in the building to infuse lessons with additional activities or techniques that play to students' strengths. A table of teachers pushed back. How were they to address the needs of non-native English speakers or gifted students or special education students without additional teachers in the room? Means said the answer was a concept called co-planning to co-serve, which meant teachers collaborated with gifted, ESOL, special education and other teachers to bring their expertise into the main classroom. (Morales, 2019)

Most teachers agree that all students should be in classes where they can interact with a range of students with diverse abilities. Implementing the "co-planning to co-serve" idea is a huge undertaking and the "experts" Means refers to are specialized teachers already pulled in multiple directions and never available for co-planning for all the classes they are expected to support. What is required for "co-planning to co-serve" the multifaceted needs of students are additional expert teachers *in each class*. What actually happens is that specialized teachers are pulled out of classrooms and used as substitutes and for other purposes. Undoubtedly, bringing

equity into educational organization and practice is valuable, and teachers do not resist these efforts. However, the superintendent's superficial strategy was a classic example of how reform discourse is deployed without thinking through the effects of "improvement" actions. The result is that expert collaborative teachers are stretched beyond capacity to provide the in-depth support that students need. How is this situation supposed to be effective? If districts are interested in increasing math students' success, then hiring collaborative teachers should be a strategic budget priority and implemented.

At a district professional learning meeting last year, we were told how to increase our teaching effectiveness using the collaborative model "*as it was designed.*" I spoke up and asked how planning time with collaborative teachers was going to be increased, since the collaborative teachers were positioned in multiple content areas and some with multiple grade levels. I did not get an answer. We are asked to try harder when we do not get the support that is necessary. The constraints are not new—a budget that cannot accommodate required reform, limited staffing, and overworked teachers and administrators.

Next are two quotes from interviews with teachers who described their reality of collaborative planning time when asked "Are there any initiatives that you are struggling with or feel a particular burden with?"

One of the things that happened recently, I want to say a couple weeks ago, we had a curriculum executive guy in a suit; came in and did walk-throughs; came in and took brief notes and walked out; and we got feedback after that. So now in our collaborative planning meetings we are spending a lot of time talking about the way we write out learning objectives and success criteria which changes every three weeks, like what exactly are we supposed to do? And we have to make sure we have an exit ticket. And

those are the things they are going to look for next Wednesday when they come back. So, it's something I am very conscious of because I am very compliance oriented, I'm like, oh, this is what I need to do now! I'm going to do that. And then it kinda kept changing, and I kept changing, and it starts to feel like you are juggling too many balls at once and something is going to fall. So that's taking up more time. And it's basically meant that in our collaborative planning meetings, we don't get anything done.

Exit tickets are formative assessments and required in daily teaching practice. As a summarizing strategy, the practice of providing exit tickets for students to demonstrate learning sounds reasonable. However, the expectations for uniformity across the different content areas of when they are given, the types of "data" they produce, and how teachers document their response to the data continue to change. Another change related to the district instructional framework introduced and prioritized in 2019 was how teachers should develop lesson learning intentions and success criteria for students. One participant stated in an interview:

As math teachers, we're sitting in the room on Monday and we're taking the whole planning to argue about two to three success criteria and learning targets. And we've taken the whole planning, and normally in the planning we'll have the whole lesson plan done in time. I feel the benefits of what they are trying to do, but it has added a lot of work on us in planning.

In RM\$ there is already too much to do and teachers are overwhelmed with greater intensities of differentiated academic needs, social emotional needs, health and physical needs and, at the same time charged with improving test scores. In the middle of this work, superintendent Means made the following statement at the August 8, 2019 CCSD board meeting, which generated outrage among teachers:

The district has to face the reality that many students live in poverty, Means said, but poverty is not an excuse, and CCSD has to teach those students regardless of their socioeconomic circumstances. While the district has “amazing teachers,” they need to teach differently. “If you truly believe all children can learn, your actions have to align with it,” he said. (Aued, 2019)

In this situation, Means and many other reformers who invoke a crisis mode of school reform, identified teachers as the “lever of change” without providing them necessary support. Teacher “effectiveness” is not a linear trajectory as it is assumed to be in models of professional development—from inexperienced toward experienced teachers.

Persistence of Reform-Machine Schools (RM\$)

As I described in previous chapters, RM\$ are Title I schools that are “underperforming” academically and are forced to implement a spiral of improvement initiatives. School reform policy and school improvement initiatives are based on capitalistic deficit ideas that continuously designate students, teachers, schools as failing. The reform mechanisms themselves are never questioned. It’s always the students, teachers and schools who are held accountable for failures based on multiple measures, mostly standardized test scores. School improvement initiative implementation changes from year to year because of new mandates to show student academic improvement, especially for economically marginalized and racialized student groups. These changes exert a great deal of pressure on educators and contribute to high teacher turnover in “underperforming” Title I schools. The structure of accountability and improvement is set by federal educational policy. For Title I schools, the State Education Agency (SEA) receives and distributes federal educational funding to Local Education Agencies (LEA), which allocate funding to local schools designated as “schools implementing comprehensive support and

improvement activities and targeted support.” While this may sound good—more money for schools with higher needs to demonstrate performance—the policy is written to allow competition for the funds by “for-profit external providers.” A capitalist/competitive ideology is baked into the 2015 ESSA law that opens for “market-based” educational service providers using the school-reform discourse apparatus to compete for the federal educational funding. There is big money in education budgets that attracts profit-minded capitalist schemes. More changes = More money when schools and districts are desperate to show improvement. This establishes the environment for Reform Machine Schools and reform discourses that promote the “crisis” in education improvement that continually recreates the conditions for their endurance. It is the teachers and their students who bear the burden of “improvement.”

Deleuze and Guattari wrote (1991/1994) “Contemplation, reflection and communication are not disciplines but machines for constituting Universals in every discipline” (p. 6). I find this statement aligns with my understanding of how discourses and their concepts function. Educators often use terms such as “fidelity” or “data-driven-decision-making” to refer to accountability and all its structures that reify the illusion of objective standards of practice and outcomes for students. I appreciate a confluence among James, Whitehead, and Deleuze and Guattari that insists interrogating the imperceptible yet violent assumptions that allow these concepts to reproduce the conditions of the problem. The acceptance of positivist theories of knowledge reproduces failure discourses as “facts of matter” in iterative modes. Foucault (1969/2010) discussed how discourses function as “systems of exclusion”:

It is perhaps a little risky to speak of opposition between true and false as a third system of exclusion, along with those I have mentioned already. How could one reasonably compare the constraints of truth with those other divisions arbitrary in origin if not

developing out of historical contingency—not merely modifiable but in a state of continual flux, supported by a system of institutions imposing and manipulating them, acting not without constraint, nor without an element, at least, of violence? (pp. 217-218)

Educational programming implementation planning should “start by trying to understand communities themselves as complex systems and how the [failure] is recurrently produced by that system” (Hawe et al., 2004, p. 1562). Educational policy and practice derive their validity for research methods on the illusion of certainty of science in order to solve the persistent problems of structured inequity. The problem of RM\$ is perpetuated by a dogmatically narrow conception of reality. The problems of poverty and education cannot be solved with approaches that reproduce inequity. Schools designated as failing have higher teacher turnover. More accountability reforms driven by eager capitalistic entities that follow education budgets and offer “fixes” to the “gaps” do not help and cannot hope to approach the root disparity that spirals out into an assemblage of problems connected with inadequate health care, food and housing insecurity, and on and on.

Getting Into/Out of the Infinite Loop Simultaneously

How do we prioritize caring practices in the structure of accountability? In one interview, a teacher made the following statement, which was quite serious, with laughter:

What if we had in our collaborative meetings, instead of analyzing the insulting donut graph of the test scores, you know for our data meetings, but also, how many children did you meet their emotional needs today? What were the inspirational types of things we do on a daily basis to try to help a child, in whatever moment? I probably gave out ten band aids today. That should *count* for something.

Evaluations of teacher performance are reductive and violent. Currently, schools, teachers, and students are evaluated chiefly by things that can be measured. Caring and creative teaching practice cannot be measured. What might the teaching profession look like if the priority for district and school administrators were to provide the time and materials for teachers to create engaging learning experiences? As I wrote this final chapter, I turned to a book by Nel Noddings (2016) that had been on my shelf since the beginning of my quest to understand accountability in education. I found again what I already knew but needed to be reminded of: “The demand for accountability came to education from the business community.” (Noddings, 2016, p. 198). Noddings explained how a business model simply cannot address the complex, relational, continually becoming educational environment.

Without rejecting *accountability*, we might consider what is gained by using the richer vocabulary of responsibility. *Responsibility* and *accountability* point in different directions. We are *accountable* to a supervisor, someone above us in the hierarchy, but *responsible* for those [with] us... A sense of responsibility in teaching pushes us constantly to think about and promote the best interests of our students. In contrast, the demand for accountability often induces mere compliance. (p. 200)

My critique moves beyond a defense of teachers’ struggles in an unfair educational apparatus that identifies them and their students as failures. It argues that the ontological assumptions of that structure are highly likely to produce failure and, more importantly, suppress the importance of teachers’ caring practices. Noddings’ (2016) insights align with an ontology of entanglement and, especially in this study, with the forces of time in that multiplicity which can support, displace, or undermine caring practices.

Most teachers enter the profession with a keen sense of responsibility. To sustain it, we must find ways to encourage caring relations between teachers and students... It takes time to develop relations of care and trust; that time should be granted. (p. 200)

Reading Noddings' comments again near the end of this study, I felt I was circling back, but better able to live and think an ontology of immanence that is radically different from the ontology that grounds the discourse and practices of accountability in which teachers hope someone will write policies that actually help them and their students. At this point, my concerns focus on what caring practices might look like and do in a Whiteheadian or Baradian ontology. Noddings (2016) helps me with this work by dismissing traditional rationalized notions of care that stem from Cartesian anxiety and require separation of mind and body. She wrote that "an ethic of care encourages us to stay in touch with our own feelings and accept our embodied condition" (p. 236) and to continually regenerate relations of care.

One way to imagine this is to consider that ethical responsibility must ground the entanglement of the practice multiplicity. Responsibility is everywhere then, embedded in the ongoing relations in the process of becoming. In order to expand possibilities of caring practice in a process-oriented ontological shift, I turn to María Puig de la Bellacasa and Donna Haraway and their discussions of ethics of care. According to Puig de la Bellacasa (2017), an ethic of care and caring practices "are not just a moral value added on top of things" (p. 65). In this study for example, ethical approaches of care are produced in relations of power in practice. In complex environments, caring practice does not exist prior to the encounter but is always immanent, coming into being. This does not mean that teachers know prior to an encounter how to care for themselves and students but that care may be produced in those encounters. I would argue that an

ethics of care grounded the work of teachers I interviewed, even though it was sidelined by the demands of their school's accountability structure.

Teachers appreciate and require ongoing professional learning in order to identify needs and intervene appropriately. My participants identified areas such as equity, restorative justice, and different behavioral interventions they wanted to know more about. However, as I have explained in previous chapters, those areas of need are displaced by prioritizing datafication practices through accountability demands. Teachers want to know how to care for and support their students' learning instead of analyzing data from testing platforms imposed on them. Their concerns align with Haraway's (2016a) approach of "*Staying with the Trouble*" to generate "*response-ability*" as engaged practice. But they don't have time.

The problem of the effects of high accountability in RM\$ is especially significant because particular students, those who are economically and racially marginalized, are most often designated as failing. In other words, school improvement programs end up punishing those they are supposed to "improve." Given that, it is not surprising that teachers who care for their students abandon teaching.

What I learned in this study is a different way to think about the "problem." I was able to think a phantomatic ontology of the time-entangled forces that open space for caring practices to be prioritized over datafication of accountability processes in RM\$. The work is not easy because the continuously evolving material-discursive reform apparatuses are difficult to "catch-in-the-act," and as soon as an entry point into a disconnect or disarticulation becomes apparent, the mode phantomatically dissipates and shifts into another rationality.

This tension space allows for further experimentation toward asking the question, what does thinking with a phantomatic ontology offer the problem? How does it *take hold* and

generate new approaches? In regard to transforming a phenomenon in question, Pignarre and Stengers (2005/2011) wrote:

The satisfaction of such a requirement does not authorize the “true” as the final result.

What matters is that the “fact” gives us what we will call a “reliable hold,” creating new possibilities to be explored, that is to say, allowing those questions that matter for the experimenters: “what then?” “and if?” (p. 18)

For me, thinking with a phantomatic ontology of time-entangled tensions that structure accountability enactments within RMS helped me get a “reliable hold” as I experienced the shifting assemblage operating as educational policy and practice. I struggled to articulate ideas within tensions among contradictory, incommensurable things that paradoxically diffracted and materialized within a non-structure of thinking. Trying to slow down these phantomatic forces in a field of tensions provoked me to think about how to mitigate accountability practices toward response-able care, flexibility, and stability to promote higher teacher satisfaction and regenerative practice.

In order to generate these ideas, I had to “get a hold” by reading, thinking, writing and talking with other teachers as I stayed with the problem. Interviewing can be quite positivist when the method of data collection assumes participants have knowledge that can be found and that the knowledge is embedded in words. But the conversations I had with my colleagues were *provocations* in which we generated ideas together about how to re-~~con~~-figure the accountability pressure and remain committed in practice. Reading process theory along the journey enabled me to appreciate the adventures of diffractive experiences with more conventional data. I repeat the quote by James (1904a) below because it is relevant to the reform process demand that teachers

need to already know how to be effective. His philosophy derived from patterns of experience as *radical empiricism* and stated its conditions as:

To be radical, an empiricism must neither admit into its constructions any element that is not directly experienced, nor exclude from them any element that is directly experienced. For such a philosophy, *the relations that connect experiences must themselves be experienced relations, and any kind of relation experienced must be accounted a “real” as anything else in the system.* [...] Now, ordinary empiricism, in spite of the fact that conjunctive and disjunctive relations present themselves as being fully coordinate parts of experience, has shown a tendency to do away with the connections of things, and insist on the disjunctions. (p. 534)

My participants and I are considered experienced teachers as measured by the number of years we've taught. One of the required reform programs used in many school districts that must demonstrate improved academic proficiency is called *Get Better Faster* (2016). Its expectations are violent. Knowledge is built by experience through time. What teachers are pushed to rationally understand without experience is inferior knowledge that breeds frustration in practice as experience.

In this dissertation, I have argued that teachers need more material support and time-in-practice to become response-able to meet the diverse needs of our students. In the interview discussions, teachers stated they experienced a lack of support that materialized in different ways. Sometimes it was a lack of time, a lack of supplies, or a lack of training that generated stress and anxiety in the high-accountability contexts. In every conversation, teachers described embodied responses to the cognitive demands of teaching. Teaching practice is not just our brains walking through the day. Teachers are feeling the effects of stress, feeling resistance from

students, trying to do the job they want to do without the support that is required. Teachers need the time and support to adjust. One teacher described the expectation for changing programs and practice as “we had a quick meeting, there you go, do it now.” Anytime the programming changed, “it was like starting from scratch.” Telling teachers in a workshop how to conduct a new practice is not the same as the *reality* of experience itself (James, 1904b, p. 561). Embodied experience enfolds into present occasions as potential forces. I heard this as my colleagues shared their experiences that influenced their present and future practices. In support of ongoing embodied experience in practice, James (1904b) wrote the following:

Experience itself, taken at large, can grow by its edges. That one moment of it proliferates into the next by transitions which, whether conjunctive or disjunctive, continue the experiential tissue... Life is in the transitions as much as in the terms connected; often, indeed, it seems to be there more emphatically ... These relations of continuous transition experienced are what make our experiences cognitive. (pp. 568-569)

I argue for the adoption of the reconceptualized time-entangled nature of embodied teaching practice and the refusal of fast-track approaches for teacher training. I argue my analysis supports the prioritization of an ethic of care in high accountability school environments with a reduction of the datafication processes. However, I also know that one alternative leads to another problem. Staying with the problem, engaged in recommendations for change, experiencing the next shift, reminds me of Foucault’s (1983/1997) message:

I am not looking for an alternative; you can’t find the solution of a problem in the solution of another problem raised at another moment by other people. You see, what I want to do is not the history of solutions—and that’s the reason why I don’t accept the

word *alternative*. I would like to do the genealogy of problems, of *problématiques*. My point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. So my position leads not to apathy but to a hyper- and pessimistic activism. I think the ethico-political choice we have to make every day is to determine which is the main danger. (p. 256)

I understand that it is important to articulate my ideas of “caring kindness that is in sync with student needs” in a way that avoids the feminized-masculinized binary trap of thinking.¹¹ The main danger for RM\$ in the multiplicity of improvement initiatives that circle back to generate more improvements has been operating for too long. What can be possible for prioritizing caring practice over datafication requirements? How will keeping fewer programs in place over longer periods of time increase a sense of stability, and therefore, satisfaction for success with teachers and students? How can prioritizing creative lesson development in time budgets actually increase learning? I don’t think these are dangerous ideas. I think they are response-able questions.

After completing my analysis that produced images to gesture toward the time-entangled field of forces, I met with my administrator who had generously allowed me to complete the study in our school. The provocation of the images allowed us to have productive discussions about the tensions in our work and how they could be mitigated. My administrator stated that no

¹¹ There are dangers in advocating for more caring practice as it is feminized and devalued when compared to the hyper-masculinized theories (Bordo, 1986) that frame business models and verify research approaches. Magnet et al. (2014) discussed the pitfalls of using the concept of a pedagogy of kindness without knowing the ways kindness had been misused in oppressive projects. For example, “Women are imagined to be more sensitive, compassionate, and kind, and as a result, asked to do the majority of service work in academic departments. Feminist theorists have explored how women have been socialized to put others’ needs before theirs—or live for others—and how this results in compromised lives and needs.” (p.4) The idea of caring unintentionally slips into becoming undervalued in a hyper-masculinized structure of thinking that exists in a power dynamic and places the expectation on women in professions to be care-givers.

public school can eliminate the accountability mandates but appreciated that they could be implemented to balance their negative effects. In the following weeks at my school, there were increasing affirmative messages and practices from the administrator that seemed to boost morale. When I was leaving on an afternoon after a week of mid-year diagnostic testing, announcements thanking teachers and praising students' growth scores were echoing in the hallway. I would like to think that was possible because of our discussion about the time-entangled forces and how they can be mitigated. I am paying close attention as I continue to practice in this school. Can administrators and teachers think differently in their work in RM\$ in an ongoing way? Even I am struggling to do so—in the middle of things—as our school is preparing students for the End-of-Grade standardized tests.

As to the validity of the teacher evaluation and effectiveness ratings, my final words are that knowing is always partial and provisional due to the complementarity of the cuts made by material discursive measuring instruments which include what is valued and exclude what is not—making them invisible. The ethical consideration requires inquiry into the assumptions that structure the cuts. The cuts as well as the measuring apparatuses are value-laden. Objectivity is indeed a value that prioritizes disengaged “seeing” from a distance and only “seeing” what can be measured with the tools at hand (Barad, 2007; Haraway, 2016b). We can create more ethical tools to dismantle the environment of RM\$ and regenerate creative and caring teaching environments.

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APPENDIX A

ROUND 1 INTERVIEW GUIDE

Interview Participant Code: _____ Date & Time: _____

Study Title: Promoting Educator Retention in Challenging Middle School Contexts

Beginning statements:

Thank you for helping me with my study about teacher retention in middle schools. I am interested in your experiences as a teacher so I can describe how schools might use these experiences to build more support for teachers and inform school improvement practices. This interview is about your practice experience with specific responsibilities. With your permission, I would like to record this interview. If we happen to discuss specific identifying details, the identifying information will not be included in the transcript. You can skip any questions you want and you may ask questions at any time. In addition to the questions and if you are willing, we will engage in a concept mapping activity to help elicit the complexity of your responsibilities, how you are making sense of your practice, and possible support for implementing school initiatives. This interview will take approximately one hour. Do you have any questions before we begin?

Interview Guide Questions:

1. How are things going?
2. How long have you been teaching?
 - a. Have you made any changes in your teaching career?
 - b. Can you describe your reasons for doing so?
 - c. What were the positive factors or negative factors?
3. Have you ever considered leaving the classroom?
 - a. What were the circumstances?
 - b. What did you want to do instead?
 - c. What keeps you committed to teaching?
4. **Transition:** As we go over the next questions, can you create a concept map of the responsibilities you engage with at this time? Here are paper and writing utensils and you are free to design in any format you think is helpful. Please continue to add notes, connections, or sketches as you think they will help explain your ideas. I would like to talk about your responsibilities as they relate to our school initiative programming and any other school-level priorities that affect you.

5. What are your responsibilities at this point?
 - a. Probe for detail: on a daily basis? On a weekly basis?
 - b. What types of initiatives are being implemented now?
 - c. How do you see your role with these initiatives? How is that going?
 - d. How do you think (specific details discussed) is/are affecting your students?
6. What kinds of supports or training are you receiving?
 - a. Probe for detail: what does that look like?
 - b. How are these supports working for you?
 - c. How do you think they are working for the school?
 - d. What would you like to see more of?
 - e. What would you like to see less of?
7. If you were in charge of your school, what changes would you make?
 - a. What would you keep the same?
8. Is there anything you would like to add?
9. Of all the things we have talked about, what should I pay most attention to when I go back over this interview?

Interview Close: I want to thank you for sharing your experiences with me. I really appreciate your time and your responses have given me a great deal to think about.

If you approve, I would like to make a copy of your concept map and give you the original.

APPENDIX B

ROUND 2 INTERVIEW GUIDE

Interview Participant Code: _____ Date & Time: _____

Study Title: Promoting Educator Retention in Challenging Middle School Contexts

Beginning statements:

Thank you for helping me with my study about teacher retention in middle schools. I am interested in your experiences as a teacher so I can describe how schools might use these experiences to build more support for teachers and inform school improvement practices.

This interview is about your practice experience with specific responsibilities. With your permission, I would like to record this interview. If we happen to discuss specific identifying details, the identifying information will not be included in the transcript. In addition, for this round of interview questions, I am going to give you the questions on strips of paper. You can answer the questions in any order to help elicit how you are making sense of your practice, and possible support for implementing school initiatives. You can skip any questions you want, and you may ask questions at any time. This interview will take approximately one hour. Do you have any questions before we begin?

Interview Guide Questions:

1. How are things going?
2. Are there any challenges you are grappling with right now?
3. How do you think improvement initiative(s) is/are affecting your students?
4. Are there any changes that you are having a role in implementing?
5. What kinds of supports or training are you receiving?
 - a. What would you like to see more of?
 - b. What would you like to see less of?
6. What kind of entities make for a good teaching environment?
7. What kind of entities make for a good working environment?
8. How do you manage your responsibilities?
9. What is working for our school right now?
10. What is working in your classroom right now?
11. How do you think the district operations are affecting our school?

Follow up questions:

Interview Close: I want to thank you for sharing your experiences with me. I really appreciate your time and your responses continue to give me a great deal to think about.

These questions were cut into strips and placed into an envelope

How are things going?
Are there any challenges you are grappling with right now?
How do you think improvement initiative(s) is/are affecting your students?
Are there any changes that you are having a role in implementing?
What kinds of supports or training are you receiving? <ul style="list-style-type: none"> • What would you like to see more of? • What would you like to see less of?
What kind of entities make for a good teaching environment?
What kind of entities make for a good working environment?
How do you manage your responsibilities?
What is working for our school right now?
What is working in your classroom right now?
How do you think the district operations are affecting our school?

APPENDIX C

ROUND 3 INTERVIEW GUIDE

Interview Participant Code: _____ Date & Time: _____

Study Title: Promoting Educator Retention in Challenging Middle School Contexts

Beginning statements:

Thank you for helping me with my study about teacher retention in middle schools. I am interested in your experiences as a teacher so I can describe how schools might use these experiences to build more support for teachers and inform school improvement practices. This interview is about your practice experience with specific responsibilities. With your permission, I would like to record this interview. If we happen to discuss specific identifying details, the identifying information will not be included in the transcript. In addition, for this round of interview questions, please refer to the question chart I shared with you through Google Docs. You can answer the questions in any order to help elicit how you are making sense of your teaching practice, especially during this episode of digital learning, but also for possible recommendations for implementing school initiatives next year. You can skip any questions you want, and you may ask questions at any time. This interview will take approximately one hour. Do you have any questions before we begin?

Interview Guide Questions:

1. How has the transition to digital learning been going?
2. How do you think the way we are implementing digital learning is affecting the students? Families?
3. What would you have changed about how digital learning unfolded for you over the last few weeks?
4. When you think about teaching before spring break, how would you describe the differences? (Follow up) How would you say your time is divided during this digital learning? What are your roles at this time?
5. How are these changes affecting you? (Follow up) Can you describe your best coping/self-support strategies?
6. What are you hopeful about this Spring / Summer / Fall?
7. How do you think this episode with COVID-19 quarantine and digital learning shift will change education moving forward?

8. The accountability structure shifted quickly. What were your thoughts about cancelling tests and teacher evaluations?
9. Can you describe any recommendations in order to better support teachers in their practice going forward?

Follow up questions:

10. A big question at the last interview was how was the district affecting us and / or our students due to the change of our superintendent leaving. What do you think?

Interview Close: I want to thank you for sharing your experiences with me. I really appreciate your time and your responses continue to give me a great deal to think about.

Question Grid Shared with Participants Digitally

Round 3 interview questions: Answer in any order you like.

Skip any questions you want. Ask any questions you want.

How has the transition to digital learning been going?	How are the changes during the digital learning affecting you?	What would you have done differently in this episode of Digital Learning?
How would you say your time is divided during this digital learning? What are your roles at this time?	How do you think the way we are implementing digital learning is affecting the students and families?	The accountability structure shifted quickly. What were your thoughts about cancelling tests and teacher evaluations?
What are you hopeful about this Spring / Summer / Fall?	If we start school in a normal way, what programming and procedures should we keep from this year and implement next year?	What are the top three supports that you need in order to increase your job satisfaction?
How do you think the district operations are affecting how we do things?	How do you think this episode with COVID-19 quarantine and the shift to digital learning will change education moving forward?	Do you have a question?

APPENDIX D

ROUND 4 INTERVIEW GUIDE

Interview Participant Code: _____ Date & Time: _____

Study Title: Promoting Educator Retention in Challenging Middle School Contexts

Beginning statements:

Thank you for helping me with my study about teacher retention in middle schools. I am interested in your ideas and opinions as a participant so I can describe how schools might use these experiences to build more support for teachers and inform school improvement practices. Throughout this study, you have been foremost in my mind as who I want to honor and to elicit your satisfaction with the representation of the interpretation. The purpose of this interview is to elicit your ideas in regard to the analytical points I have developed for this study on teacher practice experiences. In addition, for this round, I have represented a series of analytical topics on a document I have shared with you and I am inviting your perspectives on their relevance and their magnitude of impact on your practice.

With your permission, I would like to record this interview. If we happen to discuss specific identifying details, the identifying information will not be included in the transcript. This interview will take approximately forty-five minutes. Do you have any questions before we begin?

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Interview Guide Questions:

1. To start, I want to review my analytical topics with you. (presentation slides and open conversation)
 - a. Provocation for thinking about fidelity of practice: “Your Unpredictable Sameness” art installation photos
 - b. Recognition that reform demands for accountability are in opposition with teaching and learning creatively to support students.
 - c. These accountability forces create the structure of RM\$ and manifest as stresses of time and threat onto teachers and students.
 - d. Documentation time prioritizes datafication and takes time away from creative teaching practices. (RTI-iReady-Branching Minds-district monitoring / here is where the teacher is outside of intimate understanding of student learning processes).
 - e. Caring (for what we see as needs of students) is displaced by accountability structures.

2. **Pragmatic Recommendations:** For the second part of this interview, I am going to review the recommendations that were brought up frequently in our interview conversations over the last year. Please indicate your response to each recommendation (digital document). I am sharing a copy of the recommendations and you can either type your responses or tell me your responses orally.
 - a. I agree and...
 - b. I disagree, because...
 - c. I am not sure, I need more information on... or sometimes this is true... or
3. Are there any topics that you think we should add to the analysis discussion?
4. Could you rank the recommendations you agree with starting with number 1 as the recommendation you most agree with?
5. Do you see any of these topics working together or differently in changing circumstances?
6. Do you have any other suggestions or questions?

Teacher Recommendations Shared with Participants Digitally

Topic/Response	I agree	I disagree	I am not sure
Increase time and flexibility for creative teaching practices			
Differentiate PLs for more relevance			
Increase numbers of support teachers in classrooms			
Build cooperation and support among teachers			
Increase coherence in communication			
Demonstrate trust for teachers as professionals			
Increase coherence and consistency in programming			
Reduce the number of things to do			
Decrease threats as a tool for compliance			
Provide all resources necessary for success			
Increase time to adjust to changes			

APPENDIX E

RECOMMENDATIONS FOR TEACHER SUPPORT

These recommendations came up at a high frequency, indeed for all of the participants in multiple interviews. I have summarized the statements without revealing the specific situation or factors in order to protect the confidentiality of the participants. Sometimes teachers' quotes are added when they make strong points by themselves. With quotes, the pronouns "they/them" are used in order to shield gender identities of all concerned.

Topic/Recommendation Theme	Description
Increase time and flexibility for creative teaching practices	<ul style="list-style-type: none"> -Teachers are experiencing added responsibilities without providing time. Accountability and documentation requirements displace creative and caring teaching practices. -Protect teacher planning so that they can develop creative approaches with their particular students' needs prioritized. -Allow time for reflection: "Reflection is one of our responsibilities. If we don't reflect, we can't grow. Again, if we are supposed to be teaching and leading by example, then we need to be reflecting. So, how did I mess up that lesson and what do I need to go back and make sure they really understood?"
Differentiate PLs for more relevance	<ul style="list-style-type: none"> -While some PLs are well developed and are synchronized to target teacher development needs with timely pragmatic strategies they can add without spending a lot of time to develop. Many times teachers reported that they were having to sit through strategies that they already implement and would prefer more in-depth content or pedagogy.
Increase numbers of support teachers in classrooms	<ul style="list-style-type: none"> - "If I was in charge of my school or district, I would improve the ratio of teachers to children. I know some people argue that class size does not equal success. But I think it greatly improves the chances of it." - "I have frequently thought that anybody in school administration should at least part of their time, co-teach somewhere." -What if instead of evaluating teachers and doing walk throughs, admins and other district people came in to co-teach and help?

<p>Build cooperation and support among teachers</p>	<p>-Avoid allowing an environment that fosters cliques and cohorts where teachers are limited in their interactions; avoid divisive effects by comparing teachers by test scores because there are too many other factors to consider.</p> <p>-Several teachers got frustrated and stressed about mid-year diagnostic tests when their students did not show growth and they took it very personally.</p> <p>-Teachers expressed a desire to be able to come into meetings and have time to chat for a few minutes in a professional way so they could share ideas that might not be on the agenda.</p>
<p>Increase coherence and transparency in communication</p>	<p>-This included providing timely communication that allows teachers to plan for changes and be able to inform students about what to expect.</p> <p>-There were several instances of frustration tipping points when there was conflicting information coming from different avenues including district departments, different administrators, grade level leads, and instructional coaches. Teachers want to get it “right” to support their students and not have to re-do things.</p>
<p>Demonstrate trust for teachers as professionals</p>	<p>-This is tied to feelings of effectiveness that depend upon affirmation and respect. Teachers carry memories of times when they did not feel valued or trusted: “My first year I felt a lot more like being blamed and things were my fault. And why am I doing this?... I am a terrible teacher. Like, I can’t do anything right. I was super stressed.”</p> <p>-But overall, there were many descriptions of positive affirmational practices that build confidence, and therefore, commitment to teaching.</p> <p>- “Because I know things that make me feel kind of effective is like having a sense of being trusted as a professional to do my job. Which is what I have.”</p> <p>- “They understood weaknesses, they understood strengths, they understood everything. And they told me, you work those kids to do their best and you get kids to do well. They knew that.”</p> <p>- “What I really like is when they make a point to solicit teachers’ involvement. Whether it is with the SILT team taking things back to grade level to obtain our input. I think it means a lot.</p> <p>- “I think that maybe the principal tries to enhance the leadership skills in all of us. They have challenged me.”</p> <p>- “If I have a concern, I feel our principal has enough wisdom to be inquisitive about both sides. To make sure that they hear everything clearly and fairly. They will say, how would you look at it if you were this person? I think that is a powerful tool. Consequently, it makes the environment good</p>

	for us as far as the staff. And that trickles down to the children and their environment as well.”
Increase coherence and consistency in programming	<p>Many expressed a need for stability and that all the changes seemed to be happening before there had been enough time to implement and adjust.</p> <p>-Constant change is unsettling “I am very worried that any of the things we are starting, like AVID, or the work towards equity, or the work even on our instructional framework. Whether it’s good or bad, if we stick with something, it’s going to have a positive effect and if we keep changing stuff up it’s not going to work as well.”</p> <p>- “[Besides] collaborative planning, the school improvement plan, and AVID; I will commend administration in the fact that when we were having SMART meetings, <i>and</i> AVID, <i>and</i> school mandates being thrown at us, administration did a really good job of saying, hey these have a lot of similarities. Let’s make sure that whatever we design can be mirrored in all of them, so we are not having to reinvent the wheel every time. I was appreciative of that. And I was part of the process.”</p> <p>- “I think collaborative planning is working right now. I think the consistency; that its being done is more consistent that it was when I first started here.”</p> <p>- “BHL isn’t perfect, no school is. But this is the most stable middle school we have, in the district.”</p> <p>-Adjusting to demands takes time for teachers to settle into a routine of prioritized demands. Shifting expectations keeps the stress level high. This was evidenced in the difference between the first and second round interviews. Research on induction teachers show stress and dissatisfaction increases from early fall to December. Experienced teachers should be in more of a predictable routine, unless this is disrupted. Too many changes produce disequilibrium and keep teachers stressed with a continuously steep learning curve. Embodied habits of practice take time to develop.</p>
Reduce the number of things to do	<p>This was always mentioned in every interview.</p> <p>- “If you are giving us too many programs to run and do, then of course that’s going to start creating inconsistencies.”</p>
Decrease threats as a tool for compliance	<p>This recommendation was closely aligned with the need to develop a sense of being trusted.</p> <p>- “You know, I feel like I’m getting yelled at when I’ve already done something. So, just reach out to the people that need to do something. Target your audience. ...and then it sends you into a fight-or-flight feeling. It puts stress on you</p>

	<p>that doesn't need to be there because you have already checked it off the list. You know, it just added another email to your 2000 in your mailbox, that you didn't even need.”</p> <p>- “And I don't even know if they know they are doing it. It seems to me, some of the threats I don't know if they realize how, it came across. And that might just be a practice that district expects.”</p>
<p>Provide all resources necessary for success</p>	<p>There were many descriptions of difficulties with programs</p> <p>- “With [program], it was thrown on us. First, they said we had trainings. We should know what to do. One of the trainings came a month after we had already been deep into the program.”</p>
<p>Increase time to adjust to changes</p>	<p>Programming changes take time and support to adjust: Introducing, thinking, planning, and implementing all need embodied experience to develop habits of practice. The fast-track approach does not produce quality educational outcomes and leads to teacher turnover.</p> <p>- “When we switched from MAP to iReady, then all of a sudden, like you're learning a new system and it takes up a lot more space on your plate, or space in your brain, or space during planning, to figure everything out and know where to go. So being consistent every year reduces that mental load.”</p>