# Becoming a "Good" Teacher:

# Portraits of the Moral and Ethical Dimensions of Learning Teaching

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## Abstract

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Teaching has long since been understood as a moral and ethical endeavor (e.g., hooks, 1994; Hansen, 2021). It is also widely understood that to be a "good" teacher, teachers must *learn*. Teaching requires exquisite responsiveness to students, relationships, content, and the social and political world (e.g., Ball & Cohen, 1999; Gutiérrez, 2013; Lampert, 1985). And so, while teachers may accrue experience and expertise with each school year, they are never "done" learning. These aspects of teaching, the moral, the ethical, and the ongoing work of learning teaching, are rarely explicitly considered in relationship to one another.

This dissertation explores how the moral and ethical dimensions of teaching shape teachers' experiences as learners. Drawing on sociocultural theories of learning, scholarship on learning teaching, and philosophical literature which investigates the moral and ethical dimensions of teaching, I crafted narrative portraits (Lawrence-Lightfoot & Davis, 1997) of three middle grades mathematics teachers as they engaged in learning through, from, and about

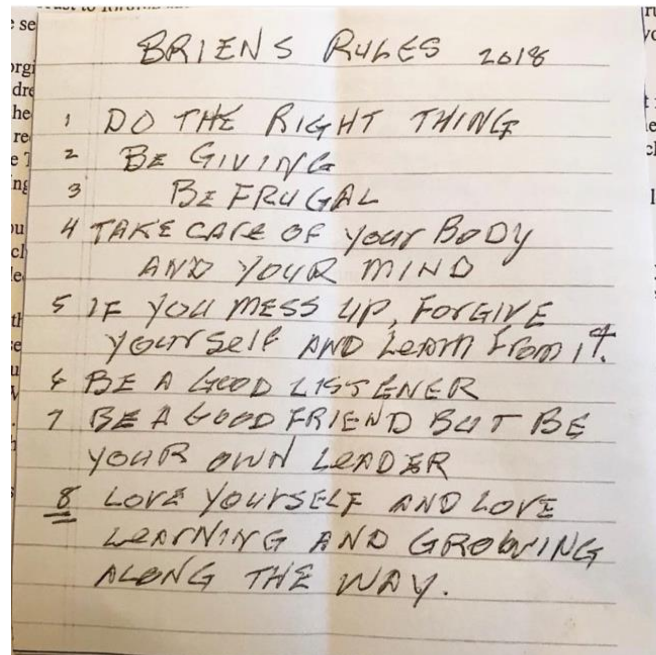
teaching over a seven-month period. Data included interviews with focal teachers, observations of teachers participating in professional development sessions, and participant observations of teachers' work during instructional coaching sessions.

The stories shared here offer a nuanced and humanizing view of how each teacher experienced learning teaching given their evolving moral understandings with respect to what good teaching entails and their ethical understandings of who they want to be and become. In particular, the findings indicated a relationship between the moral and ethical dimensions of learning teaching. For example, the teachers' experiences highlighted how the moral motivations and pressures inherent to teaching have implications for the extent to which the teachers were able to ethically flourish as learners of teaching. The findings of this study also suggested that the teachers experienced both teaching and learning teaching as an expression of their goodness. For example, each teacher navigated pressure to demonstrate their goodness both through the quality of their teaching and through their performance in spaces of teacher learning. These findings have critical implications given the importance of teachers engaging in ongoing learning across their careers and suggests the value of conceptualizing teacher learning not only as a professional moral demand in service of students, but also a meaningful ethical opportunity for teachers.

## Dedication

For all the teachers in my life, especially the ones who helped me learn about being a teacher.

And for my grandfather, Brien Michael Stafford (1933-2022).
*(Grandpa, I think you would have liked how this dissertation contributed to my understanding of rules 5, 6, and 8)*



BRIENS RULES 2018

1 DO THE RIGHT THING
2 BE GIVING
3 BE FRUGAL
4 TAKE CARE OF YOUR BODY AND YOUR MIND
5 IF YOU MESS UP, FORGIVE YOURSELF AND LEARN FROM IT.
6 BE A GOOD LISTENER
7 BE A GOOD FRIEND BUT BE YOUR OWN LEADER
8 LOVE YOURSELF AND LOVE LEARNING AND GROWING ALONG THE WAY.

## Acknowledgements

My first year as a doctoral student I went to a keynote address and heard a professor say: “A PhD just means you wrote a long a** paper about a little thing…What are you going to *do* with it?” These words haunted me a bit throughout my studies as I grappled with whether I was “doing” enough. I wondered: *Was this I where I should be? Was any of this research stuff really going to matter?* Leaving my job as a fourth-grade teacher had been a difficult decision. It was not only work I truly loved, it was also work I knew was important. But my love of teaching was bound up in another passion: learning. I had a lot of questions about teaching. So I kept going.

Now at the end of this road (and the beginning of another), I am still figuring out what I will “do” with what I’ve learned and who I am becoming as a person, teacher, and (dare I say it!) scholar. PhD or not, I am still very much in the process of understanding teaching. But here is something I am grateful to acknowledge: I do not feel like I wrote a long ass paper about a little thing. I feel like I wrote a little paper about a *big* thing; a small imperfect offering wrestling with enduring questions for which there are no final answers. I feel deeply honored and lucky to have had the opportunity to read and write and think about ideas that mean so very much to me and humbled by the chance to drop my own little pebble into this vast pond. There is certainly more to be done, but I believe a dissertation counts as doing something.

I owe the fact that the experience of working on this dissertation has been overwhelmingly meaningful to my academic advisor and the chair of this dissertation committee, Kara Jackson. Kara, thank you for treating my ideas with such care, for listening to me babble about each new thought, for reading every scrap of writing I put in front of you, and for nudging my thinking along with the patience and generosity of a true teacher. Your sincerity and thoughtfulness made it impossible for any cynicism about this process to take root and kept me motivated to wholeheartedly pour myself into this project. I am so grateful to have been your student and to have the example you’ve set as a researcher, educator, and person in my heart.

I am also grateful to the other wonderful members of this dissertation committee, Elham Kazemi, Tomas Rocha, and Sara Goering. Elham, your work changed my whole world as a teacher and showed me just how much can be done to make schools better for students and teachers. Thank you for inspiring me and for your willingness to give my work your time and energy. Tomas, thank you for agreeing to join this committee and for reading my exam papers before you even had your first official day at UW! Thank you for offering clear feedback, for pointing me in the direction of useful literature, and for enthusiastically welcoming me into the world of philosophy. Sara, your “Ethics Matters” course has big footprints in this dissertation and made such an impression on me. Thank you for creating a space for students across the UW to think together and have such rich conversation and thank you for joining this committee.

This dissertation would not have been possible without the participation of the focal teachers in this study, who generously agreed to work with me in addition to the demands of their work as middle school teachers. “Donna,” “Amy,” and “Marta,” while I cannot name you, I thank you for your openness and generosity and for letting me walk and learn alongside you. I am so inspired by each of you and your commitments to teaching. It was such a joy to get to know you and it is a true honor to share this little slice of your story.

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Additionally, I am grateful to the many teacher educators, coaches, mentors and professors who have inspired me, shaped my work as an educator and planted important seeds that led me to this dissertation: Curtis Lewis, Megan Kelley-Petersen, Jessica Calabrese-Granger, Teresa Lind, Kelly Rudie, Elham Kazemi, Kara Jackson and Ruth Heaton, thank you for helping me grow and for helping me explore and experience what it means to be a learner of teaching.

Lastly, I am grateful for my close friends and family who have all wrapped around me and supported this effort and who enrich my life in countless ways.

To Sabrina, Kathleen, Stephanie and Kelly: Thank you for checking-in, for reading snippets of writing that brought me joy, for always having the very best book recommendations, and for forgiving me when I was basically unavailable for a year (I think I am finally ready to hang out!).

To my aunts, uncles, cousins, parents, and siblings: Thank you for believing in me, for helping me laugh at life’s ups and downs, and for reminding me that I am known and loved no matter what. I am especially grateful to my Mom. Mom, you’ve always pushed me to “go for it” and be my bravest self. Thank you for your bottomless energy, endless cheerleading, and for clearing the trail to this accomplishment in a million important ways. And thank you, *thank you*, for taking care of my babies when I needed to work and write. It was such a comfort to know they were with someone who loves them as much as I know you do. There’s no one on Earth like you, Grammy.

To my children: Oscar O’Brien and Rory Michael. It was never lost on me that nearly every minute I spent working on this was a minute I could have spent with each of you. I know you didn’t have much choice in the matter but thank you for tolerating less time with me than you

would have liked so that I could write this dissertation. I look forward to conversations with you in the not-too-distant future about the tensions and gifts of nurturing many dreams and identities at once. I hope one day I can be a source of support in your life when you decide to tackle something big and I can't wait to see what your big dreams end up being. In the meantime, thank you for giving my life a beautiful new purpose and for filling my days with *So. Much. Joy.* You two made me a Mama, but you've also made me a far more sensitive and empathetic person and thinker. This dissertation wouldn't have turned out the way it did if I hadn't been becoming your Mom along the way. I love you.

And finally, thank you to Edward, my partner in life, parenting, and teaching. Edward, every day I've been a teacher I've had you as a sounding board and I am better for it. Thank you for your enduring love, encouragement, and insight. Thank you for your patience when a hard day of writing turned my mood sour, for celebrating with me when I finally articulated something just how I'd hoped to, and for letting me read far too much of this dissertation—including these acknowledgements—*aloud* to you (I'm so sorry!). You'll always be my very favorite teacher.

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## Chapter One: Introduction

School starts late on Wednesday mornings at Cedar Brook Middle School.[1] The "extra" time is designated for teachers' professional development, grade level team or content team meetings. On this particular morning, late in October 2021, the school is hosting a district-wide professional development (PD) workshop for secondary math teachers. Fourteen teachers (eleven from Cedar Brook and three from a high school a few miles down the road) and two district coaches take their seats at the table groups in one of the 8th grade teachers' math classrooms. There's a high-energy buzz in the room that I associate with "the beginning of the school year." This is the first of four PD workshops that the math teachers will engage in across the year. It's also the first in-person PD session the math teachers have had together since schools closed due to COVID-19 about a year and a half earlier.

The PD facilitator, Vera, who works for a local nonprofit professional development organization focused on supporting mathematics teachers' learning, asks everyone to fold a piece of paper to make a "name tent." The teachers talk amongst themselves as they write their names in bold, bright colors. On occasion they slip their masks below their chins to take a swift sip of water or coffee. To start off the session, Vera introduces herself and shares a slide which frames the scope of the work for this year and the agenda for the day. Then she shares a slide to set the "norms" for the work the teachers will engage in. The slide says:

**Figure 1**
*Vera's Norms Slide*

***Developing Productive Norms for Interaction***

[1] The name of the school and all participants have been anonymized

***Rights of Learners***

***<u>You have the right to…</u>***

- *be confused*
- *make mistakes*
- *say what makes sense to you*
- *share unfinished or rough draft thinking and not be judged*
- *revise your thinking*

**Our Responsibilities:** *What do you need from your teammates as we do math together and reflect on ideas, to maximize our learning?*

Vera's norms shown on the slide were adapted from a 2017 article describing how "the rights of the learner," can promote equity in mathematics classrooms by supporting students and teachers to value and honor diverse approaches, in-process ideas, and reasoning rather than simply rote knowledge and "correct answers" (Kalinec-Craig, 2017). These "rights" were originally developed by Olga Torres, an elementary bilingual teacher and teacher educator.

Vera frames "The Rights of the Learner" as the overarching guidelines for the group's work together, which is to say, she does not specify that these "rights" only apply to learning mathematics. She then focuses the group's attention on the text box to the right which reads "Our Responsibilities: *What do you need from your teammates as we do math together and reflect on ideas, to maximize our learning?*" The teachers talk together about this briefly and come up with a short list of their responsibilities to one another: Give each other grace; Honor private think time; Focus on positive things that we have control over; Show each other new ways to think and act mathematically and pedagogically. One teacher, Jenny, shares that she would like everyone to add their preferred gender pronouns to their name tents. Otherwise "The Rights" Vera presented and "The Responsibilities" the teachers generated stand as the normative principles the group will use.

I immediately feel a sense of surprise and curiosity at teachers being presented with their "rights" as learners. Certainly, it is well established best practice to set certain professional and

social norms to support teachers' learning (e.g., Gibbons et al., 2021; Kazemi et al., 2018). Yet it struck me as rare to explicitly consider teachers as *entitled* to certain conditions in which to learn. Teaching is "a helping profession," and widely considered altruistic, selfless, "a calling" (Hansen, 2021; Higgins, 2003; 2011). Likewise, teacher learning is often framed as a professional obligation: teachers *must* learn and continue learning across their careers not only to do their work well, but to live up to the moral demands of what their work ought to accomplish for children and society (e.g., Ball & Cohen 1999).

In fact, on the very next slide, Vera shares a quote to motivate the work for the day, which emphasizes the moral demand that teachers improve:

> *Abundant research has documented the significant outcomes that are possible when schools and teachers systematically address obstacles to success in mathematics for students from historically underserved populations (Boaler 1997, 2006; Boaler & Staples 2008).* ***The question is not whether all students can succeed in mathematics but whether the adults organizing mathematics learning opportunities can alter traditional beliefs and practices to promote success for all.*** (National Council of Teachers of Mathematics, 2014, p. 60–61*; bold emphasis reflects how the text appeared on Vera's slide)*

Here we see a clear example of how the field hinges better outcomes and experiences for students—and in particular students who are underserved by the status quo, students to whom we have an especially pressing moral obligation to *better* serve—on teachers changing their beliefs and practices—on teachers *learning*.

As Vera moves forward with the session my mind lingers on the tensions embedded in these first few slides. The *rights* of teachers as learners alongside the *demand* that they learn.

Questions bubbled to the surface: What rights *do* teachers have as learners? Or rather, what rights *should* they have? Is it *really* okay for teachers to make mistakes or be confused? What are the conditions where it is okay? What are the conditions where it isn't okay? It's one thing for a teacher to make a mistake or be confused when engaging in a math problem with other teachers or learning about a new curriculum in an after-school PD session. It's another thing for a teacher to make a mistake when trying to facilitate a mathematical discussion with children. In the first case, the "mistake" stops with them; in the second case the mistake has implications for others, specifically children to whom the teacher has a moral responsibility. If part of being a "good" teacher is committing oneself to ongoing learning, what does it mean to be a good learner of teaching? What responsibilities do teachers have as learners? To themselves? To their students?

At the root of these tensions is another set of questions: Who is *teacher* learning for? In cases of teachers learning, who has moral primacy, students or teachers? Is teacher learning *only* about improving outcomes and experiences for students? Or can teacher learning be an "end" worth pursuing because of what it offers the teacher? If it's one or the other, why? If it's both, how? This study begins to wrestle with these questions through an exploration of what it is like to be a teacher—a learner of teaching—right in the thick of these enduring moral and ethical complexities.

Drawing on sociocultural understandings of learning, scholarship on teacher learning and philosophical literature, I explore teachers' experiences as they engage in the work of *learning teaching,* that is the career-long project of figuring out how to both teach well and be a good teacher (Lampert, 2009). I assume that the ongoing work of learning teaching is a moral and ethical endeavor which from the outset involves grappling with "a fundamental existential tension: we exist for ourselves and for others…" (Higgins, 2011, p. 191). Taking these moral and

ethical tensions as central to both the context in which teachers learn and the nature of their work, I conceptualize teacher learning as a career-wide effort in pursuit of integrity (Calhoun, 1995). Integrity here does not suggest a static individual achievement, but a dynamic social process, a way of participating in the "common project" of determining what is worth doing. On this basis, I argue that learning through, from and about teaching, is not only a selfless professional obligation but a self-full ethical journey; the work of determining and standing for what one believes is worth doing given a set of moral and ethical commitments.

In the forthcoming pages, I share rich narrative portraits (Lawrence-Lightfoot & Davis, 1997) of three mathematics teachers learning at Cedar Brook Middle School. Beginning at the aforementioned day in October 2021, I follow Donna, Amy and Marta as they learn through PD sessions and coaching cycles led by both Vera and me across the school year and offer illustrative stories about the how they experience the moral and ethical dimensions of their work. In doing so, I address the following research questions:

1. *How do teachers experience learning about, from and through teaching?*
2. *How do the moral and ethical dimensions of learning teaching shape teachers' experiences as learners?*
3. *What can we learn about the moral and ethical goods of teaching through teachers' experiences learning?*

The findings of this study contribute important connections between philosophical perspectives about the moral and ethical dimensions of teachers' work and scholarship on teacher learning. The moral, the ethical, and the ongoing work of learning teaching are rarely explicitly considered in relationship to one another. That is, while we would be hard-pressed to find a scholar of teacher learning who does not know teaching to be a moral and ethical endeavor, very little literature explores how this fact about the nature of teaching shapes what it means to be a learner of teaching. Likewise, while few philosophers of education would argue

the significance of learning in the professional lives of teachers, very little philosophical work frames the ongoing pursuit of becoming a good teacher as “learning” and therefore does not yet account for how learning teaching relates to the moral and ethical goods inherent to the work.

The stories offered here make visible how the teachers in this study made sense of and grappled with the dynamic relationship between the moral and ethical dimensions of their work and the experience of learning teaching. In particular, Donna, Amy and Marta’s experiences suggest that the moral motivations and pressures inherent to teaching have implications for the extent to which teachers ethically flourish as learners. On one hand, the teachers' experiences make visible how a robust moral vision of what it means to do good work as a mathematics teacher can support the extent to which they find meaning and purpose in and through learning teaching. On the other hand, the teachers’ moral commitments make it difficult to reconcile and learn from moments of teaching which do not live up to their normative ideas about what “good teaching” looks like and accomplishes. Relatedly, the teachers’ experiences indicate that they understood teaching and learning teaching as an expression of their goodness. This has difficult implications given the “messy” inquiry-driven and collaborative nature of learning teaching (e.g., Ball & Cohen, 1999; Kazemi et al., 2018). In other words, if teaching well is a moral obligation and an expression of goodness, what does it mean when a lesson goes “bad?” Further, how are the complexities of this question compounded when challenging moments of teaching are witnessed by collaborators and teacher educators?

This study also has important implications for how we might theorize teacher learning and conduct our work as teacher educators and researchers of teacher learning. Theoretically, the findings here suggest that attention to the moral and ethical nature of teaching illuminates critical aspects of what it means to learn teaching and to be a learner of teaching. This study also

highlights the importance of developing a more nuanced understanding related to who teacher learning is for and why learning teaching is a worthwhile endeavor for teachers. At present, much of what we know frames teacher learning predominantly as a moral obligation to students, and in doing so limits our ability to understand teachers as subjects and learners in their own right (Lave, 1996). Much might be learned from future inquiry which applies theories and frameworks of teacher learning that recognize the goodness of learning teaching not as purely contingent on the quality of student learning, but as part of a complex moral and ethical relationship.

Implications for practice include that teachers may benefit from richer opportunities to explicitly discuss and make sense of their moral and ethical commitments. It may be fruitful, for example, to connect professional learning explicitly to teachers' moral commitments, in an effort to support teachers in seeing the relevance between what they hope to contribute through their work and their daily practice given their specific professional responsibilities and content areas. The findings of this study also have implications for how the field understands teachers' experiences during observations of their instruction and the moral and ethical stakes of making one's teaching practice "public" in spaces of teacher learning (e.g., Gibbons et al., 2021). Understanding and unpacking the moral and ethical dimensions of learning teaching may support teacher educators in developing new sensitivities and stances upon entering the classroom.

**Organization of Upcoming Chapters**

In Chapter Two, I describe the theoretical perspectives and assumptions which undergird this study and make an argument for how sociocultural and situative theories of learning relate to philosophical perspectives on the moral and ethical dimensions of teaching. I then illustrate these connections in relation to a small body of empirical research on learning teaching. In Chapter

Three, I describe the methods I used to conduct this study and describe how these methods advance and cohere with the aims of this study. From there, in Chapter Four, I introduce the participants of my study, Donna, Amy and Marta, via descriptive portraits and describe how each teacher understands the moral and ethical dimensions of their work and how these dimensions relate to their ongoing learning. Next, in Chapter Five, I share narrative portraits of the focal teachers in a PD workshop, documenting their experiences in a whole group PD session and in subsequent coaching cycles. In Chapter Six, I tell two stories of coaching cycles in relation to a difficult day in the classroom for Donna and Marta, highlighting how the moral dimensions of teaching and learning teaching can create a high-pressure context. Finally, in Chapter Seven, I discuss the findings of this study in relationship to existing literature and describe the implications of the study for the practice of teacher educators and for future research.

## Chapter Two: Conceptualizing Learning Teaching as a Moral and Ethical Endeavor

At its core, this dissertation is an effort to better understand what it means to be a learner of teaching and how teachers experience the ongoing work of learning teaching. In particular, this study focuses on the learning of practicing teachers (rather than pre-service teachers in the context of a teacher education program). Throughout this dissertation, I refer to both *teacher learning* and *learning teaching*. In both cases the term "learning" has to do with efforts to grow or get better at the work, but latter of the two, *learning teaching,* signals the assumption that learning through and from teaching is an *ongoing* endeavor; the career-long project of figuring out how to teach well and how to be a good teacher (Lampert, 2009). Studies of *teacher learning* on the other hand tend to focus on how teachers develop a particular skill or practice. For example, van Es & Sherin (2008) studied how teachers learned to notice and interpret students' mathematical thinking through participating in video clubs. This study does not focus on how or whether teachers develop specific skills or knowledge, but I draw on literature and theories of teacher learning because these knowledge bases illuminate critical aspects of what it means to be a learner of teaching.

Theories of teacher learning have long since been characterized as underdeveloped, despite the unequivocal understanding that teacher learning is central to efforts to change or improve education (Horn & Garner, 2022; Kennedy, 2016; Lave 1996). Or perhaps it would be more useful to invert that claim: *because* teacher learning is conceptualized as a key lever for reform efforts it's difficult to hold our focus on teacher learning as its own phenomenon. The matter of improving educational outcomes and experiences for students is so morally urgent that it is difficult to disentangle or distinguish an interest in student learning from an interest in teacher learning. In 1996, social anthropologist and learning theorist Jean Lave pointed to this

issue and argued that research which aims to understand teaching and learning must "treat both learners and teachers as subjects in their own right" (p. 158). She articulated the challenge of "locating" teachers in theories of learning through an example from clinical psychology:

> *Neither therapist nor client (read teachers and students) participate in their joint activity as clearly located subjects. Therapists take charge, via interpretation, of characterizing the subjectivity of the clients, and direct their own actions towards clients in terms of those interpretations. When it comes to their own participation, therapists reduce it to the view that they are acting on behalf of the clients, as if they had no situated reasons, interests, goals, or concerns of their own that enter into and affect what transpires. The result is that it is not clear what it means for either kind of participant to engage in therapeutic activity, as each is characterized only through the other. A similar situation governs much research that purports to be about learning. It deprives us at one and the same time of clear analyses of learners as subjects—and of teachers as subjects as well. (p. 158)*

More than 20 years later, philosophers of education argue that the issue of understanding teachers themselves as subjects and learners has worsened, given the increasing pressure to hold teachers accountable to "measurable" student outcomes (Hansen, 2021; Higgins, 2011). This is not merely a challenge with respect to theorizing teacher learning, but a threat to the dignity of teachers and the integrity of their work (Hansen, 2018, 2021; Higgins, 2011; Santoro, 2013, 2018). David Hansen (2018) argues:

> *The idea that the teacher is a singular, distinctive person-in-the-role, rather than a mere cog in a socioeconomic machine, spotlights the moral issue of dignity. As Immanuel Kant famously formulated the matter, the recognition of dignity involves a moral task, and*

> *invitation, facing human beings: namely, to regard and treat other persons as ends in themselves, never as merely a means to our or others' ends. (p. 22)*

Treating and understanding teachers as ends in themselves however is not simple or straightforward. As Hansen's (2018) argument progresses he too iterates the very dynamic that makes it so difficult to determine where teachers' ends end and students begin: "If the system fails to recognize and support the dignity of teachers as persons, it undermines teachers' own ability to recognize and act on the fundamental dignity of students" (p. 23). Once again, an interest in dignity for teachers is bound up in an interest in dignity for students.

I am not arguing that we should (or can) entirely separate teacher learning and student learning. What is a teacher without their students? Why learn teaching if students' experiences are not bound up in your interests? Instead, I present the dilemma of locating teachers as subjects in relation to their own learning not as a problem to be solved, but as foundational to understanding what learning teaching is all about. Throughout this dissertation, I explore the complexity of learning teaching "for ourselves and for others" and try to surface how this tension shows up both in how we theorize teacher learning and in how teachers experience the ongoing work of learning in their professional lives (Higgins, 2011, p. 191).

I address this dilemma by conceptualizing teacher learning as a moral and ethical endeavor which is principally concerned with determining how to act, given the push and pull of who we want to be and what we owe to others. Drawing together sociocultural theories of learning, philosophical work about the moral and ethical dimensions of teaching and empirical scholarship about teacher learning, I theorize that the *telos* of teacher learning—that is, the direction or trajectory of learning teaching, its essential aim—is to *integrate* these moral and ethical concerns and in doing so attempt to act with integrity.

In what follows, I offer a broad picture of teacher learning from a sociocultural and situative perspective. I then draw on the work of educational philosophers to define “moral” and “ethical” and describe how these dimensions shape the nature of teachers’ work. Holding these bodies of literature together, I further clarify how I am conceptualizing “integrity” and how learning teaching can be understood as the ongoing pursuit of integrity. I close the chapter by situating this study in relation to a small body of empirical studies which both describe teachers’ experiences as learners and offer a window into the moral and ethical nature of learning teaching.

**Sociocultural and Situative Perspectives on Learning Teaching**

Broadly, sociocultural and situative theories posit that “thinking and activity are deeply rooted in the specific contexts in which they occur, contexts that themselves are deeply rooted in particular cultures with particular histories” (Russ et al., 2016, p. 403). Sociocultural and situative theorists argue that learning can be understood as the process of coming to know how to participate in the practices of a particular community and constructing identities in relation to one’s membership in that community (Cobb, 1994; Lave & Wenger, 1991; Putnam & Borko 2000; Wenger, 1998).

A *community of practice*, Wenger (1998) explains, are communities which are defined by, or held together by a shared sense of their practices and the history of their practice. He clarifies that not all communities are communities of practice, and not all practice is associated with community: “A residential neighborhood, for instance, is often called ‘the community’ but it is usually not a community of practice. Playing the scales on the piano is often called practice — as in, ‘practice makes perfect’— but it does not define what I would call a community of practice” (p. 72). Wenger (1998) states, “Learning is the engine of practice, and practice is the

history of that learning" (p. 96). In other words, through participating in a community, members generate practices and over time those practices constitute the shared history of what the community and its practice is all about. Learners therefore learn specific practices (ways of doing) while simultaneously learning to be members of a practice (ways of being). Learning practices of teaching, would mean learning to participate in or lead recognizable activities which accomplish the work of teaching for example, leading a discussion. But learning these practices is "not only about learning to do what teachers do but learning to call oneself a teacher and to believe in what teachers believe in" (Lampert, 2009, p. 29). Learning to be a member of a community of practice is therefore becoming a certain kind of person (Lave & Wenger, 1991).

Scholars of teacher learning have applied situative and sociocultural understandings of learning to understand how teachers learn in, through and from their work as they participate in the practice of teaching. An emphasis on understanding learning as a phenomenon which occurs *in contexts* has inspired scholarship which investigates both what and how teachers can learn from and through the work of teaching (e.g., Horn, 2005; Lampert, 1985) and how to organize opportunities for teacher learning which are proximal or even embedded in authentic aspects of teachers' work (e.g., Ball & Cohen, 1999; Gibbons et al., 2021; Kazemi et al., 2018). A central finding of this scholarship is that the complexity of learning to teach has to do with the responsive and relational nature of the work (e.g., Grossman, 2009). Teachers must learn and continue to learn to respond to a range of ever-changing relational dynamics between children, academic content and the world (e.g., Bransford et al., 2005; Lampert, 1985). Shulman (2005) argues that professional work, and teaching in particular, is characterized by "conditions of inherent and unavoidable uncertainty" (p. 19). Teaching is made up of intricately contextualized moments, and a skilled teacher needs not only knowledge of and the ability to execute a range of

professional practices but also the capacity to exercise judgment around when, how and why these practices apply as they respond to the various pedagogical dilemmas which arise in their work, moment-to-moment, day after day (Horn, 2020; McDonald et al., 2013; Shulman, 2005).

Exercising judgment and learning to exercise judgment in the face of a dilemma is morally and ethically complicated work (Horn, 2020). As Shulman (2005) points out, “the performances of practice must not only be skilled and theoretically grounded; they must be characterized by integrity, by a commitment to responsible, ethical service" (p. 18). In other words, teachers are not only exercising judgment in service of optimal academic learning for students, they are also deciding how to act given what they know and believe about teaching and being a teacher (Lampert, 2009; Santoro, 2013; 2018). Taken together, much of the extant literature on teacher learning clearly makes reference to the moral and ethical nature of teachers' work but it surfaces these dimensions in reference to *what* teachers need to learn to do (i.e., to act morally and ethically). Very little literature attends to how teachers experience learning teaching given these dimensions.

Teachers are part of many interrelated communities of practice in the context of their work (e.g., school communities, grade level teams, or content areas). They are also members of a broader social and historical community of practice—the teaching profession itself. In what follows, I turn to philosophical work which explores the moral and ethical dimensions of teaching in order to establish how the moral and ethical aims of teaching—which are deeply historically embedded in the practice (Hansen, 2021)— are foundational to the context in which teachers learn and thus shape how teachers experience learning and what it means to be a learner of teaching (i.e., a person who is ever-negotiating and understanding their practices and identity as a member of the teaching profession).

## Ethical and Moral Dimensions of Teaching

While the terms ethical and moral are sometimes used interchangeably and certainly do overlap, here I distinguish the two by highlighting that the ethical involves considering what to do on the basis of who we want to be and become in an effort to live a good life (Higgins, 2011), whereas the moral involves making decisions based on a set of commitments we hold about good conduct and our responsibilities to others (e.g., Higgins, 2011; Santoro 2018). Below, I further define each of these terms and describe how I am conceptualizing the relationship between the moral and ethical dimensions of teaching as consequential for learning teaching.

### *Ethical Dimensions of Teaching*

Higgins (2011) defines professional ethics as the work of determining who we want to be, and how we want to live in the context of what we do: "Ethics is rooted in the perpetual practical question 'What should I do next?' and flowers in our more contemplative moments, into questions like…'What would make my life meaningful, excellent, or rich?'" (p.9). According to Higgins (2011), an ethics of teaching:

> *...probes the relationship between the teaching life and the good life, connecting the question 'why teach?' with the question 'how should I live?' It considers what draws us to the practice of teaching and what sustains us there in the face of difficulty. The ethics of teaching involves questions like these: What constitutes human flourishing, and how does tending to the growth of others nourish my own growth? What do I prize most, and how does teaching put me in touch with those goods? (p. 10)*

Higgins (2011) challenges the assumption that teaching is worthwhile *only* because it is meant to accomplish good for students, and presses us to think about and specify the ethical goods that teaching offers teachers. Read through a sociocultural and situative lens, Higgins's

(2011) description of the ethics of teaching is fundamentally linked to learning. Learning is the ongoing act of becoming; ethics is asking oneself, *What is good to become?*

Philosophers of education have long since argued that teaching is an ethical endeavor and that teachers must be actively learning to become the truest version of themselves in order to do their work well (Hansen, 2001; 2018; Higgins, 2011; hooks 1994). hooks (1994), for example, argues that teachers must be "committed to a process of self-actualization that promotes their own well-being if they are to teach in a manner that empowers students" (p. 15). Higgins (2011) echoes this sentiment, stating: "In order to cultivate selfhood in students, teachers must bring to the table their own achieved self-cultivation, their commitment to ongoing growth, and their various practices, styles and tricks for combating the many forces that deaden the self and distract us from our task of becoming" (p. 2). According to these scholars, teachers' self-cultivation isn't just something to be brought to the work of teaching, but something that can be found in and through the work of teaching (Higgins, 2011; Hansen 2018). Teaching and committing oneself to the role of *teacher* is "an extraordinary invitation to self-formation through service to young people who are themselves in the very midst of finding and forming the persons they are…" (Hansen, 2018, p. 42-44).

***Moral Dimensions of Teaching***

The moral dimensions of teaching relate to teachers' responsibilities as educators, including "codes of professional conduct and our role-specific obligations to others" (Higgins, 2011 p. 9-10). In her work on understanding the moral dimensions of teachers' work Doris Santoro (2017a, 2018) draws on the idea of "craft conscience" to understand how teachers determine the extent to which they are meeting the moral demands of the profession. Santoro (2017a) identifies three categories of moral standards that teachers reflect on as they consider

their professional obligations and responsibilities: *pedagogical* ("What is the best way for me to teach this concept, skill, or topic?"), *professional* ("How should I act and be treated as a professional?") and *democratic* ("How is this school preparing its students for democratic futures? or "How am I promoting and embodying democratic participation?") (p.753). Santoro (2017a) argues that teachers' craft conscience develops and deepens over time, and "becomes more fully developed through experience teaching and in a community of practitioners" (p. 752). This is to say, part of what teachers are learning through their work are moral understandings about what good teaching entails.

Santoro's work (2017b, 2018) also details how teachers' evolving moral understandings are rarely brought to the fore and explicitly discussed, valued or leveraged in schools or spaces of teacher learning. Instead, ideas about what "good" teaching is and requires are treated as something understood by policy makers and leaders and imposed on teachers' work. Santoro (2017b) argues that when teachers question these policies their expressions of moral concern are often recast as *immoral* or self-serving:

> *Because current policy sets itself up as moral in that it seeks to remedy unequal educational outcomes, and this is a worthy goal of legislation, it renders all other criticism as immoral or only personal and selfish… criticism by teachers is cast as immoral or self-serving. It may be construed as either unsupportive of the stated equity goals of pedagogical policies…or as personal resistance to change and growth. Both imputed stances leave teachers with little moral ground from which to articulate and defend their concerns about the profession.... (p.53)*

Santoro (2017b) argues that teachers trapped in this moral double-bind experience "moral madness" (the feeling of going mad); because they are at once held morally responsible for their

students *and* expected to remain silent and compliant with respect to issues of moral relevance. Santoro's (2017b) work helps make visible how the broad social and cultural context in which teachers learn can influence how they are expected to engage with the moral dimensions of their work. For example, this context may offer important insight into understanding the prevalence of "conflict avoidance" in teacher learning communities (Grossman et al., 2001). Teachers may avoid pushing for clarification or true consensus in settings of professional learning not only because they dislike conflict but because they fear their authentic questions or alternative ideas may be cast as selfish and immoral.

For the purposes of this study, it's relevant to think about the moral dimensions of teaching in the following ways: 1) Teaching has a moral quality, in that its purpose is generally to contribute a moral good to society (i.e., the education of its people (Hansen 2001; Santoro 2018)) and 2) Teaching is rife with moments of moral salience wherein the teacher faces complex dilemmas and must determine how to act (e.g., Ball & Wilson, 1996; Lampert, 1985; Shulman, 2005).

It's important to establish that the moral and ethical dimensions of teaching are dependent on one another. Teachers must cultivate themselves in order to live up to the moral demands of the work. Likewise, living up to their moral commitments, has important implications with respect to teacher flourishing. Santoro's (2013, 2017a, 2017b, 2018) work suggests that the extent to which teachers are able to do work they consider "good" has critical implications for their ethical selves. Pointing to policy efforts which dictate the terms of teachers' work, she offers rich cases which demonstrate how teachers become *demoralized* when they consider it very difficult if not impossible to live up to the moral standards they hold about teaching (Santoro, 2018). In one case, an elementary teacher named DeeDee describes feeling

"sick inside" when she was asked to ignore what she knew about researched-based methods for teaching mathematics in developmentally meaningful ways in service of "fidelity" to a new curriculum (Santoro, 2018). When DeeDee finally spoke to the principal about her concerns, she was told to go ahead and teach "her way," but not tell her colleagues. "I left my soul out of the picture for a few years," DeeDee explained (Santoro, 2018, p. 65). It is easy to imagine that if DeeDee feels she's left her soul behind, her teaching may not be accomplishing all that it should, even if she's been granted permission to adapt her curriculum.

**Linking the Moral and the Ethical to Learning Teaching: A Matter of Integrity**

In order to do their work well, teachers must be ethically engaged, actively pursuing a good life outside and inside the work of teaching. In order for teachers to flourish in the context of teaching, they must develop a normative sense about what the work they are doing ought to accomplish and believe, by and large, that they are accomplishing and living up the standards they hold with respect to what good teaching is and ought to entail. The philosophical literature on the moral and ethical dimensions of teaching indicates that these dimensions of teachers' professional lives are highly dynamic and ongoing. Teachers do not achieve flourishing and check "the ethical" neatly off their to-do list. Finding "the good life" through their work is a complex *ongoing* professional commitment. The same is true for the moral dimensions of the work. Teachers' professional responsibilities shift given changing school contexts, students, curriculum, policy environments and particular social and historical chapters; and teachers themselves develop new and nuanced understandings about what good work entails across their careers. The ongoing nature of these dimensions locate the moral and ethical dimensions of teaching *inside* the work of learning teaching. Learning teaching is not learning to do something

which also happens to have moral and ethical implications; learning teaching is fundamentally characterized by the moral and ethical nature of the work.

Much of the foundational literature describing situative and sociocultural theories of learning builds from studies of how learning occurs in professions other than teaching and does not explicitly attend to how the moral and ethical character of *teaching* influences learning. For example, Wenger's (1998) work illustrates that not all learners come to work intending to join a community of practice. Drawing on his ethnographic fieldwork studying health insurance claims officers he writes:

> *Ariel and her colleagues do not come [to work] to form a community of practice; they come to earn a living…They want to fulfill their individual production quota. They want to make money in order to go on with their own lives, which they see taking place mostly outside of the office. (Wenger, 1998, p. 45)*

But teachers often *do* come to work to be part of a community of practice. Many feel called to teach and to be members of the profession because of the moral and ethical goods they associate with the work (Hansen, 1995, 2021; Joseph, 2016; Sanger & Osguthorpe, 2013). They intend to situate their lives and their identities in relation to the work of teaching in some cases *fusing* themselves to the role (Hansen, 2018). These truths have critical implications for understanding the aim of teacher learning from the perspective of teachers' (themselves) learning; that is an understanding of who and what teachers hope to become through their work.

Lave (1996) writes that theories of learning should include a *telos,* a "direction of movement or change of learning" (p. 156). She distinguishes this from "goal directed activity" (which would suggest that learning has a distinct "end"): "The notion of *telos* seemed useful in turning away from a vista of educational goals set by societal, cultural authorities…It encourages

instead a focus on the trajectories of learners as they change" (Lave, 1996, p. 156). Referencing examples of apprentice tailors in Liberia and the learning of law practitioners in mosque schools in 19th-century Egypt Lave (1996) explains:

> *The* telos *of tailors' apprenticeship in Liberia and legal learning in Egypt was not learning to sew or learning texts…Instead, the telos might be described as becoming a respected, practicing participant among other tailors and lawyers, becoming so imbued with the practice that masters become part of the everyday life of the Alley or the mosque... (p. 150)*

In this dissertation I assume that teaching can be understood as an "expression of one's personal ambitions and deepest motivations" (Higgins, 2011, p. 2); the *telos* of teaching therefore is the ongoing project of learning to how to be a person who endeavors to act with *integrity* to these commitments amidst the complex moral and ethical demands of teaching. Integrity here does not imply a professional landscape which supports each individual teacher in seeking and experiencing internal coherence between their moral and ethical commitments and their teaching practice. It is rare indeed (in teaching, or anything else), to come across a true dilemma where an answer feels completely morally and ethically coherent. Usually, we have to make our best approximation given the unpredictable and imperfect conditions under which we all live. Integrity therefore is a pursuit more than a static achievement, and its complexity can hardly be attempted without the support of others. For this reason, I draw on Calhoun (1995), and suggest that integrity can also be understood as a *social virtue* which is "essentially connected to how we conduct ourselves among others" (p. 253). Integrity as a social virtue, Calhoun (1995) contends, entails *standing for* values and principles which concern not only what an individual believes *they* should do, but what the individual thinks *we* should do. Calhoun (1995) therefore proposes

that integrity is a fundamental part of participating in the “common project” of determining what is worth doing. To have integrity, she writes, “is to understand that one’s own judgment matters because it is only within individual persons’ deliberative viewpoints, including one’s own, that what is worth our doing can be decided. Thus, one’s own judgment serves as a common interest of co-deliberators” (Calhoun, 1995, p. 258). Extending Calhoun’s (1995) theory to learning teaching helps illuminate how, for teachers, learning is an ongoing effort to act in accordance with one’s moral and ethical commitments *and* to offer this these actions up as a living example for yourself, our colleagues and our students; a steppingstone from which we can take stock of what to do next for ourselves *and* for others.

**Learning to Integrate the Moral and Ethical: Accounts of Learning Teaching**

Very little literature investigates how the moral and ethical dimensions of teaching shape how teachers learn or how they experience learning teaching. In what follows I analyze three pieces of scholarship which do offer clear images of how teachers’ ethical selves—who they are, who they are becoming, and who they want to become— and their moral commitments —what they believe they owe to their students—are implicated in learning teaching. All three pieces are self-studies, and the authors in each describe experiences which cohere with an understanding of learning teaching conceptualized as the pursuit of integrity.

Lampert (1985) illustrates the complexities and uncertainties of learning teaching through an account of her own experiences as a classroom teacher. According to Lampert, learning teaching involves engaging with “practical dilemmas,” or problems where the teacher decides something in the classroom is not right and action must be taken, yet there is no clear “right” course of action. Rather than conceptualizing dilemmas as a forced choice between equally undesirable alternatives, Lampert (1985) contends “choosing is not the only way to manage in

the face of self-contradictory alternatives" (p. 182). She describes how when faced with a dilemma in her own teaching she engages in a process of "arguing with herself" to determine who she wants to be with respect to a problem. To exemplify this, Lampert describes a time when she realizes that she has created inequitable learning opportunities by teaching at the blackboard closest to the boys in order to mitigate off-task behaviors. In doing so, the content on the board was less visible to the girls in the class, and she was less quick to notice and respond to their questions and contributions. Lampert (1985) engages in an argument with herself as she runs through possible actions to take and the identity implications of each:

> *I did not want to be a person who ignored the girls in my class because the boys were more aggressive in seeking my attention. I think of myself as someone who encourages girls to become more interested and involved in mathematical thinking. At the same time, I did not want to have a chaotic classroom as a result of turning away from the boys' behavior. But neither did I want to appear to have such a preoccupation with order that I discouraged enthusiasm; standing near the boys enabled me to keep them focused without attending to their misbehavior directly. (p. 183)*

Lampert (1985) describes the process of working out *an identity* for this situation as "an essential tool for getting my work done" (p. 183). She explains: "When I met my class the morning after recognizing my dilemma, I had not resolved any of the arguments within myself about what to do, but I did have some sense of who I wanted to be. And that made a difference" (p. 184). Ultimately, Lampert ends up working with her student teacher to organize small group instruction. The problem is not "solved" but, Lampert feels this action allows her to hold conflicting parts of herself together: her desire to maintain equity while supporting both engagement and order.

Ball and Wilson (1996) also draw on their own work in the classroom to argue that the dilemmas inherent to teaching often involve balancing concerns for subject matter and concerns for students. Specifically, they argue that learning teaching involves maintaining the demands of teaching as a "knowledge endeavor" and teaching as a "moral enterprise." Similar to Lampert's (1985) idea of "working out an identity" to attend to teaching dilemmas, Ball and Wilson (1996) focus on the "integrity" of the teacher and suggest that what is at stake in practical dilemmas of teaching is not just the quality of the teaching, but the cohesiveness of the person in the role of teacher. Ball offers an example of how her integrity was implicated while facilitating a discussion about fractions in her third grade class (Ball & Wilson, 1996). During her lesson, Ball asked the class whether 5/5 is greater than 4/4 and was surprised to learn that her students were unsure about the answer. Some students believed 5/5 was more because the whole is cut into more pieces, others believed that 4/4 and 5/5 are equivalent and refer to a same-sized whole cut into a different number of pieces. A student, Sheena argued: *"...I think 5/5 should be a little bit larger-because you have one more piece…With 5/5 there is enough to pass out one piece to each of your five friends, but with 4/4 one friend will not get any cookie"* (Ball & Wilson, 1996, p. 168). Another student, Jeannie, argued that 4/4 and 5/5 are equivalent because they each represent one whole of a cookie: *"...those are both two cookies, and they're both the same because they're the same size. You just split them up in different, um-in more or less pieces. And then if you eat all of them, then you still have the same amount-a whole, a whole cookie" (Ball & Wilson, 1996, p. 168).*

The class was roughly split, and the debate seemed to be in a gridlock. Like Lampert (1985), Ball engaged in an argument with herself as she considered her options. On the one hand, Ball felt pressure to *tell* students that 4/4 and 5/5 are in fact equivalent. This lesson took place

with three days left in the school year, and she worried it was irresponsible to end the school year without correcting students' interpretation. On the other hand, Ball believed in the importance of fostering a mathematical community which values and builds on students' ideas and arguments. Students on both sides of this debate had offered sound logic, and Ball felts that "correcting" students—while perhaps efficient in the moment—would not effectively develop students' thinking in a meaningful way. Alongside these considerations, Ball maintained a keen awareness of each students' participation. She reflected on how students were involved in the discussion in light of their identities (racial, English language proficiency, social and academic status) and asks herself questions such as: *Who is speaking? What are the others thinking and doing? Should she invite students who hadn't spoken to speak? Would that make shyer students anxious? What other ways of participating are available?* (Ball & Wilson, 1996).

In her reflections on these kinds of pedagogical challenges Ball calls for a more nuanced language to describe the work of learning teaching, in order to better attend to the whole personhood of the teacher as a learner:

> *How can we represent the complicated and dynamic nature of pedagogical reasoning to reflect not only what teachers know and believe but also what they are committed to and think is right? Doing this means developing a more adequate language, a rhetoric of inquiry that honors both knowing and caring and seeks ways to embrace and illuminate the connections among ideas and understandings, concerns, and values, wishes and dreams…Talk of "the knowledge" and "the moral," "the intellectual" and "the ethical" implies that those things are somehow distinguishable…Teachers do not separate their knowledge from the moral aspects of their work. The two are interwoven, necessarily*

*inseparable in the moment-to-moment challenges of teaching…. (Ball & Wilson, 1996, p. 188)*

In pointing to the various demands of teaching alongside the teacher's "values, wishes, and dreams" Ball reminds us that pedagogical reasoning is not merely an abstract process. It occurs within a *person*, and this person is tasked with finding a way forward that honors and integrates the various and at times competing demands and beliefs that undergird and give meaning to not only their teaching but to their lives.

The idea that learning teaching intersects with teachers' moral and ethical commitments is made even more pointedly through the work of Furman and Larsen (2020). While Ball and Wilson (1996) and Lampert (1985) allude to a relationship between learning teaching and the teacher's ethical self, Furman and Larsen (2020) explicitly describe a case of learning through teaching as a form of ethical self-care. The authors, who co-taught a math methods course in a teacher education program, recount their experiences using a routine they developed called "Interruptions" which they used as a tool for supporting their own professional learning, and the professional learning of teacher candidates. Furman and Larsen (2020) would "interrupt" one another when teaching in order "open up discussions about the acts of teaching and to raise awareness around teacher-decision making *while* in the act of teaching" (Furman & Larsen, 2020, p. 4). For example, Furman paused Larsen to ask her why she asked students to "turn and talk" while she was modeling a lesson in order to make Larsen's values around including all students' voices visible. Furman also interrupted to ask Larsen more challenging moral and ethical questions: "I'm wondering; do you think it is possible to really differentiate every lesson in order to meet the needs of every student all of the time? And, do you think that should always be our goal as teachers?" (p. 6). The authors describe how this question was surprising and

challenging for Larsen to answer in the moment, and that it also pushed her to "think about her own educational beliefs…and ultimately formulate her own values on the topic" (p. 7). Furman and Larson (2020) claim that these pauses were useful in developing not only their pedagogical reasoning and judgment as teachers but also their ethical commitments as professionals. Stopping instruction to reflect on and justify their decisions, they argue, "helped us to stop, think, and sometimes change our practices so that they were better in service of our ethical beliefs" (p. 9).

Together, these examples of learning teaching from Lampert (1985); Ball (Ball & Wilson, 1996); and Furman and Larsen (2020) highlight the ways that learning teaching is aimed toward integrity. For Lampert (1985), deciding how to act in moments of teaching is a matter of deciding who to *be*. For Ball learning, teaching and managing the various concerns and responsibilities of a teacher is a matter of integrating what she knows about teaching alongside her "values, wishes, and dreams" (Ball & Wilson, 1996, p. 188). For Furman and Larsen (2020), learning teaching involves reflecting on one's beliefs and "formulating values." In each case, learning teaching involves making a decision which in one way or another coheres with one's commitments. These actions however do not belong to the teacher alone, she stands for this course of action before her students and colleagues, marking it as a choice we can all reflect back on as we continue to work out how to act and who to be moving forward.

**Chapter Summary**

In this chapter, I articulated the theoretical perspectives and assumptions anchor this study. I brought together philosophical perspectives about the moral and ethical dimensions of teaching, sociocultural and situative understandings of learning and literature about teachers' experiences as learners of teaching to argue that learning teaching is a moral and ethical

endeavor, that is an effort to both do good work in service of others and an effort to live a meaningful life for oneself. Specifically, I suggest that for teachers, learning teaching involves juggling these commitments in and through their work—as they plan, work with colleagues, and teach their students—in an effort to find integrity.

## Chapter Three: Research Design

In the previous chapter, I theorized that learning teaching is an ongoing moral and ethical endeavor and that learning teaching, from the perspective of teachers as learners, is a moral and ethical endeavor in pursuit of integrity. In this chapter, I describe the methods I employed to answer my research questions. As a reminder, in this study I ask:

1. *How do teachers experience learning about, from and through teaching?*
2. *How do the moral and ethical dimensions of learning teaching shape teachers' experiences as learners?*
3. *What can we learn about the moral and ethical goods of teaching through teachers' experiences learning?*

This chapter begins with a description of the methodology I used—portraiture (Lawrence-Lightfoot & Davis, 1997)—and a rationale for why this methodology coheres with the aims of this study. Next, I explain how I thought about my role as a "portraitist" and "witness" to teachers' work in order to hear and represent the "moral and ethical register" of teachers' experiences (Hansen, 2021; Wilson & Santoro, 2015). Then, I describe the research setting and participants of this study and how I generated and analyzed data.

### Portraiture: Blending Art and Science

I conducted this study using portraiture, a narrative methodology developed by Sara Lawrence-Lightfoot in the 1980s (Lawrence-Lightfoot, 1983). Portraiture represents a "blending of qualitative methodologies—life history, naturalist inquiry, and most prominently, that of ethnographic methods" (Dixson et al., 2005, p. 17). What distinguishes portraiture from these research traditions is its explicit effort to "bridge" art and science; to maintain *both* "vigilance to empirical description *and* aesthetic expression" (Lawrence-Lightfoot & Davis 1997, p. 12). Through "thick descriptions" (Geertz, 1973) the portraitist works to create a "convincing and authentic narrative" which depicts the complex experiences of the subject in context (Lawrence-

Lightfoot & Davis 1997, p. 12). These narrative "life drawings" are intended to capture "the essence" of the subject as understood by the portraitist in an effort to both inform and inspire the reader (Lawrence-Lightfoot & Davis, 1997). What "bridges" portraiture and qualitative methodology; what connects the portraitists to the poet and the ethnographer alike is a fundamental shared belief: "that *in the particular resides the general*" (Lawrence-Lightfoot & Davis, 1997, p. 14).

Several aspects of portraiture stood out to me as particularly compelling and useful when I designed this study. First, I was drawn to the idea of *telling stories* about teachers' experiences learning. In a review of Lawrence-Lightfoot's work, Joseph Featherstone (1989), describes portraiture as part of a "buried" tradition of storytelling in teaching. He explains that storytelling has always been part of how teachers understand their work: "It may be time to pay attention to the significant fact that teachers, like other clinicians, get at the important stuff in their practice —the moral and practical heart of the matter—by telling stories" (Featherstone, 1989, p. 377). Indeed, telling and receiving stories has been a central mechanism for me in making sense of my own experiences as a teacher and teacher educator so in many ways, writing narratives of what I saw teachers experiencing felt like a deeply genuine way for me to share what I learned over the course of this study. Featherstone (1989) goes on to say: "We might get beyond the narrow technical definition of education if we begin approaching teaching as a collective autobiography, the sum of many individual voices telling the story of practice together" (p. 377). As I discussed in Chapter Two, learning teaching is a complex moral and ethical endeavor and integral to what "the practice of teaching" is all about. Contributing rich and vivid *stories* of that endeavor to the "collective autobiography" of this practice, stories which can belong to all who are engaged in this work, resonated with me and became a central aim of this study.

Finally, I was inspired by the stance towards storytelling that portraiture demands. Portraiture is intentionally generous and seeks to combine "the distancing power of analysis with another kind of power—the deep gesture of solidarity" (Featherstone, 1989, p. 376). Generosity and solidarity do not imply that the work should come out exactly as the subject would anticipate or hope. In reflecting on her own experiences as the subject of a portrait, Lawrence-Lightfoot (2005) writes:

> *…They seemed to capture my 'essence' qualities of character and history, some of which I was unaware, some of which I resisted mightily, some of which felt deeply familiar…I also recognized that in searching for the essence, in moving beyond the surface image, the artist was both generous and tough, skeptical and receptive. I was never treated as an object but always as a person of strength and vulnerability, beauty and imperfection, mystery and openness. (p. 4)*

This effort to capture the wholeness of the subject (*while* in solidarity with the subject) "begins by searching for what is good and healthy and assumes that the expression of goodness will always be laced with imperfections" (Lawrence-Lightfoot & Davis, 1997, p. 9). According to Lawrence-Lightfoot and Davis (1997): "The researcher who asks first 'What is good here?' is likely to absorb a very different reality than the one who is on a mission to discover sources of failure" (p. 9). This search for "complex evidence of goodness" also includes investigating how the subjects of the study understand goodness: "The portraitist does not impose her definition of 'good' on the inquiry, or assume that there is a singular definition shared by all…Rather the portraitist believes that there are myriad ways in which goodness can be expressed and tries to identify and document the actors' perspectives" (Lawrence-Lightfoot & Davis 1997, p. 9).

A foundational assumption of goodness and a methodological commitment to understanding goodness from the perspective of the study's "subjects" resonated with my hopes for this study on multiple levels. Practically, careful attention to how teachers understand goodness is essential to addressing my research question, so this dimension of portraiture feels deeply coherent with what is at the heart of this inquiry. At the same time, this stance aligns with my own ethical goals as a person, researcher, teacher, and teacher educator. I want to experience the world (and *learn* to experience the world) as a person who asks first, "*What is good here?"* and I want to better understand and contribute to what we know about the *goods* of teaching and learning teaching.

***Blending Art and Science…and Philosophy: Bearing Witness to Teachers and Teaching***

While this study does not employ philosophical methods in the traditional sense of the term, I ask philosophical questions (about the moral and ethical dimensions of learning teaching) and make use of philosophical concepts, literature, and assumptions. Specifically, I drew on the work of scholars who engage in "philosophically based fieldwork" (e.g., Hansen, 2015, 2017, 2018, 2021; Santoro, 2011, 2013, 2017, 2018) to consider how my assumptions about the moral and ethical nature of learning teaching might manifest as I conducted this study. In other words, if learning teaching is a moral and ethical endeavor, what does it mean to go out and see these dimensions in the world? How does one hear the moral and ethical "register" (Wilson & Santoro, 2015) of teachers' experiences?

Based on his experiences conducting philosophical fieldwork, David Hansen (2017, 2018 2021) describes how an "ethical orientation" towards "bearing witness" to teaching and teachers can push the inquirer past objectification and toward deeper understandings about teaching's truths. Hansen (2021) explains that "to bear witness to teaching and teachers is to hone one's

receptivity to resonant particulars in the school and classroom" (p. 66). Drawing on the work of poet and philosopher Jan Zwicky (2013), Hansen (2021) defines "resonant particulars" as:

> *…moments, actions, expressions and gestures that, among other possibilities, bring the being of a human being, their very personhood into presence however fleetingly. Such particulars resound with human being analogous to the way a note of music resounds through every nook and cranny in the concert room. Resonant particulars "gather" the wholeness of the person, in the way a set of notes in a sonata or a song gathers or embodies the wholeness of a piece. These evocative terms shed light on a perfectly recognizable experience that can happen anytime, anywhere, when a person suddenly and starkly sees in another's gesture the fullness the singular substantiality, the sheer humanity of their reality. (p. 65)*

To recognize particulars which shed light on moments of classroom life that are both "perfectly recognizable" and "starkly singular," the witness must "speak from a position of wonder and concern generated through long-term engagement with the terms of the work" (Hansen, 2021, p. 77). That is, the witness's experience as a teacher, educator and researcher inspires both reverence for teaching as "a significant human practice," ripe with possibility and purpose, and at the same a sense of worry and responsibility "for the continued integrity of teaching as a moral and intellectual endeavor" (Hansen, 2021, p. 77).

Hansen's emphasis on vivid description, wholeness, and critical solidarity resounds with many of the values and ways of knowing articulated in portraiture and also offers a new layer of nuance with respect to what it can look like to explicitly foreground the moral and ethical dimensions of teaching while conducting empirical research. Thus, as I carried out this study, I

conceptualized myself as a witness and stayed open and alert to resonant particulars throughout the data collection and analysis process.

***My Voice and Positionality***

The researcher is "the primary instrument for data collection and analysis" in all forms of qualitative research (Merriam & Tisdale, 2016). In portraiture, Lawrence-Lightfoot and Davis (1997) specify this further indicating that the researcher's *voice* is the instrument: "The voice of the researcher is everywhere: in the assumptions, preoccupations, and framework she brings to the inquiry; in the questions she asks; the data she gathers; in the choice of stories she tells; in the language, cadence, and rhythm of her narrative" (Lawrence-Lightfoot & Davis 1997, p. 85). As a portraitist and witness to teachers and teaching, I bring my own subjectivities and perspectives to this work, and indeed, for better or worse, I *rely* on these subjectivities to notice, interpret, and create representations of teaching and teachers' experiences learning teaching.

Functioning as a "research instrument" feels *daunting*. At the end of the day, the portraitist must on some level believe that they are the right person to stand back and paint this picture, an uncomfortable fact to reconcile even as I sit here "paintbrush" in hand. At the same time, I am deeply motivated and moved by how my own becoming is bound up in and vulnerable to this process. The witness, as described by Hansen (2021), not only brings their own prejudices and biases to seeing teaching, but also poises themselves to *receive* and transform (to develop new and hopefully better biases): "The person can no longer move in the world the same way: the world is fuller, more fragile, more precious. Their newly won responsiveness morphs into a fresh sense of responsibility" (p. 68). Likewise, the portraitist in lending her voice to "a selfless systematic examination of the actors' experiences and perspectives" inevitably renders a self-portrait (Lawrence-Lightfoot & Davis 1997, p. 86). Throughout this study, I negotiated this

“paradox of voice,” critically grappling with how my biases and prejudices influenced my understandings *and* allowing myself to trust the value of my own presence in this work (Lawrence-Lightfoot & Davis 1997, p. 86). And so, while still actively wondering “*Who am I to write this story?”* I will try to answer the question in earnest in an effort to make visible the various identities, backgrounds and experiences that influence this work.

I am a cisgender heterosexual White woman, a doctoral student, a daughter, a sister, and a mother of two young children. I am also married to a middle school math teacher (who I met my first year teaching). I have been “preoccupied” with education for almost as long as I can remember, beginning in 3rd grade when I, inspired by my teacher Mrs. Lemieux, decided I would become a teacher just like her and never looked back. I started teaching at age 22, fresh out of undergraduate school and over the course of six years taught grades 4, 5, 6 and 9. When I left classroom teaching to begin my doctoral studies, I started my work as a teacher educator and have been working closely with teachers as an elementary methods instructor and researcher for seven years. All of this is to say: I come to this work as a former classroom teacher and teacher educator, deeply interested in and committed to supporting teachers in sustaining meaning in their work through ongoing learning. On one level this study is rooted in my past experiences as a classroom teacher. I can quite clearly see how many of the questions I’ve been asking since the beginning (about why we teach and what it means to spend your life trying to get better at it) are alive in these pages. But perhaps even more importantly, this study is connected to my ongoing attempts to learn teaching as a teacher educator; to grow in my capacity to support, challenge and learn alongside teachers. Taking seriously that to educate people we must first know them, this project is part of a sincere effort to better understand who teachers are as learners and to get

closer to understanding the moral and ethical dimensions and tensions which shape their experiences so that I can be a better teacher to my current students.

**Research Setting and Participants**

I conducted this study during the 2021-2022 school year at Cedar Brook Middle School (CBMS), a dual-language middle school in a large suburban district in the Pacific Northwest. As I noted in Chapter One, this study began just as the school was reopening after over a year of remote learning due to the COVID-19 pandemic. I selected this school and was introduced to the specific math teachers I follow in this study (Donna, Amy, and Marta) through my work as a research assistant for the Math Teaching Project (MTP). The MTP is a National Science Foundation funded design research project (Grant No. 2010634) working to create tools that support mentor teachers and teacher candidates in learning together about equity-oriented mathematics instruction. At the time of this study, the MTP was collecting exploratory data to better understand how in-service mathematics teachers learn together in professional development and coaching settings in two school districts. Several features of the Cedar Brook school community contributed to my decision to locate this study at CBMS. First, the district math coach, Kate, explained to me from the earliest days of my time at the school that the math teachers at CBMS were known in the district for their enthusiasm and commitment to professional learning. She told me, for example, that several math teachers at CBMS often requested to host the district-wide math PDs at their school, and that CBMS math teachers had much higher attendance rates at "optional" math PD opportunities than other math departments in the district. Second, through my initial observations of CBMS math teachers and through conversations with both the district math coach and school leader, I noticed that this school community was outwardly thinking and talking about social justice and educational equity. This

was evident in everything from the posters in the hallways at the school (where I saw Black Lives Matters posters, Shepard Ferry prints with statements like "We the Future; Rise to Rewrite the Law"; and progress pride flags); to conversations among teachers discussing how race and disability intersect with students' participation in math class. I did not select CBMS because the teachers there had a particular political or moral stance or view toward issues of social justice and equity (though there was a clear "progressive" orientation), but it did seem supportive to the aims of this study that teachers were explicitly engaging with one another about the moral implications of their work on a regular basis. In summary, it was clear to me that this could be a rich setting for understanding the moral and ethical dimensions of learning teaching because the school community, and the mathematics teachers in particular, were eager to participate in professional learning opportunities and were already engaging in explicit conversation and reflection about the moral dimensions of their work.

In the section that follows, I will describe Cedar Brook Middle School in more detail, "priming the canvas" of the portraits to come by locating the subjects of this study and myself in time and space. As Lawrence-Lightfoot and Davis (1997) explain, the context becomes "a resource" for understanding what people do: "We have no idea how to decipher or decode an action, a gesture, a conversation, or an exclamation unless we see it embedded in a context. Portraitists, then, view human experience as being framed and shaped by the setting" (p. 41). I will continue to provide contextual details in the findings chapters, but here I employ a characteristic "move" of a portraitist, working "from the outermost circle inward, macro to micro, large to small, backdrop to foreground, general to specific, public to private" (Lawrence-Lightfoot & Davis, 1997, p. 45). So imagine, if you will, that I am slowly "zooming in," taking you *there* to Cedar Brook Middle School.

### *Cedar Brook Middle School*

CBMS's campus is located right off a state highway, steps away from four lanes of traffic whizzing by at 50mph. The school, which typically enrolls between 850-950 students in grades six through eight, feels like it's in a suburban business district more than a neighborhood. There are three churches, a dentist office, a law office and the headquarters for a natural foods company in the surrounding area. There is also a large mall less than three miles up the road, though I wondered how long that would be the case. At the time of this study several of the big box stores in and around the mall were vacant or plastered in neon banners proclaiming their final clearance sales (an eerie but familiar sight "post"-COVID-19 to be sure).

CBMS is part of the district's Spanish immersion bilingual program which in practice meant that both Language Arts and Social Studies were taught in Spanish and mathematics was taught in English. According to public records from the state in 2021-2021 (shown in Table 1), the majority of the teaching staff was identified as White (80%). The student population was predominantly either White (~60%) or Latino/Hispanic (~30%). Around 50% of students at CBMS qualified for free or reduced lunch (the district average was about 26%), and about 25% of students were multilingual and first learned to speak a language other than English.

**Table 1**

*Student and Teacher Demographic Information Cedar Brook MS 2021-2022*

| | White | Latino/ Hispanic | Multi-racial | Asian | Black/African American | Eligible for free and reduced lunch | Multi-lingual; First language other than English |
|---|---|---|---|---|---|---|---|
| Students | 60% | 30% | 7% | 2% | 2% | 50% | 25% |
| Teachers | 80% | 15% | 2% | 4% | 0% | n/a | unknown |

*Note.* Data taken from state public records and rounded to preserve anonymity

State test performance at Cedar Brook was typically below both state and district averages for math and literacy. The year this study was conducted 35% of CBMS students met state grade-level expectations for literacy, and 18% of CBMS students met grade-level expectations for math (whereas the state averages are about ten percentage points higher in each category). It's worth noting that students at CBMS performed much better on these standardized assessments overall and relative to the state prior to the COVID-19 pandemic. In the 2018-2019 school year for example (pre-COVID-19), 35% of students at Cedar Brook met state grade level expectations for mathematics, as compared to the state average of 39%. I highlight this change in test performance relative to the state because it provides evidence that the year I conducted this study at Cedar Brook, their first year fully in-person after over a year of remote schooling was, in many ways, atypical. Further, this data may substantiate claims made by teachers and leaders at the school that overall, the students at CBMS were more affected by inequities related to remote learning than their peers in the state. Regardless, I believe the unique challenges and emotions related to "coming back" after COVID-19 related to the moral and ethical dimensions of teachers' experiences at the time of this study. Indeed, it was a strange disorienting time for all of us.

However, perhaps *because* of the loneliness, despair, and confusion that COVID-19 brought about, it was impossible for me to ignore how wonderful it was to be at CBMS and to see people at school *together*. The first time I put a visitor sticker on my shirt and walked into the building I felt a tightness in my chest with each new sight. Here was a school which had only just reopened after over a year of sitting vacant. I had never been to Cedar Brook before, but it was familiar to me in the way that "school" nearly always is, and I felt deeply aware, walking into the building in the early morning of October 20th, 2021, that everything had changed and yet

nothing had changed at all. Perhaps for this reason, I was moved by details that I might have noticed but not *felt* just two years before: I paused to delight in students' work stapled on hallway bulletin boards, letting my eyes rest on and appreciate each sample's unique character (smooshed and narrow letters or rounded looping ones, eraser marks, crumpled corners); I smiled and shook my head knowingly at a questionable box of pizza on the counter in the teacher's lounge at 8am; and I was hit with a surprising wave of nostalgia when I recognized the cloying and oddly universal smell of a school cafeteria.

That being said, while *my* initial "return" to school was characterized by relief and awe, there was a weariness among the teachers at CBMS. They were happy to be "back" for certain, but also experiencing a new level of *tired.* For most, teaching online for over a year had been morally, ethically and practically draining (Bartlett, 2021). New inequities arose and existing inequities came into a new and sharpened focus in the "post" COVID-19 world. Teachers frequently shared with me and discussed with each other an array of difficulties: low attendance rates and staffing shortages; fears for their own health and safety; and the specific challenges of supporting students who had been home for over a year in adapting and adjusting to the new social and academic reality of school.

This weariness however seemed almost imperceptible in the presence of children. Every morning as students trickled in from outside, teachers came out and stood by the door to their classrooms, many of them clutching a thermos of coffee to monitor the passing period. I noted how teachers warmly greeted students offering hellos and good mornings and reminders from across the halls. There were some hallway norms to be certain, but for the most part, students were trusted to get where they were going without any direct oversight, which allowed teachers to informally connect with kids as they made their way to class. Lest I romanticize reality, this

scene was a far cry from a tranquil exchange of morning pleasantries: These were hallways filled with middle school students. Sixth, seventh and eighth graders, in all their chaotic adolescent wonder, their shrieking and shouting and laughter hardly muffled at all by the masks each of them wore. I noticed how they tended to travel in small packs of roughly three to five, and how the fashion choices within those groups seemed to go together: A trio of kids in dramatically ripped jeans, linking arms (when was the last time I saw people *linking arms?!)*; a group of students in mostly black and white (one wearing fishnet stockings, another wearing a fuzzy panda bear hat, the ear flaps of which extended down to his hips—a scarf if needed!). There was a coziness to the commotion and upon reflection, I realized that the halls were a fairly accurate metric for the culture of the school in terms of student-teacher relationships at CBMS. Overall, I had the sense that students and adults at this school liked each other and were on the same side. I never saw a child yelled at while at CBMS, and I noticed that even the sulking student sitting in the office waiting to meet with an administrator was spoken to with patience and respect by the adults working at the front desk.

As passing periods drew to a close, perhaps my favorite quirk of CBMS hallways would unfold. Seemingly out of nowhere the intercoms would play a clip of a 70s or 80s rock song to signal students had one minute left to get to class. While this was hilarious to me in its own right, it was the way that not a single student or teacher acknowledged the tune which made me laugh out loud more than once. While I would find myself almost instinctively wanting to bob to the music in some way or another, students continued walking to their destinations just as they were before (though perhaps a bit faster). It was as though there was supposed to be a flash mob or some kind of whole-cast dance scene in a musical but no one got the memo. Once in a meeting with the district math coach and principal, a full minute of "I Will Survive" blared through the

entire school and both administrators continued talking as though nothing had changed while I stifled back giggles, grateful in a new way for the protection of my KN-95 mask.

**Professional Learning for Mathematics Teachers at Cedar Brook.** This is a study about how three math teachers at Cedar Brook Middle School experienced the moral and ethical endeavor of learning teaching. So, if the traffic outside and the hallways inside are the primer on the canvas, details about the contexts and structures intended to support mathematics teachers' learning at Cedar Brook make-up crucial elements of the background. In what follows, I will broadly describe 1) the structure and culture of professional learning for math teachers at Cedar Brook; and 2) the structure of the professional development workshops and coaching cycles which took place at Cedar Brook at the time of this study.

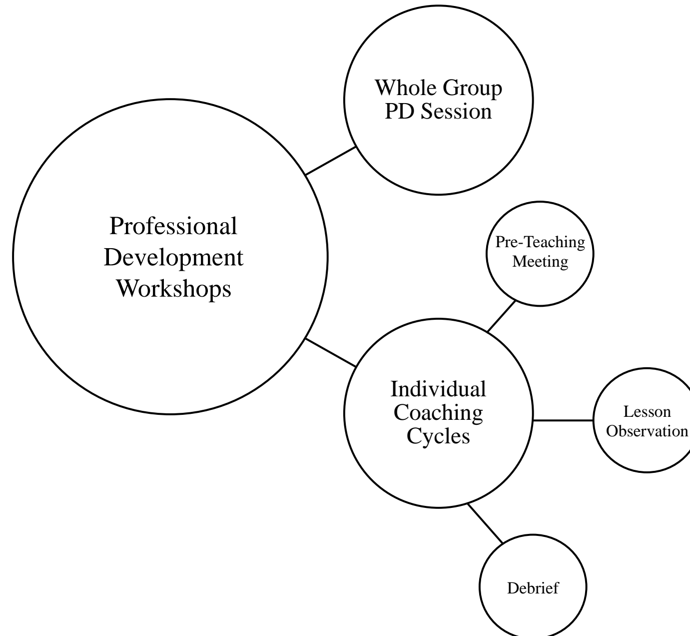
**Structure and Culture of Learning Teaching for Math Teachers at CBMS.** Just as Kate promised from the get-go, the math teachers at CBMS were, for the most part, seriously engaged in learning through, from and about their teaching, often with one another. I will share and explore details that characterize the unique culture of learning among math teachers at CBMS in Chapters Four-Six (and especially Chapter Five), but here I will share information about some key structures built into the math teachers' schedules to support learning and collaboration. First, grade level teams met once a week (as required by the district, though many met more often than this informally). In addition, all middle school math teachers in the district also met once a month on Wednesday mornings. Finally, most math teachers co-taught one class period with a special education teacher. It's worth noting that while these structures were largely "required" the teachers at CBMS seemed to engage in these structures genuinely. For example, I noticed that the co-teachers I observed working with one another planned and collaborated quite closely and that grade level teams used their time together to think deeply about supporting

students to make sense of specific mathematical content. Teachers also reported, and I saw on more than one occasion that they met with other math teachers and especially their grade level colleagues more often than was "required," often finding daily opportunities to check in. The teachers also seemed to have positive personal relationships and friendships with one another. Focal teachers in this study spoke about how teachers often met up for happy hour after school and how these social gatherings often ended up leading to rich conversations about their work and ideas. There were certainly a few teachers who were more on the periphery of these dynamics (teachers who only came to meet when required or didn't tend to join in on the social gatherings), but Amy, Donna and Marta worked very closely with their grade level and math department colleagues.

**Professional Development Workshops and Coaching Cycles.** In order to support a context for studying teachers' learning, the MTP worked in partnership with the school district to organize a series of four Professional Development Workshops (PDWs) for mathematics teachers across the year. The PDWs were facilitated by a non-profit professional learning organization that specializes in supporting math teachers and were facilitated by a professional development (PD) facilitator. Each PDW consisted of a 90-minute whole-group PD session (which was hosted at Cedar Brook but open to all secondary math teachers in the district), followed by the opportunity for individual teachers to engage in a "coaching cycle" with the PD facilitator over the course of the next two days (see Figure 2). Broadly, the facilitated whole group sessions introduced teachers to a new discussion-based instructional activity to support teachers in facilitating rich mathematical discussions with their students. The PD facilitator

**Figure 2**

*Visual Representation of a Professional Development Workshop (PDW)*




would model the instructional activity with teachers and then facilitate a discussion among teachers about what they noticed about how the instructional activity supported the facilitator's goals for the lesson. Then teachers would have an opportunity to work with their grade level teams and plan a discussion to try out in their own classrooms. For example, during the PD session in October (which I reference in Chapter One) the teachers first experienced and then planned a lesson which included a "Notice and Wonder" discussion in order to engage students in reasoning about a mathematical context. Following the PD session, teachers who signed up for coaching would then have the opportunity to continue working on this lesson with the support of the PD facilitator and district coach. Coaching cycles typically included a 25-minute pre-teaching meeting, a 20-minute observation of the lesson and a 20-minute debrief. Following the coaching cycles, teachers were encouraged to organize additional classroom visits or grade level

meetings to continue refining and practicing aspects of instruction they set goals around during the coaching cycle with building coaches, administrators or colleagues. Due to the rise and fall of COVID-19 cases at the time data was collected, one of the four PDWs was moved online and facilitated via Zoom and coaching cycles were canceled. (see Figure 3 for more details about when each PDW took place and whether it was held online or in-person).

***Focal Teacher Selection***

In Chapter Four, I will describe the three teachers who are the focus of this study in great detail, offering portraits which highlight what I came to understand about each teacher as a learner of teaching. Here, I focus on how and why I selected Donna, Amy and Marta to participate in this study. Again, I came to know these teachers through their participation in the Math Teaching Project, specifically their participation in the PDWs at Cedar Brook. Of the thirteen math teachers at CBMS at the time of this study, seven requested to participate in coaching cycles in addition to PDWs. I considered these seven teachers as potential participants, assuming their decision to participate in optional coaching suggested their particular interest and investment in their own professional learning. Of the seven possible participants, five agreed to participate in this study. Then, using purposeful sampling (Patton, 2015), I chose to focus this study on Donna, Amy, and Marta because I felt the richness of the data I collected through my work and experience with them generated data that was particularly relevant to the focus of this study. I also considered how the variation in these teachers' backgrounds and experience level might contribute to the richness of this study. As I show in Table 2, Donna, Amy and Marta are each at different points in their life and career. At the time of this study, Donna was 60 and in her 19th year of teaching, Amy was, 45 and in her 10th year of teaching and Marta was 29 in her

**Table 2**

*Focal Participant Information*

| Name | Teaching experience | Age | Racial/ethnic identity | Language(s) spoken | Gender pronouns | Other aspects of identity participants wished to share |
|---|---|---|---|---|---|---|
| Donna | 19th year | 60 | White | English | she/her | n/a |
| Amy | 10th year | 45 | White | English | she/her | n/a |
| Marta | 2nd year | 29 | Hispanic/Native American | Spanish and English | she/her | Immigrant |

2nd year in the classroom. Finally, I considered the teachers' racial and ethnic backgrounds in selecting this sample. Donna and Amy are, like most of the teaching force in the United States, White women. Marta, on the other hand, self-identifies as an immigrant Hispanic Native American, she moved to the United States in 2014. As I will demonstrate especially in Chapters Four through Six, the focal teachers' diverse backgrounds add important depth to this study, as do the similarities across their experiences despite these differences.

**Data Generation**

To develop an understanding of Donna, Amy and Marta's experiences learning teaching, and specifically the moral and ethical dimensions of those experiences, I generated data between October 2021 and May 2022. Across these seven months I visited the school four times and during each visit I followed the teachers into spaces and places where they were explicitly working on learning teaching across three days (see Figure 3 for a visual timeline of these school visits and related data generation). While visiting the school I attended professional development workshops, grade level team meetings, and coaching cycles. I also spent time observing and getting a sense of each teacher's daily life at Cedar Brook. Throughout this period, I toggled

**Figure 3**

*Timeline of Data Generation*

| October | December | February | March | April | May |
|---|---|---|---|---|---|
| PDW #1 (in-person at CBMS) | PDW #2 (in-person at CBMS) | PDW #3 (online via zoom) | Additional Coaching Cycle (in-person at CBMS) | PDW #4 | Additional Coaching Cycle (in-person at CBMS) |
| Coaching Cycles | Coaching Cycles | *No Coaching Cycles* | | **Not Observed** | |
| **Data Generated**<br>• Field notes<br>• Audio recordings of debrief conversations with teacher educators and researchers<br>• PD artifacts (agenda, slides)<br>• Coaching Cycle artifacts (lesson plans, slides etc.)<br>• Memos | **Data Generated**<br>• Field notes<br>• Audio recordings of PD Session, Coaching Cycles and debrief conversations with teacher educators<br>• PD artifacts (agenda, slides)<br>• Coaching Cycle artifacts (lesson plans, slides etc.)<br>• Memos | **Data Generated**<br>• Field notes<br>• Audio recordings of debrief conversations with PD facilitator<br>• PD artifacts (agenda, slides, teacher lesson plans and workspaces)<br>• Memos | **Data Generated**<br>• Field notes<br>• Audio recordings of Coaching Cycle<br>• Coaching Cycle artifacts (lesson plans, slides etc.)<br>• Memos | **Data Generated**<br>• PD artifacts (agenda, slides)<br>• Email exchange with PD facilitator about focal teachers' coaching cycles<br>• Memos | **Data Generated**<br>• Field notes<br>• Audio recordings of Coaching Cycle<br>• Coaching Cycle artifacts (lesson plans, slides etc.)<br>• Memos |

between purely observing the teachers' work and learning alongside them. I also collaborated with the other teacher educators and researchers in this context and generated data about our conversations and reflections as we worked to understand and support the learning of the mathematics teachers in PDWs and coaching cycles.

Altogether, this study draws on the following data sources: (1) Initial semi-structured interviews with focal teachers; (2) Observations of focal teachers' participation in PD sessions; (3) Participant observations of the teachers during additional coaching cycles; (4) Planning and debrief conversations with PD facilitators, coaches and researchers; and (5) Observations of focal teachers' daily life and professional practice. As I will describe further below, I audio recorded interviews, observations and coaching cycles whenever possible and used a transcription software (otter.ai) to transcribe these data.

***Initial semi-structured interviews***

In December and January, I met with each of the focal teachers on Zoom to conduct a semi-structured interview. The purpose of the interview was to get to know each teacher and begin to develop an understanding of their background and experiences as learners and as teachers. The interview was also designed to elicit each educator's ideas related to the moral and ethical dimensions of their work and how these dimensions intersect with, support and constrain their learning. For example, I asked each teacher to share why they became a teacher, and specifically why they chose to become a math teacher. I also asked each teacher if, and if so, how the learning opportunities embedded in their work as teachers related to their "why." These interviews were approximately 45 minutes long and were video recorded and transcribed.

***Observations of focal teachers' participation in PD Sessions***

Across the school year the teachers at CBMS participated in four PD sessions (as shown in Figure 3). I observed and took field notes at three of the four sessions (two of which were in-person at CBMS in October and December and one of which was facilitated online via Zoom in February). I was also able to audio record both the whole group and small group discussions at the PD session I observed in December. At each of the PD sessions, I participated purely as an observer and did not engage with teachers (except to smile and say hello). During small group work time I circulated between table groups (in-person) and breakout rooms (online) and took notes about how the focal teachers were participating in the session.

***Participant observations of the teachers during coaching cycles***

During the 2021-2022 school year Amy, Donna and Marta each participated in three coaching cycles led by Vera (the PD facilitator) and Kate (the district math coach). I observed and generated data at two of these coaching cycles (October 2021 and December 2021). During

the October coaching cycles I observed and took field notes during all three parts of the coaching cycle (the pre-teaching meeting, lesson observation, and debrief) with each focal teacher. During the December 2022 coaching cycles, I observed, took field notes and also audio recorded all three parts of the coaching cycle. In both of these coaching cycles my role was that of an "observer as participant" (Merriam & Tisdell, 2016). I was working closely with Vera, Kate and the teachers but my primary focus was observing rather than participating. My field notes during coaching cycles typically focused on a high-level sense of what was going on alongside details I noticed about how teachers seemed to be experiencing the coaching meetings or observations (e.g., facial expressions or body language). During classroom visits, I also focused on a general sense of the lesson and also worked to capture visual and contextual information that my recording would not be able to offer me (such as seating arrangements and how students seemed to be responding to the lesson or engaging with the teacher and one another).

Focal teachers also agreed to participate in two additional coaching cycles led by me (one in March 2022 and one in May 2022). During these coaching cycles my role as participant was primary as I was actively engaging with the teachers. During these cycles I also took notes and audio recorded all parts of the coaching cycle, though my notes were less detailed because I was focused on talking with the teachers. To capture important moments from these cycles, I would often fill in important details immediately following a coaching meeting with the teachers. For all four of the coaching cycles that I was present for I also collected relevant artifacts (lesson plans, slides, worksheets etc.).

***Debrief conversations and check-ins with PD facilitators, coaches, and researchers***

During the data collection period I remained in close contact with Vera. After observing PD sessions I met with and audio-recorded debrief conversations with the PD facilitator, Vera

(and, at times, the district coach, Kate as well as other researchers, teacher educators or administrators on site at CBMS). In these conversations Vera would reflect with us about the focus of the session and how the teachers (including the focal teachers of this study) were engaging and participating in the PD session. I also debriefed coaching cycles with Vera, Kate and any other administrators, researchers from the MTP. When we were at CBMS together, these debrief conversations would often occur in a conference room at the school (and often included Kate and other researchers or teacher educators). In the cases where one of us was not present (e.g., the coaching cycles I led independently, or the PDW that was moved online) we would meet on Zoom or exchange emails about what we were noticing related to the teachers' learning and participation in the coaching cycles. Both our zoom meetings and conference room debriefs were audio recorded and transcribed.

#### *Observations of focal teachers' professional practice*

Whenever I was on campus and had time between coaching meetings, I made time to simply be with each of the three teachers as they went about their daily lives in the school. This included attending grade level meetings, stopping by to say hello during prep periods, making conversation before and after PDWs, and attending classes between coaching meetings. Observing and interacting with the teachers in these ways gave me rich insight into their unique personalities, teacher personas and the roles and responsibilities each took up in their work with their colleagues. It also supported me in developing genuine relationships with each focal teacher.

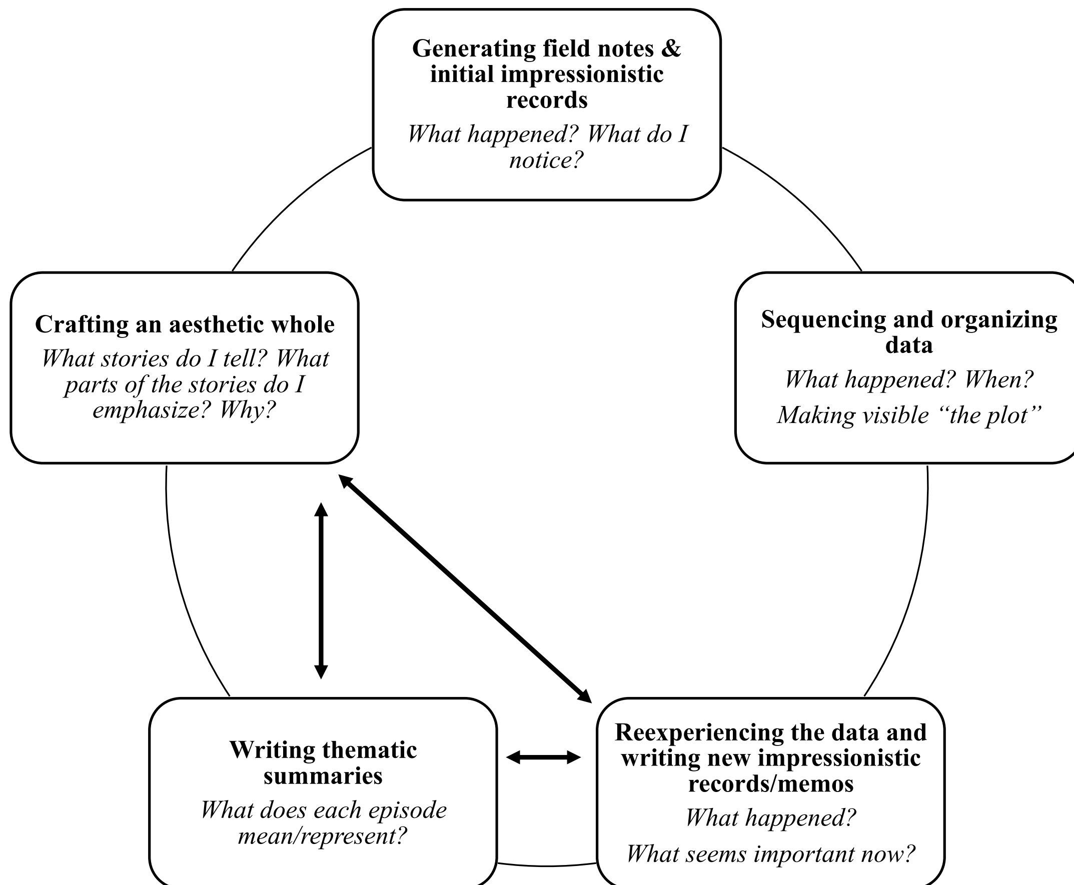
### Data Analysis

Within the narrative methodologies genre there are two broad approaches to analysis: *analysis* of *narratives*, in which the researcher looks for themes across a set of participant stories,

and *narrative analysis*, in which the researcher collects descriptions of an event and crafts them into a story (Creswell et al., 2007). Portraiture typically employs the second of these two approaches, "searching for the storyline that emerges from the material." (Lawrence-Lightfoot & Davis, 1997, p. 10). In what follows, I will describe the analytic process I used to craft the narratives that make up my findings. I will write out my process in roughly chronological order, though this is somewhat artificial because of the cyclical and iterative nature of conducting qualitative analysis. In the broadest sense this analysis involved iterative cycles of reading field notes and transcripts and listening to audio recordings followed by writing analytic reflections and narrative episodes (see Figure 4).

**Figure 4**

*Representation of Data Analysis Process*



### ***Field Notes and Impressionistic Records***

Merriam and Tisdell (2016) note that while "data collection" and "data analysis" are typically described as distinct parts of a qualitative research design, a great deal of analysis occurs *while* collecting data. A qualitative research design is "emergent" in that "the researcher usually does not know ahead of time all the questions that might be asked, or where to look next unless data are analyzed as they are being collected" (p. 195). In this study, my primary method for analyzing data *during* the data collection process was through the process of writing "impressionistic records" (used hereafter interchangeably with "memos" as described in other qualitative methodologies; e.g., Corbin & Strauss 1990; Emerson et al., 2011). Lawrence-Lightfoot and Davis (1997) describe impressionistic records as "a ruminative, thoughtful piece that identifies emerging hypotheses, suggests interpretations, describes shifts in perspectives, points to puzzles and dilemmas…and develops a plan of action for the next visit" (p.188). These records, she explains, should be collected "at the close of each day" as the portraitist "gathers, scrutinizes, and organizes the data and tries to make sense of what she has witnessed" (Lawrence-Lightfoot & Davis, 1997, p. 187).

To capture impressionistic records in the context of this study, I started by organizing and transcribing my notes (Essentially answering the question: *What happened today?* Or *What happened in this interview?*). While interviewing, observing, and working with the teachers in this study I took notes by hand in a notebook, and I found it useful to transcribe these notes onto my computer as soon as possible so as not to lose track of what my shorthand referred to and to add details. Next, I worked to articulate and describe what stood out to me that day. While in the field or conducting interviews, I tried to keep my notes descriptive while also staying attentive to resonant particulars. As a result, my field notes for the day would capture a general sense of

"what happened" but were also peppered with underlining or circling particular words, quotes, moments, facial expressions and other images which I felt were especially important, relevant, funny or poignant. After collecting data, I would return to these "circled moments" in my notes and add detail (sometimes sketching out the moment in narrative form) and then write a reflective memo about why that moment stood out to me. These resonant particulars would turn out to be invaluable analytic footholds as I worked to craft narratives. Finally, after organizing my notes, describing resonant particulars, and memoing, I would reflect on the day more broadly with respect to each focal teacher, asking myself: "*What did I notice about Donna/Marta/Amy and their learning today? What am I still wondering?*" In several cases, I would write about a single sentence or moment that stood out to me. For example, I wrote a memo about Donna saying, "I don't have many a day like this" after I observed a lesson she felt went poorly in her second period. This moment became central to Chapter Six which explores the moral and ethical dimensions of how teachers experience "witnesses" to challenging moments of teaching.

***Reviewing, Reexperiencing and Reexamining***

After the end of the formal data generation phase, I worked to develop a summary of each teachers' experiences across the data collection period (Creswell et al., 2007). First, I created a spreadsheet which organized the data for each teacher in chronological order (See Appendix A for an example of how I organized the data I generated about Amy's experiences). I then grouped and color corded packages of data which were related to a particular event. For example, I packaged all the data related to a coaching cycle, PD session or lesson observation together. This process provided me with a tool for getting a high-level comprehensive sense of each teacher's experiences across the data collection period (Merriam & Tisdell, 2016). In narrative research the process of "restorying" the data is a critical initial analytic step as it starts

to make visible the "plot" of the data (the beginning, middle and end, the conflicts, struggles, and victories) (Creswell et al., 2007).

After creating comprehensive summaries, I began the process of "reviewing, reexperiencing and reexamining" everything I collected "while self-consciously seeking to identify themes, patterns and variations" (Emerson et al., 2011, p. 174). I went through all of the data again in chronological order; episode by episode in an effort to construct a stimulated recall experience for myself. I started with whatever data I had that was "closest to the ground" (usually audio recordings alongside field notes) and tried to put myself back in that moment, to experience the coaching cycle, the lesson or the PDW again, but this time months later with a slightly new perspective about the participants and what was going on. While listening to the recordings I took new notes and wrote down time stamps for moments in the audio recordings which seemed resonant and important and finally wrote a new impressionistic record for that episode. Then, I would compare my new impressions to my first impressions, noting similarities and differences and placing these memos alongside one another in a document. All of this was an effort to gain fresh insight, challenge initial assumptions, and begin tracking and comparing what each episode made visible about teachers' experiences as learners and the moral/ethical dimensions of those experiences (Emerson et al., 2011).

***Surfacing Themes***

Narrative inquiry is event driven, so I knew my task would be to select, emphasize and eventually weave together a series of moments or episodes based on my interpretation about what each episode represents with respect to my research questions. To generate this thematic understanding, I drew on my impressionistic records and field notes and asked myself: *"What does this episode represent or make visible about how teachers experience learning teaching?"*

and *"How are the moral and ethical dimensions of learning teaching shaping these experiences?"* Then I worked to write short summaries in response to these questions, describing my sense of what happened in each episode and why these events were significant. In some cases, "the answer" to these analytic questions felt immediately clear (usually a sign that this episode had stuck with me for some reason), and at other times I was less certain. In either case, I would return to the audio, transcripts and field notes for this episode and code the data to confirm or disconfirm my initial thematic summary. I used a combination of open-coding and a priori codes based on the literature and my anticipatory schema to categorize specific moments, quotes and descriptions (Coffey & Atkinson, 1996). Then, I looked across the codes within an episode and the thematic summary I had written and asked myself, *"What categories, themes or patterns are showing up in these codes that were not part of my thematic summary?"* Following this, I revised the episode summary based on what the codes surfaced. At the end of this process, I had a set of thematic summaries for each episode with each teacher across the data collection period. This helped me understand not only how each teacher was experiencing learning teaching but also how certain themes were repeating across the teachers' experiences.

***Selecting Critical Events & Crafting an Aesthetic Whole***

The portraits I will share represent only a subset of the larger data set I collected. From within any data set there are innumerable stories that could be told:

> *The portraitist is active in selecting the themes that will be used to tell the story, strategic in deciding on points of focus and emphasis, and creative in defining the sequence and rhythm of the narrative. What gets left out is often as important as what gets included—the blank spaces, the silences, also shape the form of the story. (Lawrence-Lightfoot & Davis, 1997, p. 12)*

To decide which stories to tell and how to organize these stories I looked across the thematic summaries of the episodes from my data set and thought about how to best highlight both patterns and moments which stood out as unique. In both cases I relied on my anticipatory schema and my research questions to decide what episodes and themes were most relevant. I also paid attention to the specific connection I felt to certain episodes from my data set and the level of detail I had collected with respect to each episode. There were a handful of episodes which contained resonant particulars that I found myself returning to again and again as I reflected on my data (telling these stories ad nauseam to anyone who would listen; playing the moments in my head over and over again). Sometimes this was a phrase or line in a conversation with a teacher; sometimes a facial expression or an interaction. I would walk around the block in my neighborhood and simply could not shake Donna saying, “I don’t have many a day like this” (Chapter Six); Or Kate saying, “It’s like [Amy] coaches herself” (Chapter Four). I assumed that my return to these moments meant something and engaged in iterative cycles of reading transcripts, field notes and memoing to figure out why.

Once I selected the episodes I would write about, I began crafting the narratives. Doing this was both a creative and disciplined task. I wanted to create an “aesthetic whole” and craft an engaging story *and* I wanted these stories to be true (Lawrence-Lightfoot & Davis, 1997). To keep the narratives grounded in more than just my memory I chose only to write about episodes for which I had audio recordings. As I previously noted, I used otter.ai, to transcribe all of my data, and kept this program open as I wrote the narratives. Otter.ai provided me with a running transcript along with the audio, so I could see and hear the teachers’ words at the same time. With transcripts alone, I felt blind, as so much was revealed in *how* teachers said what was said. More than once in this process I found my initial interpretation (based on a memory or note

about what a teacher said) challenged by *how* they said it when I listened to the recording (this was both an uncomfortable and comforting experience). As I wrote, I toggled between my draft, field notes, and this written and spoken record of the episode, weaving in quotes and even dialogue from the episodes. Selecting quotes, images and descriptions was an interpretive task and I often returned to my thematic summaries and impressionistic records to ground myself in why the particular parts of each story were present.

***Trustworthiness***

Up to this point I have described my use of several strategies which support the trustworthiness of these findings including using multiple sources of data, engaging in adequate data collection, using rich thick descriptions, and critically reflecting on my own voice and positionality (Merriam & Tisdell, 2016). Additionally, I engaged in member checking the findings of this study with the participant teachers. After engaging in initial analysis, I met separately with each of the teachers on Zoom for about 45 minutes and shared back findings to elicit their responses and reactions. To do this, I shared a set of slides which included a general claim, and at times a quote from the participant teacher connecting to the claim. I then asked the teachers to share their thoughts about the claim including the extent to which the claim felt true to their experience. I video and audio recorded these conversations and used otter.ai to create a transcript. None of the three teachers directly refuted any of the claims or themes I raised, though they offered valuable insights which supported me in clarifying, refining and substantiating the central claims and themes of the portraits.

## Chapter Four: Getting to Know Donna, Amy, and Marta as Learners

One of the goals of this study is to describe teacher learning from the perspective of learners learning (Lave, 1996). As I articulated in both the introduction and Chapter Two, we have a substantial body of literature describing what teachers need to learn, the importance of teachers' ongoing learning, and how to organize that learning (e.g., Ball & Cohen, 1999), but few accounts of what it's like for teachers to *be* learners of teaching. In this chapter, I introduce the participants of this study via descriptive portraits. Not unlike the practice of "child study," a case study pedagogy often used to support teachers in deeply seeing and understanding the young people they work with (Howell, 2012; Smith et al., 2022), here I draw on both interview and observational data to present detailed images of Donna, Amy, and Marta in an effort to characterize each teacher as a person and a learner of teaching. The portraits are roughly parallel and begin with descriptions of what I came to understand about each teacher across my time with them. Then, in an effort to surface the moral and ethical goals that motivate their work, I move into describing why each teacher chose to become a teacher. Finally, I illustrate how the teachers describe the moral and ethical dimensions of their experiences as learners of teaching.

### Donna

Donna was in her 10th year teaching at Cedar Brook Middle School when we met and while she didn't hold any official leadership titles, she seemed to be the unofficial leader of the math department. Donna not only holds tremendous institutional knowledge, she also has a way of holding herself that radiates clear-eyed authority and competence. She knows what she believes and will advocate for what she believes, and people tend to fall in line behind her. Her no nonsense assertive demeanor doesn't always make her popular with other adults or kids. Over the course of the school year, both Donna and her colleagues will tell me a few stories about her

rubbing people the wrong way, but Donna is not particularly worried about being popular ("I think kids need to have lots of favorite teachers"). She *is* worried about being a good teacher, and favorite or not, it's clear she is respected by kids and adults alike for being just that. Donna reminds me of the sort of teacher that connects former students to one another even if they weren't in the same class. I can imagine CBMS alumni asking each other: *Did you ever have Mrs. Thatcher?* Through my observations of her work, I had the sense she earned this sort of legendary status through a combination of tough love and tough content. In our initial interview, Donna, who describes teaching 7th grade as "the sweet spot" said, "Students need to know that just by being here they matter" but it was also quite clear to me as a visitor to her classes that while they were "here" they would be doing some math. Her class is "hard," but this is a point of pride for both Donna *and* her students. Donna sets a high bar not to separate the students who can reach it from the students who "can't" but because she believes that the only math worth doing is complex thinking work, something she is certain all of her students are capable of doing.

Donna exudes teacherlyness in a way that makes me wonder if I would know she was a teacher were I to run into her at the grocery store. It's something about the way she takes responsibility for those around her. Perhaps relatedly, she has a maternal quality, though this may stand out to me in particular because she is of my own mother's generation and, at the time of this study, had a daughter my age who was also a doctoral student (studying music). During our meetings, Donna asked pointedly about the status of my work and, knowing I was away from home to collect data, always checked to ensure I had dinner plans. At times, I had the feeling that her primary reason for deciding to participate in this study was because she wanted to help me out with my schoolwork. Helping out students is part of who Donna is. She has fused herself to the role of teacher (Hansen, 2018) in a way that makes it difficult to imagine Donna the person

outside of Donna the teacher. While many teachers leave trace clues about their hobbies, families or favorite sports teams in the classroom, the walls and surfaces of Donna's classroom only give way to the conclusion that a math teacher works here. Posters she co-created with students to document their thinking are the primary decor (each with students' names clearly printed at the top of the chart paper to indicate authorship over particular strategies or conjectures). Other than that, her classroom is full of corny teacher trinkets: a large rock with "MATH ROCKS" chiseled into its face, a little tin wall hanging that says, "home sweet classroom," a picture frame with "si se puede" spelled out in scrabble letters. Donna's desk is cluttered with calculators, school supplies and small gifts of appreciation from students: an origami heart, a lavender friendship bracelet, a coaster that says, "Teachers Live Forever in the Hearts They Touch." Each time I noticed a new item of Hallmark-type sentiment in her room I had to smile. Donna's tough exterior is but a thin layer, her softer side, just below the surface.

***Becoming a teacher***

While Donna seems to live and breathe teaching, her path to becoming a teacher was a winding one. She thought about becoming a teacher in college but changed her mind a few times about her career plans. In the end she focused her undergraduate studies on economics and mathematics and after college, Donna ran her own catering business. When her daughter was born, Donna decided she wanted to be a stay-at-home parent. She says it was her work volunteering in her daughter's classroom that brought her back around to the idea of becoming a teacher: "I realized that it was a really good fit and a passion for me. So I went back and got my master's degree in education."

Initially, Donna imagined being an elementary school teacher, but she says that she switched to focusing on middle school math in her second year of teaching after she attended a

state-wide professional development which "completely changed how I thought about teaching and how I thought about math." The program involved a three-week summer intensive, which included math content coursework for K-12 teachers as well as a course on facilitating professional learning for teachers. During the school year, participants engaged in coaching cycles with facilitators from the program and were expected to lead monthly PD sessions for math teachers at their school sites. Donna participated in the institute for three years and explained how the program supported her in thinking about math as a dynamic logical process that all students can engage in, instead of a rigid discipline that students are either innately good or bad at: "the beauty of math was always there for me…[the PD program] helped me see that *all* kids are mathematicians, and not just a select few." Donna explained that the program inspired a central tenet of her philosophy as a math teacher: "Everything a student says has some value and gives you some information as to what they do know."

Donna's belief that all students should be supported to see and experience their brilliance and creative capacity as mathematicians motivates her work as a teacher. She believes students have a *right* to experience mathematics as meaningful and works tirelessly to ensure that her students have every opportunity to make sense of and engage deeply with the content she's teaching. Donna, who has always had an interest in special education, is particularly passionate about lifting up the divergent thinking and mathematical perspectives of students with disabilities and students who have historically had less success in math class: "Brilliance happens in more than one way and our job is to find ways for different brilliances to shine."

***Moral and ethical dimensions of learning teaching***

To act upon her belief that all students can and should have opportunities to think deeply about grade level content requires a great deal of ongoing learning on Donna's part. In the

context of her daily work as a math teacher, this involves continuous cycles of noticing, reflecting on, and responding to the myriad ways students are engaging in her class. Across the year, I was struck again and again by the precision with which she plans and adapts tiny details of her lessons as she works to make the content both accessible and meaningful for her particular students. In one planning session we spent nearly twenty minutes together workshopping just two questions on a worksheet to come up with phrasing she felt would elicit a robust justification for why theoretical probability differs from an experimental probability.

For Donna, the work of including all of her students in rich mathematics is more than “the job”—it's a moral commitment. She expresses profound frustration with the mainstream idea that students who are “behind” require remediation to participate in grade level content. During our initial interview, she was just a few months into teaching in-person again after months of online learning during the Covid-19 pandemic and described her thoughts on how the rhetoric around “learning loss” was damaging for students: “This idea that they're ‘behind’ is garbage. What does that really mean? That they're not capable of thinking mathematically?...If you don't know how to add and subtract fractions, you can't move to multiplying and dividing?...I think that's crap.”

Donna’s frustration and even anger toward anything she considers substandard for students motivates a sense of moral responsibility which extends beyond the walls of her own classroom. She explained to me that she makes a point of participating in and influencing conversations around curriculum and policy:

> *I haven't had to deal with a curriculum I didn't like. But I also step up to say I want to be part of the conversation when it comes to math curriculum. And I want to be part of the conversation around detracking, and I want to become part of the conversation with the*

*things that I believe in. And so I've sought those opportunities out. I've armed myself with real data and talking points. And I'm not very shy and quiet when it comes to doing what's best for kids.*

Donna's commitment to shifting things at the school-wide and district level influences her work as a learner in two critical ways. First, the "real data and talking points" she's armed with come from her continuous engagement with research in professional learning. Before she can advocate for change she has to learn about what she thinks would be in the best interest of students in the first place. At the same time, Donna must learn how to be an influencer of policy, how to say and do the right things in order to bring about change. Donna was more than "part of the conversation" when it came to tracking students at her school. When Donna learned that "tracking" students (the practice of grouping students in honors, mainstream, and remedial math classes on the basis of their perceived ability) led to further disparities in students' experiences and learning in mathematics, she recruited Amy to her cause and the two spearheaded a school-wide policy shift to de-track all math courses in her building, which lead to a district-wide effort. The moral impetus at work is clear as day, as is a touch of righteousness, Donna describes the effort as, "my path of vengeance to get rid of tracking."

Together, Donna's deep convictions about what students deserve and what good math teaching requires shape the complex context in which she is a learner of teaching, and in turn, shape the ethical opportunities she experiences as a learner. For example, Donna's belief that good mathematics instruction hinges on curiosity and inquiry spark opportunities for her to engage genuinely and joyfully as a learner in math she's teaching:

*And the thrilling part for me is when it happens that they get me to see something I've never seen before, in a way I've never thought before. And it happens every year, even*

*after 19 years of teaching. There'll be something where I'll just go, "I never thought about that connection before, I'm really intrigued now," or, "Boy, that's a way of coming to a conclusion that I have never seen before. And it makes wonderful math sense."*

Donna also says she felt her work learning to enact more student-centered pedagogy has helped her feel less pressure as a teacher: "It wasn't about me. It was about math being the authority. It was about kids wrestling and coming to conclusions about mathematics…I became a learner with just more experience along with the students and to me that was liberating."

However, while Donna seems genuinely excited by the mathematical ideas she's working on with students, and excited by the idea of student-centered teaching, I wondered about whether she was truly "liberated" by her perspectives about teaching and learning. At times she seems more beholden to her moral commitment to this vision of pedagogy than liberated by it; working long hours and going above and beyond what is officially required of her. She tells me that she signs up for all the math PDs available in the district even when she's already taken them because, as she says, "It keeps me fresh." Donna also speaks with distaste about teachers who go home on-time, and believes that good teaching requires teachers to go above and beyond what is expected:

*We have teachers in our building who say, "Yeah, it's a great thing to do. But I just don't have time to do that"...You can go home at 4:15 if you're just teaching from a textbook, but you don't get to go home until 5:30, quarter to six if you're going through student work for the next day to see what students know. But the rewards that are gained for kids far outweigh the amount of time it takes to create the next piece…I don't know day to day, exactly what my lesson plans are going to be. Because I have to see where the kids end up with and what information they've given me as the launching point for the next day.*

Here, Donna is clear that the “rewards” of this extra work are for kids, even at her own expense. And while she seems to get great satisfaction from her success as a teacher, I also had the sense that Donna never quite feels good enough. For better or worse, with each new thing Donna learns, the moral bar she sets for herself rises, fueling her need to learn more and get better. It’s interesting to connect the ways Donna talks about learning teaching to the ways she describes learning mathematics:

> *But to take a math idea, and be able…to see those connections…And all of a sudden, it's not just about “How fast can I compute a number?” It's, “What can I do with this information to change the world?” And that sounds cliche, but math is beautiful. Math takes creativity. Math beats you up, spits you out, and you keep coming back for more. And when you see students start to do that, that, to me, is what's exciting, when they see the beauty of mathematics.*

Just as she hopes her students might, Donna is taking in information, making connections and trying to change the world. And while she says it's *math* that “beats you up, spits you out and you keep coming back for more” I wonder if she has a similar relationship to *teaching*. There’s something a just little bit brutal about the way she throws herself into her work, and yet 19 years later, she’s consistently setting the pace.

**Amy**

The first time I put a recorder in front of Amy she said, “Are you able to bleep out F-bombs, or no?” I laughed nervously and told her I wanted all her F-bombs, and felt my face go red as I walked away. Later that day, I joined a group of other coaches and researchers, five of us in total, for a planning session with Amy. We gathered in her classroom and she introduced herself: “I’m Amy, also known as a loudmouth.” And then, barely a beat later: “So my kids are

right in the throes of Pythagorean right now," she wasted no time on small talk, and got straight to the purpose of our meeting. I wouldn't call Amy a loudmouth—that connotation feels too negative—but she is loud. She projects her voice as though she's talking to a full classroom even in one-on-one conversations. There's a sharpness to the way she speaks in terms of both annunciation and tone. Not mean, but edgy. You get the sense Amy says exactly what she means and isn't concerned with filtering or softening her perspective for anyone's comfort. Later, after we knew one another better, I joked with her about how I hardly had to clean the transcripts of our interviews together because of how clearly she speaks. She chuckled and said, "I *will* be heard."

I was both intimidated by and immediately drawn to Amy when I met her, and through my conversations with her colleagues, I sensed that most people are. I said as much to her district math coach, Kate, in late October, something along the lines of, "She has such a presence!" Kate smiled and agreed and went on to say that Amy has a "magic way" of being with the shyest, quietest students. She explained that every year there are kids that don't really speak in any class but Amy's. Across the school year, I see what Kate means. Amy uses her presence to create a safe harbor. Her intensity comes from a fierce commitment to her students and her work. There's a steadiness in it—she's in control, but not controlling—and the result is a classroom community that seems to wiggle free from the typical middle school social dynamics that keep certain students trapped in their shells.

This combination of intensity and tenderness is present in little ways all around Amy's persona and classroom. Several laminated sunflowers adorn the whiteboard (and then there's a sunflower coffee mug, an artificial sunflower bouquet on top of the filing cabinet, and several student-drawn sunflowers pictures, too). She also has a Black Lives Matter poster as well as

images of Prince, Einstein and the cast of Star Trek hung up around her desk. Most of the rest of the wall space is dedicated to posters that Amy made to support her students: anchor charts with notes and ideas from previous lessons are up around the room, and several large green posters with sentence stems in both English and Spanish to support students in talking with one another ("I agree with _____ because…"; "I am not sure I agree with _____ because") are pinned along the top perimeter of the walls. Along the back wall are four posters which get to the core of what Amy hopes her students can come to believe as mathematicians: Anyone can do math!; Believe in yourself; Speed is not important; Struggle and mistakes are really important! The text is written in black marker and in all caps. The sentiment of the posters is caring and encouraging but the script is serious. No cutesy bubble letters here.

***Becoming a teacher***

Amy didn't always want to be a teacher. When I met her in October of 2021, she had been teaching for 10 years, but Amy said that when she was in college and considering career options, "It kind of—*it was literally*— the last thing that I wanted to do." Amy's parents were teachers, her mom taught elementary school and her Dad was a high school math teacher, "I watched both of them work very hard and not get paid a ton of money." So, after completing her undergraduate degree in history, Amy started working in real estate. She didn't like it: "I'm in my 20s, and I'm spending my nights and weekends like showing houses. That's not what I wanted to be doing." So Amy took a job as an after school program coordinator with a local school district, "I mean, I knew I liked it right away, I just had to accept the salary, you know, and what I was going to be making."

From the after-school program job Amy says she ultimately decided to pursue teaching because she enjoyed being with children and thinking about how to support them:

> *I just really liked working with kids. I found them interesting and fascinating and funny. I never hated going to work. And I hated going to work in real estate. And there's this diversity of children. And what they were bringing to the table was really fascinating to me.* Why *are they the way that they are? And* how *are they the way that they are? And how can I help them learn better? That was a really intriguing question for me, like, what makes them tick? And what makes them learn?*

The words like “fascinating,” “intriguing,” “fun,” and “puzzle” come up a lot when Amy talks about teaching, which could be why she agreed to participate in a two-year National Science Foundation funded professional development program for math teachers: “I just remember their pitch was, ‘It's really hard, but it's really fun,’ and so I signed up.” This was a different PD program from the state-wide PD Donna participated in, but had a similar result: Amy was inspired to move from teaching all subjects in elementary, to pursuing a departmentalized job teaching math exclusively at the middle school level. Amy describes how the program was pivotal for her in two ways. First, it gave her a new way of thinking about the role of the teacher in teaching and second, it gave her a new way of thinking about mathematics. She shared a story about her experience in the program when she realized the importance of opening more space for students to reason and talk in math class: “I just remember asking the kids ‘Why? Why? Why?’...and it was a lot more fun. And I'm a total ham. I'm a total narcissist. I like being up front. Kids find me funny, generally. But the job was more satisfactory when *they* were having those light bulb moments.” Amy said the PD program also kicked off her “self-set challenge” to “buck the status quo of the mathematical mindset.” For Amy, this means facilitating opportunities for students to see and believe in their own mathematical competence, particularly

students from groups which are often marginalized in mathematics classrooms. Amy sees this work as involving both thoughtfully designing and adapting curricular materials to be accessible and meaningful for students, and working to disrupt the ways racism, sexism and other mainstream forces of oppression influence her teaching.

***Moral and ethical dimensions of learning teaching***

Amy's moral commitment to teaching mathematics in ways that support students to engage in deep reasoning and to challenge both students' and society's assumptions about who can do math, are part of her identity as a teacher and central to her ongoing work as a learner of teaching. She not only believes that these are the things that good math teachers should do, she sees herself as actively pursuing these commitments. She describes her goals for herself to me as a field of carrots, where carrots are things like revising her curriculum, mentoring colleagues, and learning to enact more culturally responsive pedagogy:

> *There is so much work to do!...Like you kind of need a carrot right in front of you and a carrot in the medium ground and then a carrot in the long term ground. And I feel like I've got those sort of lined up… and so some days I'm too exhausted to think about the long carrot but I can think about the one right here. It's very intellectually stimulating. They're like puzzles, right? And I don't mean to dehumanize [students] by saying puzzles, but like, they're, they're really interesting conundrums for me to consider.*

Amy's carrots are moral commitments, because as she works on and improves with respect to her goals, she ostensibly becomes a better teacher and can therefore provide better learning experiences for her students. But when I listened to Amy, it was clear to me that the carrots are not only professional goals for herself as a learner, but rewards for herself as a person. When she

says, “There’s so much work to do” she says it with palpable pleasure. Her professional learning goals are more than benchmarks of professional competence, they’re personally enticing learning opportunities.

Amy’s ethical connection to what she gets to learn and who she gets to become through her work as a teacher is clearest when she talks about her commitments to anti-racism. During one of our lesson debriefs in May, Amy recalled how she used to do a 5-minute weekly routine with her students called “Etiquette Wednesdays” where she would share tips about being polite or kind with students. After a few weeks, she started reflecting on the use of the word “etiquette” and the cultural implications of sharing tips about “politeness.” She said she changed the routine to “Wednesday ways to make the world a better place” and talked to her students about why she changed the title, and what she hoped to accomplish through their discussions about how to be kind to one another: “The kids were nodding about it. Like they see it, they feel it, you know.”

Amy tied her realization that “Etiquette Wednesdays” were privileging White norms about good conduct explicitly to the professional development work at her school on cultural competence. In quick succession, (“I'm sorry, I'm just vomiting things out here”) Amy shared details from various trainings she’s attended and articles she’s read and even went to show me an article about supporting Black students’ success in math class that had arrived in her mailbox at school that morning (and which she had already read during her planning): “They recommend taking that Harvard implicit bias test? ... I've taken that three times.” Amy went on to share how thinking about her biases has helped her generate a list of internal questions to ask herself as she’s teaching: “So, it's just a checklist of all the things…There's 100 things going on, balls up in the air. Yes, you are going to drop them, you have to continually be revising and reflecting…”

When Amy talks about all the "things going on" as she's teaching, she sounds excited. For her, the inevitability that balls will be dropped doesn't predict failure, but an opportunity for learning. I was struck by the pride in Amy's voice as she told me all of this. She's not looking back on the version of herself who did "Etiquette Wednesdays" with shame; she's proud she caught the mistake, and thrilled she did something about it. She doesn't think her work is done, and takes seriously that the status quo is harmful, but she also seems to find genuine joy in any little move she can make that seems to move things in the right direction. Amy explains that teaching creates a context which holds her accountable to becoming who she wants to be as a person in the world: "I am constantly asking myself…what is going to be my legacy?...So yeah, [teaching] it's a lot about me, and what I want to be."

**Marta**

While Amy's booming voice makes her easy to pinpoint in a classroom no matter where she is, Marta's relatively petite stature and quiet manner can make her a bit difficult to locate as she moves between table groups to check-in with her boisterous sixth graders. At times when I stopped by her class mid-lesson, I had to scan the room more than once to find her. That she, like many of her students, was often wearing jeans, sneakers, and a CBMS sweatshirt aided her tendency to blend into the hubbub of her classroom. And indeed, there nearly always was at least some amount of hubbub in Marta's room. The year I got to know Marta was her first year teaching in-person. The previous school year (2020-2021), her first year teaching, she taught remotely due to the Covid-19 pandemic. This being the case, Marta was in the thick of learning what most teachers have to reckon with in those first few years: figuring out how to manage and engage a classroom of around thirty children.

No matter how rambunctious her students were however, Marta remained (at least outwardly) calm. Marta's soft and steady voice makes her at once a calming presence and difficult to read. On more than one occasion we would debrief a time where she would describe having felt stressed or excited and I, a witness to this moment, would find myself surprised having noticed little to no indication that this was her experience. Once, in the first few minutes of third period while students were supposed to be working in small groups on a warm-up, Marta realized that two students were painting their hands red. Entirely red. Front and back, from wrist to fingertip, stamping the papers on their desks with drippy prints. Observing this I felt a visceral wave of empathy, my mind flashing to memories of my former students acting upon impulses which truly bewildered me. But while I was a teacher who once stood on a chair and in a *very* shrill voice asked everyone to put down their scissors (it turned out I had left out some critical safety tips, necessary for fourth graders), Marta walked over to the girls, and without a hint of emotion said, "Can you please go wash your hands?" They did and then they returned to their desks and got to work.

Congruous with the specific exuberance of 6th graders, the physical space of Marta's classroom was also bright and lively. Colorful banners hung around the room to represent identities important to both Marta and her students: A string of red, white and green *papel picado* on one wall to represent her country of origin, Mexico; pride flags along the top of her interactive whiteboard; and national flags to represent the countries of the world draping down from the ceiling. Student artwork crowded the wall space around Marta's desk and little pencil-drawn characters, neatly cut out, were taped along the outside edges of her bookshelf. In addition, Marta, who also taught two periods of sixth grade science, pinned up a set of posters of

people from a diverse array of racial, ethnic and gender identities who work in various STEM professions: "*I am a mechanical engineer; I am a biophysicist; I am a energy systems scientist.*"

***Becoming a teacher***

Marta used to have one of the STEM jobs displayed on her classroom walls: Network Scientist. After completing an undergraduate degree in industrial engineering, Marta worked as an IT specialist focused on wireless networks for six years. She said she shifted to teaching because she wanted to do something more meaningful: "I was in a spot where money was not what was driving me. And my job at the time was not fulfilling. And so I just felt like I needed something that would fulfill more of my passion and dream than my bank account." Marta explained that part of her motivation was reflecting on the important role teachers played in her own life: "I guess, my teachers kind of shaped my life during traumatic pieces of family and so I think I just wanted to kind of be there for students…just like being a guide, and being present, a trusted adult."

Marta's intention to foster close, trusting relationships with students coheres with what I saw in her classroom. Once, sitting alone in Marta's room waiting to debrief a lesson from earlier that day, I looked up to see three students at the door. All three children were wearing red aprons smudged with flour. "Is Maestra L here?" one asked.

"No," I replied, "But she will be soon."

"We'll just leave this here for her," said the student, setting down what appeared to be a muffin dusted with cinnamon and oozing some kind of frosting.

"What is it?" I asked. The student looked at me with perfect seriousness as though the answer were obvious, "It's a marshmallow stuffed biscuit." Then, he plucked an orange sticky note from Marta's desk and wrote, "You're awesome <3," and signed their names.

When I asked the students why they wanted to share this delicacy with Maestra L., the second of the three replied, “Because she is the kindest and the most generous and we love her and think she’s awesome.”

“It’s true,” said the third student, his endorsement brimming with sincerity. He was wearing a baseball cap, and I recognized him from the lesson I had observed earlier. He stood out because he was the only student sitting at a desk alone rather than at a table group. It’s not uncommon for a classroom to have a student or two with this kind of special seating arrangement and as a visitor, I often wonder about the story of the student sitting at the “island” desk. In this case, it felt notable that whatever the reason Marta had for seating this student by himself hadn’t stopped her from developing a positive connection with him. While she often struggled to coordinate the collective activity of her class, Marta’s refusal to subject students to any sort of shaming, resentment, or impatience as a means to control their behavior allowed for the development of warm individual relationships with her students. According to Marta, “...that human connection, that human side, is the most important thing.”

***Moral and ethical dimensions of learning teaching***

The moral register of Marta’s ideas related to who and how she wants to be in relationship with her students was clear and consistent in our conversations. But the way Marta talked about the content she was teaching—mathematics—did not seem deeply related to what she hoped would be meaningful about her work. In our initial interview, Marta said she decided to teach math because she knew it was a subject that lots of students find alienating and she felt she could help. She explained that while she always did well in math in school, “I was never like, fast…it took me way longer than everyone else to understand. And so I just felt like because of my way of learning—slow and steady—I would be a good person to teach it.”

Apart from her sense that she might be uniquely able to identify with students who are struggling, Marta was wrestling with how to live out her reasons for teaching in the context of her work as a math teacher. Marta felt sure that "it's not *all* about delivering the content," but figuring out *how much* of teaching *was* about content, and how mathematics related to or could even support her other relational goals as a teacher became a central challenge of her work as a learner over the course of the year. While explaining this tension to me, she said the math PDWs she was participating in were helping her begin to see how doing math together was related to the development of a classroom community:

> *Like, I don't know, [the PDWs] help me have good lessons, which then keeps them engaged. I've learned so much about how to facilitate peer conversations. And I think that's also a very important part of them feeling comfortable in the classroom, and not just like emotionally but also, like more in the learning side of things…I think for a while, I thought that it was a one or the other thing, I thought if I want to be a supportive teacher, I just have to love them and like, be kind of soft. But then like, what about, like, all of the expectations and actually, that's part of the love, too, to kind of hold them accountable and teach them…*

Marta's reflection indicated that she no longer saw teaching as "one or the other" (content or relationships), and that she could see how high-quality lessons supported better student engagement, but it was also clear from our conversations she felt classroom management was a pressing issue, and that addressing classroom management was necessary *before* she could really dig into improving her math instruction: "[Classroom management] has for sure put up a wall. It's a barrier to respectful human connections." Marta said she felt surprised by how challenging managing her class was, because the previous year, while teaching remotely, it hadn't been an

issue for her. While many of her colleagues struggled to teach online, Marta's background with technology and her professional experience meeting and building relationships with people through video conferencing platforms supported her in developing a solid classroom community where students wanted to (virtually) be. Marta said that attendance was a school-wide issue that year, but her students came to class and stayed online after to talk with her and each other. Of teaching online, Marta said, "I completely saw myself fulfilling the role [I had imagined]." In-person, Marta described herself as "surviving."

When I spoke with Marta about her goals as a learner, she sighed, "I don't know, it's super vague, but just continue to improve." In my conversations with Marta, I noticed conflicting feelings related to her experiences as a learner and the role that learning teaching was playing in her professional life. On one hand, Marta said, "I just love learning and I really love, like, actual feedback. And so anything that will allow me to either see myself through other eyes or see others and ask questions about it." On the other hand, it seemed Marta felt pressure to pursue improving as a teacher and that she often conceptualized her own learning as an added responsibility. There was so much to learn, and all of it was important. Marta said she felt badly because she hadn't yet used the $1,000 PD budget her district grants each teacher because she's too overwhelmed. She said she was considering retaking a "Love and Logic" classroom management training, with the hopes that it will feel more meaningful now that she has taught more in person, "Yeah, like I see myself… just taking more are taking more notes and putting more things in practice, because I took it over the summer. And so I don't know, it might be helpful to go back to it now that I'm here." Marta said that the PDWs were helpful to her because the facilitators model lessons "so we get to see it in practice" but it also seemed challenging for Marta to find relevance between what the PD facilitators were modeling and her most immediate

questions and challenges about teaching. Marta seemed uncertain about her ability to carry out what was being put forth as good teaching and worried about what it would mean if she couldn't.

**Chapter Summary**

The portraits I've presented of Donna, Amy and Marta have value as singular images of learners of teaching. Each of the three teachers brings their unique personhood to the work of being a teacher and learning to become the teacher they hope to be. Centering the distinctive characteristics of each teacher—their ways of being in the world, their histories and dreams—alongside the moral and ethical dimensions of their experiences as learners of teaching, gives new imagery and weight to what we already know: learning teaching is both practical and personal. It involves trying out and doing new things, and it also involves being and becoming new selves (Lampert, 1985).

Donna, Amy and Marta each chose to become a teacher because they felt it would be personally fulfilling; they were called to *become* teachers. Each of the three leaves a different field (catering, real estate, IT) because they felt teaching would be more meaningful. Each teacher believes that teaching is a profession through which they can do good for others, but they also all use words like "fulfillment," "passion," and "fun" to describe the good they personally expect to experience as they learn to become good teachers. This is not itself surprising. We know that teachers usually come to the profession hoping that the work will be morally consequential *and* ethically meaningful (Hansen, 1995). But here I call attention to what surfaces when we consider this aspect of what brings teachers to their work—their desire to do good and experience good in return—alongside their identities as *learners* of the work. All of the things they hope for require learning. Teaching does not always accomplish good, and it is not always meaningful for teachers (Santoro, 2018). Like any job or profession, you can learn to go through

without the work moving you (Wenger, 1998). What gives teaching the *potential* to be so meaningful are the *learning* opportunities embedded within it. Teaching can be meaningful for Amy because—as she puts it—it "demands" she interrogate her Whiteness and learn to become more culturally responsive; teaching can be meaningful for Donna because it pushes her to become an advocate for students who are often marginalized in mathematics classrooms; and teaching is full of potential for Marta as she learns how to maintain deep connected relationships students *and* support her students in learning mathematics together.

## Chapter Five: Learning Teaching in a Professional Development Workshop

In this chapter, I share portraits of Donna, Amy, and Marta learning in the context of the PD workshops which took place at Cedar Brook Middle School (CBMS) during the 2021-2022 school year. As I describe in Chapter Three, the PD workshops were facilitated by a nonprofit PD organization focused on supporting mathematics teachers' learning. A typical PD workshop at CBMS involved one, 90-minute, facilitated professional development session followed by the option to sign up for coaching cycles over the next three days. The chapter is organized to illustrate the teachers' experiences as learners in each part of a PDW. To begin, I describe the teachers learning together in the context of the 90-minute whole group PD session. Then, I share examples of each focal teacher as they engage in parts of a coaching cycle. Throughout, I draw attention to how the moral and ethical dimensions of learning teaching shape each teacher's experience as they participate in this PDW.

### The Whole Group PD Session

It's early December, and the math teachers at Cedar Brook trickle into a large 6th grade classroom for their 90-minute professional development session; a little sleepier than I remember them back in October. There are cardboard carafes of Starbucks coffee and assorted baked goods from a local grocery store on a table at the back of the room. Technically the sun has risen, but due to the characteristic Pacific Northwest cloud cover, it's still quite dark outside. This is the second of four PD Seminars for math teachers this year and is open to any secondary math teacher in the district. There are five teachers from other schools and nine CBMS math teachers present. The district math coach, Kate, is there as is Charlie, the principal of CBMS (though he leaves about halfway through). Several district officials stop by as well, they introduce themselves at the beginning of the PD session and then leave shortly after things get started. The

Cedar Brook math teachers all sit together with their grade level teams. Marta sits at the 6th grade table with her colleagues Jenny and Summer; Donna is at the 7th grade table with Henry and Alma; and Amy is with the 8th grade team along with Josie, Judy and Joe. At each of these tables there is a pretty clear leader, a teacher who either has the most experience, or the most experience teaching math (see Table 3 for more details about the teachers from CBMS who attended the session).

**Table 3**

*CBMS Whole Group PD Session Participants*

| Name* | Experience/Teaching Position |
|---|---|
| **6th Grade Table** | |
| Jenny | Sixth year teaching, math and science |
| Marta | Second year teaching (first year teaching in-person), math and science |
| Sarah | First year teaching, math and science |
| Sam | Third year teaching, math |
| **7th Grade Table** | |
| Donna | 19th year teaching, math |
| Henry | A student teacher who is subbing for a teacher on maternity leave, math |
| Alma | Third year teaching, math |
| **8th Grade Table** | |
| Amy | 10th year teaching, math |
| Judy | First year teaching, math |
| Joe | Teaches only one section of 8th grade math, mostly teaches science |
| Josie | Special education teacher, teaches a math workshop class for 8th grade special education students and co-teaches 8th grade math classes with Amy to support special education students |
| **Other Participants** | |
| Charlie | School principal, new to CBMS this year |
| Kate | District math coach, sits at a table group with teachers who work at other schools in the district |

The focus of today's PD session is learning how to incorporate "worked examples" into math lessons to support students in rich discussion and sensemaking. Rather than having students solve a problem themselves, in a worked example students analyze a problem that has already been solved (Renkl, 2014). The purpose of this instructional activity is to engage students in making sense of how and why a particular approach works. Vera gives the teachers a rundown of the session agenda and lets them know she will begin by modeling a worked example for the teachers, giving them an opportunity to experience a math lesson together and reflect on how the instructional activity supported opportunities for reasoning and engagement. Before getting started, Vera connects their work for the day to the pressing moral responsibility educators have to their students. She projects the following quote on a slide:

> *All students are capable of making sense of and persevering in solving challenging mathematics problems and should be expected to do so. Many more students, regardless of gender, ethnicity, and socioeconomic status, need to be given the support, confidence, and opportunities to reach much higher levels of mathematical success and interest* (National Council of Teachers of Mathematics, 2014, p. 63).

Vera reminds the teachers that she also shared this quote back in October and that she had asked each of them to "attach a [student's] face to this statement." She once again asks the teachers to recall the face of the specific student they related to this quote. It feels like a clear signal that the purpose of their time together is morally motivated; teachers owe students the opportunity to live up to their mathematical potential and need to engage in this learning in order to live up to what their students deserve.

***Doing math together: Learning teaching and learning mathematics***

To exemplify how worked examples can create opportunities for reasoning and deep student engagement, Vera models the instructional activity and leads the teachers in a discussion of the following problem:

> *Teresa is going with her family to the movie theater. Her family buys 6 tickets. They have a coupon for $1.50 off each ticket. They pay $52.50 altogether for their tickets. Write an expression you could use to represent the situation. What is the price of a ticket before using the coupon?*

On chart paper, Vera posts two different approaches to the problem as solved by "Student A" and "Student B" (see Figure 4). She then asks the group to consider the following question: *Both Student A and Student B are correct. Which solution makes the most sense mathematically to you? Why?*

**Figure 5**

*Representation of Vera's Anchor Chart Showing Student A and Student B's Work*

| Student A's work | Student B's work |
| --- | --- |
| *6(x - 1.50) = 52.50*<br>*6x - 9 = 52.50*<br>*6x = 61.50*<br>*x = 10.25*<br>*The cost of a ticket is $10.25* | *6(x - 1.50) = 52.50*<br>*x - 1.50 = 8.75*<br>*x = 10.25*<br><br>*The cost of a ticket is $10.25* |
| Both student A and student B are correct. Which solution makes the most sense mathematically to you? Why? | |

After giving teachers some time to think independently, Vera asks the teachers to talk at their table groups: "So what I would like to do is, have the person with the most colorful shoes share their idea first…"

The room burst into conversation. Across the tables, the teachers generally lean towards thinking that Student A's strategy for solving the equation makes more sense. Marta's purple socks earn her the first opportunity to share (the group decides their neutral toned shoes resulted in a tie). She says Student A's strategy makes more sense to her because she wanted to be able to add back the total discount to figure out the original price, so seeing the 6x - 9 in Student A's second step, helped her see that the total discount was $9. Over at the 8th grade table, Amy shares that she prefers Student A's approach because she thinks Student B's strategy is harder to relate to the context of the problem: "...it was hard for me to come up with…why you're dividing by six, I would have a harder time coming up with an analogy to fit that. Whereas I always [think of] distribute like the copy machine, right? You distribute the six, you know, you're distributing this situation among six people. So I feel like I could explain situationally better A than I could explain B."

At Donna's table, the conversation is slightly different. She and her 7th grade colleagues wonder about how *students* would think about the problem and try to anticipate how their 7th graders might respond. Henry suggests students would gravitate toward Student B's approach because it's fewer steps, but Donna disagrees. She's thinking about how students have likely had lots of practice with the distributive property and may feel inclined to distribute first because it's more familiar, regardless of whether that approach matches the story. Donna then generalizes the implications of her point for the group: "I think this illustrates the importance of us [teachers] doing the math first, in as many ways as possible. Because if you're not familiar with this [Student B's strategy], and I know there are some teachers who are not, this might not even come up." I notice the careful way Donna punctuates this idea and wonder if she's seeing her participation in this small group more as an act of teaching her colleagues than an act of learning

for herself. Both Henry and Alma have considerably less experience than Donna. Henry has only recently completed student teaching and is in a long-term sub position and Alma is newly certified. There's a similar dynamic at the sixth grade table where Jenny, who has six years of experience, seems to have taken Marta under her wing, thoughtfully asking follow up questions and inviting Marta into the conversation.

After a few minutes, Vera brings the group back together to discuss the problem. At first, the conversation reflects what was said in the small groups. The teachers generally feel that Student A's approach makes most sense. Vera calls on Marta to share with the whole group first. Marta explains how she found it helpful to see the total paid with a discount in the initial equation (52.50), followed by the total paid without a discount (61.50, after adding the nine dollars back). A few teachers also express what Donna anticipated students might: They prefer Student A's strategy because they instinctively want to distribute any time they see a factor on the outside of a parenthetical expression. After eliciting these responses, Vera works to support the teachers in describing how each step in Student A's approach relates the problem context. She asks questions like, "Now, what does the 1.50 represent?;" "What does that nine dollars represent?;" and "What did the distributive property actually *do* in the context of the problem?;" With relative ease, the teachers unpack each part of Student A's work.

Then, Vera directs the group's attention to Student B: "Let's hear from someone who said Student B's makes more sense." Perhaps in response to the sense of consensus the group has developed around the logic of Student A's strategy, Henry almost apologetically shares that he initially chose Student B. He goes on, "Um, but now kind of backtracking and thinking about what that [6] represents…I suppose that would represent the total that they paid, being divided among the six people. Right?" Vera asks if anyone wants to clarify what dividing the six on each

side of the equation means and Amy says, “You know, you think about Venmo and right, you get a total and you then tell people, You owe me this much, right? And typically, you would take that total that you paid and divide it by six and ask people to pay you that…But then, I feel like there would be a severe stuck point. What is this *x - 1.50* then?….”

The group discusses what *x - 1.50* means for a couple of minutes and then Josie interjects. Amy’s Venmo example surfaced something new for her: “I’m kind of obsessing over Amy's analogy earlier about Venmo. Like, six of us go to a thing. We pay 52.50…But then I always obsess over how *much did I save*? I love that. I love seeing how much I saved…I ended up paying 8.75. I transferred 8.75 to Amy…but I *should* have paid 10.25.”

Jenny revoices Josie’s idea: “So Josie, are you saying that by the time we get to *x - 1.50 = 8.75* that's no longer a group rate that is now individuals. We’ve already divided it by six. So 8.75 is what you paid Amy… So you owe her $1.50!” Josie replies in mock protest, “No, she saved me $1.50!” Amy quips in perfect deadpan, “Like we should at *least* split those savings.” The room bursts into laughter. When things quiet down, Jenny says in earnest: “That was really helpful, Josie.”

From here, Vera makes the same moves she made with Student A’s strategy to support the group in making sense of Student B’s approach. This time however, the teachers drive the conversation with much less support. They organically jump in to add on to one another or ask their own clarifying questions. Frequent laughter freckles the conversation. The group holds on to the joke of whether or not Amy should make a profit off the group discount and Amy hams it up, “I did bear some upfront costs. I could do an admin fee.” In response, several people, Vera included, make jokes about not wanting to go to the show with Amy, since she may try to profit off her friends. Donna cuts in, “I’m no longer going out with you!”

“Well then you lose out on the fun party that is Amy!” Amy retorts.

The teachers are having fun with each other, but they’re also really puzzling through the problem together. While the discussion started with near unanimous support for Student A’s approach the tide is turning. At one point, Josie joyfully bursts out: “I'm changing my mind! I like student B’s better now!” Once again, laughter ensues. There’s the real sense that the room is excited by the meaning they are collectively making as they relate Student B’s solution to the problem context. The teachers are so genuinely present with one another and with the mathematics they’re doing together that I easily forget this is all happening before school starts on a Wednesday morning. There are papers to grade, lessons to plan, and copies to make. Thirty minutes after this PD session ends students will arrive. For each of the teachers there is so much to do, so much they could be worried about or distracted by, but in this conversation they appear to have temporarily suspended all of that. For the moment, they’re just doing math together. It’s beautiful to watch.

To close the activity, Vera engages the group in a protocol to support “strength-based” feedback. First, she asks the teachers to think about how they were supporting one another’s thinking through this discussion. She posts a list of math practices (ways of doing and participating in mathematics) and asks teachers to use “strengths-based language” to describe how a colleague supported their learning. She offers the sentence stem: “It really supported my mathematical reasoning when (name) used (math practice) to (_______) because (_______).” Vera explains that this activity is meant to support an asset-orientation toward students: “If we want to bring out student strengths, then we need to be looking for them and this is kind of what we're doing here. Let's go around the group, turn to the person to your left to say the sentence that you have selected…”

Across the groups the teachers dutifully follow these directions, but this prompt doesn't generate the same sort of energy and authentic engagement as the discussion about the math problem. At Marta's table, Jenny starts off by saying, "I think Marta understands that being a math learner requires critique and debate" there's a long pause and then a chorus of awkward giggles. "Thank you!" Marta responds. At Amy's table, each teacher shares one after the other and then waits in silence for a while before Josie whispers, "This is tedious."

Donna starts her group off and seems to take the prompt seriously, but I wonder if it feels genuine for her. She says, "I think Alma understands that being a math learner requires [reasoning] because every time that she spoke…she was able to give specific examples of why it was happening and that helped me to kind of put some pieces together," but when I reviewed the audio of her small group's conversation I couldn't find any evidence of Alma explaining the math the problem to Donna or anyone else.

This exercise falls pretty flat, which is especially evident given how deeply engaged the teachers were only moments ago. In retrospect, it seems like teachers were not especially grounded in the purpose of this structure for giving math compliments. It's interesting because it really seemed that the teachers *were* appreciative of one another in the discussion they just had, but (perhaps unsurprisingly) a protocol directing someone to give the person to their right a math compliment from a list does not seem to end up eliciting genuine appreciation. In this moment it suddenly feels like the teachers are practicing a protocol designed for students, where as before, the teachers were authentically engaging in mathematics as learners. Perhaps Vera sensed that the math compliments were less than inspiring because when she brings everyone back together, she doesn't debrief this activity.

***Debriefing the "Worked Example" Lesson***

At this point, the "model lesson" is over and Vera engages the teachers in a debrief conversation about what they learned from the worked example lesson. She projects the goals for the session on the whiteboard and asks the group: "How did this task support us with our focus?... Read through those two statements to see if you could think back to the worked example that we did together… Did it do what we intended it to do?" (see Figure 5).

**Figure 6**

*PD Session Goals Slide*

**Session Goals:**

1. To use ***worked examples*** *to* support learners' sense making by ***justifying*** mathematical ideas, strategies and conjectures. When students are engaged in making sense of ideas, it ***shifts the authority*** from individual students and/or the teacher toward ***mathematical reasoning***.

2. To explore how we can use ***worked examples*** to identify and ***use student strengths and brilliance*** to advance student learning, with a particular focus on students whose thinking has been absent and/or overlooked.

This is the first time the teachers have seen the goals for the session. After nearly a full minute of wait time, Amy shares that she felt the math task supported a lot of sensemaking because of how the group worked to think about what each component of the equations meant. Jenny adds on, "Yeah because the mathematical reasoning was showing how each part of the equation matched the contextual relevance of the problem. So that's mathematical reasoning to opposed to 'first we distribute…PEMDAS, blah blah blah.'"

A sudden thought must have occurred to Amy, because she jumps in again right on heels of Jenny's sentence: I wonder too if there's a little bit of tension between using "Student A" and "Student B." It definitely takes the authority away from individual students, right?…But then I

was struggling a little bit with the second part which says to use students' strengths and brilliance to advance student learning… I'm really prone to instead of saying, 'Student A' or 'Student B,' I might say 'Ismail,' and 'Tanya' from my class to assign some status to those students that they are working these things out correctly, right or with, with mathematical reasoning, right?...So I feel like stripping the name takes away from the individual authority in a good way. But also, adding in a name would also attend to status."

Vera responds, "Definitely, that's a teacher move that we would definitely make if we see a student who needs their brilliance needs to be highlighted." Jenny agrees and adds on, "[In our last session] we noticed, like, there's a student in every class who had that conjecture. So it's easy to go from 'student conjecture' to like, oh, this is '*Aria*'s conjecture.' But we can be really conscious about which students need that status because it's probably going to show up at least a little chunk of it a little morsel, right, where we can assign that status to that particular student who has been historically underserved."

The energy and momentum that was present during the math task returns. The teachers are driving the discussion once again, though the tone of the conversation is serious now, rather than playful. Before Vera can respond, Donna jumps in to share her thinking: "And I think that's the important point is when you put a name, a student's name on, it's to raise their status in the class. So looking for those students who seem to have low status in the math classroom. And as soon as they've been assigned that status by their own work, their whole demeanor changes, and not just for that class, it changes for the *year*."

Amy pops in again, "I think too an argument to be made for putting [real] names on this, is that this is not error analysis, right? We're not highlighting an error, we're highlighting the brilliance of both of those choices that they made, right…And so, again, I think that a move to

put a student's name on an activity like this is inherent for raising status more than comparing Student A and Student B."

The teachers seem to be coming to the conclusion that analyzing a "worked example" is productive, but that if the aim is to draw on students' strengths and brilliance to advance the learning of the class, then it makes more sense to share work that the students themselves have generated. The teachers also consider the importance of thinking carefully about which students might most benefit from having their work selected to be shared with the class, given what they know about participation patterns and which specific students seem to have lower status. In other words, the teachers are coming to the conclusion that worked examples *are no*t the best instructional activity to use if their aim is to "use student strengths and brilliance to advance student learning, with a particular focus on students whose thinking has been absent and/or overlooked."

Vera responds, and I notice her tone of voice is a bit more tentative than before. "And, I could have, you know…I could have highlighted a person had I known status dynamics…" To my surprise, Vera does not press or question the teachers to consider whether starting with the problem already solved may create an opportunity to participate for students who were unsure about how to get started solving the problem on their own; or to raise the question of who will represented if the teachers are only selecting work from the pool of students who have solved the problem correctly. Instead, she moves on to summarize the key points of the lesson and lingers for a moment on a slide with examples of the kinds of questions she asked the teachers to support them in relating Student A and Student B's work to the story context. She then transitions the teachers to grade level planning time. The teachers will have about 30 minutes to work on

planning their own worked example lesson to try out with their students. The questions Amy surfaced, which were clearly interesting to the group, hang in the air, largely unaddressed.

### Individual Coaching Cycles

As I have described, teachers were offered the opportunity to sign up for individual coaching sessions following the PD session. The intention of the coaching cycles was to support teachers in applying their learning from the PD session with the support of Vera, the PD facilitator. Coaching cycles included a 25-minute pre-teaching meeting, a 20-minute lesson observation, and a 20 minute debrief conversation. At times, the district math coach, Kate, researchers (including myself), and/or members of the PD organization attended these coaching cycles with teachers. In what follows, I illustrate Amy, Donna and Marta's experiences in the coaching cycles which followed the PD session on "worked examples." Rather than document every part of each coaching cycle, I zoom-in and focus on the aspects of the coaching cycle which seem to most clearly surface how the moral and ethical dimensions of learning teaching shape the teachers' experience. In the section on Marta's coaching cycle, I focus primarily on her pre-teaching meeting. The narratives about Donna's coaching cycle also focuses primarily on her pre-teaching meeting but I also share details about her debrief conversation and how the teacher educators in her coaching cycle (myself included) made sense of our coaching meetings with her. In the section on Amy's coaching cycle, I primarily focus on the debrief meeting.

#### *Sentence Stems and Strategies: Supporting Marta to Try Something New*

The day after the whole group PD session, during first period, Vera, Kate and I walk to the sixth-grade side of the building to meet with Marta for a "pre-teaching session." The purpose of these 25-minute meetings was to hear about the lesson the teacher planned and to establish a shared sense of the goals for both the lesson and the observation of the lesson. In the context of

this PD workshop, we would expect to see the “worked example” lesson the teacher planned with their grade level team and then talk with the teacher about what they would like the observers and coaches to focus on during the lesson. Pre-teaching sessions might also include some workshopping or feedback on the lesson plan. Given the goals of this PD workshop, Vera also asked each teacher which specific students they would like us to pay attention to, so that we might be able to point out opportunities to “highlight the brilliance of students who would benefit from a status boost.” Finally, Vera would close the pre-teaching session by asking each teacher where and when it might be beneficial to check-in with teachers during the lesson to talk about what they were noticing and “to build an awareness of what students are making sense of.” Vera would explain that during these in-the-moment check-ins coaches and teachers could exchange observations of what students are doing or saying, share ideas, or ask one another questions. The in-the-moment check-ins could also be opportunities to collaborate about what the teacher could try next to advance the lesson. Vera developed and used a printed protocol to support this order of events in each pre-teaching session (see Appendix B).

To kick off our pre-teaching session with Marta, Vera explains what we will be “looking for” when we arrive to observe her second period class the following morning: “… just kind of maybe the worked example, structuring some student talk, and then, you know, anticipating student responses…And especially…really looking for ways to highlight some of the students that need a little lifting up.” Then Vera asks, “So could you share with us kind of what you're thinking?”

Marta tells us that her sixth graders have been working on dividing fractions and shares the worked example task she planned with Sarah, Jenny, and Sam during the Wednesday morning session. She explains that the purpose of the discussion is to support her students in

making sense of the remainder when dividing fractions, which has been a challenge for students up to this point. The first side of the worksheet shows how two hypothetical students have approached the following problem: *Alondra wants to make bread. She needs ½ of a cup of flour. She has ⅔ of a cup of flour. How many batches can she make?* Student A's answer is, "1 ⅙ because there is one ½ section and the section that is leftover is ⅙ of the whole cup." Student B's answer is "1 ⅓ because there is one ½ section and there is ⅓ of a ½ or 1 out of the 3 pieces needed for a ½ cup leftover" Both students use the same model (see Figure 6) to come up with their answer, but they consider what is "left over" in terms of different referents (Student A, who is incorrect thinks about what is left in reference to a whole cup, and Student B who is correct considers what is left in reference to a whole *batch*). The final prompt of the worksheet says: *One of the students is correct. Which student do you think is right? Why?*

**Figure 7**

*Image of Marta's Fraction Task (page 1)*

| | Expression | Model | Quotient and justification |
|---|---|---|---|
| Student A<br>Estudiante A | $\frac{2}{3} \div \frac{1}{2}$ | $\frac{2}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, $\frac{1}{2}$, $\frac{2}{2}$, $\frac{1}{2}$ | 1 ⅙<br><br>Because there is one ½ section and the section that is leftover is ⅙ of the whole cup.<br><br>Porque hay una sección de ½ y la sección sobrante es ⅙ de la taza entera. |
| Student B<br>Estudiante B | $\frac{2}{3} \div \frac{1}{2}$ | $\frac{2}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, $\frac{1}{2}$, $\frac{2}{2}$, $\frac{1}{2}$ | 1 ⅓<br><br>Because there is one ½ section and there is ⅓ of a ½ or 1 out of the 3 pieces needed for a ½ cup leftover.<br><br>Porque hay una sección de ½ y sobra un ⅓ de un ½ o 1 de las 3 piezas necesarias para ½ taza. |

The back of the worksheet shows two correct solutions to the same problem (see Figure 7). Student B (the correct response) from the first side, and a new strategy where Student C thinks about the problem using common denominators and rewrites the equation to say $^{4}/_{6}$ divided by $^{3}/_{6}$. On this page the students are asked: *Which solution makes the most sense to you? Why?*

**Figure 8**

*Image of Marta's Fraction Task (page 2)*

| | Expression | Model | Quotient and justification |
|---|---|---|---|
| Student B<br>Estudiante B | $\frac{2}{3} \div \frac{1}{2}$ | $\frac{2}{3}$ $\frac{2}{3}$ $\frac{3}{3}$ $\frac{1}{2}$ $\frac{2}{2}$ $\frac{1}{2}$ | 1 ⅓<br><br>Because there is one "whole" ½ of a cup and there is 1 out of 3 sections needed for the ½ leftover.<br><br>Porque hay un ½ de una taza entera y queda 1 de las 3 secciones necesarias para ½ |
| Student C<br>Estudiante C | $\frac{2}{3} \div \frac{1}{2}$<br>$\frac{2}{3} = \frac{4}{6}$ $\frac{1}{2} = \frac{3}{6}$<br>$\frac{4}{6} \div \frac{3}{6}$ | $\frac{4}{6}$ $\frac{6}{6}$ $\frac{3}{6}$ $\frac{6}{6}$ | 1 ⅓<br><br>Because you have 4 out of the 3 you need. 3/6 can go into 4/6 one whole time and there is ⅓ leftover.<br><br>Porque tienes 4 de los 3 que necesitas. 3/6 puede ir en 4/6 una vez entera y hay ⅓ sobrante. |

After Marta walks us through her plan, Vera points out a small typo on the worksheet and asks if Marta has already made copies. Then she offers a series of compliments: "I think you've got a structure in here that's going to be productive…and highlighting that error that you don't want [students] to make…connecting to the visual is so powerful." Kate also shares compliments and praise: "I really appreciate you Marta, how you're focusing on the math reasoning and the

connection in that second problem, especially like you're not going to just say ‘okay, so we all know that Student B is right, and then we move on,’ but you're pressing them to actually think more about why that is…Well done!”

From here, Vera asks Marta about how discussions have been going so far: “What’s been working and maybe what about something that you would like to work better in that area?” Marta shares that one thing she’s been reflecting on is her role during student work time. She explains that when students are working, she circulates to observe but finds it challenging and overwhelming to ask questions or support students during this time. She doesn’t say it, but in retrospect I realize that Marta was often managing student behaviors during work time and finding it difficult to find time to talk with students about their math work. In any event, Marta theorizes that if she were able to ask more productive questions during work time she might be able to support more students in feeling prepared to share during whole class discussions and start hearing from a broader range of students when the group comes back together to talk (rather than hearing from the same handful of kids who “always” volunteer to share).

In response Vera asks, “Are there some ways that we could get ideas out without the hand raising?” She then describes a few strategies for how Marta might include the voices of students who do not usually share without asking for hands. She suggests that Marta assign students “A/B partners” and let students know she will be randomly calling on B partners to share what their partner said. Vera also suggests Marta try asking students in advance if they would be willing to share, or asking a student if she can share their idea with the class on the student’s behalf. With each strategy, Vera models what it might sound like to make one of the moves she’s suggesting: “You might ask them, ‘You know, George, would you be willing to share that? I really would like the class to hear what you just said, I think it would help us all in

our learning.' And if George says yes, great, and George says, 'I don't know…' just say, 'Would you be willing for me to share that?" Vera continues to offer this kind of modeling throughout the meeting, giving Marta examples of what it might sound like to facilitate key points of the lesson (e.g., launching the worked example, offering wait time and getting partner talk started). While these strategies do potentially address the issue of the same handful of students participating during whole class discussion, I realize in retrospect that we do not address what Marta has raised, which is that perhaps more effective questioning and monitoring during student work time might support more students in feeling confident enough with the content to want to volunteer.

Alongside the explicit strategies and sentence stems Vera offers I notice that she seems to be negotiating her role in the meeting, sorting out the balance between offering concrete ideas and creating space for Marta to problem solve on her own. At times she couches her contributions saying things like: "I'm just probably interjecting too much…;" and "I kind of want you to think—actually, I'm not going to tell you what I want you to think…" In looking over the transcript, I also see Vera uses the word "maybe" frequently and poses most things as questions rather than statements. For example, after sharing the strategies for how to call on students without asking kids to raise hands Vera says: "Maybe pick one of [these strategies] to try tomorrow?" Or when describing how she plans to participate as a coach during the lesson Vera says, "I'll be kind of just listening and maybe um giving—talking about some options we might have at some point in time?" This seems like this is an attempt to soften the imposition of our presence and support Marta in seeing that this is still her lesson and her classroom.

Vera's sensitivity to her authority in this meeting raises a central tension between the stated purpose of these coaching cycles (to provide supported opportunities for learning and

practice), and the implicit *evaluation* of that learning and practice. In this coaching cycle Marta is both actively learning how to engage with the goals from the PD session in the context of her class and *demonstrating* what she has learned about the goals from the PD session. None of us want this coaching cycle to feel "evaluative" for Marta, and yet we come to her classroom "looking for" something (a worked example and "structured" student talk). This dynamic goes both ways; Marta signed up to be "coached" and therefore *expects* us to offer "feedback" on her teaching (even if the prospect of this makes her a bit nervous).

To conclude the meeting, Vera asks Marta if there are any specific students she wants us to pay attention to while we observe. Marta tentatively offers one student, but struggles to think of any others. She looks out across her empty classroom, presumably trying to visualize the students who will gather here during second period. There's a long stretch of silence before Marta says, "I'm trying to look and I don't see any faces in the seats." I worry this is a sign Marta is feeling overwhelmed, and I think Vera and Kate do too. Vera gently tells Marta she can always write us a sticky note in the moment if a student occurs to her and reminds her that we're here to support during the lesson. When we leave, I feel I have no real sense for how this meeting went for Marta. In one respect, Marta has a rich worked example for her students to discuss and had a supported opportunity to think through how to facilitate this lesson. On the other hand, I couldn't tell the extent to which Marta really internalized this lesson as her own. She co-planned the worked example with an experienced teammate, and then went through the lesson with a coach and in both settings she seemed fairly quiet, taking in a lot of "sentence stems" and advice. Was it all too much? Or was she quietly absorbing and reflecting? For the time being, it was hard to say.

**Marta's Email.** In the end, we never got to see Marta's lesson. Poor Vera became ill and the observations and debriefs scheduled for Friday were cancelled. But the day after we were scheduled to visit Marta's class, she sent us an email excitedly sharing about how her lesson went: "I thought I'd write my reflection about today's lesson and share with you :) sorry for the long email in advance…I liked how the lesson went, a lot."

Marta shared about how our planning conversation helped her successfully "guide some students that otherwise wouldn't have been so engaged in the table conversations" and that using the worked example seemed productive: "I really liked how the handouts allowed the students to show me where they were at in their understanding without having to solve more problems." Finally, she shared how the discussion went and highlighted how Vera's model lesson supported her teaching: "The [anchor charts] were game changers. I've done them before, but I don't think I had involved the students as much as today. It was very helpful to see you, Vera, and so today I kept circulating for more details and meaning… And since many times I wasn't asking for their own models or their own answers I heard from students I sometimes don't hear from during whole class conversations…"I just really liked it and I feel like everyone left with something new." To close the email Marta circled back to the questions Amy raised in the whole group PD session regarding when and whether to use real or "fictitious" student work. She wrote, "I think next time I'd like to use our own work to analyze. Have a great weekend, Maestra Marta."

### *"Where do you think the deepest part of the conversation is going to happen?": Donna Pushes to Understand*

Donna's "pre-teaching meeting" is the inverse of Marta's in almost every imaginable way, beginning with the number of observers doubling in size. Throughout the day various researchers, members of the PD organization, and the school principal have joined for parts of

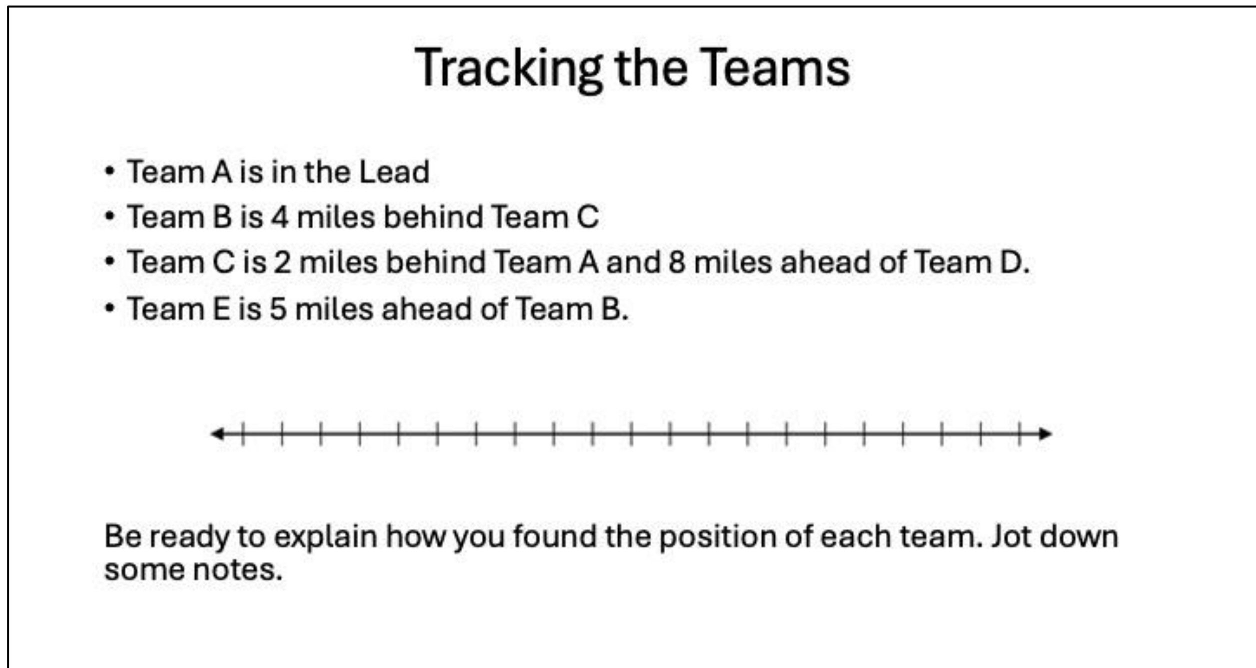
the coaching cycles as their schedules allow. When we arrive in Donna's room, the gaggle of observers has reached a zenith. There are six of us present (not including Donna): Vera, Kate and myself (the three of us attended all of the coaching meetings) as well as two leaders of the PD organization, and a member of the MTP research team.

If Donna is nervous about the crowd, she doesn't let on. She immediately takes the reins and lets us know that her special education co-teacher for second period (the period we will be observing) is out for the day, and that she thinks this meeting could be a "lovely" opportunity to do some co-planning together. Donna explains that she has 29 students in second period, and that 16 of those students have Individualized Education Plans (IEPs) and receive special education support. She goes on, "I really think it's good for me to have other sets of eyes to plan…[My special education students] add a beautiful dynamic that makes it an interesting class to prep for."

Donna orients us to her goals for the lesson and the task she's planning to use. She explains that she's hoping students will continue the work they've been doing to understand how "positive and negative numbers indicate relationships between positions and direction" and shares that students will be working to place Teams in a race on an unmarked number line given a set of descriptions about where the Teams are located relative to one another (e.g., "Team A is in the lead; Team B is 4 miles behind Team C; Team C is 2 miles behind Team A and 8 miles ahead of Team D") (see Figure 8). Donna anticipates that most students will start off placing Team A at the far right-hand end of the number line since Team A is in the lead. Then she plans to have students compare this approach to someone who places Team A somewhere else on the number line. Finally, she'll ask students to think about how they would label everyone's position if Team B is the origin.

**Figure 9**

*Donna's "Tracking the Teams" Task*




Kate, noticing that the plan Donna just articulated is not a worked example, replies "Just as an idea to think about a worked example, what if you gave them one that was wrong?...And then instead of your first prompt being 'Locate…' you could change that to, 'Here's what someone did? What do you think?' Or another one of those prompts that we talked about before?"

Donna isn't so sure analyzing a worked example of this task will be accessible: "The first thing I think they have to do is they have to wrap their heads around this [themselves]... Sometimes it takes different prompts for different people to get started." She reiterates her idea of asking the students, "Where would you put these [teams on the number line] and why?" and then analyzing how one student placed the teams as a class.

From here, Kate, Vera and I respond to Donna with various counter arguments for why it might be worth trying a worked example. Vera probes the question of "access" and asks Donna

to reflect on what could be *more* accessible about starting with a worked example. Since Donna has used this task in previous years, I suggest we try out the worked example as an experiment and compare the worked example version of the lesson to how things have gone in the past. The conversation morphs into what feels like a debate, though none of the three of us want to "pressure" Donna. While we continue to give her reasons for adjusting her plan, we also hedge our arguments with conciliatory refrains: "It's truly your call, Donna," and "I'm just throwing this out there but…" In retrospect, I am not sure any of us were clear on why we were pushing in the ways that we were. If our goal was to support teachers in facilitating a robust discussion that highlights the voices and thinking of students who are often overlooked then Donna was certainly on the right track, worked example or not. What I do know is that we *expected* Donna to lead a worked example and weren't quite sure how to read her resistance.

Reading transcripts of this conversation I can see that Donna makes the reasons for her hesitancy quite clear. First, she's not sure a worked example will support a rich conversation about this task. She asks: "Does the depth of understanding and conversation come from the student doing [the problem] first? And then having a conversation…? Or would it be deeper if they were given two students' work with no background other than checking this out? That's, that's the question I have for everybody…Where do you think the deepest part of the conversation is going to happen? Or is it going to be quickly, 'Here's what students are going to think,' and then the lesson is done?'" Second, Donna is still grappling with the questions Amy surfaced in the whole group PD session around whether and how worked examples create opportunities to highlight students' brilliance. She explains that she typically doesn't like using "contrived" student work because using real student work creates "a chance to raise [student] status." With respect to both of these concerns it's clear that while Donna is *unsure* about using

worked examples, she's not necessarily against it. She seems genuinely determined to understand how or if a worked example is the best way to teach this lesson.

With only 5 minutes left in the meeting Donna finally says, "Did I miss an email that this was going to be about worked examples?" Kate, assures her there was no requirement emailed and once again tells her she doesn't have to do a worked example. Perhaps because we all knew we were running out of time, we suddenly come up with a compromise of sorts. Donna will launch the task as planned and give students a chance to place the teams on the number line themselves and *then* they will analyze and compare two examples of fictitious student work (two examples of the completed number line which are correct, but labeled differently).

**Debriefing our discomfort: Coaches discuss our work with Donna.** The six of us walk back to the conference room where the coaches and researchers have set up camp for the day. We sit around a long oval table cluttered with coffee cups, water bottles, laptops and notebooks. We are some combination of worried and bewildered. Vera describes the planning meeting as "awkward." She seems to interpret this meeting as going awry and muses that perhaps there *should* have been an email letting teachers know we expected them to try out a particular lesson structure. She wishes she had given teachers more time to plan in the morning and been more "explicit" about "the directions."

As a group we cycle through a few theories about what could have been going on for Donna. We wonder if we shouldn't have allowed so many visitors in the meeting. We wonder if Donna was feeling anxious about the principal stopping by with Vera to informally observe earlier that day. The PD Program Director notes that in the future coaches should always at least leave a sticky note or email thanking the teachers they observe and highlighting something positive they saw (Evidently Vera and the principal stopped by without saying anything). The

subtext of the conversation feels like we are circling around whether or not Donna's resistance to trying out the worked example was personal or emotional. We never say it, but it feels like we're asking: *Is she upset with us? Did we do something wrong?*

Funny enough, when I returned to the transcript of the pre-observation meeting there's actually a point where Donna assures us she's *not* mad at us: "As my husband says, I have 'the face' when I'm thinking deeply that [looks like] I'm angry at everybody." But it seems notable that despite this our first collective instinct around why Donna wasn't quite going with the flow was that she was upset with us. It was so normal for teachers to just take up whatever kind of lesson we suggested that we couldn't quite trust that Donna's response was genuine curiosity.

Eventually, Kate remarks that maybe things weren't as bad as we think. She remembers that Donna told us she wanted to co-plan: "And really that was what we did…We co-planned with her…we didn't do our plan. We co-planned with her and we talked about different approaches to what she was trying to do and maybe that was exactly what she was hoping for." Kate's hunch here resonates with what I notice when reviewing the recording of this pre-observation meeting. While the "debate" style conversation made the three of us uneasy, it seemed engaging and productive for Donna. This was only our second coaching cycle with Donna, but as my work with her across the year continued, I would see that hyper detailed "back and forth" type discussions about how she would facilitate a lesson were in fact emblematic of her planning style (and not at all a sign she was upset).

Without knowing Donna well however, Vera remains worried we pushed too hard: "…I hope she did [the worked example] because she thought it was going to be mathematically productive for her students not because she felt that was something that we needed to see." Our debrief has now stretched to almost twice the length of the conversation in question. To close us

out Vera says, "I think I'll go visit with Donna before the end of the day. Just check in and say, 'How are you?'...I just think it would be good."

As it would turn out, there was no need to worry about Donna doing anything other than what she felt would be mathematically productive for her students. When we observe second period the next day, Donna makes an in-the-moment decision to scrap the worked example part of the plan we came up with together. In our debrief meeting later that day she explains with unwavering clarity that she just couldn't pass up the chance to use *real* student work with this group of students. She explains why she selected the specific examples of student work she chose to share under the document camera and points both to what that student offered the group mathematically and what the opportunity to share offered that student in terms of their identity as a math learner. She also explains that she didn't do away with the plan we developed together in other classes: "I tried it in first period and in third period. In third, it was fabulous." After hearing Donna's reasons for highlighting particular students' strategies, Kate says, "Had you not told us that this was a class that [has] lots of students with IEPs, I never would have known. Based on your interactions with them, based on their interactions with each other. They're all mathematicians, just like every other student." *Now* Donna is emotional. Her voice cracks, "That's the richest compliment I could ever get."

"That almost brings tears to your eyes," Vera says.

Rather than letting the "agenda" for the PD cycle or the presence of observers dictate the course of her learning, Donna probes and pushes against that agenda, holds it up against what she knows about teaching, mathematics, this particular lesson, and her particular students *and then* experiments accordingly. Even after spending a good amount of time negotiating a plan for a

worked example with us, even knowing that a "worked example" is what we (the *six* of us) were "looking for," Donna holds her own.

### *Performing Learning: Amy "Coaches Herself"*

When we arrive to Amy's classroom to debrief her lesson, she's already seated in the center of her kidney table at the center of the room. We take our seats along the open edge of the table, fanning out around her. It strikes me that this arrangement foreshadows the dual power dynamics at play in this conversation. Amy is at the center of the table, in the center of the room seems to almost be holding court. We are in *her* classroom, and she is in the seat of honor. And yet we are "observers" of her work and she's in the hot seat, awaiting feedback.

As is her way, Amy gets started as soon as we sit down. She starts to recount her thoughts on the lesson and then stops herself: "So I mean, I don't know if this is what you're going to ask me. But this is what I was reflecting on." All three of us encourage her to continue: "Tell us what you were reflecting on," Kate says. "That's what we want to know," I chime in. Amy then launches into an analysis of her lesson for almost nine minutes straight without any prompting or interruption from the three of us besides the occasional chorus of "mhms." She discusses a range of theories she has about why the discussion in her lesson wasn't as lively as it might have been. She explains how she thinks features of the task related to students' participation. She shares with us how she adapted the lesson for second period, and third period and how the adjustments she made improved the discussions in each of those classes. I feel like a contented audience member as I listen to Amy rattle off answers to nearly every question I would ask, as though the observation notes in my lap are in fact in front of her. Finally, she reaches the end of her debrief and hands the mic over to us: "What are your thoughts?"

Kate starts us off by acknowledging that Amy has covered most of what we would say. "You talked about a lot of all of the same kinds of things that we had talked about…" Then we each share something we noticed. Kate says perhaps students struggled to draw the triangles initially because earlier in the week they had been practicing on computers, and something about using paper and pencil felt harder. Vera notes a moment when Amy could have provided students with a little more time to think before starting the discussion. All three of us offer specific examples of students engaging with one another and thinking deeply about the content. To nearly all of this, Amy offers one word responses: *Okay. Good. Sure. Right.*

Before we know it, we've reached the end of what was promised to be a 20-minute conversation. We step out of Amy's classroom and huddle in a short corridor lined with lockers. We are all smiling and satisfied. Vera asks: "Well, what did you think?" There's a pause. Kate, beaming, says, "It's like she coaches herself." We all murmur in agreement and walk back to the conference room to plan our next coaching cycle.

Amy's debrief conversation stayed with me and I grew increasingly curious about *why* Amy "coached herself." On the one hand, I couldn't help but be impressed by Amy's reflective presentation. On the other, I felt acutely aware of how *pleased* we all were with her and wondered if she was aware of it too. Was recounting her own reflection what Amy wanted and needed? Or is this what she thought *we* wanted? In the moment, we all seemed to react as though a teacher who can "coach herself" was some kind of "arrival," but the more I thought about it, the more I wondered: Can any of us ever really coach ourselves completely? Is there a point at which teachers become so good at teaching they no longer need or benefit from thinking and learning with others about their work? To both questions, the answer is most certainly no. This isn't to say our participation in the conversation was worthless. We provided Amy with concrete

examples of how various moves she made seemed to support students' engagement in the content, and our presence pressed her to try out a worked example, and reflect on it. But I couldn't help thinking (particularly when I compared this conversation to others I would have with Amy about her work across the year), that we weren't really getting to a place of meaningful learning *for Amy*. Instead, she was performing learning she had already done *for us*.

Returning to a transcript of our conversation helped me unpack this hunch further. What seemed to be almost entirely ignored by all three of us in the debrief, was that Amy didn't feel this lesson went well. She starts off immediately by telling us about how difficult it was for her to get students engaged and that she wished that the conversation was more robust and lively: "This is like taboo to say, but part of it is they're almost too small of a class. I don't have enough, extroverted voices to get a convo going, you know? And I mean, I think by the roster, there's 24 in there, which is kind of a dream number. But on any given day, I have five to seven absences… My other classes are not as bad. I mean, so it's just a perfect storm of just not great. And so …it was just crickets." She also describes how students struggled to draw the models more than she anticipated "I think the biggest surprise to me, which I actually found in all three of the classes, was that they weren't drawing the model as readily as I thought they would. Like they were not using the graph paper the way that I thought they would." She goes through the motions of explaining what she tried in the subsequent class periods, and what she would try in the future, but we never unpack Amy's lingering questions, feelings, observations or decisions in the context of this lesson with this group of students. Instead, Amy's eight and a half minute debrief functions as a protective buffer. She may start off by saying "I'm not sure if this is what you're gonna ask me…" but it's clear she does have a pretty good sense of what we will ask and what

we want to hear. We all end up happy with *Amy* as a learner, and the original object of inquiry, *this lesson*, fades into the background.

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Almost two years after this coaching cycle, during our member checking interview, I asked Amy about how she experiences professional learning opportunities which include observations of her teaching. Specifically, I asked Amy if I was correct in understanding that she experienced a tension between wanting to perform her competence and wanting to learn from "the messy and hard parts" of learning teaching. Amy responded in a clipped tone: "Yep. I mean true. And still true. And *will* be true." When I pressed for her to tell me more, Amy explained that even though the learner in her wants to explore "mistakes," she is also wants praise and to hear that she's doing a good job:

> *I'm not sure that I would have the capacity to dwell on my mistakes, right? Like, if I'm gonna have a bunch of people come in, or even my admin come in and watch me…I mean, yes, the learner in me says, I want to know how to get better, right? But I also don't get enough, pats on the back either. Like, I need to be reminded of what I'm doing well. You know? I'm also a union rep, and like, the number one thing I hear is, "nobody's giving us kudos, nobody's seeing what we're doing."… And that starts to wear after a while.*

With this new information I thought back on Amy "coaching herself" I wondered if how she participated in the debrief conversation may have related to a desire for affirmation. Once it was over, Amy couldn't control that her lesson hadn't been what she had hoped we would see, so she found other ways to ensure we saw her competence as a teacher.

## Chapter Summary

This chapter followed Donna, Amy, and Marta's experiences across a professional development workshop. The workshop started with a whole group PD session which focused on incorporating "worked examples" into mathematics lessons to create opportunities for rich discussions which center students' reasoning and sensemaking. Vera also suggested that "worked examples" can support teachers' efforts to elevate the strengths and brilliance of students who are often "overlooked" in the classroom. The PD session was framed around a moral commitment to creating opportunities for more students to "reach higher levels of mathematical success and interest" (NCTM, 2014, p. 64). The session began with Vera modeling a worked example task which the teachers participated in as "students." During the model lesson, we see the teachers become the joyful and engaged mathematical learners they hope their own students can become. They grapple with mathematical ideas, build on one another's thinking, excitedly revise their own thinking, and playfully engage with one another and the content. In this sense, Vera's lesson isn't just a "blueprint" for how to facilitate a worked example lesson *for students*, but also an opportunity to become a particular kind of learner of mathematics, *for teachers*. While the moral imperative to improve their instruction remains a critical dimension of the learning happening in the room, it's clear too how their participation in this math lesson also involves the ethical. The teachers have the chance to experience what is good about being a learner of mathematics and they are offered an image of what is good about being a teacher who supports rich opportunities for collective reasoning.

To debrief the worked example lesson, the teachers debate whether and how worked examples are an effective way to elevate the status of students whose mathematical strengths often go unrecognized. During this discussion we hear the teachers explicitly grapple with the

moral dimensions of their work. In particular, Amy raises the question of whether using "fictitious" student work is an effective way to raise students' status. The intensity in this conversation stands in stark contrast to the levity with which the teachers wrestled with mathematics only moments before. The teachers seem to be trying to figure out if worked examples are the right way to raise student status in the classroom. Donna stands for the idea that using students' "real" work has important implications with respect to students' mathematical identities and that sharing students' original work is a critical way to raise student status. Amy and a few other colleagues agree. Vera does not press the teachers to consider how worked examples might create different entry points for students to participate in mathematics than solving the problem on their own. She seems uncomfortable with the tone of this conversation and unsure of how to interpret the teachers questioning the extent to which worked examples relate to her stated equity goals. She abruptly ends the conversation and moves the teachers on to work on planning their own worked example lessons.

Over the next two days, Vera, Kate, and I (along with various other researchers and leaders from the PD organization), engage the teachers in "coaching cycles" intended to support the teachers as they practice incorporating the ideas from the PD session into their teaching. Across the coaching cycles, all three teachers managed the sense that they must perform in some regard and "demonstrate" their learning (a tension the teacher educators were also managing). On one level, participating in voluntary coaching cycles itself is a way of demonstrating their professional and moral commitment to improving their teaching. At the same time, the teachers also know that the teacher educators present will evaluate the extent to which they have successfully incorporated the ideas from the PD into their practice (which relates to the extent to which they are accomplishing the moral demands around which the PD was framed). While the

teacher educators do not intend for the coaching cycles to feel "evaluative" the participants in the cycles are aware that for the coaches to offer feedback, they must assess in some way how the lesson meets the goals of the PD workshop.

For Marta, the experience of participating in the pre-teaching meeting of her coaching cycle seemed a bit overwhelming. During our meeting with her, she mostly sat back and absorbed a lot of strategies and examples from Vera about how to get students talking and how to hear from students who do not typically share. We also saw how Marta benefited from a supported opportunity to try out a lesson structure which lends itself to student reasoning and engagement. She excitedly reports back to us about how she drew on Vera's model lesson to support her teaching and how the lesson created a context for new students to participate in meaningful ways. Donna's coaching cycle on the other hand is characterized by her pressing against the expectation to facilitate a worked example lesson. She reflected on her specific lesson and seemed genuinely unsure if a worked example was the best way to support her students that day. Donna's critical questions seem deeply engaging and meaningful for her both morally and ethically as she tries to figure out how to best design this lesson given what she believes about good mathematics teaching. Once again, it's notable how unsettling Donna's process is for Vera, who seems to have expected the teachers to go with the instructional activity she's suggesting without question. Finally, Amy avoids the potential of diving into the teacher educators' evaluation of her work by doing all of the evaluating for us. She has significant experience participating in PD and in instructional coaching and expertly performs a debrief conversation leaving all of us impressed and with little to say (or ask) about her teaching. It's only after listening carefully after the fact that am I able to discern that perhaps Amy's "performance" was also an attempt to avoid diving into her deeper concern that this lesson was not as "good" as she

had hoped it would be. In Chapter Six, I dig deeper into what starts to surface in Amy's debrief and share stories from coaching cycles with Donna and Marta which focus on how teachers experience the presence of a teacher educator when learning teaching during a lesson that felt unsuccessful.

## Chapter Six: Good Teachers on Bad Days: Moral and Ethical Dimensions of Bearing Witness to Learning Teaching

There are good days and bad days in any line of work. This is no less true of teaching than of any other profession. As a teacher, my colleagues and I would occasionally joke about the days when things seemed to go wrong for all of us. We'd commiserate in the staff room, "Is it a full moon? Are they serving something funny in the cafeteria today?" But most of the time our bad days were our own. Something we experienced in our classrooms by ourselves, learned from, and talked about when and if we were ready to. The days when someone witnessed these difficult days or moments—when the principal happened to stop by as a lesson was going awry— were less often the topic of our staff room banter. These were hidden moments, more often reflected on in the quiet of our homes or the pages of a journal.

In this chapter, I share portraits of Marta and Donna learning on days that felt hard. In particular, these stories highlight the moral and ethical dimensions of trying to learn from a hard day with a "witness" present. I explore how each teacher responds to my witnessing their tough day, and raise questions about how their experiences illuminate the way they understand their moral responsibilities as teachers and as learners of teaching. These stories come from coaching cycles I lead with the teachers in between the PDWs, so unlike the stories in the previous chapter, I am the only teacher educator/researcher present.

At the outset, I want to pause to explain why I am focusing on "bad days," when I've clearly articulated my intention to seek and foreground goodness. I chose to highlight these "bad days" because I saw in the teachers' experiences of these days something important and too often hidden about how it feels to teach "with" or "in front of" others. In these stories we see teachers trying wholeheartedly to do good work or figure out what good work is despite the human reality of a lesson that felt bad. I share these stories with deep gratitude for the space Donna and Marta

made for me in their classrooms and for the important insight their experiences shed on what it means to be a learner of teaching.

### Responding "On Stage:" Tensions and Complexities of Bearing Witness to and Sharing Practice

It's late in March. Marta is working on unit conversions with her 6th graders. During our planning meeting, Marta explains that she will give students a table to fill out where they convert the measurements of various classroom items between millimeters, centimeters and meters (see Figure 9). For example, the measurement of a pencil might be given in millimeters, and students would then need to fill in the length of the pencil in terms of millimeters and meters, or the length of the whiteboard would be given in meters, and students would need to convert to

**Figure 10**
*Representation of the Unit Conversions Table*

| Item | Length in mm | Length in cm | Length in m |
|---|---|---|---|
| Desk (short side) | | | |
| Pencil | 140mm | | |
| Whiteboard | | | 4m |
| Computer monitor | | 30.4cm | |

centimeters and millimeters. Students would be expected to use the conversion charts in their math journals to complete this task. Marta says she feels the lesson is a bit boring, so she's added in an more hands-on opportunity to get things started: She will ask students to measure the "short side" of their desks in millimeters, and then the class will discuss their strategies for converting from millimeters to centimeters and then centimeters to meters, essentially filling out one row of the table together before moving on to complete the table independently. Marta said she wanted students to notice that while there are *ten* millimeters in a centimeter, there are *100* centimeters

in a meter and discuss the implications of this difference when converting from millimeters to centimeters versus from centimeters to meters.

To close out our pre-teaching meeting I ask Marta if it might be helpful for us to check-in with one another throughout the lesson to share what we are noticing and discuss possible instructional decisions based on what students are thinking. Vera and I both offered the option for in-the-moment check-ins throughout the coaching cycles with all of the Cedar Brook teachers, hoping to elicit opportunities for teachers to inquire into and respond to interesting or challenging moments during the lesson rather than only reflecting on these moments retrospectively in debrief conversations. Marta says checking-in during the lesson sounds good, "That could be helpful."

***Unit Conversions and Sixth Grade Shenanigans with Marta's Third Period***

"Will somebody read aloud the learning target for today?...Raise your hand if you feel like reading the learning target…" Marta's third period students continue unpacking backpacks and chatting amongst one another. They are mostly ignoring Marta.

"Okay, I'll volunteer somebody...Lizette…"

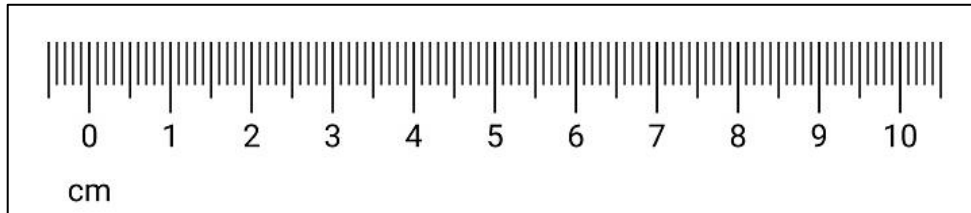
Lizette dutifully reads the learning target projected on the screen, "I can use conversion factors to convert between measurement units."

After reviewing the learning target with students, Marta and I pass out the paper measuring strips students will use to measure their desks. As soon as I see the strips, I anticipate things are not going to go exactly as planned. Marta has asked students to measure their desks in millimeters, but the rulers are labeled in centimeters. Each one is 10 centimeters long and while

millimeters are shown as little tick marks, they are not labeled (see Figure 10). Sure enough, most groups start off by measuring the short sides of their desks in centimeters.

**Figure 11**

*Representation of the Paper Centimeter Rulers*




I walk over to Marta to share what I've just realized. I feel excited. From my perspective this "mistake" has created an authentic mathematical problem. Instead of measuring in millimeters and then converting to centimeters for no other reason than to practice doing so, students have been given a tool that lends itself to measuring in centimeters, but they've been asked to find the measurement in millimeters: "I think they're all gonna to do centimeters...So now they're forced to convert!" Marta doesn't say anything. She nods and walks away. I walk over to a table group to talk to a student, Oona. Oona has measured the short side of her desk and come up with "43 and one little thing after."

"One extra millimeter after?"

"Yeah"

"So your answer is…43 what?"

"Centimeters?" Oona sounds unsure.

"What would the whole thing be then, in millimeters?"

"Hmm…" Oona says.

I am thrilled by the diversity of approaches and challenges coming up at each table group. What was unfolding was so rich. I walk back over to Marta who is at a table group nearby,

students have been at work for about 5 minutes, and I imagine she will be bringing the group back together to discuss strategies and answers soon. “So what are you thinking?” I ask.

“I am wondering about the table [on the whiteboard]. If I am going to do it like this, or if it would be better to change it, or if it even matters.” The table Marta has drawn on the whiteboard currently only has one column labeled “mm.” Her plan was to write in the measurement for the side of the desk in millimeters and then ask students to convert and draw a second column. Now she’s wondering if she should change the table to start with centimeters.

I start to share an idea, “So I feel like what—”

“No. No.” Marta interrupts to redirect a student. My back is to them, so I can’t see what is going on, but already in the first few minutes of class there’s been a fair amount of commotion. Across the room students are working on the task, but they’re also shouting and playing around.

I continue, “It could be interesting to call on someone who ended up measuring in centimeters first and then just say like, ‘Oh so should I put it in this column or make a new column?’ Or, ask a group who you know had to convert to get the answer in millimeters?” I point to various table groups, “So like this group did that, Oona did that, there are a few different people who went from centimeters to millimeters and so you can ask them about how they did that and add the new column at that point and then ask our meters question?”

Again, Marta nods and walks away. There’s a lot going on. A student has called her over to ask a question. As she circulates, Marta reminds students, “I want the answer in millimeters.” I am getting the sense that she is interpreting answering the question in centimeters as a problem, something that shouldn’t have happened. She seems flustered by how many groups have the

"wrong" answer. There's also a lot of variability in terms of the measurements students are getting, another dimension we didn't talk through.

I go over to a new table group, "What did you get?" One student at the table group says 41 centimeters. I walk over to Marta and let her know, "This table group here has left their answer in centimeters." She nods but doesn't reply.

Marta brings the class back together and calls on a student from the table group I just pointed out. I wonder if she called on them *because* I pointed them out, but I am not sure.

"What measurement did you get?" Marta asks.

"41. Centimeters." The student says.

"So would that be like, should I write it right here?" She puts her pen in the "mm" column.

"Maybe we should make a new one, because we didn't convert it," the student suggests. Marta makes a centimeter column and writes 41 under it.

A student from a different table group raises her hand and Marta calls on her: "I got 420 millimeters." Marta writes 420 to the left of the 41cm in the mm column.

"Should we all share like how many we got? How many did you get Oona?" Marta elicits answers from a few more tables and adds 315mm and 440mm on the board under millimeters (see Figure 11).

**Figure 12**
*Representation of Marta's Initial Conversion Table*

| **mm** | **cm** |
|---|---|
| 420 | *41* |
| 315 | |
| 440 | |

A student shouts, “Stop it, Kaysen! I am gonna kill you!” Kaysen has been sticking a large piece of clear contact paper to itself and then sneaking up behind his peers and quickly peeling the pieces apart to make a loud duck-like sound in their ears. Marta’s voice sounds calm, but weary. “I don't like that language. Can you put that away? We'll talk about it later.”

Marta asks students why the numbers under millimeters are “way larger” and students talk about how one centimeter equals 10 millimeters. Then she asks the class to convert the 41 centimeters into millimeters: “How would you go about doing that?” A few students blurt out, “Multiply by 10!” and “Divide by 10!” Marta asks the class to turn and talk to a neighbor.

While students talk with one another I sidle up to Marta at the board. I notice that the 420mm is across from the 41cm and feel it could lead to some confusion: “I wonder about moving the column down so that across from 41cm it would be 410mm? Right? So that it's lining up to show the conversion, does that make sense? So just scootch all of those down a little bit.” (see Figure 12).

Marta wordlessly starts erasing the millimeter column and asks me what the second number in the millimeters column was, “315?”

“Yeah.”

**Figure 13**
*Representation of Marta’s Revised Conversion Table*

| **mm** | **cm** |
|---|---|
| | 41 |
| 420 | |
| 315 | |
| 440 | |

When the class comes back together Marta has students share how they converted 41 centimeters to millimeters. During this discussion another eruption among students occurs. Brody keeps pretending to swallow a penny. A student shouts: “Stop it Brody, you’re not funny anymore!”

“Why are you eating it?!” another student shouts.

Marta turns towards this group of students. Calmly and quietly she says: “No more argument. I don’t want to hear it anymore.” I am starting to feel stressed on her behalf. The shenanigans are a lot to manage in addition to this mathematical discussion, which itself is challenging for Marta to facilitate.

After sharing how they converted from centimeters to millimeters, Marta asks students how they would do the conversion in the opposite direction (from millimeters to centimeters). Students again have a chance to talk about this with a table group and then share answers back with the whole group. Marta summarizes what the class has realized up to this point: “So before we went from centimeters to millimeters and we timesed it but, this time we went from millimeters to centimeters and that's when we divided it. What would it look like if we were to measure [the desk] in meters?” Marta holds up a meter stick, “This is a meter.”

“It wouldn’t even be a full meter!” Brody says excitedly (without being called on). “It wouldn't be able to fit... because it's, it's way too big. It's way bigger than this [the side of the desk]. So it would be less than a full meter. It'd be like zero point something.” I can’t help but smile. One minute Brody is putting pennies in his mouth, the next minute he’s joyfully making important connections.

Marta asks students to work on this conversion in groups: “Can you work with your table? Look at your piece of paper [the conversion chart]...and convert it to meters. Yes. So we're converting 41 centimeters to meters.”

Across the room there are two common answers, 4.1 and .41. I walk over to Marta to share what I am thinking: “It could be interesting to have them debate…so 4.1 versus .41 and see what they think is right and why? Using what Brody was saying that it would be less than one?” I am phrasing all of my ideas as questions, there’s an upward inflection in my voice, but looking back it seems like Marta interprets what I offer as a directive.

Again, she walks away without a verbal response and redirects another group of students, “Can we focus on the task? We are converting the measurement to meters.” Students are trying to convince Brody not to eat the penny again, “Do not eat that penny. I said don't eat it! You're going to die if you eat it.”

Marta goes up to the board and writes 4.1 in the meters column of the chart in blue and asks students if they think that answer is correct because it follows the pattern (of multiplying/dividing by 10 across the columns). She’s trying to take up my suggestion. She says to the group, “I know Brody has said that he thought it would be less than one whole meter. So would you say that that answer in the blue is correct?” One student says, “Yeah?...Well.”

Two students interrupt and start debating with one another about whether the answer should be 0.4 or 0.41 (they do not address whether the answer should be 4.1). Marta strains her voice to talk over them, “How about we have a discussion about that?” One of the students says, “I take it back, I take it back. The real answer is 0.41.” Students are talking among themselves and are no longer focused on Marta’s line of questioning. Marta stands at the board silently, seemingly frozen while the classroom buzzes around her. I don’t think she knows what to do

next and I don’t think it will be helpful for me to jump in with ideas. In a way, I am frozen too. Students talk amongst themselves for just over two minutes, filling the empty space with their typical chatter. Marta evidently decides not to pursue a whole group discussion about why the answer is .41 meters. She passes out the worksheet for students to practice conversions, “Can I have your attention? I am going to give you this paper, and you're going to use your equivalent units page and do conversions.”

***Debriefing Marta’s Lesson: “For some reason, I just failed”***

I meet with Marta to debrief the unit conversion lesson before school the next morning. I had spent the night before wondering what would be helpful for us to discuss, but mostly I just wanted to know how she felt about the whole thing. As I’ve shared, Marta could be difficult for me to read. “How did you feel about the lesson yesterday?” I ask. I am surprised when Marta jumps straight to how she felt about me being there and checking in with her throughout the lesson:

> *It was very different, I guess, the idea of it [checking in during the lesson] conceptually versus once I was on stage. I felt very, I don't know, like, thrown off by the live feedback, or collaboration, because I could see what you were saying and I really liked the pathway that it would have created, but then once I was there with all of the students, I feel like I wasn't able to take what you said, and really apply it. And I think that's just like my inexperience and not doing well, like improvising once I'm doing the lesson. But I feel like based on the results that I got from the activity, I think they for sure got something valuable from the class discussion that we had. And then right after you left, I had to reteach the same [lesson] for my second group. And it went way smoother…But like, when we were together, I was just, I guess, kind of stuck in like, ‘what's the goal?’ And I*

> *knew what we were talking about would lead us to the goal in a more I guess, like organic way, because it was what [students] were producing. But for some reason, I just failed. I don't know.*

The words “on stage” and “failed” go off in my ears like alarm bells. This was not at all what I had wanted Marta to feel. I realize I took for granted that Marta and I had worked together before in coaching cycles and should have spent more time talking about the norms and purposes of checking in and figuring out what sorts of information Marta would want during the lesson. I apologize and complement Marta’s hard work facilitating the discussion. I mean it genuinely, there were some really exciting and hard-won moments in the lesson, especially given all that was going on. I go on to share that my intention was not to correct her or suggest I had figured out the “right way” to facilitate the discussion. I was excited about how students were engaging with the content and was trying to think about how we could respond to get the most out of what they were grappling with. I learn that Marta was feeling confused by the idea of starting with centimeters and then moving to millimeters. In her mind, the goal for the day was that students would be practicing doing conversions that required division rather than multiplication. From my perspective, it didn’t really matter which “direction” they went in. I wish I had known she was feeling that way in the moment so I ask, “Were there moments where you felt like you could have talked to me about what you were noticing or what you were thinking about? Because I didn't want it just to be me telling you what I thought the next move should be, but more…we're both looking at what's going on and coming up with an idea together?”

Marta explains that she was too overwhelmed to articulate what she was thinking while juggling everything else going on, “I don't think there was a moment where I felt [that] just because yesterday was such a busy day with behaviors in the classroom. So, I feel like I was

very, like, preoccupied and trying to keep it together. So, I think it was just like a day where I just didn't have time to actually like go with the motions." Here, Marta suggests that because students' "behaviors" were her focus, she couldn't give focus to adapting her lesson based on how they were engaging in the mathematics (which, basically is what I kept suggesting).

I ask Marta if there's anything I could do differently in the future, or if she'd rather not check-in during lessons going forward. She explains that she feels it would have been better if we had co-taught the lesson: "I really, really liked it. I really liked seeing and hearing things that I was missing, or things that maybe I heard and didn't connect, or maybe I chose not to connect because I didn't want to improvise. But I think that for me what would have been more helpful, not more helpful, but easier, was if it had been more co-teaching. Like whoever the guest is feels open to—" I cut in to finish her sentence, "Asking, 'Can I go teach this part?'"

"Right." says Marta.

As our conversation draws to a close, Marta shares how she's thinking about the experience overall: "Something that I was telling myself yesterday when I felt a little deflated was I was like, even if I don't go with what you're saying [in the moment], it is still like good feedback, and good ideas that I can use for the next period when I'm not like improvising." Looking back, I am struck by how often she refers to "improvising," (four times in this 17 minute debrief conversation) and how she seems to connect improvising and a sense of pressure. On one hand, I can appreciate that it's difficult to figure out what to do in the moment, especially when someone is "observing." On the other hand, when I think about the lesson Marta was teaching, it seemed clear to me that she was going to have to improvise in order to be responsive to what was happening with her students. The confusion with the measuring strips for example required some kind of response regardless of my presence (whether it was making space for

students to grapple with the issue and problem solve, or making a class wide announcement about how to measure in millimeters using the provided tool). This is to say, my hunch was that it wasn't *improvising* that was uniquely hard in this lesson (again, *all* lessons require improvising), it was improvising *on stage*. Marta felt pressure to act based on what I was saying, and pressure to execute *my* ideas well. Struggling to facilitate a discussion about whether the answer was 4.1 meters or .41 meters was, in Marta's experience, *a failure.*

Marta's concern with all of the behaviors going on in the classroom are also significant given her perspectives about the moral and ethical dimensions of her work, which she shared in her initial interview and which I discuss in Chapter Four. She wants to develop deep, trusting relationships with students, and views these relationships as critical to both the moral contributions she can make as a teacher *and* who she wants to be as a teacher. Needing to address students' behavior throughout this lesson wasn't just a matter of classroom management, it was a series of high stakes opportunities to practice and live out what she believes teaching ought to be (and in this case with the added pressure of a witness).

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Almost two years later during our member checking interview, I asked about Marta's experiences working with coaches in the classroom and whether she felt the moral significance of teachers' work can make it feel especially vulnerable to have witnesses to challenging moments of teaching. Marta said she "still get[s] a little tickle in my belly like when colleagues I really respect are looking around" but overall, she feels more comfortable having guests and coaches in her classroom now. Marta said her perspective had shifted since our time working together in two primary ways. First, Marta explained that now, in her fourth-year teaching, she feels more worthy of her role as a teacher, like she really belongs: "This is the first year where I

am not questioning my space here. [Back then], I was often questioning me belonging and like doing a good job and thinking that [students] would be better with another teacher…This has been the first year where I feel like, 'Yeah, this is my spot. I will make mistakes, but it's still my spot.'" Second, Marta told me that she has been learning to "appreciate imperfection" and has been reflecting on what reasonable expectations for teachers' work might really look like. She explained that teaching is about complex human interactions that can't be perfect or cleanly sorted into "good" or "bad" categories:

> *I'm also kind of like, fighting back a little bit against that vision that many people have on human interaction, and how teachers expect themselves to always be perfect…Earlier this year, at one of our PDs here in this school [they shared this quote], I don't know whose quote it is…But it's something like, 'The teacher is the weather in the classroom, it controls blah, blah, blah… and their interactions either humanize or dehumanize students.'...and all of this black or white type of thinking….When you were observing me, I had already seen that quote in the principal's office, and at the time, I was like, "(GASP) YES! I am who controls the weather!" And to some extent, yes. Like how we respond really has an impact on students. But also, it's not one or the other. I feel like with that type of thinking, you're like, acting on fear, or like, worry that am I either doing this or that? Or, you know, like, good or bad. And those are your only two options. And I feel like there's a lot of other pieces in there. I don't know, like, teaching is full of so many actions. And decisions, and everything is live. And yeah, I don't know.*

I went and found the quote that was shared in the PD session Marta referenced. The same quote that hung in Marta's principal's office. It comes from a book called *Teacher and Child: A Book*

*for Parents and Teachers* by child psychologist, parent educator and teacher Haim G. Ginott (1972):

> *I've come to a frightening conclusion that I am the decisive element in the classroom. It's my personal approach that creates the climate. It's my daily mood that makes the weather. As a teacher, I possess a tremendous power to make a child's life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or heal. In all situations, it is my response that decides whether a crisis will be escalated or de-escalated and a child humanized or dehumanized.*

It's not hard to figure out why Marta felt "deflated" and like she "failed" after this lesson if the only real categories she had for understanding her work were "good" and "bad." It's not hard to figure out why she felt frozen in the moment if she felt the outcome of each decision she made was either humanizing or dehumanizing her students. As Marta wisely says here, "there's a lot of other pieces in there."

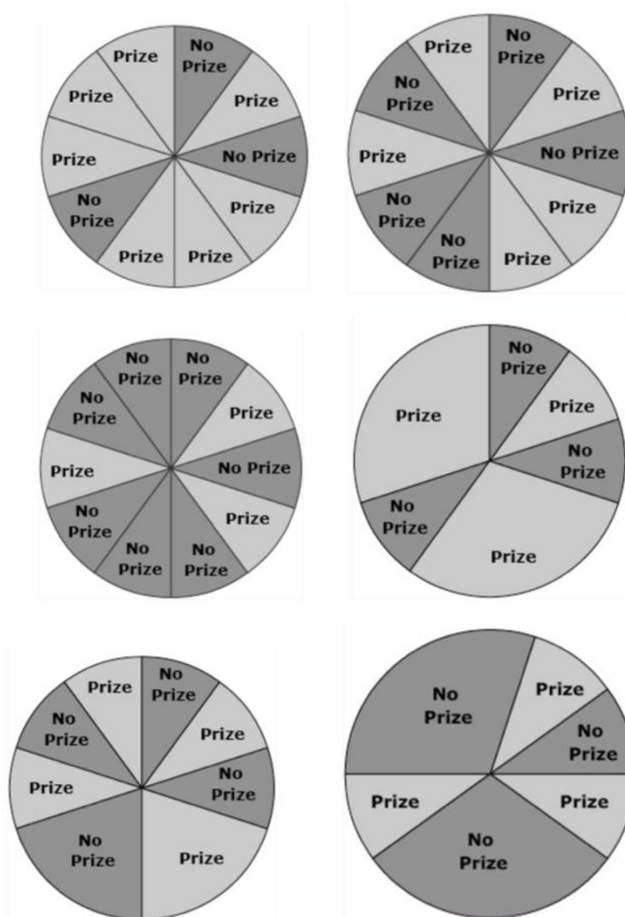
**"I don't have many a day like this:" Bearing Witness to Donna's Tough Day in Second Period**

Donna was excited for the content she and her students were working on that week: "We're moving into the heart and soul of ratios and proportions" she said. Donna really believes there is a *heart* and *soul* to ratios and proportions and her conviction to support students in seeing the real meaning and purpose of these concepts in the world radiated from her as we planned together one morning in late March. Donna's grade level teammate Alma, was there, and about 5 minutes after we got started her special education co-teacher, Celeste, joined us too. Donna was

thinking through the lesson for the next day where students would be comparing "spinners." The spinners were the same size but cut into a different number of different sized pieces, and each had a different number of pieces which corresponded to winning a prize (see Figure 13).

**Figure 14**

*Donna's Spinner Task*



Donna said that her plan was to ask students to decide which spinner they would choose if they wanted to win a prize and why. She was working out how to support students in using what they knew about ratios to support their arguments and asked for the group to help:

> *Donna: Okay, so then it's the connective tissue that I'm struggling with just a little... I'm looking for input, you guys…So the prompt of this one is if you were going somewhere, and they gave you these options of spinners, which one would you choose? And why? If you wanted to win a prize? And then how would we write all those ratios? Given the definition that you just defined?"*
>
> *Me: So it's almost like how would you prove it? You would use a ratio to prove it? Because just saying, "Well, this one looks better to me" might not be sufficient proof or evidence for someone?*
>
> *Donna: Yeah we've been talking all year about how "looks like" is a fine way to get started, but that is not proof or justification…So maybe the next question is, what would the ratios look like of winning a prize with each of these spinners? How would you write the ratio?"*
>
> *Me: Or, "Could you prove which is the best spinner using ratios?"*
>
> *Donna: There you go.*

We move on into a conversation around how to support students in articulating the difference between experimental and theoretical probability. Students would be asked to spin the spinners 10 times and compare the frequency at which they actually won a prize to what they predicted based on the theoretical probability. Then they would try spinning 20 and 30 times and discuss how the proportion of winning spins draws closer to their predicted probability as the spins increase. We plan together for just over 45 minutes. The lesson seems solid and everyone anticipates this will be fun and engaging for students. Alma asks if she can come observe Donna teaching the lesson, and Donna says she's welcome any time (though Alma doesn't end up stopping by that day). Heather, another 7th grade teacher, joins and Donna quickly summarizes the lesson and its goals for her. I look around and realize that while this is not a formal "grade

level team meeting" everyone has gathered here before school to check-in with Donna. Why wouldn't they? Donna is both clear-eyed and confident about this lesson *and* still refining, thinking through, and looking for new ideas about the finer details. Being with her makes us all want to be part of making visible the heart and soul of ratios and proportions.

***Not quite what we planned: A window into what happened during Donna' second period***

The next day, I arrived just before second period, excited to work with Donna and her students on this lesson. Donna starts off by trying to ground students in the work they had done the day before. She asks them to copy down and formalize the definitions they came up with for ratios and proportions. She projects some handwritten notes under the document camera (see Figure 14):

**Figure 15**

*Representation of Donna's Notes on Ratios & Proportions*

**Notes on Ratios & Proportions**

**Ratios:** Compares the relationship between 2 (or more) quantities/values.

Example: $\frac{2\ hits}{9\ at\ bats}$

**Proportions:** Compares the relationship between 2 (or more) equivalent ratios

Example: $\frac{2\ hits}{9\ at\ bats} = \frac{14\ hits}{63\ at\ bats}$

**Writing ratios and proportions:**

- Identify what is being compared
- Compare the same thing in the same way

Most students are writing down what Donna has projected, but overall students are not interested in responding to Donna's questions or the discussion she's trying to facilitate to review these ideas. Of the handful of students who are verbally participating, one keeps blurting out answers. A few side conversations are happening and one student in particular interrupts the discussion,

talking over Donna and his classmates (but not about the math). He's irritating one of his peers: "Stop it, Josiah!" his tablemate yells in frustration. Donna ignores this twice, but after the third interruption asks Celeste to move the student to a new seat. Donna asks a new question: "We found five different ways to prove these ratios are equivalent. What's the math term for that?" A side conversation or two continues and Donna hits the brakes: "I'm gonna ask everybody and everybody just turn and face their tablemates. Can I ask you to take three deep breaths please? What is it that we need from each other today?" Students half-heartedly answer that they need to be quiet and not blurt out answers. At this point, we're about nine minutes into class.

Donna moves on to connect these definitions to the problem the class worked on yesterday, estimating the probability that a red block would be drawn from a bag using proportional reasoning (Sally drew a block at random from a bag 50 times. She replaced the block after each draw and drew a red block 10 times. If Sally draws blocks from this same bag 1200 times, how many times do you estimate she would draw a red block?). The same four students are offering answers. Donna seems increasingly agitated by students' lack of engagement: "I'm gonna acknowledge right now, I know, this is a reach today…And I'm appreciative of those folks who are willing to take that mathematical risk, especially when we have guest teachers in the room."

I am *the* "guest teacher," and I feel newly self-aware. *Are students acting differently because I am here?* I wonder. *I was here with Donna's class yesterday, and I've been with this group of students at least three other times by this point in the year…They seem mostly like themselves. Maybe a little extra chatty/distracted.* Retrospectively, I wonder if Donna said this because of *her* awareness of my presence.

Donna sighs and looks up at Celeste and me. She seems exasperated: “So, I, this…I'm gonna make a move here and I'm going to need some feedback. This not being the focus of today, and the focus of today being more practicing what this looks like in authentic situations. How much more time should we be spending on this?” A student says, sarcastically, “A year!” Celeste suggests we move on. I nod. It’s clear students aren’t interested in talking about the block problem from yesterday, and there will be opportunities to work on these same ideas in the spinner problem.

Before Donna can close out the conversation, a student who hasn’t yet spoken (Lucy) shares her answer, “It would be 240/1200, because that’s equivalent to 10/50.” Donna can’t resist the opportunity to wrap up this part of the discussion. She asks a few follow up questions, revoices Lucy’s answer, and asks the class to write it down.

Donna moves on to what she calls a warm-up activity. We’re now about 20 minutes into class. This catches me off guard. She didn’t bring this activity up in planning, so I assumed we’d be going from a quick recap of yesterday to the spinners activity. We only have 35 minutes of class left, and I am starting to wonder whether the spinners lesson will happen at all. The warm-up is a worksheet with eight different scenarios on it (see Figure 15). Students need to match each scenario with one of the corresponding ratios listed on the right-hand side of the page. After Donna gives directions, students work at their table groups on the worksheet. Some of the problems are challenging for students, and the class is hard at work helping each other and sharing and defending their answers. Listening to the recording, it strikes me that the little snippets of voices that sail above the hum of the classroom are talking about the math. Donna, Celeste and I circulate and check-in with table groups to ask about their thinking. Most students are stuck on the third scenario: “What is the probability of drawing a yellow block from a bag

that contains 3 red blocks, 4 yellow blocks, and 5 blue blocks?" because the answer $\frac{4}{12}$ was not one of the options, so they were required to simplify and choose a proportional ratio $\frac{1}{3}$.

**Figure 16**

*Donna's Ratio Warm-Up Worksheet*

| **Directions:** Match each ratio with the scenario. Determine what is being compared. What does each number represent in the scenario? Be ready to justify your thinking. | |
|---|---|
| What is the probability of getting heads when flipping a fair coin?<br><br>Ratio: | $\frac{3}{6}$ |
| What is the probability of rolling a 5 on a six-sided number cube?<br><br>Ratio: | 1 |
| What is the probability of drawing a yellow block from a bag that contains 3 red blocks, 4 yellow blocks, and 5 blue blocks?<br><br>Ratio: | $\frac{4}{52}$ |
| What is the probability of rolling an even number on a six-sided cube?<br><br>Ratio: | $\frac{1}{2}$ |
| What is the probability of rolling a positive number on a standard six-sided number cube?<br><br>Ratio: | 0 |
| What is the probability of rolling a prime number on a twenty-sided number cube?<br><br>Ratio: | $\frac{1}{3}$ |
| What is the probability of drawing a queen in a standard deck of cards?<br><br>Ratio: | $\frac{8}{20}$ |
| What is the probability of drawing a green marble from a bag containing 6 yellow, 2 red, 8 black and 14 red marbles?<br><br>Ratio: | $\frac{1}{6}$ |

Donna brings the group back together for a discussion and asks volunteers to select a problem they want to discuss. Ismail raises his hand and says he wants to discuss problem 1 *"What is the probability of getting heads when flipping a fair coin?"* A student volunteers, "One half." Donna asks what the "one" represents and what the "two" represents and a student says the one is the heads and the two represents each side of the coin (tails and heads). A new student, Charlie asks to add on, "Three over six would also work because it would be a preposition or something like that."

"A proportion. And tell me why that would be true?" Donna asks. Charlie says because it's the same as ½ multiplied by 3. Donna presses the class to think about what the 3 and the 6 represent in this equivalent ratio: "Are there 6 sides to a coin? What does the 6 represent?" Lena says the six would represent the number of times the coin is flipped and the 3 is the likelihood it would be heads. Donna revoices this and then thanks Charlie for sharing the connection he made. She moves on: "Who wants to pick the next one?"

The discussion of the warm-up continues in this manner. Donna elicits students' thoughts and presses them to connect each ratio to the scenario. More students are participating in the discussion than were at the beginning of the class, but based on the general body language of the group it seems like about half of the class is mentally "elsewhere." After about 10 minutes of discussion, I realize that there are only about 15 minutes left of class. I need to leave to get ready for my next planning meeting. I wave to Donna and slip out of the classroom. It wasn't what we planned, but it seemed to me like a fairly standard day in second period.

***"I don't usually have many a day like this"***

It didn't feel like a standard day to Donna. That afternoon, I head back to the 7th grade hallway to debrief with Donna and Celeste. Donna clears some things off her desk so the three of

us can sit together and says: “I'm curious of what you saw, because I couldn't even get started on anything seeing what I was seeing.” In other words, Donna was too upset to reflect much about how the lesson went. I share what I noticed about how students were engaging with the content and with each other in small groups. I acknowledge that some students seemed a little goofy or distracted at moments, especially during the whole group discussion, but this is more of an attempt to affirm Donna’s perception. I genuinely didn’t feel students’ “behavior” in this lesson was worth talking about by itself.

Donna lets me know they never got to the spinners activity. Shortly after I left, she stopped the class completely and held a class meeting. Donna shared with the class how she was feeling (frustrated) and asked them about how they were feeling. Donna said her students acknowledged they weren’t engaging in the ways they’ve agreed to as a classroom community (given how they participated in the conversation about classroom norms during class that day, I find myself imagining the sheepish way the students engaged in this discussion). Donna continues reflecting on how the rest of her day went. She shares that her other three class periods *did* make it to the spinner activity. She also shares what she learned from second period about structuring the discussion of the ratios warm-up:

> *As I've been thinking throughout the day…I'm not sure what happened [in second period]. So I made some slight adjustments in third and kept the adjustments for fifth. And I think part of it was, I don't think it was a good idea or a good move for me to sit up there and write things down based on what they were telling me because we weren't getting the discussion. So in third period, I had the private reasoning time, then they had table talk, and then I just randomly called on students to go up and put one in. No conversations. Nobody gets to say anything. And then once the ratios were in, [I asked]*

*'Are there any changes you want to make?' And then questions would come up of, 'Well, this was the last one [ratio]. And so I knew it had to go here. But I don't know why it goes here.' And that started the conversations in both the other class periods, so I wish I had done that. So that they were up and moving and being more engaged in that.*

Donna's ideas about how to restructure going over the answers to the ratio matching worksheet seemed to work well. Rather than asking students to choose a problem to go over which resulted in many students selecting easier problems where they felt pretty confident about the answer (e.g., number one, the coin flipping question), she shifted the structure so that the conversation starts from a place of uncertainty or disagreement (i.e., 'This was the *only* ratio left, so I had to match it to this scenario, but I am not sure why it matches'; OR, 'I got a different answer than what my classmate put on the board'). This supported a more interesting and complex discussion and (according to Donna), higher levels of engagement in periods three and five. It also struck me that she did all of this despite not being quite sure "what happened" in second period. All she knew was that what *did* happen didn't live up to the levels of engagement she wanted to see, so she changed the way she structured the discussion.

"So what are you thinking about for tomorrow?" I ask.

"I'm thinking, 'Why don't you come to a different class?'" Donna says. She's a bit sarcastic, but I can feel the edge of truth in her words. This is the moment where it starts to become clear to me how upset Donna was, not just about how the lesson went, but about me being there for it.

"I'm not usually like this, Taylor. But today was just a little bit on the unusual side. It was weird. So I'm—I appreciate your feedback…And I'm sorry, you had to witness—" I cut her off.

"No, no! I did not feel sorry for being here. And I mean, I'm sorry that it was a harder day for you. And I could see why it felt difficult to facilitate the group… So please don't apologize. Thank you for opening your class up to me."

Donna shares other potential dimensions of why today was off. "It started with a fight in the Commons. Well, an *almost* fight in the Commons. So, I think that had everybody kind of riled up as well."

My impulse to soothe Donna takes over. I want her to know that it's okay. That *she's* okay: "I'm researching and stuff now but I was a teacher first, so I've had many a day… I understand completely." Donna's replies quickly: "I don't usually have many a day like this. This is why I'm not very graceful right now." Celeste chimes in too as if to convince me that Donna *really* doesn't have days like this, "No, you don't have…" Donna talks over the end of Celeste's sentence: "This is one that is in my nightmares."

When I come back to Donna's class a month later in May, she requests again that I do not come to second period. "It's just not conducive…" she said. I wondered, *Conducive to what?*

***

I played and replayed the image of Donna saying "I don't usually have many a day like this" in my head. Given my understanding of the spectrum of "days" a teacher can have, this one really didn't strike me as notable, let alone nightmarish. I compared this class period to other lessons of Donna's I had observed (in both second period and others) and while I could see how she was struggling to engage students more than she typically does and that her pacing was different than she imagined, it hardly seemed like a failed lesson. I didn't buy that Donna doesn't have days like this. How could that be? Maybe she didn't *often* have days like this. But as far as I know we *all* have days like the one I had just seen in second period. Days where we realize we have to structure a discussion differently to get the class interested, or days when we realize

we've planned more than we can accomplish in a single class period …even days where something that may have worked perfectly well with the same group of students the day before inexplicably falls flat. All of that seemed deeply relatable and normal—part of teaching.

I went back to my hunch that her hyper critical view of this lesson had more to do with me "witnessing" the challenges of the lesson than with what had actually unfolded in second period. She *apologized* to me. Why? What did she think I was expecting? What was she expecting of herself? What did she think she owed me? I was a visitor with no rubric or evaluative agenda. I had made it clear that I was trying to study and understand how teachers learn from and through their practice and with one another. I offered the coaching cycles between the PDWs so that I could have additional opportunities to get to know the teachers, observe their work and participate in learning with them, *not* to create a new context for performing competence. I felt pretty sure Donna knew that. I also felt pretty sure that Donna knew and could articulate that both teaching and learning are often messy, never perfect, and always something we can probe and question. This was our third coaching cycle. Up to this point, she and I had reflected and talked about her lessons in this inquiry driven way; noticing how students related to and made sense of the content, and wondering about what to try next given her goals. It seemed to me however, that Donna was operating under the assumption that this lesson had passed some invisible threshold. It was *too* messy to be acceptable; *too* messy to learn from. After this lesson she told me second period wouldn't be "conducive" to coaching cycles. But shouldn't the opposite conclusion have been drawn? Wouldn't we expect teachers with Donna's stance toward learning teaching to want more support and explicit opportunities to collaborate and think together about their toughest classes? It was as if her reputation as a good teacher was at stake if I saw even one lesson that didn't quite represent what she was trying to

accomplish through her work. Something about how Donna was conceptualizing teaching meant that it was better to go it alone than to have someone see her most vulnerable moments in the classroom.

**Chapter Summary**

This chapter focused on how Marta and Donna experienced learning teaching during lessons they felt were going poorly. Specifically, we saw how my presence seemed to intensify their feeling that the lesson should be of a certain quality. Despite my repeated efforts to name that my intention was to *support* their work, both teachers experienced my presence as additional pressure. Donna seemed to think that I was entitled to seeing work which she felt was representative of her best and felt embarrassed that I witnessed her struggling to engage students more than usual. My presence during the lesson seemed only to further fluster her. I wonder now how she would have managed the same lesson had I not been there. Would she have become so frustrated that she stopped the whole class and had a class meeting? Would she have just accepted that today the kids were a bit more squirrely than usual and let it go, knowing this was not the norm for this group of students? Or, was the lesson I saw truly intolerable to Donna? Regardless, it was clear she felt it was intolerable that I was there for it. In Marta's story, my presence also seemed to amplify the sense that she was teaching "on stage." For Marta, who at the time was conceptualizing each choice a teacher makes as either right or wrong, "humanizing or dehumanizing," my in-the-moment observations and ideas only illuminated the moments where I saw opportunities to do something "right," putting additional pressure on her to make adjustments during the lesson and respond to students in ways that did not necessarily feel intuitive. During the lesson, my focus was primarily on the students, what they were doing and

how we could advance the lesson given their mathematical ideas. I wonder now, what would have gone differently if my focus had been on Marta?

Across the stories we see how Donna and Amy's understanding that good teaching is a *moral* good relates to feelings of shame when they perceive their teaching as not good enough. Both teachers seemed to believe that what I saw unfold in their classrooms should be somehow representative of their ideals. Rather than the teacher standing for what they believe good teaching is and entails (through their *pursuit* of good teaching), both Marta and Donna seemed to believe that their teaching (particularly when witnessed) stood for their goodness as teachers. This is a precarious way to be in relationship with one's own goodness because, (as Marta points out), teaching is relational and unpredictable work. While certainly there are moments of teaching and classroom life which truly do seem resonant with all we would hope teaching can be, it is also true that the next day, or the next moment could feel "nightmarish" in comparison. What might it look like for teachers to approach their own practice with both responsibility and acceptance? What is the role of a teacher educator in cultivating that stance?

# Chapter Seven: Discussion and Conclusion

The purpose of this dissertation was to better understand how teachers experience learning teaching and how the moral and ethical dimensions of teaching shape teachers' experiences as learners. Drawing on sociocultural and situative theories of learning, scholarship on teacher learning and philosophical perspectives about the moral and ethical dimensions of teaching, I described how, for teachers, the ongoing work of learning teaching is a moral and ethical effort in pursuit of integrity. That is, learning through, from, and about teaching involves figuring out how to find coherence between who we want to be for ourselves and what we need to do for our students. To illustrate this, I offered portraits (Lawrence-Lightfoot & Davis, 1997) of three middle school mathematics teachers and crafted narratives to show how they engaged in and experienced various settings of professional learning across an academic year. I followed these teachers intending to "bear witness" (Hansen, 2021) to their work, and to provide vivid accounts of what it means for each to be a learner of teaching given their moral and ethical commitments and the moral and ethical demands of their work. In this chapter, I discuss how this study contributes to existing scholarship and furthers our understanding of teachers as learners and the moral and ethical dimensions of learning teaching. I close the chapter by offering some implications of this research for the practice of teacher educators and facilitators of professional development and suggest directions for future research.

## Filling in the Spaces Between Scoundrels and Saints: Getting to Know Teachers as Learners

At the broadest level, this study contributes rich, humanizing images of teachers as complex moral and ethical characters. Teaching is widely assumed to be purely altruistic and "selfless" (Higgins, 2011). When teachers are *not* selfless, they are often cast as immoral or egotistic:

> *Open any text on teaching and you are likely to find the same formula…Enter stage left—the selfless saints devoted to nothing but the welfare of their students and martyred for the cause. Enter stage right—the selfish scoundrels: narcissists, lechers and petty dictators of their classroom worlds. (Higgins, 2011, p. 1)*

This dissertation contributes nuanced images which "capture the complexity, dynamics and subtlety of human experience…" and offer an example of what it might look like to "fill in" some of the details which are often missing when it comes to understanding who teachers are as moral and ethical figures (Lawrence-Lightfoot & Davis, 1997, p. xv). Amy, Donna, and Marta are neither saints nor scoundrels, neither selfless nor selfish. They each hope to contribute moral goods through their work and they each hope to be fulfilled from this experience. They hope to be and become good teachers not only because this is what their students need from them, but because they believe that being a good teacher is part of living a good life. Working towards both of these aims is a challenging human endeavor. They experience moments of joy and discomfort, success and failure. We see Donna engage deeply and authentically in learning during a coaching session in Chapter Five as she tries to figure out how to center students' voices, and we see her shame in Chapter Six when I witness a lesson which doesn't meet her standards with respect to good teaching. In Chapter Five we see Amy playfully engage in the whole group PD session, being and becoming a learner of mathematics, and we see her a few days later going through the motions during a coaching session, hoping, it seems, to please teacher educators. And finally, we hear about Marta who in Chapter Four, describes bravely leaving her first career to "fulfill more of my passion and dream than my bank account" and finds herself struggling to live out these dreams given the complex demands of teaching in-person for the first time.

In giving undivided attention to the unique personhood of teachers, I also further contribute to David Hansen's work which endeavors to understand what it means to be a person in the role of teacher (e.g., Hansen, 2018). However, while Hansen (2018) asks "What does it mean to invest one's person in the role (of teacher)?; What does it mean to allow the role to affect the very person one is becoming?" from an ethical perspective, this study views these questions as both ethical in nature *and* a matter of learning (p. 21). The stories shared here show how to "allow" the role of teacher to affect the substance of who someone is becoming involves *learning* new ways of being in relationship with students, content and the world. To *fuse* oneself to the role of teaching, as Hansen (2018) suggests many "serious minded" teachers do, is to also fuse oneself to the role of learner.

The stories I shared of Donna, Amy and Marta learning also contribute to our knowledge of who teachers are as learners and how teachers experience learning given the complex moral and ethical dimensions of their work. In doing so, I respond to Lave's (1996) call for research which positions teachers as the principal subjects in relation to their own learning and investigates the "the effects of teaching on teachers as learners" (p. 158). Typically, research on teachers' learning focuses on "the effects" in terms of what teachers become able to do (that is, take up a new, ostensibly better way of teaching students). Very little research investigates "the effects" of teaching and learning teaching in terms of teachers' experiences. Presently, the richest sources of description we have with respect to how teachers experience learning teaching, come predominantly from self-studies, some of which I review in Chapter Two (e.g., Ball & Wilson, 1996; Furman & Larsen, 2020; Lampert; 1985). While these texts offer important insight, they are, as self-portraits always are, partial. They provide us with rich insight into the teacher's inner world while learning teaching, but our view is limited to what the teacher-researcher decides to

share and what they are actively aware of. Further, self-studies which document learning teaching are often written by teacher educators and scholars who have deep knowledge and experience related to learning teaching and teacher learning in both classroom settings and from a research perspective. While their unique positionality adds valuable richness to these texts, it also may limit the extent to which their experiences generalize to those of typical practicing K-12 teachers. This study builds on this important body of work by offering a glimpse into how three middle grades math teachers experience the ongoing work of learning teaching, as witnessed by a researcher, former teacher and teacher educator. While my accounts are also partial, the stories I offer provide new perspectives into the experience of learning teaching. In particular, my presence on the scene made it possible to see the moral pressure the teachers experienced to "perform" both teaching and learning as a way to establish their goodness (which I will discuss further, below).

**Moral *and* Ethical Implications of Developing Content Knowledge and Pedagogical Content Knowledge**

It is widely understood that teachers need to develop both content knowledge (i.e., disciplinary knowledge about the content teachers teach) and pedagogical content knowledge (i.e., knowledge of how to *teach* particular content) in order to teach well (e.g., Shulman, 1987). These critical categories of teacher knowledge are typically framed as professional and moral obligation; a central learning demand of teaching (Ball & Cohen, 1999; Shulman, 1987). That is, teachers must develop these forms of knowledge to live up to what their students need and deserve. The experiences of Amy, Donna, and Marta suggest that the extent to which teachers develop subject-specific content knowledge and pedagogical content knowledge have both moral *and* ethical implications. Specifically, the findings of this study suggest that the depth of content and pedagogical content knowledge each teacher developed related to their ethical

understandings of who they wanted to be and become as teachers and the extent to which they were able to flourish in the context of teaching specific content (in this case, mathematics).

For example, in Chapter Four, Donna and Amy both describe how rich early-career professional learning experiences focused on learning math teaching supported them to specify the moral dimensions of their work and set the course of their learning for years to come. These programs spanned multiple years (two years for Amy, and three years for Donna), and included summer intensives as well as opportunities to practice and reflect in the context of their own classrooms across the school year with the support of a coach. Both programs focused on developing the teachers' content knowledge (for example, Amy shared about learning for the first time *why* the formula for the area of a triangle is ½ *bh*) and developing their pedagogical content knowledge through opportunities to practice and reflect on facilitating student-centered discussions, and engaging students in rich mathematical tasks. Both Donna and Amy described how their experiences in these professional learning programs helped them develop their craft conscience (Santoro, 2017a): They came away with new understandings about what good mathematics instruction should be like and clear moral reasons for why this sort of mathematics teaching was important for children and the world. Critically, the moral commitments which these professional learning opportunities developed for Amy and Donna related to their ethical experiences. Both teachers describe how they believed they were better teachers (for their students) because of what they were learning, but they also describe how facilitating these kinds of learning experiences for children made their work more fulfilling and meaningful *for themselves*. Amy describes with joy becoming a person who asks students "why" instead of telling them; Donna takes pride in becoming a person who is wrestling with mathematics alongside her students. From a sociocultural *and* ethical perspective Donna and Amy's ongoing

learning of content and pedagogical content knowledge opened up new ways of being for the teachers with respect to the discipline they teach and therefore opened up new ethical understandings related to who they wanted to be and what is good to become as a math teacher.

Conversely, Marta, who had not yet experienced this sort of rich ongoing and content-specific professional learning opportunity did not yet articulate robust reasons for why teaching *math* mattered, or why the particular forms of pedagogy she was learning in PDWs were morally significant. She knew that *teaching* could accomplish good, but she did not yet have a clear sense of how she could accomplish good through her work as a math teacher, or what the goods of math teaching could be. For Marta, coordinating students around mathematics often felt overwhelming and challenging. When she reflected on who she wanted to be as a teacher she thought about developing deep and trusting relationships with young people. At the time of this study Marta was just beginning to start to see how mathematics could be part of that vision (or even support it). While this almost certainly has to do with Marta's relative newness to teaching—she was only in her second year—it seemed like it would take more than just time for Marta to start to articulate a clear moral and ethical relationship to her work as a math teacher. In Chapter Five when Marta emails Vera and me to share about her successful "worked example" lesson we get a glimmer of Marta noticing how shifts in her mathematics instruction might support classroom dynamics which felt more aligned to what she hoped for when she became a teacher. This moment is important since previously, Marta assumed that what she needed to focus on was "classroom management" (rather than content). Marta's experience therefore suggests the importance of supported opportunities to develop a moral *and* ethical connection to teaching mathematics. Without these connections to content and pedagogical content knowledge, it was difficult for Marta to find meaning in the demands of her daily work.

**Relating Professional Integrity and Demoralization to Learning Teaching**

The implications of this study also build on Doris Santoro's work by contributing our understanding about the relationships between learning teaching, integrity, and demoralization. Santoro (2013) argues that for teachers to experience professional integrity they must feel that their work is coherent with both who they want to be as persons and what they believe good teaching entails. She further explains that when policy makes teachers' ideals for practice impossible to attempt, teachers may become demoralized and leave the profession in order to preserve both their personal integrity and the integrity of teaching (Santoro, 2013, 2018). Overall, both Amy and Donna's experiences further substantiate this theory. They each experience learning teaching as a fulfilling aspect of their work because what they are learning is coherent with both their moral sense of what good teaching entails and their ethical sense of what they understand is good to become. Critically, at the time of this study, Amy and Donna worked in a context where their perspectives and expertise with respect to what is worth doing was heard and respected. For example, both Amy and Donna reported that when they learned about the equity consequences associated with tracking students on the basis of their perceived mathematical "ability" and suggested that the school de-track its math program, they received administrative support to change this structure. Santoro's (2013, 2017b, 2018) work claims that when teachers' working conditions impede their ability to access the moral rewards of their work, their personal and professional integrity are compromised and they become demoralized; This study suggests that when teachers are enabled to stand for and act on what they are learning about good teaching they can flourish.

Marta's story also suggests an important relationship between demoralization and teachers' learning opportunities. Santoro's (2018) work typically focuses on veteran teachers,

and theorizes that demoralization occurs when school, district or broader policy conditions impede the teachers' ability to act in accordance with their moral commitments and therefore disconnects them with the moral rewards of their work. In Marta's case, there was no *policy* obstructing her from accessing the moral rewards of her work and no one was "forcing" her to teach in ways she disagrees with. Yet the teacher and person Marta envisioned when she decided to become a teacher (a trusted adult), and the most immediate things she needed to learn in order to support her 6th grade math students weren't yet clearly connected from her perspective. She couldn't quite stand for what was going on in her classroom and she wasn't quite sure what she needed to learn next, or how to learn it, in order to integrate who she wanted to be and who her students needed her to be. While I would not classify Marta as demoralized at the time of this study, she described herself as "deflated" and "overwhelmed" on more than one occasion. It seems plausible that without significant ongoing opportunities to develop a more specific sense of what good math teaching entails, practice these new forms of teaching, and internalize that pedagogy as part of who she wanted to be, she could have become demoralized or worse, learned ways to cope with a version of teaching she did not find morally or ethically meaningful. Marta's experiences therefore suggest that sometimes the barrier between the work teachers hope to do and the work they are doing can be not only a matter of policy but also a matter of *learning*.

**Experiencing Teaching as a Moral Performance**

The stories shared in this study offer clear examples of how teachers can experience teaching as a moral performance. That is, when their teaching was witnessed or "observed," Donna, Amy and Marta felt the need to demonstrate their competence and at the same time, their goodness. This contributes new and important nuance to long standing literature which documents norms of privacy in teaching (e.g., Lortie, 1975; Little, 1990), by providing new

insight with respect to why these norms of privacy persist. That is, since teachers often understand good teaching as a moral contribution, they can experience imperfect teaching as a moral failure. Rather than risk someone witnessing such a failure, teachers may close their doors. This dynamic is evident in Chapter Six, when both Marta and Donna express feeling ashamed of a lesson that they felt did not go well. It was particularly striking to me that even Donna, with 19 years of experience and a well-established track record of good teaching with both me and her school and district community, felt so badly about a lesson that didn't go as she imagined, that she would ask me not to return to that class period.

These findings also speak to and have implications for calls in the literature to design and support opportunities for teacher learning which are both collaborative and situated ever-closer to the work of teaching (e.g., Ball & Cohen, 1999; Ghousseini et al., 2021; Gibbons et al., 2021; Kazemi et al., 2018). While proximity to teachers' actual work in the classroom can increase the extent to which the learning opportunity is relevant, it also increases the vulnerability required. The field of teacher learning is already aware of the vulnerability required for teachers to engage in authentic inquiry into their teaching practice, and, in particular enactments of teaching (Ghousseini et al., 2021; Gibbons et al., 2021), but the findings of this study give acute images of how the moral and ethical dimensions of learning teaching contribute to this vulnerability. These findings may support the field as we continue to imagine and investigate ways to support teachers to learn in authentic community with one another (which I will discuss further, below).

**Experiencing Learning Teaching as a Moral Performance**

The findings of this study also suggest that teachers can also experience *learning* teaching as a moral performance. Previous literature suggests that just as teaching is a cultural activity so too is learning teaching (Stigler & Hiebert, 2009). Stigler and Hiebert (2009) write:

"...professional development practices, just like teaching methods, have become so common that they're almost invisible, accepted as the way things are done" (p. 4). The findings of this study give important texture to how teachers participate in spaces of professional learning given their moral and professional commitments. Specifically, the findings of this study suggest that teachers experienced a desire to demonstrate their goodness as learners of teaching. All three teachers across my time with them suggested that they felt it was important to demonstrate their commitment to being learners. This was more than an individual decision; it was a public decision and part of their outward facing professional identities. In Chapter Four, Donna for example talks about taking the same PDs about math teaching over and over. While she talks about how she always gets something new out of the PDs it's also clear that being the sort of teacher who shows up to these training sessions is important to how she sees herself and how she expresses her moral commitment to being a learner of teaching. In Chapter Four, Marta also describes feeling pressure to be part of professional learning opportunities and feels guilty for not knowing how to use her PD budget. Finally, in Chapter Five, Amy seems to perform her competence not just as a teacher but as a learner of teaching by performing a reflective process that she has come to associate with what good teachers do in coaching conversations. Again, these findings have important implications as we consider how to support opportunities for learning which get to the heart of what teachers are really wondering about and hoping to improve in their classrooms.

### Philosophy's Role in Theories of Teacher Learning and Conceptualizing Integrity as the *Telos* of the *Theory*

Finally, this study contributes a theory of teacher learning which explicitly accounts for the moral and ethical context and nature of teachers' work. In this dissertation, I drew together philosophical literature on the moral and ethical dimensions of teachers' work (e.g., Hansen,

2021, Higgins, 2011; Santoro, 2018) and foundational texts on sociocultural and situative theories of learning (e.g., Wenger, 1988, Lave & Wenger, 1991); two bodies of literature which are rarely put into direct conversation with one another. What surprised me in this process was the striking resonance between these knowledge bases, namely their mutual concern with who, how and why people *become.* In Chapter Two, I describe how sociocultural and situative theorists view *learning* as becoming someone (an evolving participant in a community of practice) and how philosophers of education view ethics as determining what is good to become. This study offers an initial attempt to suggest that the two are part of the same whole; learning is inherently ethical, and ethics requires learning. I view this contribution as particularly useful to consider in the case of teacher learning, where at times, the field disconnects what we are asking teachers to do from who they must become in order to do it (e.g., Santoro, 2013, 2017b, 2018).

In this study, I also put forth that the *telos* of teacher learning has to do with "integrity" and argue that from the perspective of teachers, learning teaching involves integrating their commitments to students and their ethical commitments with respect to who they hope to become and standing for what they believe about good teaching and being a good teacher. While this is a theoretical contribution in its own right, I also believe that my decision to draw on philosophical texts to support my conceptualization of the *telos* of learning teaching is useful to the field. Philosophical inquiry into education focuses on broader purposes, values, and meanings (Burbules & Warnick, 2006). If we are to assume, as Lave (1996) puts forth, that a theory of learning should include a larger aim or purpose which moves beyond the "vista of educational goals set by societal, cultural authorities" then it seems to me that philosophy of education is useful and underutilized body of knowledge to turn to as we work to articulate what teachers are learning *toward* (p. 156).

## Implications for the Practice of Teacher Educators and Leaders of Professional Development

The findings of this study have important implications for practice of teacher educators and leaders of professional development. In the broadest sense, the findings of this study speak to the great importance of knowing teachers as learners and as people. In particular, this study suggests the great value of understanding teachers' unique moral and ethical motivations. Knowing and coming to know Donna, Amy and Marta allowed me to support their work and understand their teaching in richer ways than I would have been able to if I had not developed a deep sense of what each teacher wanted to accomplish and who they hoped to become. While this did not spare me my own foibles in my work with them (as is particularly evident on the "bad days" described in Chapter Six), my knowledge of each teacher supported me in eliciting more precise information about their experiences during these tough moments which allowed me to come back after those tricky days with important new insight and sensitivity. As a result, I was able to move forward in a way that I believe (and the teachers reported) felt productive and humanizing for each teacher. Current literature speaks to the importance of PD facilitators and instructional coaches developing trusting relationships with the teachers (e.g. Gibbons et al., 2021; Sztajn et al., 2007). This study suggests that part of building these sorts of relationships involves developing deep knowledge of who individual teachers are and who they hope to become. This study also surfaces the importance that just as teacher educators have deep knowledge and commitments to children as learners, it is also critical that we are similarly excited by, curious about, and committed to who teachers are as learners.

The findings of this study also have implications for how teacher educators and leaders of professional development might frame the moral demands of learning teaching. Often, the moral imperatives motivating the PDWs for the teachers in this study were framed to them through the

lens of educational “equity.” While commitments to making classrooms, and mathematics classrooms in particular, more equitable should absolutely be centered in spaces of teacher learning, the findings of this study raise questions about how the moral rhetoric surrounding efforts to improve instruction or make classrooms more “equitable” can put undue pressure on teachers to solve issues of educational equity through their instructional practice alone. The findings of this study made evident that Donna, Amy and Marta took seriously moral urgency and importance of teachers learning and improving their practice for the benefit of students. For example, Donna’s perceptions of the moral significance of teaching seemed related to the high levels of pressure she felt and her understanding that subpar teaching is unacceptable. Marta, too said she felt that every decision she made as a teacher was either humanizing or dehumanizing, right or wrong, which made it difficult for her to be responsive to students. At the same time, this study shows how teachers’ awareness of the moral significance of what teachers can accomplish for students through their ongoing learning can be deeply motivating and rewarding. For example, in Chapter Four, Amy shared about her ongoing efforts to uncover how her implicit biases were showing up in her classroom and how she adjusted her teaching in light of what she’s noticed. Amy’s story suggested that the process of reflecting on and responding to practices which do not represent who she hoped to be as a teacher could be empowering and exciting. It seems important therefore for teacher educators and leaders of professional learning to support conversations which make explicit that though teachers have a moral responsibility to learn, and their actions have moral implications, their goodness is not established on the basis of individual lessons or actions which suggest they still have learning to do.

Relatedly, findings of this study have implications for the practice of teacher educators and leaders of professional development with respect to the importance of facilitating discussions

about the moral dimensions of teachers' work which create opportunities for teachers to "stand for" what they believe is right or worth doing and also engage in genuine debate around these moral dilemmas. As Santoro (2017b) has documented, when particular pedagogical practices or policies are presented to teachers as "best" or "equitable" there is little moral ground from which they can authentically make sense of or integrate these ideas into their practice because pressing on or wondering about these policies may be interpreted as being against what is "best" or "equitable." Facilitating discussions about teaching which instead press teachers to evaluate practices, curricula, policy and ideas given their specific classroom contexts can not only sharpen teachers' pedagogical judgement (Horn, 2020) but also give them opportunities to understand their work (both their successes and failures) in less "black and white" terms. In reflecting on the whole group PD session in Chapter Five, for example, I wondered about how the real joy teachers experienced as they uncovered the range of ways to think about the "worked example" problem could exist in conversations about the moral dimensions of teachers' work. What it might it have looked like for both the PD facilitator and the teachers to find joy in uncovering the multiplicity of "right" ways to elevate student status?

Finally, this study offers stories which may support teacher educators and PD facilitators in continuing to reflect on the pressures teachers experience to "perform" both teaching and learning teaching. Literature about "practice-embedded" learning opportunities for teachers discuss the value of teachers making their practice "public" in order to support inquiry into enactments of teaching (e.g., Gibbons et al., 2021; Kazemi et al., 2018). This is vulnerable work, and studies have shown the importance of framing opportunities to work on teaching together as "messy" and "experimental" to mitigate the expectation of perfection or a "model" lesson (Gibbons et al., 2021). However, it is rarely explicitly acknowledged that an experimental and

playful stance toward instructional practice rests in tension with the understanding that teaching and even the smallest decisions within teaching have moral weight (Ball, 2022). Discussing these tensions in spaces of teacher learning may be productive. I wonder for example, how framing instructional decisions through the lens of integrity (Calhoun, 1995) might support teachers in grappling with how their best attempts within a lesson might serve as a social and collective resource (even if those attempts turn out not to be as “good” as they may have hoped).

**Future Research**

This study offers detailed narratives of the experiences of three teachers. Future research with carefully examines the moral and ethical dimensions of learning teaching from the perspective of more teachers from a broader range of backgrounds and identities would surely add important nuance to the findings of this study. I believe it would be particularly beneficial for future studies to focus on how teachers’ racial, ethnic, socioeconomic and gender identities relate to how they experience the moral and ethical dimensions of learning teaching. It seems likely, for example that these identity markers would have important bearing on teachers’ moral and ethical reasons for teaching and, in turn, what it means for them to learn teaching and pursue integrity. Relatedly, another key implication of this study for future research involves the need for the field to better understand how learning teaching can support teacher flourishing. As I have articulated numerous times, teacher learning is typically framed as a moral “demand” of teaching rather than an ethical reward of teaching. The findings of this study suggest however that teachers can experience learning teaching as both morally *and* ethically generative. Future research which investigates how ongoing opportunities to learn support teachers’ ethical flourishing could advance not only our understanding of teachers as learners but our

understandings about how various structures and learning opportunities support both student and teacher flourishing.

The findings of this study also suggest the value of future research which investigates how teacher educators (i.e., facilitators of PD, coaches, or administrators) experience and respond to the moral and ethical dimensions of learning teaching while supporting the learning of teachers. In this study, I illustrate how teachers experience the complex work of pursuing integrity as they manage their commitments to their students and themselves. Teacher educators have an additional layer to manage, that is, their commitments to *teachers*, students and themselves. Future work which describes how teacher educators make sense of and prioritize these commitments could further advance our understandings with respect to how to support the learning of both teachers and teacher educators.

Finally, I believe this study establishes a warrant for future philosophical work which investigates the moral and ethical dimensions of *learning* teaching. What are the moral and ethical implications of teachers' ongoing learning? What does it mean to be a good teacher and a good learner of teaching? Philosophical inquiry into what learning teaching is, who it is for, and how it relates to the values and purposes of education could support future qualitative work and support the practice and reflection of teachers and teacher educators hoping to find meaning through the work of learning teaching.

## Afterword

In the fall of 2011, a 22-year-old version of me painstakingly traced and cut out letters to tape along the top of my classroom walls. Above the whiteboard at the front of my 9th grade Algebra I classroom I spelled out the question: "*Who are you becoming*?" I couldn't line the letters up exactly straight, so I tilted them this way and that on purpose (*How fitting,* I think to myself now, that I presented this bold question in such a wobbly fashion). I climbed down from the ladder, stood back to look at my work, and snapped this picture on my phone, which I then probably texted to my mom.

I didn't know that "becoming" was at the center of a learning theory that would later capture my attention (I didn't know what a theory of learning was or that any existed). I didn't know that the question I was asking was an ethical one. If I am honest, I think I framed my classroom with this question in hopes that it would inspire students to connect what we were doing to whoever it was they wanted to become. A sort of obtuse reminder (or maybe even a threat) that they needed education (algebra included) to achieve their dreams.

It's funny to me how we find ourselves (often unknowingly) swept up in particular loops of thought. How the things that matter to us or excite us or preoccupy us, show up again and again in different forms across a career or lifetime. How we can ask the same questions over and

over and not only come up with different answers, but also new ways of understanding the question in the first place. It strikes me now, for example, as both uncanny and perfectly harmonic that my first clumsy attempts to "be" a teacher happened in a room with this question emblazoned in 12-inch letters on the wall. I would learn, as I think many teachers do, that the richest questions we pose to our students tend to be ones worth wrestling with ourselves.

Today when I look at this picture, I feel a swell of emotion for the me that decorated this classroom, for all the messy learning and becoming that came after and for all the messy learning and becoming yet to come. I'll always wish I could have been a better teacher for my students from the get-go, but I wouldn't change how much trying to become a good teacher (and teacher educator) has shaped who I am and who I hope to be. I see now, in a way that I couldn't then, how my many attempts to find integrity in my work as an educator are part of a great and complex tradition of becoming through teaching.  I am filled with gratitude for the stories of teaching I've experienced and witnessed and told. And I am filled with gratitude for the ladder I left in the frame of this photo, freezing in time the notion that whatever any of us are becoming is inevitably a work in progress.

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## Appendix A

*Representation of Data Organization Spreadsheet for Amy*

| Date | Activity Description | Otter.ai link (audio + transcript) | Field Notes | Memos | Artifacts | Artifacts | Artifacts |
|---|---|---|---|---|---|---|---|
| School Visit 1 October | Whole Group PD Session | n/a | Field Notes | WG PD Memo | PD Session Agenda | PD Session Sides | |
| | Coaching Cycle Pre-Teaching | transcript + audio | Field Notes | Coaching Cycle Memo | Lesson Materials | | |
| | Coaching Cycle: Observation | transcript + audio | Field Notes | | Lesson Slides | | |
| | Coaching Cycle: Debrief | transcript + audio | Field Notes | | | | |
| | TEs & Researcher Debrief | transcript + audio | Field Notes | TE Debrief Memo | | | |
| School Visit 2 December | Whole Group PD Session | transcript + audio | Field Notes | WG PD Memo | PD Session Agenda | PD Session Sides | |
| | Coaching Cycle: Pre-Teaching | transcript + audio | Field Notes | Coaching Cycle Memo | Lesson Materials | | |
| | Coaching Cycle: Observation | transcript + audio | Field Notes | | Lesson Slides | | |
| | Coaching Cycle: Debrief | transcript + audio | Field Notes | | | | |
| | TEs & Researcher Debrief | transcript + audio | Field Notes | TE Debrief Memo | | | |
| Online December | Interview | transcript + audio | Interview Notes | Interview Memo | Interview Protocol | Interview Video | |
| Virtual Observation February | Whole Group PD (on zoom) | n/a | Field Notes | WG PD Memo | PD Agenda<br>PD Slides | Amy's small group's Interactive whiteboard | Amy's Lesson Plan |
| School Visit 3 March | Coaching Cycle Pre-Teaching | transcript + audio | Field Notes | Coaching Cycle Memo | Lesson Materials | | |
| | Coaching Cycle Lesson | transcript + audio | Field Notes | | Lesson Slides | | |
| | Coaching Cycle: Debrief | transcript + audio | Field Notes | | | | |
| | Informal Classroom Observation | transcript + audio | Field Notes | Observation Memo | Lesson Slides | | |
| Not Observed | Whole Group PD Session<br>Coaching Cycles | | | | Agenda<br>Slides | Slides | Emails with Vera about Coaching Cycles |
| School Visit 4 May | Coaching Cycle Pre-Teaching | transcript + audio | Field Notes | Coaching Cycle Memo | Lesson Materials | | |
| | Coaching Cycle: Observation | transcript + audio | Field Notes | | Lesson Slides | | |
| | Coaching Cycle: Debrief | transcript + audio | Field Notes | | | | |
| | Informal Classroom Observation | transcript + audio | Field Notes | Initial Memo | Lesson Slides | | |

## Appendix B

*Vera's Planning Protocol for "Pre-Teaching" Coaching Meetings*

**CBMS Individual Coaching Cycle**

**Classroom Teacher:** **Co-Learning Partner::**

**Pre Teaching Session:** **Date:** **Class:**

- [ ] **Review the plan**
  1. Decide on the **Core Math Idea** of a lesson. What math do you want students to understand that they do not already know?
  2. Find a place in the lesson where **students would benefit from seeing worked examples** about the core math idea. Include:
     a. the fictitious student work will you ask students to explore
     b. the prompt you will use to support students in making and/or justifying conjectures as they analyze the work
  3. Plan to **purposefully structure student math talk**
  4. **Anticipate** the students' responses.
  5. Identify **your moves** that will press students to **justify and generalize** the important math ideas
  6. Provide an opportunity for students to **reflect** on their use of the Habits and for **you to reflect** on your actions that prompted their engagement in the habits.

  Notes:

- Look for opportunities to highlight the brilliance of students who would benefit from a status boost. Who are these students?

- Observers would be looking for student engagement in the habits

  *Student strengths/assets*
  *How students are talking/expressing ideas*
  *Whose voices carry the conversation*

- Plan where in the lesson it would be beneficial to check in with each other to build awareness of **what students are making sense of.**

  *Something interesting I saw…*
  *Something confusing I saw…*
  *An idea I have…*
  *A question I have…*
  *What do you think we should/could do next?*

Determine options for how to proceed in the lesson given what was noticed.