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COGNITIVE DISSONANCE AND TEACHERS: WHEN BELIEFS AND MANDATES COLLIDE

Julie McFaddin

ACCEPTANCE

This dissertation, COGNITIVE DISSONANCE AND TEACHERS: WHEN BELIEFS AND MANDATES COLLIDE, by JULIE E. MCFADDIN, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Education, in the College of Education and Human Development, Georgia State University.

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by

JULIE MCFADDIN

Under the Direction of Dr. Lynn Hart

ABSTRACT

High stakes tests are used to make important decisions for schools, teachers and students in the United States. Despite research that shows high stakes testing has negative influences on schools, teachers and students, accountability through testing continues to be the norm in the American education system. Many teachers believe that high stakes tests are detrimental to students and learning in their classrooms. This conflict often creates cognitive dissonance for teachers in their beliefs and mandates. The purpose of this research was to share the stories of upper elementary mathematics teacher participants that experience conflicts in beliefs about quality mathematics instruction and the influence of high stakes testing. The sharing of these stories will serve as an opportunity to reach other teachers in the field that experience similar struggles. I used narrative inquiry as a methodology, which is grounded in Dewey's conception of experience. I collected data and co-constructed these stories of experience alongside the participants.

Through the participants' narratives I hope to share some of the work that teachers do in order to ensure all students receive quality mathematics instruction, all while feeling pressures related to high stakes testing. As many of us work for and await a paradigm shift in our American education system away from the focus on high-stakes testing, these stories offer other teachers shared experiences that may be similar to their own, and possibly strategies for coping with their own conflictions.

INDEX WORDS: High-stakes testing, Elementary mathematics, Teacher beliefs, Teacher decision-making, Narrative Inquiry

COGNITIVE DISSONANCE AND TEACHERS: WHEN MANDATES AND BELIFS COLLIDE

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JULIE MCFADDIN

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DEDICATION

This work is dedicated to Walter, Thea and Bridgette, along with all teachers that struggle to make decisions for their students each and everyday. Thank you so much for allowing me to listen to your stories and for being willing share your experiences with others.

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The journey to the completion of this dissertation, while relatively short, has been a winding road of different questions and evolving ideas. Despite all of the changes and revisions this study has been through, the constant has been the group of amazing women that signed on three years ago to guide and support me through this process. Dr. Lynn Hart has been willing to meet with me in various coffee shops all over Decatur, GA to provide feedback and answer countless questions. Even though I continued to use contractions right until the very end, she continued to read and re-read sections until I got it right. Thank you for your clear guidance, direct feedback and ability to guide me back to the focus of the question. Dr. Rachel Fiore, signed on when I thought I may explore elementary science, but stayed with me despite changing topics, questions and methodology. Thank you for your feedback that has helped me think beyond my own context and examine the "why" of this study. Dr. Caroline Sullivan walked with me one summer day discussing methodology. She challenged me by asking one question: "What is your goal?" Once she helped me understand that narrative inquiry would be the methodology to reach my intended goal, she then graciously agreed to join my committee. On top of the many other hats you wear, you examined my study with a qualitative lens. Thank you for your guidance not only with this dissertation, but the entire Ed.D. program. Each of the members of my committee brought a necessary and varied perspective to this process that ensured I met my goals, and I will always be grateful for their professional support and guidance.

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Finally, I have to thank my wonderful family. Cat and Vaughan, you have spent the last three years giving me the space, time and a listening ear to complete this work. Cat, my "broom", my partner, my love, I am forever grateful that you are always there to stand beside and support me in my decisions and ventures. You have shared this journey with me, and it is because of you that I am finishing this degree. There have been countless mornings, evenings and playdates that you have handled parenting on your own. You graciously accepted shifts in roles and responsibilties at home. Standing in the kitchen late at night listening to me drone on and on about methodology or theory was not always your idea of fun, but you listened and supported me. My son, Vaughan, has been patient while Mommy has spent time every weekend, many late nights and time over breaks and vacations working. My sweet boy, I decided to complete this degree while you are young so that I can be there for all of your accomplishments as you grow. I hope that you always work hard for the things you want in life. I love the titles "wife" and "Mommy" more than "Dr.", but I am eternally thankful that because of your support I get to be all of three. I love you both more than I can say.

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CHAPTER 1

Introduction

When I think back to my own positive experiences in school, I think about relationships I had with teachers and peers. I remember engaging activities like school plays, art contests and simulated archeological digs. These experiences were, in many cases, not associated with a final grade or summative assessment at all. What prompted me to enter the field of teaching were the positive relationships I built with children during my time as a camp counselor during college. I wanted to make a difference in children's lives and engage students in meaningful experiences. Over the course of the last fifteen years, legislation that requires accountability through high-stakes tests has shifted the experience of education for teachers and students. High-stakes testing has eliminated much of the humanity that used to be essential in educating students in the United States. Humans are naturally curious beings, but in today's schools, teachers feel compelled to act in ways that may not foster the natural curiosity of their students.

Standardization through high-stakes testing is infringing upon relationships that are essential in classrooms (Lampart, 2010). The educational system in the United States has shifted its goals from learning to testing (Darling-Hammond, 2010). "Low-quality tests have driven a narrow curriculum disconnected from the higher-order skills needed in today's world" (Darling-Hammond, 2010, p. 67). Teachers narrow their curriculum focus to fit the tests, and students stop their learning process once they have mastered the concepts for the tests (Eisner, 2001/2013). As a result of the paradigm shift towards high-stakes testing, natural curiosity is no longer fostered in many American classrooms and the outcome is less critical thinking and a widening of the opportunity gap for students (Darling-Hammond, 2010). High-stakes tests and the repercussions of being labeled a "failing" school have silenced teacher, student and community voices in the edu-

cation conversation (Vasquez Heilig, Khalifa, & Tillman, 2014). Many instructional decisions have already been made for teachers and students by policy, often with no consideration for the experiences and cultural frame of the teacher, students, and communities in which they are situated (Valenzuela, 2013). “Robots with artificial intelligence are presently being tested as public school teachers or teacher assistants in several countries including the United States” (Ekle, 2012, p. 3). Teachers feel pressures due to high-stakes tests and research shows the negative influences that high-stakes testing has on instructional practice. Will all humanity be removed from the American education experience? Or will teachers, students and other stakeholders take action that counters the negative influence high-stakes testing has had on education in American classrooms?

Problem Statement

There are many teachers that feel that best practice includes student-centered instruction grounded in constructivist theory (Au, 2013; Ball, 1993; Lipman, 2009). Unfortunately, the introduction of high-stakes testing into our American educational system often results in a deviation from this type of instructional practice (McNeil, 2000 & Lipman, 2009). Teachers experience frustration because of the disconnect that exists between their beliefs concerning quality educational experiences and pressures of high-stakes testing (Au, 2013; Lipman, 2009; Olivant, 2015). Despite the numerous studies that exist that show outcomes of high-stakes testing, I have found little that examines and describes individual teacher experience with high-stakes testing. What are missing from the wide body of research are individual experiences of teachers that cope everyday with cognitive dissonance around what they feel they should be doing for students, while knowing their students will be held accountable on a test at the end of the school year. Many teachers feel pressures to alter instructional practices due to high-stakes testing, and

for many teachers, this brings about dissonance in their beliefs and practice. Teachers can decide to act counter to their beliefs or choose to not conform their practices to mandates and pressures. In order to bring about consonance, there must be a change in belief or change in action. As we wait and work for a paradigm shift away from the high-stakes test driven educational era, it is critical that teachers reflect on decisions they make in the classroom that will impact student experience.

Purpose Statement

The purpose of this study was to explore how three upper elementary teachers reconcile conflicts in beliefs about sound instructional practice in a high-stakes testing environment in order to highlight ways teachers persevere. The methodology of narrative inquiry allowed me to portray the experiences of these educators. Narrative inquiry is a qualitative methodology that allows others to understand personal experiences through the telling of stories. "Stories lived and told educate the self and others" (Clandinin & Connelly, 2000, p. 26). That is to say, through the telling of stories all stakeholders, researchers, participants and those reading the accounts, have opportunity to learn and change. Narrative inquiry also supports the idea that knowledge is co-constructed by the researcher and participant (Clandinin & Connelly, 2000 & Clandinin, 2013). This study strives to provide an opportunity for participants to make their stories known, as well as to offer strategies to other teachers for coping with similar conflicting beliefs.

Research Question

The research question for this study is: How do upper elementary teachers reconcile conflicts in beliefs about sound instructional practice in a high-stakes testing environment? Through a series of interviews, classroom visits and conversations I seek to share the stories of these teachers.

Significance of Study

Teachers make decisions each and every day that impact student learning. Research shows that the impact of high-stakes tests includes narrowed curriculum, teacher-centered instruction and loss of teacher autonomy. My research is significant because the goal is to highlight the places where teachers do have control over the learning experiences and opportunities of their students. While there are numerous mandates and the feelings to conform instructional practices can be overwhelming, each teacher decides what and how they will teach their students each day. I want to focus on the power and control that teachers do have to impact student learning despite what research shows concerning the impact of high-stakes testing. There is no sign that policymakers will do away with accountability measures in the near future. I demonstrate that there are decisions that teachers can and do make each day in their classrooms that impact student experience and learning despite high-stakes testing.

Delimitations

I collected data for this research August through December 2017. I selected three upper elementary teachers that have experienced conflicts with beliefs about sound instructional practice and impacts of high stakes testing. The participants work as fourth and fifth grade teachers at Townville Elementary School. Data collection is limited to two school terms, which is about twelve weeks.

Limitations

Due to the open nature of my recruitment process, all of my participants are support teachers rather than 4th or 5th grade homeroom teachers. The participants teach students that participate in the gifted and/or Early Intervention Program (EIP). They have all worked as home-

room teachers and share experiences as homeroom teachers and support teachers as part of their stories.

Assumptions

This study was prompted by my own experience with cognitive dissonance when the instructional leader at my school asked me to implement more teacher-directed math instruction based on isolated math skills that were identified on a standardized test we use to measure student growth. This conflicted with my problem-solving based mathematics classroom. At the time, I had strong beliefs that the best teaching practices are student-centered instructional strategies where students are allowed to discover, construct, and argue about new ideas and concepts. The pressures of high-stakes tests resulted in pressure from my superiors for more teacher-centered strategies as well as constraining the curriculum I was teaching (Au, 2013). I entered this study with the assumption that other teachers feel those same pressures and dissonance and they make choices about what to do with those pressures. I also believe that, given more autonomy and professional development, teachers would choose student centered educational strategies grounded in constructivist learning theory for their students.

Operational Definitions

In this section I describe several key terms and how they will be used in my study. Language is important and the words you choose matter. People will interpret terms in ways that make sense to them. I want to be clear in my use of key terms and how they fit with my experiences and understanding.

Cognitive dissonance: Cognitive dissonance occurs when one's private beliefs are in conflict with one's actual public statement or actions (Festinger & Carlsmith, 1959).

Constructionism: the worldview or paradigm that posits that meaning is constructed rather than discovered. It claims that there is no meaning until humans interpret the world that exists around them. (Crotty, 2015)

Defensive teaching: Defensive teaching is defined as teachers reducing requirements to the minimum that is required by standards and assessments (McNeil, 2000).

Narrowed curriculum: Narrowed curriculum is defined as content curriculum that is segmented, deleted or constrained due to minimum requirements of high-stakes tests (Au, 2013; Lipman, 2009; McNeil, 2000)

Experiential education: Experiential education is defined as education focused on student experience. Dewey stated, "the school must represent life—life as real and vital to the child as that which he carries on in the home, in the neighborhood, or the playground" (Dewey, 1929/2013, p. 35).

High-stakes testing: A test is defined as high stakes when results are used to make decisions that impact all stake-holders: students, teachers, schools, and communities as a whole (Au, 2013). High-stakes tests can be national, state, or local mandates. High-stakes tests have results that are reported to the public (McNeil, 2000).

Narrative Inquiry- Is defined as a methodology in qualitative research that is a "way of understanding experience" (Clandinin, 2013). Data collection within a narrative inquiry can be carried out by listening to stories, by writing, reading and interpreting texts and/or by living alongside individuals. It is a methodology based on Dewey's concepts of experience (Clandinin, 2013).

Radical Constructivism: Knowledge is constructed by the individual based upon his or her own experiences (Von Glasersfeld, 1995). Radical Constructivism is not a theory of learning or teaching, but of knowing. (Steffe, 2016)

Social Constructivism: Knowledge and understanding is constructed within the context of society and culture. (Ernest, 1994). Social Constructivism is radical constructivism within the context of the mathematics classroom (Steffe, 2016). Learning mathematics is process that involves individual construction within the frame of mathematics practices of a wider society (Cobb, 1994).

Theoretical and Conceptual Framework

Constructionism

The paradigm that I use to frame this research is constructionism. Constructionism purports that meaning is not objective or subjective; rather it is constructed through relation (Crotty, 2015). Consciousness is what determines meaning. Constructionists do not believe that objects did not exist prior to consciousness, rather that there was no meaning prior to consciousness. Constructionism purports that there is no one truth, but rather various interpretations of what is true. There can be more useful interpretations, but not more true interpretations (Crotty, 2015). The research for this problem will be relational in that the teachers construct meaning through their interaction with the experience and I will construct meaning by interacting with the teachers. It is the relation between teachers, their experience and the researcher that will determine what is found in this process.

Constructivism

Constructivism is a theory of both knowledge and learning (Ultanir, 2012) in which a learner constructs his/her own knowledge through the process of interacting with objects, prob-

lems and others. Constructivism as a philosophical theory initially emerges in the 18th century with Giambattista Vico and his idea of "the only way of "knowing" a thing is to have made it" (Ultanir, 2012). It began to show up more as a teaching theory during the early 20th century with philosophers and theorists during progressive movement in education. The concept that students do not learn merely through being told, but through experience and construction of knowledge was key in many progressive education reform schools. Constructivist theories essential to this research include Dewey's experiential education (Dewey, 1938) and Von Glasersfeld's radical constructivism (Von Glasersfeld, 1995), and social constructivism (Vygotsky, 1978 & Bruner, 2013)

Constructivists Piaget and Vygotsky both contend that a learner constructs knowledge, however they see the foundations of that construction differently. Piaget comes from a development before learning construct, whereas Vygotsky also sees knowledge as grounded in society. Children cannot develop without social learning (Vygotsky, 1978). Later, Bruner furthered the work of socio-cultural learning with his concept of discovery learning (Bruner, 2007 & Bruner, 2013). If social structures are understood, then the students can be led to learning in ways that are deeper and more rigorous than teacher-focused instruction. The "tendency of the human being, in his [her] learning of the environment, to go beyond immediate adaptive necessity toward innovation" (Bruner, 2013, pg. 87) leads to the urge to innovate as a motivator. Humans are naturally motivated to innovate, yet so often both educators and students settle for what they are told by written curriculum or those in authority. Bruner's work illustrates that the most rigorous and motivated learning occurs within the social structures of society and social structures that the teacher creates in the classroom.

Dewey stated, “the school must represent life—life as real and vital to the child as that which he [she] carries on in the home, in the neighborhood, or the playground” (Dewey, 1929/2013, p. 35). He was a pragmatic that posited that education must be connected with life experiences of the child. He further argued that with industrialization, educators could not possibly determine the future students would live in as adults. This is even truer today in our technology-driven global society. The focus of education should be to give students “command of himself [herself]” so that “he [she] will have the full and ready use of all his capacities” (Dewey, 1929/2013, p. 35). Dewey posited that students learn only when the subject matter consists of experiences that are consistent with the students’ everyday lives. He was a proponent for experiential education for all students (Dewey, 1929/2013), and that this type of education could only happen in a true democracy. Dewey believed that knowledge was constructed through individual experiences within one’s own context. His works shows the relationship between the individual learner and the experiences created by the teacher. Dewey stated that all experiences were not of the same value. Teachers can create experiences that have both positive and negative impact on student learning (Dewey, 1938).

Von Glasersfeld’s theory of radical constructivism proposes that through experience, people strive for coherence (Von Glasersfeld, 1981 & Von Glasersfeld, 1995). The interaction with sensory experiences enables a learner to make sense of concepts. All new knowledge comes from applying new understanding to previously constructed schemas. Von Glasersfeld was a pioneer in framing the teacher as facilitator of experiences that create conflict leading to the construction of new understandings and knowledge (Derry, 1996). Von Glasersfeld’s theory focuses on individual construction of knowledge. Some may argue that this is in opposition with Dewey’s theory of experiential education, however when viewed in the frame of Vygotsky’s social

cultural theory, the individual and social realms of construction new knowledge and understanding cannot be separated (Ernest, 1994 & Cobb, 1994). Radical constructivism purports individual construction, but that construction of knowledge takes place within the experiences the teachers provide as facilitator. Von Glasersfeld's concept of radical constructivism also claims that no individual construction is more or less correct than another, but each construction of knowledge can be judged by accepted norms. All construction of knowledge is not equal. While each individual constructs their own knowledge that is not more or less correct, there are accepted norms that all knowledge construction can be judged by.

Constructivist learning theory and experiential education posit the importance of experience of the individual situated in context as related to learning. My study will seek to construct stories of individuals' experience with cognitive dissonance. The focus of my research explores experiential education and constructivist learning theory within a mathematics classroom, therefore aligning with the aforementioned theorists. In order for learning to have meaning, teachers must consider the experience of the individual students, and use that experience to facilitate opportunities to for individuals to construct new understanding. For teachers that lean toward a more constructivist perspective of learning, the impacts of high-stakes testing can be counter to their basic beliefs about what is good for students and how they construct knowledge in the classroom. The researcher, participants and their students will all construct knowledge throughout the process of this study.

Critical Theory

I am a critical educator that believes education should always address equity and social justice. This study considers the question of equity of access for all students that are required to take part in high stakes testing. Many educators see the need to focus on critical thinking and fos-

tering skills that students living in a global society will need. The current high-stakes test-driven era of education does not support the implementation of these opportunities (Noddings, 2013). Critical theory is fundamental to this research because I believe that current societal structures allow high-stakes testing to continue to silence students and teacher voices. Participants that have experienced the conflict in question will struggle with historical and societal structures in education that promote the use of high-stakes testing.

Early 20th century curriculum developers, such as Franklin Bobbitt, believed that curriculum should be driven completely by industry and adult life, "education will aim, not at average bricklayers, but at the best types of bricklayers" (Bobbitt, 1918/2013, p.17). Apple (2002) claimed that Bobbitt was a supporter of real-world math, but the problems that Bobbitt's real-world math would consider current industry model. That is to say, Bobbitt's ideal curriculum supports a model that applies only to one standard or experience of what the real world is. Ralph Tyler's 1949 *Basic Principles of Curriculum and Instruction* continued Bobbitt's curriculum ideas. The four questions Tyler posits in his work are: 1) What educational purposes should the school seek to attain? 2) What educational experiences can be provided that are likely to attain these purposes? 3) How can these educational experiences be effectively organized? 4) How can we determine whether these purposes are being attained? (Tyler, 1949/2013). While the questions seem to address experience, again Tyler aims towards preparation for adulthood with a focus on the status quo rather than challenging and changing society (Kliebard, 1975/2013). These founding fathers of curriculum in the United States did not see a need to question the societal systems in place and how they promote or do not promote equity for all students. Similarly, students today are held accountable by high-stakes tests driven from these outdated perspectives

that are one-size fits all, and do not consider the individual experiences or societal expectations they may face.

In analyzing instructional strategies that participants use, I drew from Paulo Friere's (1972/2000) concepts of *problem-posing education* versus *banking education*. Critical pedagogy, as introduced by Friere, contended that society is situated in an oppressor and oppressed relationship dynamic. He argued that the purpose of education should be to move away from this relationship by encouraging teachers to use the classroom as an opportunity to facilitate critical thinking opportunities for students. He described oppressors as being oppressed themselves through their use of oppression and as being original perpetrators of violence through the use of oppression. He went on to characterize the oppressed as dehumanized through their oppression and stated that they are the only ones that can end the oppression. Freire claimed that oppressors use banking education in which students are receivers of information that teachers "deposit" the information they deem necessary to maintain the current oppressive society. It is a passive form of education that requires no critical reasoning and consideration of individual experience or context. Friere stated that educators should strive toward problem-posing education in which teachers act as facilitators of knowledge. Students become active participants in their learning and seek to think critically and analyze information presented to them. Problem-posing education is connected to constructivist theories of learning. Students must bring their own experiences into the classroom; apply what they know to struggle with perturbations they experience in order to become critical thinkers and active participants in constructing knowledge that is applicable to their lives.

Cognitive Dissonance

I also considered the theory of cognitive dissonance (Festinger & Carlsmith, 1959) when looking at decisions teachers make when their beliefs about sound instructional practices are in conflict with processes and impacts of high-stakes tests. Leon Festinger first proposed the theory of cognitive dissonance in 1957. Cognitive dissonance occurs when one's private belief is in conflict with one's actual public statement or actions (Festinger & Carlsmith, 1959). Festinger and Carlsmith (1959) found that the amount of dissonance a person feels decreases as the pressure to act or speak contrary to their private beliefs increases. That is to say that as pressure increases, a person must work to lessen the dissonance they feel in some way. According to this theory, teachers must work towards bringing private beliefs and public acts into consonance. Many teachers are faced with the challenge of living with the belief that high-stakes testing does not have a positive impact on their classroom and the students' learning, yet they are still held accountable to high-stakes testing and the policies and procedures that come with them.

Organization of Remaining Chapters

In Chapter 1, I have introduced the purpose and need for this study as well as included the theory I will use to frame the research. The remainder of this study will include four more chapters, a reference list and appendices. Chapter 2 is the literature review where I discuss and share research and other relevant literature as related to impacts of high stakes testing, teacher beliefs and instructional practices. Chapter 3 is the methodology section where I provide a description and rationale for using narrative inquiry for this research. Chapter 4 is the narrative accounts of my participants as well as my own narrative beginnings. Chapter 5 contains the resonant threads woven through and across participants' stories, implications for action and further research as well as a personal reflection.

Conclusion

Though there is research that supports the negative impact of high-stakes testing as well as the positive outcomes of constructivist educational practices, the purpose of this study is to address how teachers deal with the conflicting implications between the two for the classroom. The reality is that until policy changes, teachers must make decisions each and every day for students who will take high-stakes tests at the end of the school year. There is a need to explore how teachers who believe in constructivist pedagogy deal with the demands of time, narrowed curriculum, and pressures from administration. Teachers must work within the confines that are mandated. The goal of this study is to give a voice to teachers who have had to make decisions around this dilemma and share their real world experiences with in-service and preservice teachers.

CHAPTER 2

Introduction

The goal of this research was to co-construct the stories of elementary teachers that have experienced cognitive dissonance in their beliefs about quality math instruction and the pressures that teachers in a high-stakes testing environment may feel. In this chapter, I present what research about teacher experiences in high-stakes testing environments as well as explore the ways teacher beliefs have played a role in instructional decision-making. A critical review of literature revealed the following themes:

1) High-stakes testing environments have narrowed the focus of curriculum and generated more teacher-centered instruction
2) High-stakes testing environments have limited teacher autonomy
3) Teacher beliefs and efficacy impact instructional decision-making

Experiences in High-Stakes Testing Environments

No Child Left Behind (NCLB) and its successor Every Student Succeeds Act (ESSA) are laws that have shifted focus of education in America from learning to test taking. NCLB was signed into law shortly after the terror attacks of September 11, 2001 and was based largely on the false data from *Texas Miracle,* which was not a miracle at all (Darling-Hammond, 2010 & Ravitch, 2014). Students are now federally mandated to take tests each year, which are used to make important decisions about them, their teachers and their schools. What makes a test high-stakes are the big decisions that are made because of the results of the test (McMillian, 2013). Students can be retained, teachers can lose their jobs, and schools can be taken over by the state if they do not meet expected performance standards. There have been a number of ways that these laws have influenced schools. In the following sections I will outline what literature says

about ways in which teaching has been influenced by the pressures related to high-stakes testing as well as how teacher beliefs and efficacy play a role in instructional decision making.

Narrowed Curriculum and Teacher-focused Instruction

High-stakes testing reforms have had a number of effects on instructional practices of teachers. Au (2007/2013) conducted a qualitative metasynthesis of 49 published studies in order to develop a broad understanding of the way high-stakes testing influences curriculum at the classroom level. He coded qualitative studies and found three dominant themes: subject matter content, pedagogy, and structure of knowledge. Au's qualitative metasynthesis showed that high-stakes testing has resulted in the narrowing of curriculum content, pedagogical practices have shifted towards more teacher-centered instruction, and the structure of knowledge presented is more fragmented. Narrowing curriculum content refers to the practice of teaching only tested content. Teachers feel pressure to only present material that is on the test, therefore limiting what is taught to test content. They may also present that information in a fragmented way in order to cover tested material in limited time. That is to say, a teacher responsible for teaching students multiplication of multi-digit numbers may focus solely on the procedures of the multiplication algorithm through direct instruction as a time saving measure. Connections to other operations, modeling, algebraic thinking, and problem solving may or may not be highlighted in order to cover all tested content, instead of teaching the material and related mathematical connections.

Many of the curriculum decisions are made for teachers at a district or school level, especially in locations that are struggling to meet expectations on high-stakes tests (Darling-Hammond, 2010; Lipman, 2009). Even when teachers are given autonomy in curriculum decisions, they can feel restricted by time to prepare students for the high-stakes test, and therefore limit their instructional style to more teacher-centered, direct instruction (Wills and Sandholtz,

2009). Wills and Sandholtz explored, through case study, what happened when a local school administration gave a fifth grade teacher the autonomy to teach in the way she saw fit rather than giving in to curriculum mandates from the local district as a result of test performance. The researchers observed and videoed a total of 66 lessons for the case study. Despite the autonomy allowed by the principal for this teacher, she still used predominately teacher-centered instructional practices. At times, she chose to skip instruction in low-stakes subjects to allow more time for high-stakes tested subjects, mathematics and language arts. The concept of *constrained professionalism* is introduced in this study. Constrained professionalism refers to the idea of teachers seemingly having autonomy, yet feeling constrained in instructional and curriculum choices as "consequences of test-based accountability even in a school where the principal supported teacher autonomy" (p. 1066). Professionalism is the concept that a highly trained individual has the knowledge base to make decisions specific to the field of work. Even in a school where the teacher was provided with decision making power concerning curriculum in her classroom, the teacher was constrained by the pressure of the upcoming standardized tests that would be used to make important decisions for herself and her students.

Olivant (2015) claimed that another experience in high-stakes testing environments is the loss of opportunity for creativity in the classroom. This phenomenological study took place at an elementary school in California and examined the experience of teachers offering creativity in the classroom, while at the same time living under pressures of high-stakes testing. Ten teachers participated in in-depth interviews with the researchers. The findings showed that teachers felt the inclusion of creative experiences were important for students, however implementation of high stakes testing impeded the teachers perceived ability to incorporate creativity in the classroom. Creativity is related to the skills that Noddings (2007/2013) claimed 21st century students

should be learning in schools in order to prepare them for the world they will face. The teachers in this study experienced constrained professionalism and chose to use *defensive teaching* strategies (McNeil, 2000) when they eliminated creative experiences for students in order to ensure the material for the high-stakes test was presented.

As teachers begin feel the pressures of high-stakes tests, they may also begin to use defensive teaching (McNeil, 2000) strategies. Defensive teaching is defined as teachers responding to federal, state, district, and school mandates by limiting the material presented to students. In this approach, teachers present only what is required for testing and the material is presented as lists, facts, and in other very controlled ways. Teachers that experience constrained professionalism may choose to use defensive teaching strategies to cope with the pressures related to high-stakes testing. McNeil conducted a case study at a Texas charter school just as the paradigm shift towards a focus on high-stakes testing began. McNeil found that, even in schools that usually pride themselves on the use of instructional strategies that educate the whole child, the more mandates given from their supervisors, the more teachers controlled the curriculum in their own classrooms. While this study began as an inquiry into student learning, McNeil saw how standardization and high stakes testing shifted teacher practice as well. She observed that even in schools that previously used more student-centered instructional strategies, teachers decided to use teacher-directed strategies in an effort to more efficiently cover the required material for the upcoming test. In a mathematics classroom, in order to cover material teachers focus on direct instruction of procedures of the skills rather than taking time to focus on problem solving, discourse, and making connections to other mathematical domains.

Limited Teacher Autonomy

Today teachers live in an educational era of common, standards-based assessments that are used to make important decisions concerning schools, students, and teachers (Au, 2007/2013, Darling-Hammond, 2010, Lipman 2009). NCLB and its successor, ESSA, connect common assessments to the state curriculum. NCLB linked performance on these assessments to grade promotion for students and to teacher and school evaluations (Popham, 2004/2008). Stillman and Sleeter (2005/2013) examined the concept of *frame*, which refers to the amount of control students and teachers have over the knowledge taught within a classroom. The stronger the frame, the more control or voice teachers have in instructional planning and curriculum. In Stillman and Sleeter's qualitative study of standards documents in California, they coded documents for themes and counted words related to their thematic analysis. Stillman and Sleeter found that when the curriculum is decided with a top-down structure, as in NCLB, the framing is weak, meaning that the amount of control students and teachers have over the learning in their classrooms is weakened and that teaching becomes prescribed.

Where and who you teach in our era of high-stakes tests can determine the level of teacher autonomy. Lipman's (2009) study of four Chicago-area high schools showed the inequity that emerged through the use of assessments as accountability measures for teachers and students while NCLB was in place. She used case study to examine the influence of high-stakes testing in urban schools. One of the four high schools in the study was Farlay, a school with high scores and a student body with mixed socio-economic and multiracial groups. The other three schools were located in predominantly low-income neighborhoods with working-class African-American and Latino/a children. Lipman found that teachers at Farlay had much more freedom to choose academic strategies and curriculum that encouraged critical thinking opportunities. Teachers at the other schools were held to curriculum approaches that resulted in deskilling of teachers and

less opportunity for critical thinking for students. Lipman saw there was a "continuum of enforcement" (p. 369) of accountability measures. Specifically, schools that did well on standardized tests allowed teachers to have more autonomy in planning and developing opportunities for critical thinking. Schools that performed poorly on standardized tests were monitored and often taken over by reform programs or the state, a process that that diminished the control teachers have in planning critical thinking oriented instruction for students.

In today's high-stakes test driven education system, decisions about curriculum and even resources used to teach are often made at the district, state, or even national level. Endacott et al. (2015) questioned the influence of standardization on teacher perception of agency and professionalism. They used a descriptive survey research design with follow-up interviews to collect data on teacher experience and the effect on teacher job satisfaction. There were 1,303 survey responses and interviews of 28 teachers of elementary, middle, and high school teachers. Endacott et al. (2015) found that despite the implementation of more rigorous standards, teachers felt pressure to focus only on outcomes of high-stakes testing. The findings of their constant comparative data analysis revealed that due to high-stakes testing and standardization, teachers experience marginalization due to the fact that their input is not valued. Federal money is provided to private companies to bring in outside companies to help with implementation of standards and high-stakes testing is what determines which schools receive these funds. Teachers also reported lack of agency, that is to say, they felt as though their input was not enough and that they were constantly being monitored to ensure they were preparing students for the upcoming standardized tests. The fact that the instructional emphasis was on the end of year tests meant that teachers did not focus on the individual needs of their learners and use their ingenuity to implement standards in a way that prompted critical thinking opportunities. One teacher claimed there

was “a system of surveillance and threats designed to keep teachers in line with a narrow focus of raising test scores” (Endacott et al., 2015, p. 428). That is to say, teachers felt little power to make curricular choices in classrooms due to the important decisions connected to tests that affect them and their students. Some teachers feel they should teach only the content of test in order to ensure that test scores are acceptable.

The current research on high-stakes testing environments shows that outcomes include curriculum that is narrowed and constrained by teachers in order to cover everything that students will be tested on. Despite the decisions to control curriculum, teachers also report feeling less autonomy and having less input in what and how their students learn. NCLB and its successor, ESSA, has led to more top-down decision-making, which can leave teachers feeling powerless and as though their input has little influence on what and how they can teach students each day.

Teacher Beliefs and Efficacy

Teachers and students are held accountable by tests; however, every day, teachers make decisions about what and how they will teach the students sitting in their classrooms. Elementary teachers make hundreds of decisions each and everyday. This number includes everything from decisions about restroom breaks to decisions that influence student learning (Shavelson & Borko, 1979). The number of decisions teachers make each day has increased since the implementation of NCLB (Valli & Buese, 2007). Valli and Buese used qualitative interview data from a mixed methods study to examine the change in fourth and fifth grade teachers’ roles since NCLB was implemented. They found that teachers’ work has expanded and intensified. Teacher beliefs and teacher efficacy about mathematical instructional practice play a significant role in teacher decisions concerning what happens in their classrooms each day. “Efficacy beliefs help determine

how much effort people will expend on an activity, how long they will persevere when confronting obstacles, and how resilient they will prove in the face of adverse situations" (Pajares, p. 544, 1996). A teacher that is efficacious in her ability to teach math will be more likely to use meaningful problem solving that encourages rich mathematical discourse despite the time that this type of conceptually based teaching requires. A teacher that is less efficacious may be more willing to stick to a procedures-based lesson due to the pressures to teach all the standards which the students will be tested on. Teachers who believe in constructivist learning and are efficacious in their ability to implement classroom mathematical instructional practices that support student-centered learning and may maintain this type of classroom despite pressures they may feel from high-stakes testing.

Teacher Self-efficacy

Teacher self-efficacy has a direct impact on instructional decision-making. Self-concept beliefs and self-efficacy beliefs are often used to describe how someone feels about their overall capabilities. Self-concept differs from self-efficacy in that self concept refers to a more broad belief that "I am good at _____", whereas a self-efficacy belief is related to task or performance on a specific activity (Pajares, 1996). A teacher's self-concept may be that she is good at teaching, but may she may have low self-efficacy in using student-centered practice and still have positive outcomes on high-stakes tests. A teacher may decide to teach in prescribed ways even though it counters their own beliefs due to lack of self-efficacy in their ability to obtain high test scores for students. Teacher self-efficacy is important to this research because teachers will be sharing their experiences of managing conflicts with beliefs in a high-stakes testing environment and how efficacious they are in their ability to teach mathematics will be a consideration in the decisions they make about how and what to teach.

Teacher Beliefs

Thomas (2013) conducted a qualitative study with focus group interviews questioning teacher beliefs and classroom practices in Pakistan. He found that despite the fact that teachers believed that constructivist, student-centered instructional methods encourage higher-order thinking skills they stated they did not use this methodology in their classrooms. Teachers stated they believed that classroom management was more of a concern when utilizing more student-centered instructional practice. Thomas also found that teachers felt they were ill prepared with pedagogical content knowledge (Shulman, 1986) and this lack of preparation inhibited their ability to use constructivist, student-centered teaching practices. This study is an example of teachers recognizing that one instructional style may be better for students; yet other beliefs about the implementation of practices overrode those activities that could have been more student-centered in nature. As Fang (1996) stated in his review of research on teacher beliefs and practices, inconsistency with stated teacher beliefs and perceived practice is not unusual. The context of each individual classroom, including district mandates, teacher prior experience, physical space and available materials, can all cause teachers to make decisions and engage in actions that may conflict with their stated theoretical beliefs.

Meidl (2013) conducted a case study of two teachers to examine how teacher beliefs impacted decision-making and lesson planning. The Pennsylvania school introduced a new scripted curriculum with a goal of improving state test scores for elementary reading. Both participants found value in some aspects of the mandated program including common pacing and some of the structured thinking maps. The participants felt that because of the high transiency rates in their district, the common pacing would enable students that transfer to another in-district school would "be doing the same thing" (p. 6). The focus on test preparation was clear and evident.

Both participants felt that test the prep portions of the curriculum did not address individual student need, however both participants thought the larger injustice would be to not do everything possible to ensure students pass the high-stakes test at the end of the year. The findings of this study show that use of high-stakes testing can affect teacher beliefs about teaching and learning. Although teachers state that they believe in student-centered practice that encouraged critical thinking, they may choose to act in ways that counter that stated belief. When districts mandate particular programs and tests are used to determine the success of a student, teachers may be inclined to shift their beliefs about what they believe is best for learning in order to meet the requirements of mandates and testing.

Teacher Beliefs and Mathematics

Teacher beliefs can be shifted through experiences. According to Richardson (1996), teacher beliefs are impacted by personal experiences, experiences with schooling, and experiences with formal knowledge. Ernest (1989) stated that there are three categories for teacher beliefs about mathematics including Instrumentalist, Platonist, and Problem Solving. A teacher with an Instrumentalist perspective sees math as a discrete series of steps and procedures. A teacher with Platonist perspective asserts that mathematics is a static body of knowledge waiting to be discovered. Finally, the teacher that is in the Problem Solving category sees mathematics as an ever-changing, dynamic discipline where the focus should be on process rather than the product. In a case study of two secondary mathematics teachers, Beswick (2012) used Ernest's categories to frame her investigation of ways in which teacher's views of mathematics as a discipline influence their beliefs about instructional practice in the math classroom. The less experienced teacher attended professional development and had opportunities to observe teaching in a more problem-centered context, but made little effort to incorporate problem-based instruction in her math

classroom. Her Platonist beliefs structure held true to her classroom practice. The focus of her instruction was discrete concepts that she taught through teacher-centered practices. Sally, the more experienced teacher, viewed mathematics learning in the problem-solving category, however viewed mathematics in a Platonist way. Her experience seemed to be the factor that most affected her beliefs about how students should learn mathematics. The findings of the study support that it is possible for teachers to hold different beliefs about mathematics as a discipline and mathematics in school.

Research has shown time and again that teacher beliefs often differ from their observed mathematics instruction. There are other factors to consider when exploring teacher beliefs about sound mathematics instructional practice. Cross Francis (2014) explored, through case study, inconsistencies in observed instructional practice and three teachers' stated beliefs. Despite apparent inconsistency, when the researcher examined interview data further, there were other beliefs that over-rode the instructional decision-making. For example, one teacher stated that she did not like using worksheets and preferred more problem-solving focused instruction. In an initial interview she also stated that her students' parents preferred worksheets because this is what they felt most comfortable. Local schools and districts also often dictate that teachers use a specific curriculum. In this case, other factors including parent wishes and school mandates prevailed over the teacher's beliefs.

Teacher beliefs and self-efficacy play a significant role in teacher-decision making each and everyday. Teachers may believe in student-centered instructional strategies, however, they may not decide to use these types of practices in their classrooms. There are a number of factors that influence teacher-decision making other than beliefs. These factors include contexts of classrooms and schools, mandates of districts and states, as well as access to materials. Self-efficacy

is also extremely important in teacher-decision making. If a teacher is not self-efficacious they may be less likely to act in a way that counters pressures and mandates due to high-stakes testing.

Gap in Research

The purpose of this research was to examine what teachers actually do when their beliefs about mathematics teaching and learning are in conflict with pressures they feel due to the role of high-stakes testing. I have found studies that examine conflicts of teacher belief and experiences in high-stakes testing environments. I focused this review of research on qualitative studies of largely upper elementary schools, students and teachers. I was curious to see what the current qualitative studies are showing about experiences with teaching in high-stakes testing environments. I have yet to find research that considers what teachers do in the context of a school and system that claims to be focused on encouraging constructivist, student-centered instructional practice, yet are still held accountable to high-stakes tests. The context of this research is what makes it unique and original. I believe there is a plethora of research that shows the negative outcomes of implementing high-stakes testing (Darling-Hammond, 2010, Endacott et al., 2015, Valenzuela, 2013, & Vazquez et al., 2014), yet teachers continue to work in a neo-liberal, high-stakes test driven educational era (Darling-Hammond, 2010, Endacott et. al., 2015, & Ravitch, 2014). What do teachers do when, at the school and district levels constructivist, student-centered teaching practices are celebrated and promoted, but test data are what drives School Improvement Plans and are used to write teacher goals on teacher evaluation instruments?

Conclusion

Knowledge that is constructed through social and individual experiences honors the autonomy of each student and teacher in the classroom. The value of constructivist practices in de-

veloping critically-minded students is clear to many educators, yet mandates and controls put in place by requirements for high-stakes testing can cause teachers to make decisions that may not be focused on student learning. Though relatively small in number, I did find examples of teachers, theorists and school leaders who choose to act against pressures of high-stakes testing in efforts to include constructivist, experiential, and problem-posing education for students. Lipman (2009) presented examples that counter hegemonic education: The Citizens Schools Project in Brazil and the Rethinking Schools project based in Milwaukee. McNeil (2000) offered examples of schools where teachers collaborate together to create learning experiences that are problem-posing, constructivist, and experiential.

The research I reviewed is clear and undeniable: experiences in high stakes testing environments include: narrowing of content and more teacher-centered instructional strategies (Au, 2013, Endacott et. al., 2015, Lipman, 2009, McNeil, 2000, Olivant, 2015, & Wills & Sandholtz, 2009). Teachers are, at times, forced to comply with measures that they may not agree with or support. Actions of teachers often do not have consonance with teacher beliefs about what students need and should be learning. I believe we are in a time where we are beginning to see a paradigm shift. Educators and researchers see that high-stakes testing does not have positive outcomes for students or their learning (Darling-Hammond, 2010, Endacott et al., 2015, Valenzuela, 2013, & Vazquez et al., 2014). We must shift our focus to providing educational experiences for the individuals in our classrooms rather than the masses. I think that teachers are reaching their breaking points with the madness that is testing. I want to explore this paradigm shift from high-stakes driven instruction to schools that are focused on promoting student-centered instructional practice that promotes the individuality of teach student and teacher. How do teachers deal with

the cognitive dissonance between what they feel students need and the pressures of high-stakes testing?

CHAPTER 3

Introduction

I used narrative inquiry to explore the stories of teachers that struggle with the pressures they feel from mandatory high stakes tests and conflicting personal beliefs about effective mathematics instructional practice. The question driving this research is: How do upper elementary teachers reconcile conflicts in beliefs about sound mathematics instructional practice in a high-stakes testing environment? Narrative inquiry allowed me, as the researcher, to live alongside participants and co-construct the story of their experiences. I approached this inquiry with the theoretical frame of constructionism and employed methodologies in keeping with co-construction of experience. I collected data through interviews, conversations, artifacts and the use of a researcher's diary. In the following sections I describe narrative inquiry as a methodology, justify choosing narrative as the methodology for this research and include detailed plans for conducting the inquiry as well as my plan for analysis protocol.

Narrative Inquiry as a Methodology

The methodology for this research is narrative inquiry. Within the qualitative research world there are many narrative analysis methods, such as thematic analysis, linguistic analysis, visual analysis, along with others. Narrative inquiry, as a methodology, may include some of these narrative methods, however it is important to establish narrative inquiry as both a methodology and phenomena (Clandinin, 2013). Narrative inquiry is defined as "an approach to the study of human lives conceived as a way of honoring lived experience as a source of important knowledge and understanding" (p. 17). It is a methodology brought to life through the varied fields of anthropology, psychology and science (Clandinin & Connelly, 2000). From these dis-

tinct fields comes a methodology that allows the researcher to engage in a journey of co-construction of story and experience.

As a methodology, narrative inquiry is grounded in Dewey's conception of experience. Dewey posits that experience consists of objects and events in the world, however those objects and events are transformed through human context (Dewey, 1938). This relational or transactional ontology is fundamental to narrative inquiry (Clandinin, 2013). Each transaction and relationship created within the shared context will shift and change not only the experience, but also its story. "Working within this ontology of experience shapes narrative inquiry in a particular way. By highlighting the temporality of knowledge generation, we draw attention to understanding that experience is always more than we can know and represent in a single statement, paragraph, or book" (p. 15). This commitment to Dewey's ontological view of experience separates narrative inquiry from other forms of qualitative research.

Justification of Methodology

My decision to use narrative inquiry as a methodology was not a clear path. When I first began formulating my research question about experiences of cognitive dissonance that I faced myself as a teacher, I initially believed I would do a case study. My plan was to look at two to three cases of individual teachers and use the data to identify themes. In conversations with committee members and professors, the more I thought about my end goal, the more I realized that I was not looking to find particular themes or threads that are common, but to tell and describe individual experiences and decision-making processes. Each individual experience will be determined by experience, context and beliefs. My goal is to share experiences of individuals in the hopes that others may learn or gain insight from the telling of these stories. I believe there is value in explaining experiences and knowledge to be gained from individual experiences. A

conversation I had with a committee member as we walked back from lunch one summer day helped me to realize that narrative inquiry was a methodology to consider for my research question.

Why is it important to tell the stories of teachers that have beliefs about sound mathematics instructional practice that are in conflict with high stakes testing? Why is co-constructing their stories of value to our educational world? Clandinin (2013) claimed that as researchers, we should consider three ways in which researchers should justify their study: a) personal justifications, b) practical justifications and c) social justifications.

Personal justifications

For me it is important to conduct this research because I have experienced conflict with beliefs about sound mathematics instructional practice and influences of high stakes testing. I have had to struggle at times with whether to follow outside recommendations and give into the pressures of the test, or continue with what I believe to be good practice, constructivist-based student-focused learning opportunities for example. I know what I chose to do to bring consonance with my beliefs and the pressures of the test, but I am wondering what other teachers do in similar situations. Research supports the position that high-stakes tests have shown negative outcomes students and learning. I do believe that our current high-stakes testing educational paradigm is beginning to shift, however I think this research is important to provide other educators with real-life experiences to hold on to as we wait and work for this shift to occur.

I considered case study as a way to carry out this research initially, however upon reflection about what I really wanted to gain from my research, I realized that sharing experiences of teachers was my primary goal. I entered this research with a constructionism epistemology and really believe that the participants' experience is not for me to tell, but to be co-constructed to-

gether. I do not seek to extract themes from cases, but to simply describe experiences of participants. After consideration of goals, question and epistemology I realized that narrative inquiry is the methodology that will allow me to "work with and from a transactional or relational ontology" (Clandinin, 2013, p. 16) that is essential to who I am.

Practical justifications

The practical justification for this research is grounded in the fact that despite ample research that shows high-stakes testing has negative impacts on teachers, students and communities; they are still used to make important educational decisions (Au, 2007/2013, Lipman 2009, Darling-Hammond, 2010). What I have found to be missing in research is the consideration of ways in which teachers deal with knowing what they should be doing to meet student needs, while at the same time knowing their students will be held accountable by a single test. By sharing the stories of teachers that have found ways to cope with their own cognitive dissonance as related to their personal beliefs and pressures of high-stakes testing, I offer strategies, comradery and even hope to other teachers that are waiting for a paradigm shift in education. Narrative inquiry is the methodology that allowed me to create co-constructed stories with participants that best represent experiences.

Social justifications

I have never met an educator that began their career with the hopes of ensuring students pass a test. As a teacher, I am committed each and every day to offer experiences that challenge the understanding and thinking of my students. NCLB and the high-stakes tests that came with it were initially established as a means of closing achievement gaps, however, after over 15 years, high-stakes testing has actually widened the gap (Darling-Hammond, 2010). I believe that teachers should offer experiences everyday in the classroom that encourage critical thinking and

challenge students. Noddings (2015) stated that 21st century students would not be prepared for living in a global community if we continue to allow high-stakes test to drive our educational practice. Through this narrative inquiry, I strive to provide justification for other educators for social action that results in shifts away from negative impacts of high-stakes testing.

Limitations

The limitations of this research include time constraints of the study, subjectivity of the researcher and ethical considerations. I collected data for my research for a time span of twelve weeks, which is two school terms. The limited time frame is due to time constraints of the researcher's doctoral program. Also, I enter the field with prior experience with the phenomenon under study. By including the researcher's diary as a data collection source, I will make my own subjectivity for the phenomenon apparent. Finally, there are ethical considerations for using the method of narrative inquiry. There is tension that can arise when taking someone else's experience or story and using it or writing it in your own words. I used the feedback the participants provided during the construction of research texts in order to ensure that the experiences align with the participants' conception of truth. Participants' indicated whether they felt the narrative represented their experiences accurately.

Context of Research

Participants of this research are teachers at Townville Elementary School, an urban elementary school in the South. In Fall 2017, the timeframe for data collection, there were over 900 students enrolled in the school. They school system is growing rapidly. Sixty-four percent of students were white and twenty-one percent of students were African American, while 15% of students identified as Asian, Hispanic or other categories. The teachers at Townville Elementary School consist of 51% white females, 27% African American females, 12% African American

males and 6% white males. In total there were 36 homeroom teachers and 30 support and special area teachers.

Townville Elementary performed with higher percentages of students meeting grade level expectations than many other elementary schools in the same urban area on the state-mandated end of grade assessment. The state mandated test results for the 2016-2017 school year showed that 70% or higher of the student population was testing at or above proficiency in both English Language Arts and Mathematics tests. In 2016, the surrounding metro area showed 40% of students testing at grade level or above and the state showed an average of 35% of students testing at or above grade level (Townville school report). The student population at Townville comes from predominately upper middle class homes,with highly-educated family members. The community in which Townville Elementary School was situated is just four square miles and has a population of 21,957 according to U. S. Census data from July 2015. The median household income is $77,202 and 70% of people have a bachelors degree or higher. The racial makeup of the community is 73% white, 20% black or African American, 3% Asian, 3% Latino/a and 2.5% two or more races (United States Census Bureau, 2015).

The context of Townville Elementary School is not like the context of many struggling schools across the United States that are also subject to standardized tests. Research shows that teachers who work in schools that perform well overall on high-stakes tests have more autonomy and feel less pressure than those schools where testing is a primary focus (Lipman, 2009). Despite what research says, I had my own experience of feeling pressure related to high-stakes testing at Townville Elementary and felt strongly that other teachers did also. Townville Elementary School was selected as a research site for convenience. I had daily access to the school and teachers in the study. In a narrative inquiry, access is of pivotal importance, since the researcher

and participants should be living alongside and co-constructing the story throughout. More access means that I had more opportunity to live alongside participants and share their stories.

Sampling

This research shares the stories of 3 teachers at Townville Elementary that had experienced conflict between their personal beliefs about good instruction and participation in high-stakes testing. I used criterion-based sampling because I needed to identify teachers who have actually experienced this conflict. Teachers must have experienced the phenomenon that will be studied (Roulston, 2011). There are teachers that do not struggle with mandates due to high-stakes tests and their beliefs about mathematics teaching practice.

To introduce the study, I placed flyers that were an invitation to attend a brief informational session in teacher mailboxes in the front office. The flyer placed in teacher boxes had the following questions:

1) Do you have concerns related to high stakes testing?
2) Have your concerns related to high stakes testing conflicted with your beliefs about teaching math content?
3) Have your concerns related to high stakes testing conflicted with your beliefs about instructional format in your mathematics classroom?
4) Would you be willing to share your stories of conflicts with concerns about high stakes testing and beliefs about how/what students best learn mathematics?
5) Would you be willing to share mathematics lesson plans, and de-identified student work samples with the researcher?

The flyer stated that if a teacher has responded “yes” to three or more questions, then they were invited to attend an information session to find out more about the study. The information

session was held on the school's campus after school hours. If a teacher had not experienced the described tension, nor are they willing to discuss and share their experience with me, then they could not be included in this study. In order to develop a relationship that includes trust and sharing on both the parts of the researcher and participants (Clandinin & Connelly, 2000), teachers needed to be willing to discuss and share their experiences.

Three teachers attended the information session. All three teachers placed the consent form in my mailbox the following day. I was surprised that the teachers that chose to participate were all support teachers. Two of the teachers were gifted teachers. They work with groups of students that qualify to receive gifted services at our school. The third teacher is an Early Intervention Program (EIP) teacher. He works with students that struggle to meet grade level expectations on state and local testing, but do not qualify to receive special education services. There are a number of reasons that 4th and 5th grade classroom teachers did not choose to attend the information session and I discuss this more in Chapter 5 in the section on implications for further research.

Field Texts Collection

In narrative inquiry, data are referred to as field texts. I interacted with participants in a space Clandinin (2013) refers to as the field. As I lived alongside participants in the field I created and collected field texts that were used for the telling of stories.

The Researcher's Diary

As I lived through the experiences of listening and observing participants, I wanted to document the process, my thoughts and shifting ideas that emerged through the process. One way to document my experience was through the use of a researcher's diary (Dewalt & Dewalt, 2002). My researcher diary was kept digitally on a password-protected computer with a firewall.

I wrote several times each week, and sometimes daily, in the diary in order to accurately chronicle and reflect upon the research experience. Some days I recorded only a few sentences to describe interactions with participants or thoughts that came to mind. On days that I had interviews with participants or classroom visits, the entries were longer to reflected upon these conversations. This process of utilizing a researcher's diary was an opportunity to engage in framing my own narrative beginnings. Narrative inquiry is an ongoing reflexive and reflective methodology (Clandinin, 2013) and documentation of this allowed me to inquire into my own experiences before, during and after each inquiry.

Conversation and Interviews as Conversation

An essential source of data for my research was *conversations* and *interviews as conversations*. I worked alongside participants each day at school. *Conversations* we had at in the hallway or in meetings also become part of the field texts that I collected. These informal and spontaneous conversations were documented and described in the researcher's diary. *Interviews as conversations*, such as those that came from the semi-structured interview, allowed me to ensure that data was collected that led to answering the research question. Structured interviews lessen the co-constructive nature of narrative inquiry (Clandinin & Connelly, 2000). The interviews as conversations were semi-structured, scheduled and recorded. The question prompts I used were drafted from the experiences of the individuals. There were question stems I used for all participants to ensure I was getting information relevant to the research question. As I interacted with participants, each participant's questions were crafted to clarify experiences or to probe more into an idea that was previously shared. There were two scheduled interviews: one at the beginning of data collection and one at the end of the data collection time period. The recordings from interviews were kept on a password-protected recording device until transcription. Due to the

time it takes to transcribe, a number of colleagues and friends suggested I have the recording transcribed by an outside source. However, I transcribed all of the recorded data myself in an effort to interact with the data in a more intimate way. I felt that the act of sitting, listening, and typing each of the words of my participants allowed me to become more engrossed in their experiences. I felt transcribing the interviews myself helped me begin to understand their experiences and hear things that did not stand out to me in the initial interviews. Entering the interview with a constructionist conception assumes that the interviewee and the researcher will co-construct the data and all parts of conversation will be perceived as data (Roulston, 2011). I have included a list of sample questions for the semi-structured interviews in the Appendix A. These questions were used solely to guide the conversation. The purpose of providing sample questions ensured that I gained information that addressed the research question being asked. Depending upon participants' responses, some questions listed were omitted or modified.

Field Notes and Classroom Observations

I visited each participant's math classroom twice. The initial class observation took place the week after the initial semi-structured interview. The final classroom visit took place the week before the second semi-structured interview. The purpose of the classroom visits was to observe mathematics instruction and take notes on questioning, interactions with students and use of materials. The field notes included sketches of desk and table arrangements, quotes from teachers and students as well as descriptions of tasks students were asked to complete.

Lesson Plans and Student Work

Other field texts that I elicited from participants include lesson plans and deidentified student work. I asked participants to provide examples of lesson plans and student work as part of the interviews as conversation. Prior (2003) suggested that anything can be seen as a docu-

ment, and that content is not the most important aspect of a document, but rather analyzing the document's production and function gives a deeper understanding for the researcher. In other words, how and why the document was created is more important than what the document actually says or is. I believe that using documents such as lesson plans and student work gave a deeper insight to instructional decisions teachers make for students. Two of my participants, Thea and Walter chose to share lessons and tasks they created. There are several examples of their created texts in their narratives in Chapter 4. Documents provide a layer of the story that could not be achieved through conversations alone. In the interviews, participants shared decisions they made about instruction, lesson plans and student work because of beliefs and/or influences of high-stakes testing.

Visual Data

The last field text is visual data, a way researchers can elicit the senses in capturing experiences of participants. Mizen (2005) expressed the idea that photography has the capability of moving beyond just an illustrative function to offer a deeper understanding of experiences. Visual data is a way in which power can be turned over to the participants (Twine, 2006). I realized the power of visual data in understanding experience through a project I carried out in a methodology course. I asked a participant to bring a photo to the interview that represented their experience or feelings with a particular phenomenon. The symbolic representation the participant chose showed the intensity of their feelings more clearly than the responses to questions in interviews. Due to the success I had previously with using visual data to better understand an experience, I asked participants to take photo(s) that show, describe and/or tell what their experience was with conflicts between beliefs about quality math instruction in a high-stakes testing environment. The prompt I used with participants to elicit the visual data was:

> For our scheduled interview on _____, please provide one or more photographs that represent the experience of impacts of high-stakes testing and the cognitive dissonance this creates for you and your beliefs about quality instructional practice. The photo(s) should not contain students. They can be literal or figurative in nature. Be creative and please share with me how the photos represent your experience.

Two of the participants, Thea and Walter, chose to provide visual data and their photos are embedded in their narratives in Chapter 4. This type of data gave participants complete control of the outcome of the empirical data. These photos became a focus of our final conversations and interviews as they told their stories and reflected upon the interim research texts.

Data Analysis

I began data analysis with an inquiry into what Clandinin (2013) refers to as my own narrative beginnings. Researcher narrative beginnings are the researcher's telling of their stories (Clandinin, 2013). I told my own story as related to the research in question. This process began prior to beginning conversations with participants. My research question comes from a collection of experiences that have impacted my beliefs about good instruction and experiences of teaching in a post-NCLB educational era. These experiences have shaped who I am as a researcher and it is important to situation myself in the research that I conducted.

I began collecting field texts after I constructed my own narrative beginnings. The field texts include the researcher's diary, conversations as interviews, documents and visual data described in the previous section. Clandinin (2013) explained that after collecting field texts, a researcher must go through the process transferring field texts into interim texts.

Interim texts are the texts that I shared with participants in order to ensure their stories were being accurately co-constructed. I provided each participant a copy of their transcribed in-

terviews and asked them to communicate any concerns they may have had. They could have chosen to write on the copy I gave them or I offered to write on my own copy as they pointed out issues. I also provided drafts of their experiences obtained and recorded in the researcher's diary and asked for feedback in the same way. Participants had three to five days to read the texts and give their approval or objections to what I had created before I moved on to the next part of the research process. There is a tension that exists in this space of the inquiry process because of the shift of power that exists (Clandinin, 2013). It is the participants' story, but I, as the researcher, was claiming it and telling it. Dialogues during this process can lead a researcher to produce more field texts to ensure that participants see the research texts as "authentic and compelling" (Clandinin, 2013, p. 47). That is to say, if a participant had the interim text and offered further insight or a shift in their story, I would have needed to create a different version of the interim text to include in the final research text. For example, Thea realized that I did not include her mathematics endorsement in the original interim text. I made changes for her approval. Walter gave feedback concerning spelling and grammatical errors that I addressed. Bridgette did not have any changes she wanted to see made, but she did comment on the fact that reading the transcription of her words was challenging. She realized that she uses filler words that she was not aware of previously.

After the interim research texts were composed, I then moved to create research texts. I used the approved interim texts to write the stories of the experiences of participants. This is not where final answers are found, but is the place in the research process where both participants and the researcher feel that the experience has been represented in a true form. The chart below displays a timeline for the process of moving from data to research texts.

Date:	Event/Data Collection	Description:
8/27/17	Invite teachers to attend information session	Researcher invited teachers through notice in teacher mailbox about information session regarding participation in research
9/5/17	Information session	Researcher led information session.
9/6/17	Participants selected and informed	Researcher selected participants based upon specified criteria.
8/1-9/5/17	Researcher will write narrative beginnings	It is necessary to situate your own narrative beginnings prior to data collection. Researcher spent the time leading up to data collection writing my own narrative story.
9/11/17	Begin researcher's diary	Researcher made notes and wrote in researchers diary on an almost daily basis. The researcher created interim texts of data included in the diary. The researcher shared interim texts from researcher's diary.
Week of: 10/2/17	Interview 1: Document Data, Visual Data, Interview	Researcher conducted first interview with participants. Participants shared lesson plans, student work and photos as part of the interview. At this point, researcher will also shared first interim texts from researcher's diary.
10/15/17	Share interim text from Interview 1 and Researcher's Diary with participants	Researcher provided participants with transcriptions from first interview for approval. Participants could have made notes or verbally told researcher their notes or comments about the construction of text.
10/23/17	Participants will provide feedback to researcher	By this point the participants needed to provide feedback or comments on the interim texts.
10/23/17-11/20/17	Researcher constructs Research Texts for Interview 1 data	This is when the researcher had approval to construct narratives of the first interview and Researcher's Diary thus far.
11/29-12/8/17	Interview 2: Document Data, Visual Data, Interview	Researcher conducted final semi-structured interview with participants. Participants shared lesson plans, student work and photos as part of the interview. At this point, researcher also shared further interim texts
12/15/17	Share interim text from Interview 2 and Researcher's Diary with participants	Researcher will provide participants with transcriptions from first interview for approval. Participants can make notes or verbally tell researcher their notes or comments about the construction of text
12/18/17	Participants will provide feedback to researcher	This is when the researcher will have approval to construct narratives of the final interview and Researcher's Diary far.
1/3/17	Researcher will construct Research text for Interview 2 and Researcher's Diary	This is when the researcher will have approval to construct narratives of the final interview and Researcher's Diary thus far.

1/3/17	Researcher will present participants with research texts from Interview 2 and Researcher's Diary through 12/15/17	This is the last approval participants will provide until the dissertation is drafted. Researcher will have to do final checks with participants to ensure approval and co-construction of experiences.

Figure 1: Timeline of data collection process

Analysis of research texts

The first phase of analysis began with the composition of research texts. Narrative accounts will portray the experience of both researcher and participants, as it will be in the time and space of the study (Clandinin, 2013). There is a question of power and ownership that I needed to be aware of as I moved through this stage of the inquiry process. Pinnegar and Daynes (2007) asked the following questions: "Who owns the story? Who can tell the story? Who can change it? Whose version is convincing?" (p.34). I had to be mindful of the tension that constructing participants' narrative accounts could raise. The relational aspect of narrative inquiry will be of the utmost importance in this phase of study.

As I was constructing the interim texts, I used visual analysis (Riessman, 2008) of the visual data provided by participants. The participants were asked to share artifacts in the form of photographs or objects that represent their experiences with the phenomenon being studied. The images or artifacts were interpreted and related to their experience during the second semi-structured interview. Riessman contends there are three methods of visual analysis: "the story of the production of the image, the image itself, and how it is read by different audiences" (p. 144). I used all three methods in that I asked the participant to explain how they chose to produce the photograph(s) or artifact(s), what the image is and how they interpret the connection to their experiences. Thea and Walter each described why the shared the image they did and how it related to their experiences with conflicts between beliefs about sound mathematical instruction in a

high-stakes testing environment. Bridgette did not share an image with me in response to the elicitation for visual data.

The second phase of analysis was to read the narrative accounts and identify narrative threads. Narrative threads are "particular plotlines that threaded or woven over time and place through an individual's narrative account" (Clandinin, 2013, p. 132). This is where I looked for plotlines that led to an understanding of each participant's experience with the phenomenon of conflicts in beliefs about effective mathematics instructional practice in a high stakes testing environment. In narrative inquiry, there may or may not be common threads across participants to highlight. In this study there were a few common threads that I discuss in Chapter 5. Portraying the individual experience was the goal of this study, however if there were common threads across participants, I also shared those ideas.

Timeline of Study

This data collection process took place August to December of 2017. Participant selection and writing of my own narrative beginnings began in August. I held preliminary interviews with participants during beginning of October 2017. The process of transcribing and creating the interim texts began immediately after the initial interviews and classroom observations. I had the first draft of interim texts back to participants by the end of October for review. Participants had a week to review the interim text and provide approval, objections, or other feedback. The second interviews occurred at the end of November and beginning of December. I had the second draft of interim texts to participants by the beginning of January. Participants again had a week to read and review the second draft of interim texts. Once I had final approval of interim texts, I wrote the research texts. Participants also gave approval of research text once constructed.

Conclusion

I entered my doctoral program with the preconceived notion that I would most definitely choose a research project that would employ quantitative methodology. I am a "math person" after all. I learned early on in my doctoral journey that it was the question and theoretical framework that lead to the methodology. As my journey continued, I realized that I was going to need to use a qualitative methodology in order to gather the data I would need to address my wonderings. As I shaped my question, I realized that I was seeking to explain experiences and that I believe there is power and importance in those individual stories. Narrative inquiry is a methodology grounded in experience, which is what I am seeking to portray.

CHAPTER 4

Results

The purpose of narrative inquiry is to co-construct narratives with participants who, in this study, portray their experiences with cognitive dissonance created by conflicts in beliefs about sound mathematics instruction in a high stakes testing environment. Chapter 4 contains the results of this research; the narratives co-constructed over the course of several months. I begin with a narrative about my own experiences with conflicts related to high stakes testing in an effort to ground my own preconceived notions about the experience under study. The three narratives that follow represent the experiences of my participants: Walter Brown, Thea Johns and Bridgette Johnson. The order in which the narratives are presented represent a timeline of experience. Walter's story comes first, as he recalls pressures related to testing prior to No Child Left Behind (NCLB). Thea and Walter began teaching about the same time, but her experiences with pressures related to testing begin later. Bridgette's story comes last because she began teaching after NCLB was signed into law. Each section provides the story of a participant's journey into teaching, beliefs about mathematics instruction, experiences with pressures related to testing and strategies for coping with conflicts in beliefs about quality math instruction and influences of high stakes testing.

Researcher Narrative Beginnings

My own experiences as a teacher have influenced the data I have collected. My own story with pressures related to high-stakes testing have determined the research question, the questions I chose to ask my participants, the narratives that we co-constructed, and how I analyze those stories for narrative threads. It is important to frame this work with my own narrative. I chose to begin my results chapter with my story of cognitive dissonance as related to mandates of high-

stakes testing. Beginning with my story will ensure that I honor the stories of my participants by describing the lens through which I view their experiences. Due to the reflexive nature of narrative inquiry as a methodology, it is essential that I inquire into my own "story of experience" (Clandinin, 2013, p.55) and use it to ground the narratives that I share.

The beginning of my own teaching journey

It was a hot August afternoon in 1998 when I first entered that rural, mixed socio-economic middle school that smelled like every school I had ever attended, somewhat stale and familiar. It was my first professional job and I was a teacher. I was twenty-one years old and so excited to have my first teaching assignment. My mentor teacher was an experienced middle school reading teacher that encouraged me to rely solely on book groups rather than using the sixth grade reading textbook. There was a laundry list of state standards that I vaguely remember glancing at as I planned each book unit. My lesson plans were hand-written in composition books that I color-coded for each class. My lessons focused on reading strategies, vocabulary development, and analysis. I worried about classroom management, student engagement, and whether students were improving their comprehension and fluency. I did running records for my struggling readers that I shared with parents during conferences. My in-class assessments were developed by me, the teacher, and were based upon the reading skills I was teaching and the texts we were reading. I met with parents and discussed reading progress. I do not recall giving a standardized assessment that year. I think the seventh graders took a normed-referenced test, but since I taught sixth grade that year, I did not worry about this. What drove my instruction was my own professional knowledge about what students should learn, my students' interests, and needs determined by my own formative assessments. I was young and inexperienced, but like my students, I was constructing knowledge about how to teach based upon my experiences with stu-

dents every day in the classroom. Standardized tests existed, but did not enter into my decision-making processes for instruction.

New legislation, new paradigm

Now, fast forward to the 2001-2002 school year, my third of teaching. September 11 shook the nation. There was, in the background of all of the events of the year, talk of a new law. No Child Left Behind (NCLB) would require that every child perform at grade level by the year 2012. The conversation in the teachers' lounge at my Title One urban elementary school included lots of jokes and knowing comments about the impossibility of this expectation. Our students consistently struggled with standardized assessments with less than 30% of them meeting expected performance standards. As with many schools filled with children living in low-income areas, our students faced many daily challenges. Reading and solving math problems at grade level was often one of them. As a young teacher not yet understanding the influence this legislation would have on my profession, I listened and commented, and continued teaching my students as I always had. At this point I was teaching 5th grade, still making and writing many of my own assessments. The following year as we came back to school, our teacher workdays were filled with conversations about the test, the standards, and identifying and tracking "red", "yellow" and "green" students. These colors referred to students that were on grade level (green), struggling to be on grade level (yellow), and below grade level (red).

I taught six more years in Title One urban elementary schools after the implementation of No Child Left Behind. Throughout those years, I watched the focus shift completely from learning to the end of year testing. Schools, teachers and students that were not meeting adequate yearly progress faced threats of serious repercussions. There was an endless flow of money for test prep books; many principals required that test prep become daily practice in classroom. The

state department of education could take-over an underperforming school; teachers were placed on professional development plans and monitored on a regular basis. Students that did not perform adequately could be retained and placed in classes that focused on test prep and test focused instruction. My school was one of many in the urban districts that participated in a standardized educational program, America's Choice, that developers claimed would result in raising academic achievement for our struggling learners. There was federal funding associated with helping schools meet the requirements of NCLB, and this program was one of the many that received federal funding with promises of helping schools meet what I felt were impossible expectations. I lived through the shift from learning to testing throughout this urban district. NCLB had severe implications, especially for schools in low-income communities that tend to struggle academically. After six years of teaching in a heavily monitored and controlled educational environment where the primary goal was to get students to perform on grade level in tests, I decided it was time for a move. I accepted a teaching position in a district that was known for performing well on state tests.

A change of context

I was excited for a new and different challenge, and I thought now I can focus on learning and get back to what teaching was like my first few years. My thought was since this school already scored well, then maybe the focus on testing would not be so overwhelming. The instructional coach at the school addressed my concern in our very first back to school staff meeting. She said that test prep was not an expected practice at Townville Elementary. She continued on to say that the philosophy here was that we teach children, and through our teaching, students will be prepared for any situation in which they have to show what they know. I was thrilled to hear this, and in my first year I felt that she was right about this statement. I felt at Townville I

could focus on teaching students. I had autonomy to plan what I felt would be best for students based upon my own understanding of the students' abilities and interests. In this district, because they perform so well on the state-required test, there was little focus on test preparation. I began to realize, however, that the test that was high-stakes was the district progress-monitoring test, a norm-referenced test we administered to students three times each year. The school system has a large number of very high-performing students and the purpose of this test was to ensure that all students were growing, and include this strong demographic. Historically, the district noticed that they were not monitoring and continuing to grow their high-performing students. The Measures of Academic Performance (MAP) assessment, which is produced by Northwest Evaluation Association (NWEA), was the progress-monitoring test that they chose to use to track growth. This test is the test that parents pay close attention to; it is given multiple times a year and is also used for teacher evaluation. The MAP was used to make decisions at the local level about placement in special programs like the Early Intervention Program (EIP), Special Education, gifted, and tracked math courses. Despite the freedom teachers have in this district to make instructional decisions for their students, everyone is still monitored and measured three times a year with a high-stakes test.

Pressure to conform

The experience that inspired my study occurred during my fifteenth year of teaching. Three years ago I had a class that really challenged me as a teacher. I had begun my doctoral program just the summer before. I team-taught with another fifth grade teacher that year. My co-teacher taught reading, writing and social studies. I taught math and science. This class proved to be challenging because, while there were a few motivated students, it consisted predominately of high-performing students that did not engage fully in the problem-solving based instructional

strategies I regularly implemented in my mathematics classroom. It was a struggle to try to instill the Standards of Mathematical Practice (CCSSM, 2010), which are aligned to process standards suggested by NCTM (2000), in my classroom each and everyday. This particular group of students challenged me as a teacher to find new strategies to engage and encourage productive mathematical struggle. The class, as a whole, really wanted, and even asked for, procedures to help solve mathematics problems. The idea that a teacher might elicit strategies from them or require that they struggle through tasks was very frustrating for them. When they took their mid-year MAP assessment, I was disappointed with the results of the mid-year test. The overall growth of my students was not what I felt it should have been, nor what I had experienced in my previous years' mid-year scores. Several students even dropped in their performance on the math section. I met with my instructional coach to discuss the results of the test. She encouraged me to look at a breakdown from the MAP reports and form groups in order to teach skill-specific lessons that address what the test covers. I really struggled with this recommendation. I discussed my dilemma with my co-teachers at school. I lamented with my family and friends. I talked about it with my running partners. I shared it with other students in my doctoral program. Over the course of about two months, I told and retold this story to anyone that might listen. I did want my students to perform well on this test. I did want to follow recommendations of my administration. I did feel like this group of students was struggling with my constructivist-based teaching practices. The students really wanted me to show and tell them strategies to follow. The problem I faced was that I did not believe the best way for students to learn mathematics was by direct instruction of isolated skills. My beliefs about quality math instruction conflicted with the directive my instructional coach gave me to implement skills focused instruction to isolated groups as determined by this one test. After much discussion and consideration of what I should

do, I decided that ultimately what would be best for students would be to continue with my constructivist-based mathematics teaching practices. I embedded skills from the identified weaker areas of the test within real-word, context-based problem solving. As the spring administration of the MAP drew near, I worried over what the results would be. I wondered if I had made the right choice to not focus on test-based skills in my math class. Much to my relief, the overall results from the end of year MAP were much more positive than they had been for the winter administration. My students showed positive growth overall that was congruent to my previous years' success with mathematics achievement.

For me, acting against my instructional coach's recommendation resulted in no professional consequence. We had a few follow-up conversations in which I provided evidence and justification about why I was continuing with my instructional format despite low performance on the mid-year assessment. She conceded that what I was doing to met the needs of my students and I faced no penalty for choosing to act contrary to her recommendation. This is not the case in many U.S. schools. Administrators hold teachers accountable for test prep requirements, even if it may not be what those teachers believe is what is best for students. The district leaders often hold administrators accountable for using particular programs. I recognize that the context of my school gives me more freedom to make choices about curriculum and teaching expectations. Despite those freedoms that exist in the context of my school, I realize there are still conflicts in beliefs about sound instructional practice and influences of high-stakes testing. This was the motivation for this study.

Walter Brown

I met with Walter in his office after school for our preliminary interview. He carried a cup of coffee and we sat at a small brown table in front of a white board with an area model

drawn in red marker. I have known Walter for six years now and he spoke with ease. We began with small talk about the school year and how things were going. He laughed easily and was happy to be candid and open with his thoughts. He has spent his entire teaching career in the same school district. He has seen the district shift, grow and change. He has experienced the context of this school system before, during, and now after No Child Left Behind (NCLB), the national legislation that tied performance on tests to important decisions for students, teachers and schools. Walter is in his 27th year of teaching. I was really interested to hear his unique story and how he has navigated pressures related to high stakes testing in his math classroom.

Becoming a teacher

Walter Brown described his path to becoming a teacher as non-traditional. He first considered teaching as a career option when he was in college in the middle 1970s. After student teaching in middle school, he quickly decided that teaching was not the profession for him. He laughs as he recalled this, and I was reminded of my own experience in middle school student teaching. Unlike Walter, my desire to become a teacher was solidified during my student teaching experience. My mentor teacher was amazingly supportive and it is because of him that I have always created my own resources and tasks to fit the needs and interests of my students. Walter's experience was overwhelming. He had not anticipated the amount of work that teaching entailed and was not prepared for the behaviors that he encountered in a middle school classroom. His mentor teacher was an experienced teacher that was tired and worn down. She did not offer Walter much hope for the field of education. He decided at the time that he would rather look into other career opportunities.

Thus, Walter spent his young adult years exploring other career options. Then, he became a father in the 1980s. Once his child was ready to enter preschool in the mid-eighties, he was in-

terested in trying the classroom once again. This time, he worked with very young children. He worked in his son's preschool, while earning a Master's Degree in Education at a local university. He and his child began Kindergarten together at Old School Elementary, Walter as a teacher and his son as a student in a different classroom.

Experiences with testing

Walter worked at Old School for the first 15 years of his career. He described his experiences in several grade levels in the same school through the 1990s. He taught Kindergarten for a number of years before the school enacted a new curriculum that he did not like nor want to be a part of. He opted to take an open third grade position for several years before moving to fourth and fifth grades. In those first years, he did not remember much talk about testing from administration. He did recall, however, pressures of working in a small school system and the normed tests that they were taking at the time. Walter said:

> "Well back when I started, ITBS was the score that was printed in the paper. The schools in Townville were so small, that if you were the 3rd grade teacher, which I was for awhile, that was you printed in the paper. They didn't actually put your name, but when it said 3rd grade and had your scores, that was you because there was only one third grade teacher in that school. That felt like pressure." (Personal communication, October 4, 2017)

Walter's school was positioned in an urban township within a major metropolitan area in the South. The township consisted of six small elementary schools. The schools were segregated by race and socio-economic status. Two schools, south of the railroad tracks, served most of the African American students and many low-income families in the district, three schools served predominantly White and middle to high-income families, and one school was more evenly divided

socio-economically and racially. During the 1990s, Walter worked at one of the schools that served predominantly African American students and low-income families. While he remembers the personal pressure related to having your school and grade level posted in the local paper, there was no talk of consequences at the school level for lower test scores due in large part to low expectations for the student population. Walter remembers that the administration was distraught by the low performance and everyone was always working to meet kids' needs, but there was nothing related to holding students back or other consequences because of test scores.

The assessment that the state used as mandated by NCLB was administered for the first time in all grades 1-8 the spring of 2002. Two years later, Walter moved schools as the local district reconfigured. He moved out of the schools that served predominately African American students and low-income families to a school that served seventy percent white and middle to high-income families. Walter stated:

> "But, you were given the opportunity to transfer over to the new school when that was picked as the site, which I did. And so, I was a little anxious about that because at that time, I had only taught maybe 5 white kids in 10 years, at Old School. I knew Townville Elementary would be a different animal. Little did I know just how different that animal would be because in the next 10 years, Townville completely transformed." (Personal communication, October 4, 2017)

The state assessment reports for Townville Elementary, at the time, were quite impressive. Compared to other schools in the state and surrounding metropolitan area, the students' scores were very good overall. Walter recalls the principal of Townville Elementary being concerned with the achievement gap. This was the first time he had heard about "this thing called the achievement gap" (personal communication, October, 4, 2017). There would be talk of closing

the achievement gap at faculty meetings, however there was no plan for how to do that, just that it should be done.

The district began using the MAP assessment about the same time as the district's reconfiguration in 2004. Walter believes that the implementation of MAP in the district has had a much greater influence on pressures related to testing than the state assessment associated with NCLB. Walter's students take the MAP three times a year and the test is used to track students' growth in Math, Reading and English Language Arts. When I asked why he thought MAP results in greater pressure or stress, Walter said that in his district, those scores were the ones that were associated with his own evaluation. MAP scores raised anxiety for students and teachers three times a year and were used to determine placement in special programs for students (e.g., gifted) as well evaluate teacher performance. As students would take the tests, Walter remembered anxiously waiting for the students' scores to pop up on their computer screens so he could jot them down on his notebook. He felt it was all a numbers game. Walter firmly believed that the implementation of MAP testing shifted the experience of testing for the local district. This mirrored my own introduction to MAP testing my first year in the district. I did not understand how or why the test was used. I did not understand why the teachers in the district discussed and stressed over these normed tests. While the parents anxiously awaited the scores to carefully track their child's progress, students would want to know immediately if they met their goal. Walter and I had a similar experience. MAP testing was definitely the test that has caused more pressure in the context of this school district.

While Walter was happy to see NCLB go away, he also felt that it was a "promise that nobody could keep" (personal communication, October, 4, 2017). There was no way every student was ever going to reach the test's, or law's, definition of proficient, or that schools not

meeting expectations would all be taken over. Walter felt the logistics of this legislation were "preposterous" (personal communication, October, 4, 2017) and not economically sound. As he said this, I remember my own thoughts from my time at the Title 1, school nearby and how all of the teachers thought the expectations of NCLB were ridiculous. We would talk in the teacher break room about how the lawmakers had never experienced our school and did not know our children. Walter recalls an experience at Old School in the very early years of the state assessment associated with NCLB in which a teacher had 100 percent of students meet proficiency on the state test. Walter said:

> "I remember how weird that felt to me. And, I remember how the principal responded at first which was I thought, wrong. They acted like these were true scores and this was a wonderful thing. We had just achieved this great thing. And I was thinking no, no, no. I don't think so, I don't think so. So yes, we had our own kind of secret scandal if you will at that school that year. " (Personal communication, October, 4, 2017)

Walter felt that these were not true scores because he felt the idea of one hundred percent of students achieving the grade level standards was an impossible feat. When questioned further about this, Walter believed that every student can learn, but that they do not learn at the same rate or in the same way. Walter understands that the pressures created by NCLB were real and that some educators felt the need to take measures that may not be entirely honest in order to ensure one hundred percent passing rates out of fear of consequence. While Walter said he could not be sure what the teacher had done to achieve this one hundred percent passing rate, he indicated that it was not accurate representation of the students' achievement. In the surrounding metro area, there has been a very public cheating scandal related to high-stakes testing and Walter felt that

this was a similar cheating scandal in his own school. He was not willing to take those extreme measures of cheating and felt that due to the impossibility of requirements of the law, there was no reason to. In his view, there was no way the lawmakers could follow through with the promises of the legislation. It was just too big.

Journey as a math teacher

Walter taught all academic subjects to elementary students, with the exception of his last year at Old School when he was the Social Studies teacher all day for 4th and 5th graders. He said that he did not realize how bad he was at mathematics instruction for many years. He would pull out the math workbooks everyday, have students solve some problems, go over some of the problems and show procedures to get answers, and then put the workbooks away. He felt math was pretty straightforward and easy to teach. As such, Walter was a self-described traditional math teacher that used procedural instructional strategies.

Walter then shared a transforming experience he had in the 2010-2011 school year. Walter admits feeling that math was his "weak link" (personal communication, October 4, 2017) in his instruction. He committed himself to work towards improving his math instruction. Concurrently, Townville Elementary gained a new math instructional coach while he was working on his math endorsement with a cohort of teachers from the district. The instructional coach would plan, observe and debrief math lessons with Walter on a regular basis. He also was reading and learning math in a way that was intriguing and exciting. Walter used problem-solving tasks that he would differentiate to meet the needs of the students in his fourth grade classroom. He worked harder this year in planning for math than he ever had before. Walter remembers he would have students in small groups at stations, working on purposely planned problems with access to fraction tiles, Cuisenaire rods, base ten blocks and other math manipulatives. While this type of

teaching was challenging, he remembers feeling success with students. Walter struggled with learning to teach math this way. He understood the need for students to have concrete opportunities, but struggled with the fact that they were not allowed to use them on assessments. He decided to allow his students to use the manipulatives on classroom-based assessments if they needed them. Water said:

> "I always made the manipulatives available to kids and that's how they learned. Some kids ignored them and some kids used them and typically those that used them, needed them. And typically their results were better because of using them. And they would only use them if they were comfortable using them. But they had used them enough in the lessons leading up the assessment, that they were competent to use them. " (Personal communication, October 4, 2017)

Walter's students' math MAP scores that year showed tremendous growth that year. This experience shifted the way Walter thought about math instruction. He also felt that it opened doors for him professionally.

A move from the classroom

In the 2011-2012 school year, Townville Elementary School moved to a new building with a new principal. Walter's success with his fourth graders and math gave him the confidence to apply for a math support teacher position. The state funds an Early Intervention Program (EIP) and at the time the school qualified for Title 1 funds as well. Title 1 is a federal program that is part of the Elementary and Secondary School Act (ESSA) that provides money to schools that serve a large population of students from low socio-economic homes. The school had an opening for an EIP/Title 1 teacher to support with math instruction. Walter applied and got the position. He has worked the last six years as a support teacher. Walter also earned his gifted certification.

When the school qualified for another part time gifted teacher, the principal asked Walter to serve as both gifted and EIP teacher. He admitted that the move out of the classroom has shifted the experience of pressures related to high-stakes testing; he sometimes believes it is more intense in the role of support teacher. When I asked Walter to tell me more about this he said:

> "It's because I have fewer kids. Fewer in the sense that. It's, okay I think maybe it's because I feel less in control. You know, I only see them for 2 hours a week, 3 hours a week, whatever. And it always feels like a crapshoot. You know, you're throwing the dice. And you play the MAP game." (Personal communication, November 29, 2017)

Walter enjoyed his work as both a gifted and EIP teacher. He shared an experience he had as a gifted teacher that was very successful. The principal designed an advanced math class for 5th graders that Walter taught. He used the Engage New York (Engage NY) curriculum with this class. Engage NY is a written curriculum available for free online. Walter's school began using the curriculum as a math instructional resource in 2013. He felt that the level of thinking about mathematics he was able to achieve with his students the year he taught only gifted math students was phenomenal. He would present the tasks to students and then have the students share their math thinking and processes for solving. It really challenged his gifted students to have to explain their thinking and the mathematical soundness of their solutions.

I asked Walter if the fact that students for both programs are determined by high stakes test scores enters into his consideration for mathematics instructional planning at all. He said that definitely for EIP students, but not as much for gifted students. I was curious about this. Walter discussed the qualification process for EIP and how students become eligible for services, and also how they qualify to leave the program. Students are aware of what their goal is on MAP

testing to leave the EIP program and he uses this to motivate them in class at times. He said for gifted, he saw the students so infrequently, he was not sure that his class had any influence at all on test scores. It was less of a concern. This seems reasonable in that one program is set up to support struggling students and the goal is for them not to struggle. If they are no longer considered to be a student struggling in mathematics they exit the program. The overall goal of EIP is to have students exit the program. This is not the case for the gifted program. As students enter the gifted program in Townville's school district, it is the goal that students remain and thrive in the gifted program.

Instructional decision-making

In fall of 2017, Walter worked as an EIP teacher and taught math to 4th and 5th grade students that were performing below grade level expectations. He used the locally established EIP goals as the focus of his lessons. The EIP goals are written based upon two criteria: 1) previous school year state math standards and 2) the current math content of the grade level according to the local school's pacing guide. For example the 5th grade EIP goal he was addressing in one of the classes I observed was: Students will be able to multiply and divide multi-digit whole numbers and will also able to check for reasonableness of response 80% of the time by November 3, 2017. Students would be expected to multiply with values using place value understanding and models and divide with one-digit divisors in the fourth grade. Students in the fifth grade are expected to multiply making the connection between representational methods and the abstract standard algorithm. EIP 5th grade students spend more time on concrete and representational methods expected of 4th graders in order to support them and give them more time to reach that abstract understanding of the 5th grade standards.

Walter writes all of his own math tasks using the established goals, as well as the context of his students. In a classroom observation I noticed that student names and interests were a part of every task the students tackled. In the documents he shared with me I saw topics such as professional football and local school events reflected in the tasks. Walter is thoughtful about the movement of mathematical understanding from concrete, to representational and finally abstract. Much of the work he has created is at the concrete and representational stage because that is where his students' understanding lies. He uses teacher observation, student verbal and written response to tasks as formative data to make decisions about what to do next. In one lesson I observed he said that he decided they would spend time making connections between the area model and partial products for multiplying multi-digit numbers because he noticed in the work students turned in last class that they were able to do the area model consistently, but were not yet making connections to partial products. Summative assessments are common progress monitoring probes that are written at the local school level. They are problem-solving tasks that incorporate the mathematical computation skills of the EIP goals. Walter uses these probes to make decisions about who is progressing or has reached the goal.

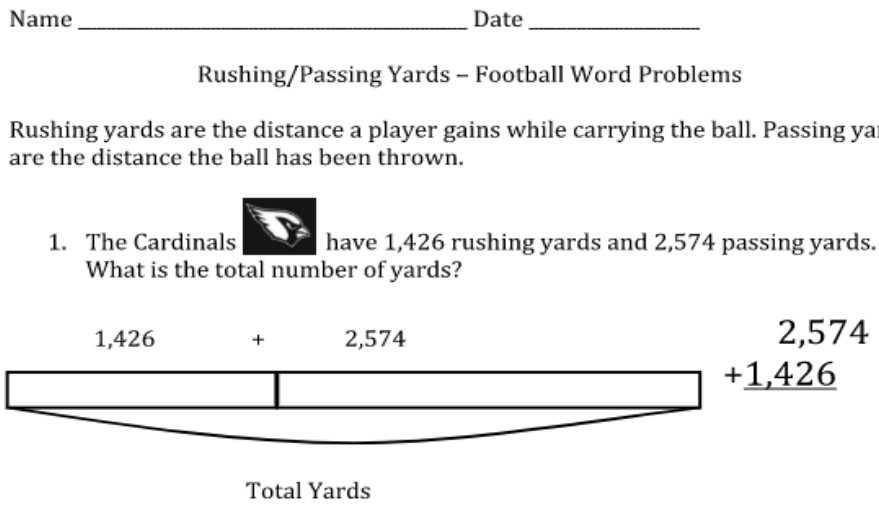


Figure 2: Sample problem from a task that Walter created to help students conceptualize adding multi-digit numbers.

Walter views planning and writing his own math task as a creative process. He likes the challenge of "coming up with different representational models that kids can relate to." (Personal communication, November 29, 2017) His version of success is student success. Walter admittedly likes to look at those MAP scores and feels good seeing them rise, but what he really enjoys is coming up with math tasks that allow students to experience understanding of math concepts.

Chasing time

When I asked Walter to share a visual representation of the experience of conflicts related to sound mathematics instruction as related to high stakes testing, he shared the following image:

Figure 3: Image of Walter's desk with coffee cup clocks.

Walter enjoys collecting clocks in the shape of coffee cups. He has four of them in his office. He particularly likes the ones with the fake steam coming out of the top. I have noticed that he often has a cup of coffee with him. He told me that a few years ago someone gave him one as a gift. He liked it so much that he bought a few more online when he came across them. I wondered about the connection between his clocks and this feeling of dissonance as related to high

stakes testing. Walter showed me his schedule for the week. He makes a list of where he is supposed to be at different times every day. He feels this image represents his experience because he is always chasing time. There's never enough time. He is always juggling where he is supposed to be and what he is supposed to be doing as an EIP teacher. Planning time with classroom teachers is non-existent in his current schedule. Walter feels his current job to provide both Tier 2 and Tier 3 support to struggling students is an impossible battle with time. The Response to Intervention (RTI) process involves identifying struggling students and placing them in tiers of service. Students receiving Tier 2 service work in small groups with focused support to help them progress towards grade level standards. Students that need more individualized interventions may also receive Tier 3 service to support identified gaps in their mathematical understanding. Walter's students fall in both categories. He works with small group Tier 2 service for most of his day and then provides individual, targeted service to several of his students.

Walter also appears to value relationships with students. It was evident in my visits to his classroom that he understands the importance of connection with his students. A 5th grade girl sat towards the back of the group with a disgruntled look on her face and periodically sighed heavily. Obviously, disengaged, Walter invited her up to the Active Board for the next task. He joked with her about some of the content of the task. After a few moments of sharing her model for the task, the scowl disappeared and she was even half-smiling in math class. Walter shares that "the essential struggle has always been with kids to keep them positive or get them positive if they are not. That is something that has never gone away" (personal communication, November 29, 2017). Making time for the parts of the job he values is one way Walter makes the most of the pressures he feels related to testing.

Strategies for coping with conflicts related to high-stakes testing

Strategies that Walter has used to cope with conflictions around the pressures of high-stakes testing and quality math instruction include: focusing on using constructivist-based math teaching strategies to ensure critical thinking and conceptual understanding, viewing lesson planning and task production as a creative process, choosing to focus on relationships with students and using the often limited time he has to prioritize instructional tasks. With a very packed schedule, Walter has to prioritize his time and chooses to make time for task production and relationship building with students. Walter is a teacher that is thoughtful about task development and helping his students, both struggling and gifted, construct meaning around the mathematics. His belief that all students will perform at a certain level is unattainable has helped him deal with the pressures that many teachers feel related to high-stakes testing. He had the experience with an instructional coach while learning more about constructivist math teaching practices that shifted what and how he taught math. That year he saw tremendous gains in his math scores on both MAP and the state assessment. This positive experience with using constructivist-based practices and positive gains on standardized assessments provided the evidence and confidence that Walter needed to shift his math-teaching paradigm. Despite the time constraints he faces, Walter sees the value of creating tasks that help his struggling learners move from concrete, representational and abstract understanding of math concepts. Walter also enjoys the creative nature of finding representations that help his students understand the concepts they are learning. He does look at MAP scores and uses them to help motivate his students, but will not revert back to workbook math instruction. Despite the time and planning constructivist-based practice can take, Walter has seen the pay-off in his students' math understanding and thus in his math standardized test scores.

Thea Johns

Thea Johns chose to meet me at school for our interviews also. Our first meeting was before school in my office and classroom space. Thea had planning time in the mornings and offered to arrive prior to the start of the school day to ensure we had enough time to talk. I have worked at the same school with Thea for six years now. She has been the gifted teacher for my students two of those six years. I have always known her to be the most thoughtful co-worker. She always remembers birthdays with cards and gifts. She leaves notes of encouragement to her co-workers and celebrates and shows appreciation to others on a regular basis.

Early career

Thea went to college to become a teacher in the late 1980s. She had two very different experiences with student teaching. One that she described as very positive and influential and the other she decided to view as an example of what not to do as a teacher. Thea recalls her second mentor teacher as a very snarky, negative person. She often made derogative comments about students' abilities. This mentor teacher was still young in her career, but had already become very jaded about the responsibilities of her job and these feeling came through to her students. Thea decided that this was not the type of teacher she ever wanted to become.

Thea began teaching 5th grade right after college at South Elementary, which was part of a large school system in a metropolitan area. She taught for 5 years before beginning her master's degree at a local university. She got a Master's degree in middle grades (grades 4-8) science because she was teaching upper elementary science at that time. At this point in her career, she considered herself to be strong in English Language Arts, History and Science with an undergraduate degree with a major in History and minor in Language Arts and a Master's degree in science. Despite the fact that her learning during her master's degree was not focused on mathe-

matics, she does recall a memorable experience during that Master's program where she solved a set of math problems and the professor gave her a zero because she only turned in the answers. She got the opportunity to re-do the task and have it scored again with her mathematical strategies provided. It was telling that this 20-year old experience sticks out to her, but as she is a self-proclaimed perfectionist, I did not find it surprising that she remembers getting a zero on a class assignment.

South elementary

In the mid-late 1990s Thea had the opportunity to teach a variety of combinations of subjects and grade levels all at South Elementary School. She had a looping experience in which she taught all subjects to the same students for three years. She remembered around this time there was talk in the professional community about ensuring students had "hands-on opportunities in math" (personal communication, October 5, 2017). Her school also partnered with a mathematics education professor with whom she was able to plan, teach and debrief conceptually based math lessons with an expert in the field. Thea felt like this way of teaching really made sense for mathematics and all subjects. She described, "getting very into problem solving at that time" (personal communication, October 5, 2017). The idea that students think critically and construct their own meaning for mathematics and all subjects was really something she became committed to early in her teaching career.

Thea told a story of two students she taught during this time period. One student was a boy who was being monitored through the school's Student Support Team (SST). SST is a committee that schools use to monitor, develop strategies and plans to address the needs of students who are performing below grade level expectations. This particular student was struggling with math and the team suggested to Thea that she only show him abstract, procedural strategies for

computation. According the SST committee, it was not important that he know how or why the strategies worked because it would just confuse him. He really just needed to be shown what to do. On the other hand, the same year she was teaching a girl that was in the gifted program. This student also struggled with math computation, but Thea was encouraged to work with her to develop conceptual understanding in order to ensure she understood how and why the abstract strategies worked. Thea felt conflicted about the suggestions for the two students. She felt strongly about her problem solving based mathematics classes and that this type of thinking really benefits all students. Thea continued to use her problem-based mathematics instructional strategies and, while she self-admittedly does not recall outcomes for either student, she states, "neither stands out as a student that did not make gains" (personal communication, December 7, 2017). She stated that she does have a few students that stand out to her over the years that she felt she was not able to reach, but these two are not among them.

Thea got her gifted certification about 10 years into her teaching career and began teaching gifted students the last few years before leaving South Elementary. This was about the time that No Child Left Behind (NCLB) was signed into law. She remembered a shift at her school to focus on testing and preparing students for the test. Teachers at South began to have test prep practice worksheets once a week for math and language arts. There was one year that the whole school did an intense review for all students right before the test was given. The administration decided that this was not the right approach and the following year, teachers used test prep materials as part of morning work all year long. Teachers were all expected to set goals around the state test. As the gifted teacher, Thea decided to make it a goal for her students to get a perfect score on the state test. Since the test was meant to be a test of basic knowledge, she felt this goal was reasonable for her gifted students. Thea stated that this was a moment she was not proud of

in her teaching history, but she recalled offering rewards to students that reached the goal. She included rewards like trips to local attractions or tickets to local events. The strategy that Thea decided she would use with the test prep materials was to have her students analyze the answer choices and determine why students may choose some of the incorrect answers. Rather than just having students simply choose the correct answer, Thea continued to implement critical thinking and analysis with the required test preparation materials. Despite the fact that South Elementary was a school that performed well on the mandated state tests, there was still pressure from administration to drill students to perform specifically for the state test required by NCLB.

A move to a smaller district

Thea taught at South Elementary School for seventeen years, and then decided to move to Townville Elementary because of the growth and expansion that was happening at South. She laughed as she considered that Townville is now experiencing the same sort of growth and expansion that provoked her move from South Elementary School. Thea took a fourth grade classroom position at Townville for the 2006-2007 school year. Thea described the two schools as similar in student body demographics. She admits that she was a little taken aback that when she would mention work that was done at South Elementary as a possibility for issues that Townville Elementary faced. The reaction was not always positive. Townville Elementary parents and staff thought of their school as the best and that there was no way strategies used elsewhere would be suitable for their unique school district. Thea said that Townville's school district does have many positive attributes, but the idea that there was something to be learned from other school district was lacking when Thea first arrived. She said:

> "Well, the perception is that it's an amazing school system. I think in many ways it is. I don't disagree with that. I have always found a bit of a rub for me because I

> think I'm one of a few or at least originally, I think I am one of a few teachers that came from a great situation into another great situation. So many people I have encountered who came from situations they were not happy in or were not supportive, they think this place is one of a kind, and it doesn't exist anywhere else. This has really changed lately I think" (Personal communication, October 5, 2017).

Thea does believe that this exclusionary mindset has changed as the district has faced growth and expansion. There are more teachers coming to the district with more variety of experiences. Thea feels that the shift to a more open-minded work environment can result in more collaborative efforts when addressing students' needs as they arise.

Thea had worked as a gifted teacher her last years at South Elementary and then became a 4th grade classroom teacher again when she moved to Townville. She said that this move back to the general classroom definitely influenced how she felt about testing. She began to consider even common unit tests that were used to determine grades for report cards as high stakes. She remembered going to her principal with concerns about her gifted students being pulled out of class twice a week to do extension projects when she knew they were going to have to take the same unit test as everyone else at the end of the term. This was about the time that Townville hired a math instructional coach. Thea viewed the math coach as one more administrator monitoring and measuring what she was doing in her classroom. Thea felt more pressure from administration during this time to stick to the pacing as laid out by the local school. Even if students were not getting the material, she felt that she had to move on. Thea began to feel great pressure from a number of sources including administration, parents and herself associated with the district's MAP test and local unit tests. She felt that time was always a concern with using her prob-

lem-solving based math instruction, especially when she had to give common assessments in a common timeframe predetermined by the school, rather than by her students' progress and readiness.

Thea tells a story from the 2010-2011 school year, when some of her gifted students did not meet their MAP goals in math. There were three students that were more language and creative in their gifted abilities, and they were struggling with mathematics. These students missed her math instruction twice a week to be pulled out for their gifted services. All three of these students missed their MAP growth target by 1 or 2 points. Thea stated:

> "I mean, they could do it, they could do math, but they were struggling and they were leaving my math class twice a week. And so yes, so they didn't make their goals. That, of course, makes me feel bad even though, in the end, there's never really much repercussion, which I guess is a good thing. And I mean I always take it literally at first. And then sometimes I have to talk myself down and back off because I want the kids to like math too" (Personal communication, December 7, 2017).

Thea admitted that despite all the pressure she felt related to these mandated tests, she never experienced negative professional consequences from the scores. She stated that though she worried over the scores consistently, no administrator ever called her into their office to reprimand her for test scores. Townville Elementary School, overall, has scores that show positive results. They are not on a failing schools list. The school is located in a small district that is rapidly growing because families are moving to the community because of positive test scores in the local school system. Other teachers, in a different context, may face repercussions that Thea has not experienced because of her school context.

When Townville Elementary moved to a new, larger building across town in 2011, Thea moved out of the regular classroom back to a gifted teaching position. She feels that the move from working as a homeroom classroom teacher to a gifted teacher has definitely shifted her experience with pressures of testing. For her students, the state assessment has been of little concern. The local district uses MAP to monitor student growth and, until last year, was used to evaluate teacher performance. In her first 5 years teaching gifted at Townville, Thea monitored MAP scores and used the suggested progression of learning as a basis to determine the topics for instruction in her gifted math classes. She said:

> "In the very beginning when I paid a lot more attention to MAP scores and stuff and was trying to make sure I was addressing Descartes curriculum stuff and checking the scores and worrying there was going to be some kind of consequence for me if kids didn't make the goal. And that was frustrating not being in the classroom because I didn't have them as much" (Personal communication, December 7, 2017).

She had the same feelings of not being in control of all of the math instruction as a gifted teacher that she described when she was a 4th grade classroom teacher. The pressure of being held accountable for students that she was not working with all of the time illustrates Thea's self-proclaimed perfectionist quality. She believes in the instructional strategies and techniques she uses, but is frustrated because she is held accountable when students are not assigned to her for all of their mathematics instruction time.

Instructional beliefs

Thea first began with a focus on rigorous problem solving in the mid 1990's while at South Elementary. While at a conference she came across a problem solving curriculum she re-

ally liked and purchased it for her fourth and fifth grade classroom. She experienced such success with it, that she convinced her other grade level colleagues to use it as well. Her principal purchased the instructional materials that she requested. This, along with her coaching experience with the mathematics professor at a local university, was the beginning of an instructional shift for her in mathematics. The critical thinking and communication skills needed for problem solving resonated with Thea's beliefs about how students learned. Thea stated:

> "I started noticing that there's only one set of word problems in a chapter in the textbook and one day of that did not seem like enough to me. So I started devoted one day a week to problem solving where the whole entire class period was in class problem solving groups with chart paper and stuff and sharing our strategies and then they also had word problems that night for homework. I noticed that even my kids that were really struggling made really good progress" (Personal communication, October 5, 2017).

She told the story of one student specifically who was struggling in math and placed in the Response to Intervention (RTI) process. Thea implemented rigorous problem solving that challenged all students to think critically about the mathematics, and this student was able to gain conceptual understanding. He showed very strong gains and progressed because he increased his own learning "just from watching what other kids did" (Personal communication, October 5, 2017) and internalizing it. This was reminiscent of the story Thea told earlier about the gifted girl and struggling boy and the different instructional strategies she was encouraged to use with each. Thea felt that students who struggle in mathematics need more time developing conceptual understanding, not less time with more abstract strategies.

Although Thea was a gifted teacher, she was a strong believer in equity in teaching. She shared her beliefs that all students should have opportunities to think critically, express themselves verbally and in written form, and that teachers have a responsibility to reach students that learn in a variety of ways. She was a teacher who used constructivist-based teaching strategies and created the majority of the tasks she posed to her students. She got inspiration and ideas from problems and tasks she found online and in books, and then modified them to fit the context of her school and the individual needs of the students in her class. When I observed one of her lessons, she had a group of 2 students working together on an open inquiry, which is a problem or mathematical situation presented to students where they are expected to write statements, questions, or look for patterns related to the given problem or mathematical situation. These two students were provided with an extension inquiry into ratios. The other students in this class were also working on an open inquiry; however, the focus of their task was relationships between sums. All students were expected to participate in thinking and coming up with their own noticings and wonderings to explore about math concepts appropriate for them.

Thea found it rewarding and challenging to create tasks that engage and challenge her gifted students. While she has been creating tasks for some time, and has a bank of tasks to use, she continued to explore and create new tasks and problems. She did this for a number of reasons. Thea felt that the level of achievement and mathematical capability of 4^{th} and 5^{th} graders at Townville Elementary has grown over the last 10 years. She used MAP scores to illustrate the increase in achievement level of students at school. According to Thea, the number of students that score beyond 250 on MAP used to be few and far between, but now there are a number of students that score above 260 or 270 (personal communication, December 7, 2017). The mean math score for fifth graders at Townville in the 2016-2017 school year was 233. A score of 250

or higher is significantly above the mean. The Thea felt the need to create new tasks because of the increase mathematical capabilities of her students, but also because she enjoyed doing it. Thea said:

> "I love math. And I loved math as a kid simply because I was good at memorizing and I could memorize the rules and I was fast with my facts. I've only come to conceptual understanding as an adult in teaching it, but I love that now just as much. I'm weird, I know. I'm geeky and nerdy. When I'm teaching math, I'll still sit and do math. Whether it's making up new problems for the kids or after I've walked around and no one is asking for help…I mean I'll just be sitting there doing math simply because I like to do math" (Personal communication, December 7, 2017).

When I visited her classroom, I observed her love of doing mathematics. The students were all working on one of the warm up tasks that she created. One of the students solved it quicker than the others. She challenged this student to create a similar task for her to solve. Once Thea checked in with all of the students working on the task, she sat with this student and tried out his task.

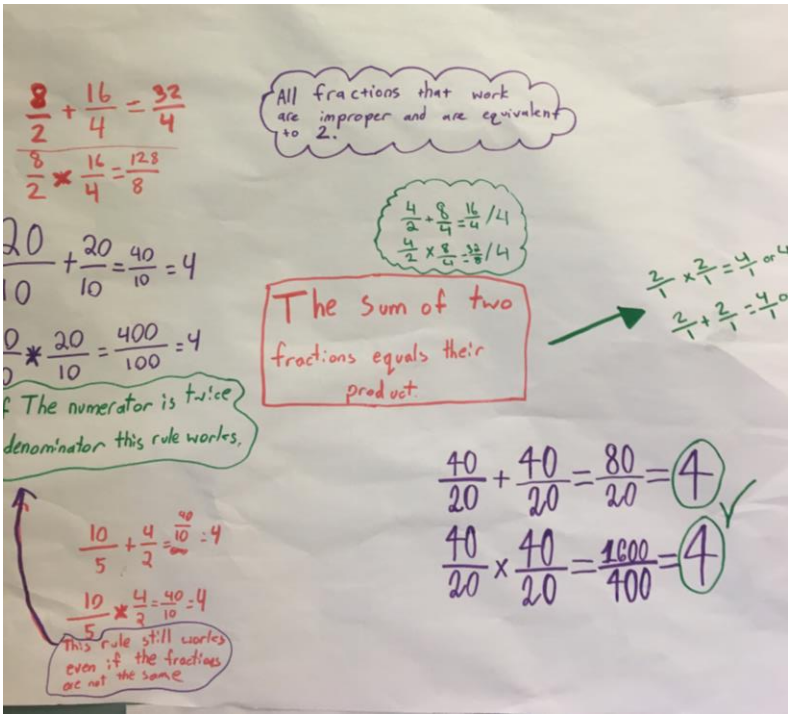
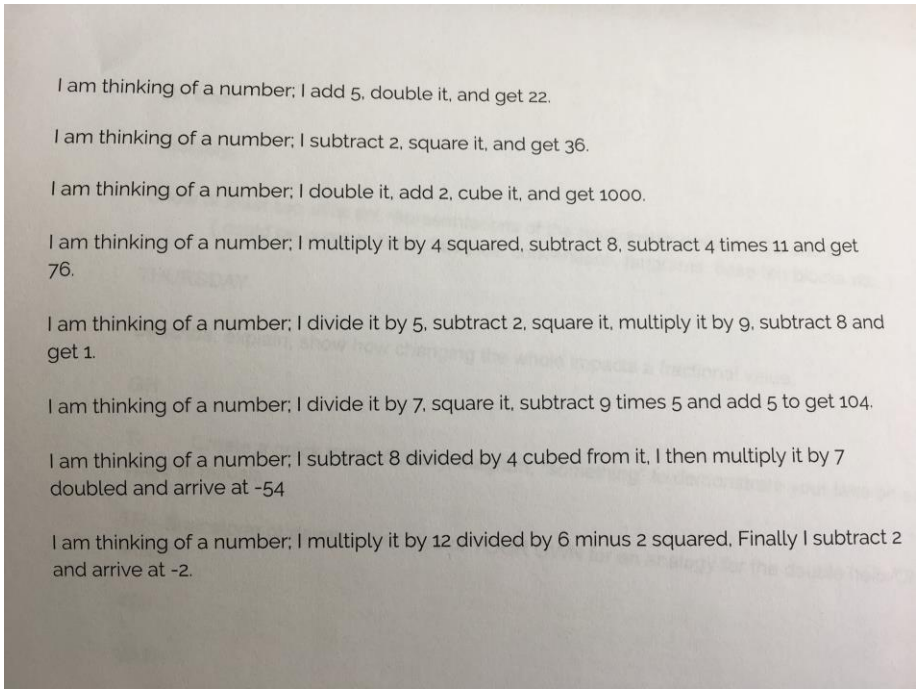


Figure 4: This is an example of an open inquiry students worked on in Thea's classroom. Students were looking for examples and making conjectures when the statement in the middle is true.


I am thinking of a number; I add 5, double it, and get 22.

I am thinking of a number; I subtract 2, square it, and get 36.

I am thinking of a number; I double it, add 2, cube it, and get 1000.

I am thinking of a number; I multiply it by 4 squared, subtract 8, subtract 4 times 11 and get 76.

I am thinking of a number; I divide it by 5, subtract 2, square it, multiply it by 9, subtract 8 and get 1.

I am thinking of a number; I divide it by 7, square it, subtract 9 times 5 and add 5 to get 104.

I am thinking of a number; I subtract 8 divided by 4 cubed from it, I then multiply it by 7 doubled and arrive at -54

I am thinking of a number; I multiply it by 12 divided by 6 minus 2 squared, Finally I subtract 2 and arrive at -2.

Figure 5: This is a list of warm-up tasks that Thea created for a different class.

In visiting her classroom and talking with Thea, the care and concern she has for her students and the importance of relationship was clear. She purposefully planned each task with individual stu-

dents and classes in mind. She was thoughtful about the personality of students and how they may respond to tasks. Upon my second visit to Thea's math class I observed two separate warm-up problems she created to meet the needs of the students in that group. One student came in really excited to "get to do math with Ms. Johns" (Student comment, December, 1, 2017). Thea shared with me that the two students working on the more challenging task were very motivated and ready to move on to a more challenging math prompt. Despite varying stages of readiness, Thea held all students accountable for participating in the math work. Students were not allowed to sit back and observe while others work. In that same class period, the other small group of students worked on a simpler prompt and one girl was struggling with coming up with a conclusion or math connection. Thea did not allow her student to use the work that other students had begun. She prompted and questioned until the student came up with a math connection that contributed something new to the group task.

Thea went above and beyond for students in many ways. I observed her making personal connections with students on numerous occasions. She always worked to ensure students had what they needed to meet the demands of her class. We met for our second interview in Thea's classroom after school. As we were talking two students entered the room. Thea looked up and asked one of the girls if she had found her book for the book group that she led. The student said she had not. Thea said the student could use her own copy of the book if she wanted to. The girl said yes, she would like to use it and then asked if she needed to return it the next day. Thea replied, "No, I trust you. Just keep it over the weekend and bring it when you come next week" (Personal communication, December 7, 2017). The girl took Thea's book that was filled with sticky notes, her own notes for leading the book club discussion. As I turned back around, I was reminded of my own time teaching reading and carrying around books filled with sticky notes.

Those sticky notes represent thoughts and questions created with individual students and goals in mind and the trust that Thea had in her student to return the book as it was. This is another example of purposeful and creative planning, but also the comfortable relationship Thea creates with her students.

A conscious decision not to be pressured

Thea has decided not to let MAP scores produce pressures for her this school year. She had always monitored student performance and growth on MAP tests consistently, but this year she said she has not even pulled her students' individual reports, unless there was a specific issue or reason. I was very curious about what was different. Why this year? When I ask her about this, she said:

> "Something that might have informed my choice about what's going to go is maybe the feeling like it will be okay. Good teaching is going to make it happen. That's going to be more important. What's going to be more important is that I'm well prepared and I'm excited about what I do. My confidence level and my passion and enthusiasm for something are not the same when I don't feel prepared, even if I love it and it's interesting or whatever. When it comes down to it, I guess I started weighing what things matter in the big scheme of things" (personal communication, December 7, 2017).

Thea said that with everything that kept getting added to her list of professional duties and responsibilities, this was the one thing in which she felt enough confidence to let go. She felt confident that her instructional strategies have been successful and that monitoring and worrying about test scores is something she has chosen to let go of this year.

I asked Thea for a visual representation of the conflicted feelings related to high-stakes testing and quality mathematics instruction and she created this picture.

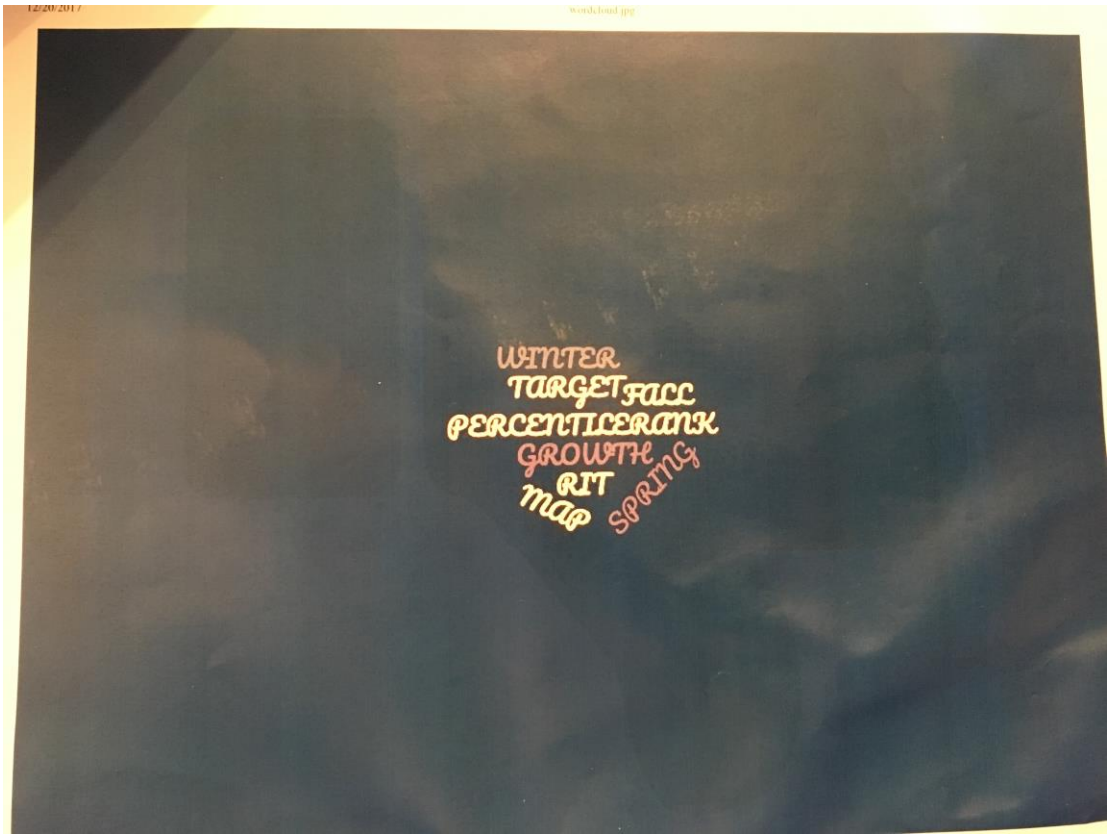


Figure 6: Thea's visual representation is a word image she created on the computer.

The picture is a thumbs-down with the words winter, target, fall, percentile, rank, growth, RIT, MAP and spring. The color is difficult to see, but there is a dark blue hand balled into a fist with the thumb pointing down in the middle of the picture. At Townville Elementary, the MAP test is administered three times each year and students have a Fall, Winter and Spring score. The MAP test score for each subject area is called a RIT, which stands for Rasch UnIT. It is a scaled score created to interpret student achievement. The thumbs-down illustrates the negative feelings Thea had toward all of this testing now. When asked about success as a math teacher, she says she feels most successful when students are engaged and excited about math. She admitted that she used to connect success with student achievement on standardized tests, but now had the confi-

dence to know that what she does works with students. Thea felt most successful when she "can forget that I'm technically measured by that one score" (Personal communication, December 7, 2017).

Thea decided to focus on what matters most to her. She valued selecting and creating challenging tasks for students. She valued time with students to talk about and explore math concepts. When asked about sharing plans or tasks used for instruction, Thea said she does not write official plans with our school's lesson plan template on a regular basis. Her lesson plans were the tasks that she wrote and the time she took to solve the problems ahead of time. She wants to be prepared with all of the mathematical concepts the students could pull out of the task. She took the time to think ahead about the questions she would like to ask. She tried to anticipate where the students would take the task, but was always pleased when the students surprised her. Her lesson planning involved doing math and creating an anticipatory set of responses that drove her questioning and pushed student thinking. This year, the new administrator that is her evaluator came to observe a lesson and asked for her lesson plan. Thea says she spent forty minutes of her lunchtime typing up the official format of the lesson plan. She felt like her planning time was better spent creating and solving math tasks in preparation for the discussions she would have in her math classroom, rather than typing a lesson plan in an official template.

Thea also valued time with students. She met with a small group once a week for a lunch bunch and tutored a student one-on-one during her planning time once a week. She gave up time that is set-aside for her to devote more time to being with and supporting her students. Time is always a challenge for educators, so it is no surprise that time was a challenge for Thea as well. She decided this year to spend her time on the things she most valued. She has decided that time

spent monitoring standardized test scores was not going to help her reach her goal of encouraging love and engagement in mathematics.

Coping with confliction

Thea was a teacher that dealt with pressures related to high-stakes testing in a number of ways including: focused planning on tasks that challenge and support developing conceptual mathematics understanding in her classroom, building positive relationships with students and making a conscious choice to not worry about the test scores. She decided that she would let quality planning and instruction take precedence over test results. She had studied MAP scores ad nauseam, worried over dropping scores, bribed students for perfect scores on the state assessment and worked tirelessly, and at times hopelessly in order to meet the demands of math pacing guides. Despite all of her negative experiences with testing, Thea had the benefit of seeing early in her career the positive influence that conceptual understanding and critical thinking in math instruction could have on students' math achievement. She also had experienced the creativity involved in writing and planning for math instruction in a way that engages, challenges and encourages communication about mathematical concepts. Thea made the conscious choice to put her efforts into the aspects of teaching that she most valued. She valued positive engagement, critical thinking, problem solving, and creativity in mathematics. The demands of teaching are endless and the pressures for growth in student scores are always there in today's accountability era of education. Thea believed that students learn best when they are engaged, challenged and have the time an opportunity to explore. She decided to focus on this aspect of teaching and not let those scores mandate what she does in her math class each day.

Bridgette Johnson

Bridgette is a bright, vivid young teacher who began teaching at Townville Elementary the same year that I did. We both came to Townville Elementary in the 2011-2012 school year when it moved to a new, larger building. She and I both also attended the same university for our undergraduate degrees. I was thrilled when she volunteered as a participant in this research because we share a number of common experiences. I was curious to see if, despite our age difference, we had similar experiences with conflicts related to high-stakes testing. Something that makes Bridgette stand out from the other participants in this study is that she has only been a teacher in a post-No Child Left Behind era of education. She began her first teaching job in 2004, which was after NCLB was passed and the shift towards a focus on high-stakes tests had already begun. I was curious to see how this may make her view things differently than me or the other participants.

Early years and testing

Bridgette was in college when NCLB passed. When I asked her if this was a topic of conversation in coursework, she did not remember anyone at the university focusing on the new legislation in class. She was enrolled in the general elementary education program in the university's Education Department. I find it peculiar that she does not recall learning anything about the new law during any of her coursework. NCLB would have large repercussions on the field of education, but Bridgette does not recall learning anything about it in her undergraduate work. The first time she remembers talk of testing was in her first teaching position in a small town in the South. Bridgette said she really learned to teach in those first three years at this rural school thanks to the dedication of wonderful mentor teachers. While she said she learned a great deal in her undergraduate education program, the guidance and support she received from mentor teach-

ers in those first years gave her a strong foundation early in her career. Reading was a primary focus at the school and she felt well supported and qualified to teach reading. “I just did math teaching, but reading was a huge focus, “ Bridgette said (Personal communication, October 9, 2017). The school did not perform well on state assessments and Reading was the primary focus of professional development for the time she was there. The school also bought resource materials for teachers to use for test preparation if they chose to. The school did not mandate the use of test prep materials, but did supply resources for teachers to use, as they felt best for their students.

In 2007, Bridgette moved to another state in the south and began teaching in a larger school system in a metropolitan area. Her time at this school was the most test-focused time in her teaching career thus far. Bridgette said:

> “So starting in January, it was test prep. We bought these booklets and you were required to use them. They needed to be in your lesson plans. Lesson plans were checked every week and make sure you’re doing that. So, our school was very low performing and at the time it was AYP. We NEVER made AYP anytime that I was there” (Personal communication, October 9, 2017).

Bridgette taught an advanced class of students at the school. The students she taught were part of an arts magnet program that was housed at a local elementary school. Her population of students came from all over the district and had to apply and qualify with high academic achievement, along with an arts focus. Bridgette’s students took condensed coursework so that they could spend the remainder of their time at school in courses associated with their identified area of art: music, dance, drama or visual arts. Her students always passed state tests, but the rest of the school struggled to meet the grade level criteria. She remembers that many of the other teachers

at the school would say that her job was easier because her students came to her already testing at or above grade level. While Bridgette conceded that she did not have as many low performing students, many of her students still struggled with the concepts, and if her students had not passed, it would have been perceived as inexcusable since they came to her as proficient or advanced students according to achievement qualifications for the magnet program. She felt that the pressures she faced related to testing was often more than other teachers because of the expectations for her students to perform well.

Bridgette did not support or agree with the school's mandate to include test prep work in lesson plans, not did she feel that this was the type of work that would help her grow mathematically. She felt that having students answer multiple-choice questions in a test prep workbook was not the way to engage them in learning mathematics. I asked her to tell how she coped with this mandate while ensuring students still had access to what she felt to be quality instruction. Bridgette made the workbook time into warm-up work for students. She also made it into a game where students could earn treats for completing a certain number of tasks. She felt that if they were being asked to do something that she did not feel would have much impact on their academic abilities at least the students were getting something they liked and valued out of it. Meanwhile, she was meeting the criteria set forth by the local school. Bridgette said:

> "Was that beneficial to them? In their success to math over a long period of time? No. But if I'm going to be required to do it, I'm not going to make you suffer for it. I'm going to make it something that you at least get something you like or enjoy" (Personal communication, October 9, 2017).

Treats and games are examples of how Bridgette chose to meet the requirements and deal with the pressure to conform to a resource or program that may not have been what her students need-

ed. During class time, she chose math tasks and lessons that were appropriate to the rigor necessary to grow and challenge her students.

A new school, a new idea

When Bridgette came to Townville Elementary school she remembers hearing a school administrator say that there is no test prep at school. Here, the belief was that if you teach students using quality instruction, then the test would take care of itself. She said she was beyond thrilled to hear this. After teaching for three years in a school that promoted teaching in preparation for the test, it was refreshing to hear that the focus was on teaching and learning and rather than on testing. Bridgette began as a fourth grade teacher in 2011 and worked in the same room and same grade level for the next five years.

Bridgette was part of a team-teaching program at Townville for three years. Her co-teacher taught reading, writing and social studies, while she taught math and science. As a fourth grade math teacher at Townville, Bridgette focused on teaching the students the state math standards and used formative assessments in her own classroom to make instructional decisions about which students may or may not have success with meeting grade level expectations on state tests. She felt that although Townville did move to using a common math curriculum, Engage NY, she still had control over what and how to teach the mathematics state standards.

Bridgette said that at Townville there is definitely an intense focus on MAP tests. Although the local school places more emphasis on these tests, Bridgette finds them to be misleading at times. She said:

> "So MAP, I think that we've traditionally focused more on MAP than we have the state test. There are definitely benefits to that, but there's also not. I've also found that using data from MAP was a little bit misleading sometimes. I think a lot of

> kids that score really high on MAP are really good guessers. And I also think that they are pretty good at figuring out how to choose an answer on a multiple-choice test. And so, I've also sort of found sometimes that even though MAP analysis says that you are at these certain skills, that you may not necessarily understand the concepts or anything like that" (personal communication, October 9, 2017).

Bridgette always relied more on her own observations and assessments to determine what students understood and how they are progressing. She would look at state test results and MAP scores and share score reports with parents, but when it came to making decisions about what her students needed to learn, she used the standards and her own professional judgment to decided what students needed to learn.

A move to gifted education

After five years as a fourth grade classroom teacher at Townville Elementary, Bridgette accepted a gifted teacher position. The 2017-2018 school year was her first year in this role at Townville Elementary. When I asked her about her journey to this position, she referenced an experience from college where a gifted educator from the school district she grew up in came to speak to a class. Bridgette said:

> "And so, we had a guest speaker come who was a gifted teacher in the county where I actually grew up. And so, she came and was talking about how gifted education was under the umbrella of special education at that point. I thought "Oh, wow. That's actually an interesting way to think about students that are gifted." I'd never really thought about it that way. So there was like a seed planted" (personal communication, October 9, 2017).

While she was not the gifted teacher at the arts magnet program, many of the students she worked with during that time were. Bridgette understood that just as students with learning disabilities need special supports to ensure they achieve to their best capability, so do gifted learners. She earned her gifted endorsement while teaching 4th grade at Townville and worked for several years as a gifted endorsed classroom teacher. She provided support for gifted learners within the classroom. When the opportunity to work as a gifted teacher that served only our school's gifted population, she felt this was a challenge she was excited by and ready for.

Bridgette worked with her students two hours each week for a resource time and then two hours a week for math instruction. When planning for math instruction, Bridgette first looked at the grade level common pacing guide to be sure she knew what concepts and skills the students were learning with classroom teacher. For example, if the students were working on geometry in their classroom, the enrichment activities she planned would align to geometry. She also used student MAP scores, to some extent, in order to get an idea of where the students were. She felt that MAP scores aided her with planning for grouping and differentiation. She felt much more free to plan activities and experiences for her gifted students because most of the math in her class showed mathematical understanding beyond the state standards, and what students needed to know for the state assessment.

Bridgette felt that there is much more freedom in her role as a gifted teacher. While she did have to evaluate students on goals set forth by the gifted program, she was not responsible for assessing each math standard. She wanted to see students progressing on the MAP scores, but did not feel the same level of pressure related to student performance on these tests that she did as a classroom teacher. Much of the math tasks she provided students were beyond the standards, and all of her students scored proficiently on the state test. This freedom and autonomy means

that she was able to choose tasks that fit students' academic needs and interests. The time it took to really explore concepts students were interested in was not as much of an issue because there was not this pressure to fit all of the required standards into a given timeframe.

Bridgette found success in her students' successes. She told the story of a student that was working on a math concept related to a problem-solving task she presented to the class. This 4th grade girl was really struggling with the task and moved over to the corner to focus and work alone. Bridgette checked in with her periodically throughout the class. The rest of the class were working together and discussing their mathematical findings. This particular student had taken a different pathway and, while mathematically sound, was taking longer to complete the task. Bridgette recalled:

> "She sat over there, and I kept checking on her. We made eye contact and she walked over, literally the last minute of class. And she was like "I think I got something". I jumped out of my seat. And she did, she got it. She came up with it and it wasn't even where I thought she was going with it. She went somewhere else. That felt successful" (personal communication, December 5, 2017).

She valued having the time to really let students explore concepts and build stamina in problem solving. She felt that she has more time as a gifted teacher to use more constructivist-based teaching strategies. As a classroom teacher, Bridgette felt there was always a new standard or skill to teach and finding the time for students to develop deeper understanding of concepts was always a struggle.

Bridgette enjoyed the challenge that this gifted teaching position has brought to her. She told the story of an experience she had earlier this year with algebra tasks her students were working on. She felt like the students did not understand the concept of balancing an equation.

She recognized that she had moved too quickly to the abstract concept and was not sure how, or if, to take her students back to a concrete representation of solving an algebraic equation. She reached out to the other two gifted teachers on her team and a colleague was able to share a concrete modeling resource for balancing equations. When she was a classroom teacher, she was seen as a lead teacher and someone that others came to for instructional advice. In her new role, she recognized that she has a lot to offer, but also a lot to learn and is excited at the new opportunities for her to learn and grow as a math teacher.

Everyone should be the same

Bridgette struggles in general with the whole concept of common standards and common assessments. She stated that the move from being a 4th grade classroom teacher to the gifted position has had a incredible influence on the pressures she felt related to high-stakes testing. She felt this way because she was no longer tied to just one set of content standards that students must show proficiency on with one assessment at the end of the year. Bridgette found it hypocritical that teachers are expected to differentiate instruction, yet there is no differentiated test. Her belief was that it is an impossible expectation that all students are able to achieve at the same rate, on the same level at the same time.

According to Bridgette, it is also naïve to think that the test is not always a consideration for teachers today. She was so excited to hear when she moved to Townville that the focus is on teaching and learning rather than testing, and while she thinks this belief is true, the actions do not always match this belief. Bridgette said:

> "I feel like that's still the belief, although, I think that we have targeted some things based on the test. And so I feel some sort of confusion, though I do agree with the need. For example, the writing, our scores from the test are not anything

> to be proud of and we are focusing on that. And so we are doing some things that seem a little more like test prep" (Personal communication, December 5, 2017).

She talked about some of the writing structures and common formative assessments that the school administrators and instructional coaches were asking teachers to use due to low performance on the writing section of the state test last year. Bridgette accepted that some of these measures are good instructional practice, but does think that there has been more talk about the state test in faculty meetings and school-based professional development this year. She did not view this as bad. An instructional issue was identified with the state test, and now she felt the school was making instructional decisions based upon that data. Bridgette felt this was different than her experience at the previous school where teachers were expected to drill the students with test prep workbooks.

Bridgette was critical not only of common tests, but common standards as a whole. She thought the expectation that all students learn the same material at the same rate is preposterous. In her opinion, there was no denying that testing is always in the background, even in the context of Townville where there is stated support of constructivist-based practices and there was no teaching to a test. She felt that the test is always present. Bridgette brought up teacher evaluation in our final interview. Teachers were judged based upon their students' performance on the state test. She referred to this "mysterious score" (personal communication, December 5, 2017) that goes on each teacher's end of year evaluation that determines whether or not you are doing your job. The state generates an annual score for student growth percentile and this score is part of a teacher's overall evaluation score. Last school year; the student growth percentile score was thirty percent of each teacher's evaluation. While Bridgette loved that this year, she felt more autonomy to plan and teach students based on her professional knowledge and understanding of where

her students are, she hoped for the same for all Townville Elementary teachers. She did say that she supported accountability, but did not think our current system of monitoring and measuring is the way to go about holding teachers and students accountable. Bridgette did not provide visual data to represent her expereinces with cognitive dissonance between beliefs about sound mathematics instruction in a high-stakes testing environment.

Strategies for coping with dissonance

Strategies that Bridgette used to help her cope with pressures related to high stakes testing include: choosing to focus on planning for quality instruction and turning mandates into a game of compliance for students. She was an upbeat, positive teacher that wanted to do good work and comply with directives from her administration. She questioned policies, but recognized that until they are changed, she must function within them. One thing that helped Bridgette cope with the cognitive dissonance she has experienced with pressures related to high-stakes testing is her belief that quality instruction ensures students learn and they can demonstrate their learning on tests. The belief that her instructional coach shared when she first arrived at Townville Elementary fit right in with her own thinking, if you teach students well, the test will take care of itself. Like Walter and Thea, the most effective strategy Bridgette used to cope with conflicts between pressures related to testing and beliefs about quality instruction, was to focus on quality instruction. She felt that the instruction would ensure that students perform their best on the test. When she was forced to use a particular resource in her classroom as test prep, she found a way to make it manageable for herself and more enjoyable for students by turning it into a game of compliance. She rewarded her students with treats and she was satisfied that she was doing what she was asked, but it was not impeding her ability to plan lessons for math class. Bridgette continues to question assessment and accountability policies. She is young in her ca-

reer and plans to one day go back to school and study education policy. Maybe she will be able to make the changes she would like to see related to common standards and testing as she advances in her educational career.

Summary of Participants

Walter's narrative is unique in that he has worked for the entirety of his career as a teacher in the same small urban school district. He has lived through the district's changing sizes, reconfiguration and changing demographics for almost thirty years. He is an experienced elementary educator that decided to focus on math instruction in the last ten years. He has been teaching long enough to see programs come and go, and believes as long as he is having positive relationships with students and helping them grow, the rest will take care of itself. That is to say, despite feeling pressures for his students to perform well on state and local tests, Walter believes that quality instruction will ensure students do well. He also stated that the expectations of NCLB were never attainable, therefore making it obsolete. He never believed the state would come in and take over every school district. Through experience and success on high-stakes mathematics tests with constructivist-based teaching practices, Walter has gained confidence to know that if he uses what he believes to be quality instruction, the test is of little consequence.

Thea was also an experienced elementary mathematics teacher that had spent a great deal of time in her career worrying about test results. She was a self-proclaimed perfectionist who wanted her students to do well, but also had beliefs that critical thinking and problem solving are more valuable than discrete math skills. She lived this belief in all of her math lessons. Her planning, while not always in a pretty format, was thoughtful and rigorous. She created anticipatory questions and strategies that helped guide her questioning and her students' thinking. With increased responsibility and caseloads, Thea decided not to let high-stakes test results consume her

valuable time. She also had experience to know that quality instruction and positive relationships with students will result in positive student growth.

Finally, Bridgette, while less experienced than the other two participants, also held a solid belief that quality planning and instruction would ensure that students do their best on high-stakes testing. She previously taught in a school district that was more monitored and mandated than Townville Elementary School. In order to bring consonance to her conflicting feelings about a required test prep resource, she used the resource in a way that still allowed her to implement instruction that met the needs of her students. She is the one participant that does not have her mathematics endorsement. She co-plans many of the math tasks she used with students, but shared that as she gains more experience in this gifted position, she would like to incorporate more of her own created tasks.

Conclusion

In this chapter I have presented my results in the form of narrative accounts of participants experiences. Each participant shared teaching experiences, interactions with students, considerations for lesson plans and pressures they feel as related to high stakes testing. The narratives of each participant represent their experiences to the extent they were willing to share. Walter and Thea chose to share lesson plans and visual data. They also went into more detail with responses to questions, resulting in longer and more in-depth stories. While each story is different, each offers value and knowledge to be gained and there are several resonant narrative threads woven throughout and across the stories.

CHAPTER 5

Discussion

The narratives I have presented highlight the decisions and actions of three teachers when struggling to cope with pressures from various sources in a high stakes testing environment. NCLB in 2001 and its successor ESSA in 2015 have shifted the educational focus in the U.S. towards testing and teacher work has intensified (Eisner, 2013; Endacott et al., 2015). Many teachers have chosen to act in ways that conform practice to measures that meet expectation of the test (Au, 2013; Lipman, 2009; McNeil, 2000; Wills & Sandholz, 2009). The experiences of my participants show that at times teachers do choose to conform with mandates from administrators, test-based resources and give in to pressures of accountability and use defensive teaching strategies (McNeil, 2000), but there are many times that teachers chose to act in ways counter to the pressures in order to ensure their students have access to mathematical concepts.

Caring and Relationships

One way the three teachers cope with conflicts between beliefs about sound mathematics instruction in a high-stakes testing environment was building relationships with students. The first resonant thread woven through and across the three narratives was the value of caring and relationship. This era of accountability often leaves the human or humanity out of the classroom, viewing students as test scores and teachers as growth percentiles. The importance of relationships and caring in the classroom seem to have been left behind in an effort to leave no child behind. The teacher-learner relationship is "the central context for student learning" (Davis & Lysaker, 2012, p. 11). Walter, Thea and Bridgette all value positive relationships with students. Walter commented in our final interview:

> "For me the essential struggle has always been with kids to keep them positive or get them positive if they're not that's something that has never gone away and that's all about classroom management. Dealing with kids feeling and managing your own feelings." (W. Brown, Personal communication, November 29, 2017)

Walter recognized that with his struggling mathematics students, the relationship and positive classroom climate where students feel safe to take risks in their learning is of utmost importance.

Noddings (2012) claimed that through relations, humanity emerges. She also recognizes that not all relationships are balanced. The teacher-student relation comes with imbalance of power and the responsibility is on the teacher to recognize the expressed needs of students. While there are times that the expressed need cannot be met in the classroom, the way in which teachers build the caring relationship that is pivotal to student engagement and success (Noddings, 2012). Bridgette does just this when in an observed fourth grade math class. A student is sitting at a table where the other students are engaged in mathematical argument. The student really was struggling with focus and understanding the problem and was becoming obviously agitated and angry with her group. She asked Bridgette if she could leave the classroom and work in the hall. Bridgette paused what she was doing and explained to the student that while she could not leave the room, she understood that it might be hard to focus when her group was working so loudly. Bridgette asked the group to quiet down, but also offered the girl the option to move to a different group. Bridgette addressed the expressed need of the student, allowing the student to feel heard and honored. Once she moved tables, the student was able to re-engage in her work despite the frustration she had previously felt. When teachers cannot meet the expressed needs of students, "the carer's objective is to maintain the caring relation" (Noddings, 2012, p. 772). Bridgette and Walter understand that students will not always be positive and will

have needs that may prevent or hinder their ability to fully engage in mathematical thinking. Their goals became to build and maintain relationships in an effort to re-focus attention to the mathematics.

Thea also valued relationships and caring for students. Her primary form of caring was through purposeful planning. Students can see the caring of their teacher as he/she considered their needs in planning lessons and tasks. The relationship between the student and teacher is strengthened through the planning process (Davis & Lysaker, 2012). Thea chose and wrote tasks with individual students in mind. It was clear to students that they had been the consideration for the problem or task. In a fifth grade class a student exclaimed, "Oh, you picked this problem for me Ms. Johns? Yay! I love math with Ms. Johns!" (Student comment, December 1, 2017). It is clear, that despite the focus on learning mathematics, Thea's students felt valued and listened to by Thea in her classroom. The time spent purposefully planning and anticipating responses with individuals in mind has helped Thea build and maintain positive, caring relationships with students.

Creativity and teaching mathematics

Creativity is a thread found throughout and across the more senior teacher's, Thea and Walter's experiences. They are the more senior teachers, both of whom have their math endorsement. Mathematics teachers that employ constructivist-based instructional practice must be creative, flexible and have a deep understanding of the mathematics they are teaching. The main indicators of creativity in mathematics instruction include flexibility, originality and elaboration (Lev-Zamir & Leikin, 2011). Walter and Thea both viewed teaching mathematics as a creative process and one of the things they most enjoyed about their work. Walter worked with EIP students that struggled with some of the abstract algorithms that become the standard for upper el-

ementary math students. Creativity comes from a need (Vygotsky, 1990). Walter's need was to find ways to help his struggling math students conceptualize the computation they were learning. He worked hard to create and find new and different representations, including concrete manipulatives and representational models, for mathematical computation. Walter said:

> "I like the challenge frankly of coming up with different representational models that kids can relate to. It's arguably creative. I feel validated when I can do that and the kids. What validates me is the success of the kids." (W. Brown, Personal communication, November 29, 2017)

Walter was flexible in his thinking about ways in which mathematics can be represented, he was willing to create original tasks and representations for mathematics and he had the pedagogical content knowledge for mathematics that allowed Walter to be creative in his mathematics classroom.

Thea also valued the creative process of developing and writing her own mathematics tasks for students. She found the time she spent creating and modifying tasks for the needs and goals of her students to be creative and enjoyable. When I asked her about how she choose tasks for students, she replied:

> "I would say I have developed all of them. Now when I say that, it means that I might have gone online and start with a Google search. I'll make a game based on an idea that I saw. I saw the other day when I was looking for something fun to do for next week. I saw this thing for winter holiday math games and it was really for like 2nd grade. And I thought Oh, well I can make that into a card and then we give the kids three dice and they make their bingo card or whatever, we'll tell them to do some exploring and testing an think about if there's a strategy or

> something they can try before choosing what numbers to put on it." (T. Johns, Personal Communication, December 7, 2017)

In order to be creative in mathematics instruction, a teacher needs to have understanding of mathematical concepts and flexibility in thinking about representations. Here, Thea described how she modified a simple task for second graders to have her students explore with concepts of probability and ratios. Her goal was for students to look at possible outcomes with dice and use what they find in their exploration to set up a bingo card that would be more likely to win in a game. A teacher without the pedagogical content knowledge for teaching mathematics may not have been able to modify a simple task to raise the level of rigor for the expectations of their learners.

Despite the climate of high stakes testing, teachers that have strong pedagogical content knowledge and efficacy can find ways to ensure that teaching is a creative rather than prescriptive process. Thea and Walter both have their math endorsements and discussed how the learning during obtaining their endorsement was focused on the importance of conceptual based instruction. Creativity involves flexibility, originality and elaboration (Lev-Zamir & Leikin, 2011). It is ironic that a shared experience that gave Walter and Thea the confidence to trust their constructivist mathematics instruction was positive results on high stakes tests. While the participants did not want to be driven by high-stakes testing, student performance on these tests gave them the confidence that their instructional strategies are what influence student learning. Teachers can struggle to be flexible, original or elaborate in a subject area if they do not have the content knowledge for teaching that allows for this type of work.

Different sources of pressure

Walter, Thea and Bridgette experienced pressures as related to high stakes testing. The three sources of pressure included administration, the public/parents, and self-induced. Pressure from administration included required uses of curriculum or instructional strategies, as well as pressures related to performance used to measure teacher success. Public/parent pressures included public displays of test results as well as parent questioning results of MAP and unit tests. Self-induced pressure was pressure that participants placed upon themselves for gains in high-stakes test results regardless of input from parents or administration. The source of those pressures was different at different times. All three participants discussed the fact that they are evaluated themselves based upon student performance on high stakes tests to be another source of pressure. Bridgette said:

> "In general, I don't want to focus on high stakes tests, but I know that to some extent I have to. I don't know that, have we brought up the teacher evaluation program here? Part of this high stakes test results are used to determine our rating or grade as teachers, so there is no denying that."(B. Johnson, Personal communication, December 5, 2017)

Value-added models (VAMs) are used to evaluate teacher performance based on test student test score gains. Unfortunately, there are many educational systems that look to VAMs when evaluating teacher performance. Darling-Hammond, Amrein-Beardsley, Haertel and Rothestein (2012) found that there are many factors that can contribute to student gains on high-stakes test that have nothing to do with teacher performance. The most effective measures of teacher performance are those that include a number of classroom observations followed by meaningful feedback and professional growth opportunities based upon the feedback that is given. While administrators do observe teacher practice at Townville Elementary, teacher goals are written around

both MAP and state test data and teachers receive a score based upon student growth from the state assessments. The American Educational Research Association (AERA) stated that value-added measurement was not an effective way to evaluate teachers (Ratvich, 2015). Teachers that are proclaimed to be proficient one year by value-added measures may appear not proficient the next due to a change in the make-up of their class.

Self-induced pressure as related to administration and evaluative aspects was a common source of pressure that the participants talked about. All three teachers mentioned at some point during our conversations that despite pressures they felt, nothing ever came of test scores and no one ever felt reprimanded. Thea said:

> "They still keep telling us a percentage of your kids have to grow. I've never had anyone really do anything with that. No administration has ever called me into the office to talk about my kids that didn't grow." (T. Johns, Personal communication, December 9, 2017)

Walter, Thea and Bridgette talked about how testing is always looming in the background at staff meetings at Townville Elementary, but that despite the culture of monitoring and measuring teacher proficiency through test scores, none of them have every been called in by administration to face reprimands for lack of student growth. The context of Townville is likely a primary reason for this. Schools with overall high-performance on high-stakes tests face fewer repercussions and mandates than schools that are struggling to meet expectations (Lipman, 2009). Although none of these teachers have had to have admonishment for their student test scores, they continue to feel pressure to have students perform. Thea, a self-admitted perfectionist, says despite her idea of success in mathematics is student engagement; she knows she will pull scores at the end of the year to affirm herself and her students' growth. All three participants admit to self-

imposed pressures related to testing because they do want their students growing and seeing MAP scores rise feels good. At times, remembering that the rising scores are not the only measure of mathematics achievement continues to be a struggle for all three teachers.

Connecting Participant Narratives to Research

One of the outcomes of the implementation of NCLB and the shift towards high stakes testing in the U. S. is the deskilling and deprofessionalization of teaching (Endacott et al., 2015; Milner, 2013). Throughout the narratives there were threads of monitoring and controls put in place by policy and local administrators. Thea spent forty-five minutes of her planning time to type out a detailed lesson plan in the format mandated by her evaluator, when her planning was the anticipatory set she prepared for the students. While in years past, she was given latitude from previous administrators in that she was excused from using the cumbersome lesson planning form because it was evident in her classroom practice and student performance that she did thoughtful planning. Rather than trusting her professional judgment to plan in the way that worked best for her and her students, the administrator required that the plans be prepared in a prescribed way. Many teachers across the U. S. spend hours typing plans in a format that is required, rather than constructed for themselves and their students.

Another aspect of deprofessionalization since NCLB, teacher workloads have become more intense (Valli & Buese, 2007). When I began this research process, I thought I would gather data from classroom teachers. I was a classroom teacher when I had my own experience of conflicts between beliefs about mathematics instruction in a high-stakes testing environment and thought I would elicit stories from other classroom teachers. When I placed the recruitment flyers in teacher mailboxes, I put them in all teacher boxes including classroom teachers, special education teachers, and support teachers. On the day of the information session, I was surprised

that the only teachers that came were the three support teachers who became participants in this narrative inquiry. As I saw teachers for the remainder of the week I heard from several classroom teachers that they would participate if I needed more participants, but that they were just so busy and felt so overloaded. In my researcher's diary I wrote:

> "I ran into Ms. X (teacher's name omitted) in the copy room today. She and I have worked together for a number of years and we have a really great relationship. She apologized for not coming to the info session and said she hoped I had enough people. If I need more people for the study, I can let her know and she will participate. She feels really overwhelmed with everything she has to get done right now. Parent conferences are happening and she is staying after school several days a week to meet with parents and discuss MAP scores, state test scores and get all of her summative assessments graded. I hope I don't need to ask her. I would hate to add more to her plate. I know that she has a great story, but understand the unwillingness to commit to one more thing." (Researcher's diary, September 9, 2017)

I documented comments from four other general classroom teachers that indicated the feeling that they would love to help out with the study, but the demands of their job did not allow for time for one more thing. The demands on teachers have increased including added expectations around documenting lesson plans, communicating with parents and administrators, meetings and grading expectations (Valli & Buese, 2007). The fact that, despite proclaimed positive relationships, not one of the thirty-six general classroom teachers at Townville Elementary schools felt they had the time to commit to one more task is very telling of the work loads that general classroom teachers feel.

When asked to provide a visual representation of his experience with conflicts between beliefs about sound mathematics instruction in a high stakes testing environment, Walter provided a picture of his clocks on his cluttered desk. On his desk are also different askew piles of progress monitoring probes, Tier 3 tasks, and variety of math manipulatives. I wondered why, if the clocks are so important to him, they were not hung on the wall, but were leaning precariously against the wall and filing cabinet. I decided that it is for the very reason that they represent his experience as an EIP teacher juggling the demands of quality math instruction in this era of high stakes testing. Walter's schedule is completely full with EIP classes, Tier 3 time, meetings as well as lunch and hall monitoring duty. He does not even have planning time with all of the homeroom teachers whose students he serves. He likely has not had the time to devote to hanging the clocks. In this time of extreme pressures, teachers have to decide what is most important and devote the time they have to that task. Walter has decided that what is important to him is purposeful planning of math tasks that are engaging and challenging to students. Walter's schedule is similar to many other support teachers across the United States. Their schedules are so full; there is little time to meet with homeroom teachers to discuss support service and student progress.

Both general classroom and support teachers workloads have become much more intense since the implementation of NCLB. Schedules are filled with meetings that are often run by administrators that do not work directly with students. Teachers are no longer trusted to be professionals that can make decisions about student learning and progress autonomously. Everything must be documented via multiple methods and communicated in prescribed formats.

Implications of for Professional development

The teachers in my study all had advanced degrees in teaching along with specialized certifications for the populations of students that they taught. General teacher preparation programs do not equip teachers to have the knowledge and flexibility to ensure they are utilizing constructivist based mathematics teaching practices. Without ongoing professional development to ensure teachers are prepared to be creative, flexible teachers that can adapt mandated curriculum to encourage conceptual mathematics understanding, teachers will continue to use procedures-based instructional practice (NCTM, 2014). Professional development that is job-embedded, on going and self-identified has been proven to have the most influence on teacher change (Wilson & Berne, 1999; Garet, Porter, Desimone, Birman, & Kwang Suk, 2001; deArajo, Orrill, & Jacobson, 2018).

Bridgette was the one participant that did not have a mathematics endorsement or other specialized degree specifically in mathematics. When I visited Bridgette's fifth grade gifted math classroom, the students were working on solving algebraic equations. The teaching was very procedures-based. The students were given a list of steps to follow in order to solve the algebraic expressions. In a later interview, Bridgette said:

> "This year, trying to teach algebra to fifth graders. And I, we, I sort of messed up and thought that I was doing a decent enough job and forgot how hands on those can be. I wasn't taught that way and have never taught it I didn't realize that there were hands on things that that I could use." (B. Johnson, Personal communication, December 5, 2017)

She went on to say that she discussed the struggle she was having with teaching algebraic expressions with another gifted teacher. That teacher, whom had a great deal of experience working with gifted mathematics was able to give Bridgette concrete manipulatives to use with students

to help them develop the conceptual understanding. Bridgette has positive relationships with colleagues and is new to her gifted position. She did realize that the strategies she was using were not reaching her students, but without the support of a mentor, she may not have gone back to work on the conceptual development of the mathematics concept.

Professional development for teachers, specifically in the area of mathematics is of utmost importance as we continue to live through this high stakes testing paradigm. A primary influence on the experiences students have with mathematics is their teacher's own conceptual understanding of mathematics (Tanase & Wang, 2013). Elementary teachers are often less prepared in mathematics content knowledge than secondary mathematics teachers. Teacher preparation programs generally include one or two math content courses, which may or may not cover elementary content the teachers are responsible for teaching to students. Yopp, Burroughs and Lindamann (2011) found that elementary teachers often have misconceptions about mathematics that are then shared with students. These misconceptions can be very problematic for students down the line. NCTM's Principles to Action (2014) dedicates an entire section of the book to professionalism. The call to action is professional collaboration and dedication to be life-long learners. There are many obstacles that prevent meaningful professional development, but there are ways to overcome these obstacles. The alternative is more of the status quo. Teachers can participate in professional organizations, conferences and webinars. Instructional leaders of a school can facilitate professional learning communities that focus on teacher content knowledge. Teachers learning from other teachers within their own buildings, like Bridgette did, can be a very influential way to change teacher practice. Most teachers were taught mathematics in a procedures-based way and many may not have conceptual understanding of mathematics themselves to fully plan and implement constructivist-base teaching practices in the classroom. Ball (1993)

wonders, “How can they learn to transcend their own experiences with mathematics to consider learners’ experiences of and with mathematics?” (p. 191). The answer to this question is ongoing, job-embedded professional development.

Implications for further research

My inquiry into the experiences of teachers that struggle with conflicts between beliefs about quality mathematics instruction in a high stakes testing environment has presented the experiences of three upper elementary support teachers. Despite the knowledge gained from their narratives, there is further study needed to obtain a more complete picture of the decision-making power elementary math teachers have. The context of Townville Elementary is not that of schools that are most impacted by NCLB and ESSA. Schools that serve students from predominately low-income families and students of color often have lower high stakes test scores and therefore will likely be more influenced by those tests (Darling-Hammond, 2010; Lipman, 2009). While the experiences of these participants in a context where they do have more autonomy to make decisions around mathematics instructional formats and programs can offer strategies for teachers that do not have the same level of perceived decision-making power, a narrative inquiry into experiences of teachers at a low-performing school would offer another perspective. Also, the mathematics growth and achievement level of students in mathematics of the teacher participants is unknown. The teachers have shared their stories and beliefs, however the overall influence that their decisions have made on student mathematics achievement remains unknown. Finally, the fact that all three participants were support teachers rather than classroom teachers demonstrates the volume of work that classroom teachers are struggling to manage. Classroom teachers at Townville told me in causal conversations that they would participate in my research if I needed more participants, but that they already had so much they were managing, that the

thought of adding one more thing was overwhelming. While I would have loved to include experiences of homeroom classroom teachers in my study, I ultimately decided that I would honor the recruitment process and that the narratives of my teacher participants would offer knowledge and experience that would answer the research question.

Conclusion

My study was prompted by my own experiences of conflicts between personal beliefs about quality mathematics instruction in a high-stakes testing environment. I entered this study with the goal of co-constructing experiences of teachers that faced similar conflicts. During the process I kept returning back to why I felt this study matters. In our high-stakes testing era of education, teachers are often monitored, silenced and blamed (Au, 2013; Endacott et al, 2015; Lipman, 2009; McNeil, 2000; Milner, 2013: Olivant, 2013). Through this experience, I was able to hear three talented teachers share their experiences, but also see them struggle with ongoing cognitive dissonance around the decision-making process. Teachers never enter the field with the hopes of having students score well on tests, yet this is something that is always present in today's educational environment. Through this research journey, I have seen these three teachers remind themselves that the ways in which they navigate these high-stakes testing conflictions is by focusing on caring relationships with students, using creativity in their mathematics classrooms and making conscious decisions to use their time for the parts of their jobs that they most value. Understanding there are times when you have to make concessions, as in the case with Bridgette's required test prep materials, teachers still do have control over what and how they teach mathematics when they close their classroom door. Students who are engaged in contextually based problem solving in mathematics is the goal of each of the participants. How do teachers deal with cognitive dissonance between beliefs and pressures they feel? According to this re-

search, teachers make decisions that are grounded in the aspects of teaching they most value. They recognize that there are times that they need to consider mandates from administration or policy, but decide to implement in ways that ensure they can still offer rigorous and relevant mathematics instruction. What teachers decide to do on a daily basis matters. As we wait and work for a paradigm shift away from the influences of high-stakes testing, it is important for teachers to understand the power they do have in making instructional decisions for the students in their classroom. Each and everyday is an opportunity to resist through small acts of defiance. It is through these acts that we will begin to see the paradigm shift towards more student centered instructional practices that encourage critical thinking and honor the individual construction of understanding through real-world based mathematical experiences.

REFERENCES

Apple, M. W. (2002). Do the Standards Go Far Enough? Power, Policy, and Practice in Mathematics Education. *Power, Meaning, & Identity: Essays in Critical Educational Studies* (pp. 85-111).

Au, W. (2013). High-stakes testing and curriculum control: a qualitative metasynthesis. In D. J. Flinders & S. J. Thornton (Eds.), The curriculum studies reader (pp. 235- 251). New York, NY: Routledge. (Reprinted from *Education Researcher, 3*(5), pp. 258- 267, 2007. Reprinted with permission of Sage).

Ball, D. L. (1993). Halves, pieces and twoths: Constructing and using representational contexts in teaching fractions. In T. P. Carpenter, E. Fennema, & T. A. Romberg (Eds.), *Rational numbers: An integration of research* (pp. 157-195). Hilldale, NJ: Lawrence Erlbaum Associates, Publishers.

Blanchard, M. R., Osborne, J. W., Wallwork, C., & Harris, E. S. (2013). Progress on implementing inquiry in North Carolina: Nearly 1,000 elementary, middle and high school teachers weigh in. *Science Educator, 22*(1), 37-47.

Bobbitt, F. (2013). Scientific method in curriculum-making. In D. J. Flinders & S. J. Thornton (Eds.), *The Curriculum Studies Reader* (pp. 11-18). New York, NY: Routledge. (Reprinted from *The Curriculum,* Cambridge, MA: The Riverside Press, 1918.)

Bruner, J. S. (2013). Man: A course of study. In D. J. Flinders & S. J. Thornton (Eds.), *The Curriculum Studies Reader* (pp. 79-93). New York, NY: Routledge. (Reprinted from *Toward a Theory of Instruction* by J. S. Bruner, 1966, Cambridge, MA: The Belknap Press of Harvard University Press).

Bruner, J. S. (2007). On learning mathematics. *The Mathematics Teacher, 100,* pp. 48-55. Re-

trieved from http://www.jstor.org/stable/27972374

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experiences and story in qualitative research*. San Franscisco, CA: Jossey-Bass.

Clandinin, D. J. (2013). *Engaging in narrative inquiry*. Walnut Creek, CA: Left Coast Press.

Cobb, P. (1994). Where is the mind? Constructivist and sociocultural perspectives on mathematical development. *Educational Researcher, 23*(7), 13-20. Retrieved from http://links.jstor.org/sici?=0013-189X%28199410%2923%3A7%3C13%3AWITMCA%3E2.0.CO%3B2-P

Cross Francis, D. (2014). Dispelling the notion of inconsistencies in teachers' mathematics beliefs and practices: A 3-year case study. Journal of *Mathematics Teacher Education, 18,* 173-201. doi: 10.1007/s10857-014-9276-5

Crotty, M. (2015). *The foundations of social research*. London: Sage. (Original work published 1998)

Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future*. New York: NY: Teachers College Press.

Darling-Hammond, L. Amrein-Beardsley, A., Haertel, E. & Rothstein, J. (2012). Evaluating teacher evaluation. *The Phi Delta Kappan, 93,* (6), pp. 8-15.

Davis, M. H., & J. T. Lysaker, (2012). Do curriculum and instruction in schools need to be more or less programmatic? In A. J. Eakle (Ed.), *Debating issues in American: Curriculum and instruction* (pp. 1-17), a volume in C. J. Russo and A. G. Osborne Jr. (Eds.), *Debating issues in American education: A SAGE reference set.* Thousand Oaks, CA: Sage.

Derry, S. (1996). Cognitive schema theory in constructivist debate. *Educational Psychologist, 31(*3/4), 163-174.

deArajo, Z., Orrill, C. H., & Jacobson, E. (2018). Examining the design features of a communication-rich, problem-centered mathematics professional development. *International Journal of Mathematical Education in Science & Technology*, *49*(3), 323-340.

DeWalt, K. and DeWalt, B. (2002). *Participant observation: A guide for fieldworkers*. New York: AltaMira.

Dewey, J. (2013). My pedagogic creed. In D. J. Flinders & S. J. Thornton (Eds.), *The Curriculum Studies Reader* (pp. 33-40). New York, NY: Routledge. (Reprinted from *Journal of the National Educational Education Association, 18* (1929), 291-295).

Dewey, J. (1938). *Experience and education*. New York, New York: Touchstone.

Ernest, P. (1989). The knowledge, beliefs and attitudes of the mathematics: A model. *Journal of Education for Teaching, 15*, 13-34.

Ernest, P. (1994). Social constructivism and the psychology of mathematics education. In. P. Ernest (Ed.*), Constructing mathematical knowledge: epistemology and mathematics education* (pp. 62-72).

Eisner, E. W. (2013). What does it mean to say a school is doing well? In D. J. Finders & S. J. Thornton (Eds.), *The curriculum studies reader* (pp. 279-287). New York, NY: Routledge. (Reprinted from *Phi Delta Kappan, 82*(5), 2001, pp. 367-372).

Endacott, J. L., Wright, G. P., Goering, C. Z., Collet, V. S., Denny, G. S., & Davis, J. J. (2015). Robots Teaching Other Little Robots: Neoliberalism, CCSS, and Teacher

Professionalism. *Review of Education, Pedagogy, and Cultural Studies, 37*(5), 414-437. doi:10.1080/10714413.2015.1091258

Fang, Z. (1996). A review of research on teacher beliefs and practices. Educational Research, 38 (1), 47-65.

Festinger, L. & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58,* 203-210.

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Kwang Suk, Y. (2001). What makes professional development effective? Results from a national sample of teachers. American Educational Research Journal, 38(4), 915-945.

Grossman, P. & Schoenfeld, A. (2005). Teaching Subject Matter. In Darling-Hammond, L & Bransford (Eds). *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 201-231).

Kliebard, H.M. (2013). The rise of scientific curriculum-making and its aftermath. In D. J. Flinders & S. J. Thornton (Eds.), *The Curriculum Studies Reader* (pp. 69-78). New York, NY: Routledge. (Reprinted from *Curriculum Theory Network, 5* (1975) 27-38).

Lampert, M. (2010). Learning teaching in, from and for practice: What do we mean? *Journal of Teacher Education, 61*(1-2), 21-34. doi:10.1177/0022487109347321

Lev-Zamir, H. & Leikin, R. (2011). Creative mathematics teaching in the eye of the beholder: focusing on teachers' conceptions. *Research in Mathematics Education, 13*(1), 17-32.

Lipman, P. (2009). Beyond accountability: Toward schools that create new people for a new way of life. In A. Darder, M. P. Baltodano & R. D. Torres (Eds.), The critical pedagogy reader, second edition (pp. 364-383). New York, NY: Taylor & Francis. (Reprinted with

permission of Routledge from *High Stakes Education: Inequality, Globalization and Urban School Reform*, (2004), pp. 169-192).

McNeil, L. M. (2000). *Contradictions of school reform: Educational costs of standardized testing.* New York, NY: Routledge.

Meidl, T. (2013). Opting out: Examining teacher's beliefs when faced with core reading programs. *Current Issues in Education, 16*(3). Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article.view/1118

Milner, H. R. (2013). *Policy Reforms and Deprofessionalization of Teaching*. Boulder, CO: National Education Policy Center.

Mizen, P. (2005). A little 'light work'? Children's images of their labour. *Visual Studies, 20*(2), 124-139.

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: National Council of Teachers of Mathematics.

National Council of Teachers of Mathematics (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA.

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010).*Common Core State Standards of Mathematics*. Washington, DC: National Governors Association Center for Best Practices, Council of Chief State School Officers.

Noddings, N. (2013). Curriculum for the 21st century. In D. J. Finders & S. J. Thornton (Eds.), *The curriculum studies reader* (pp. 399-405). New York, NY: Routledge. (Reprinted from *Educational studies in Japan: International yearbook* (2), 2007, pp. 75-81).

Olivant, K. F. (2015). "I Am Not a Format": Teachers' Experiences With Fostering Creativity in

the Era of Accountability. *Journal of Research in Childhood Education, 29*(1), 115-129. doi: 10.1080/02568543.2014.978920

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4). 643-578.

Pinnegar, S. and Daynes, J.G. (2007). Locating narrative inquiry historically. In Clandinin, D. J., Ed., Handbook of narrative inquiry: Mapping a methodology, Thousand Oaks, CA: Sage Publications, 3-34. http://dx.doi.org/10.4135/9781452226552.n1

Prior, L. (2003). *Using documents in social research*. Thousand Oaks: SAGE.

Ravitch, D. (2014). Hoaxes in educational policy. *The Teacher Educator, 49*, 153-165. doi: 10.1080/08878730.2014.916959

Ravitch, D. (2015). 2014 John Dewey lecture: Does evidence matter? *Education and Culture* (31), 1, pp. 3-15. doi: 10.1353/eac.2015.0003

Riessman, C. K. (2008). *Narrative methods for the human science*s. Thousand Oaks: Sage.

Richardson, V. 1996. The role of attitudes and beliefs in learning to teach. In J. Sikula, T.J. Buttery, and E. Guyton (Eds.) *Handbook of research on teacher education*, 2nd edition, pp. 102–19. New York: Simon & Schuster Macmillan.

Roulston, K. (2011). *Reflective interviewing: A guide to theory and practice*. Thousand Oaks: SAGE.

Schunk, D. (2012). *Learning theories: An educational perspective*. Boston, MA: Pearson.

Shavelson, R. J. & Borko, H. (1979). Research on teachers' decisions and planning instruction.

Educational Horizons, 57(4), 183-189. Retrieved from http://www.jstor.org/stable/42924342

Steffe, L. P. (2016) Toward a model of constructivist mathematics teaching. *Constructivist Foundations, 12*(1), 75-77.

Tanase, M. & Wang, J. (2013). Knowing students as mathematics learners and teaching numbers 10-100: A case study of four 1st grade teachers from Romania. *The Journal of Mathematical Behavior, 32,* 564-576.

Thomas, M. (2013). Teachers' beliefs about classroom teaching—Teachers' knowledge and teaching approaches. *Procedia Social and Behavioral Sciences, 89,* 31-39.

Twine, F. W. (2006). Visual ethnography and racial theory: Family Photographs as archives of interracial intimacies. *Ethnic and Racial Studies, 29*(3), 487-511.

Tyler, R. W. (2013). *Basic Principles of Curriculum and Instruction.* In D. J. Flinders & S. J. Thornton (Eds.), *The Curriculum Studies Reader* (pp. 57-68). New York, NY: Routledge. (Reprinted from *Basic Principles of Curriculum and Instruction* by R.W. Tyler, 1949, University of Chicago Press).

Ultanir, E. (2012). An epistemological glance at the constructivist approach: Constructivist learning in Dewey, Piaget, and Montessori. *International Journal of Instruction, 5*(2), 195-212.

United States Census Bureau. (2015). *QuickFacts*. Retrieved from http://www.census.gov

Valenzuela, A. (2013). Subtractive schooling, caring relations, and social capitol in the schooling of U. S.-Mexican youth. In D. J. Finders & S. J. Thornton (Eds.), *The curriculum studies*

reader (pp. 289-300). New York, NY: Routledge. (Reprinted by permission from *Beyond silenced voices: Class, race and gender in United States schools*, Weis, L. & Fine, M. (Eds.), State University of New York Press, 1999).

Valli, L. & Buese, D. (2007). The changing roles of teachers in an era of high-stakes accountability. *American Educational Research Journal*, 44(3). 519-558.

Vasquez Heilig, J. V., Khalifa, M. & Tillman, L. C. (2014). High-stake reforms and urban education. In H. R. Milner IV & K. Lomotey (Eds.), *Handbook of urban education* (pp. 523-537). New York, NY: Routledge.

Vygotsky, L. S. (1978). Interaction between learning and development. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Ed.s), *Mind in Society*, pp. 79-91. Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1990). Imagination and creativity in childhood. Soviet Psychology, 28(1), 84-96. doi: 10.2753/RPO1061-0404280184

Wills, J. S. & Sandholtz, J. H. (2009). Constrained professionalism: Dilemmas of teaching in the face of test-based accountability. *Teachers College Record, 111,* (4), 1065-1114.

Wilson, S. M. & Berne, J. (1999). Teacher learning and the acquisition of professional knowledge: an examination of research on contemporary professional development. *Review of Research in Education, 24*, 173-209.

Yopp, D. A., Burroughs, E. A., & Lindaman, B. J. (2011). Why it is important for in-service elementary mathematics teachers to understand the equality .999…=1. *Journal of Mathematical Behavior, 30*, 304-318.

APPENDICES

Appendix A

Semi-structured Interview Questions

Sample list

1) Tell me about your professional journey (Below are stems to us in case the participant does not provide clear and complete information)
    a. Why did you become a teacher
    b. What was your process for becoming a teacher
    c. What is your teaching experience (how long, what, where)
2) Tell me about your experiences with high-stakes testing (Below are stems to use in case the participant does not provide clear or complete information
    a. Tell me about some of the high-stakes tests that you administer
    b. What are some of the implications high-stakes tests have on your classroom practice
3) Describe the perfect lesson in your classroom
    a. What are some questioning techniques you use
    b. Describe how the students complete assignments
    c. Where do the materials for your lesson come from
    d. What are you doing during the lesson?
    e. What are the students doing during the lesson?
4) Tell me about a time that you felt pressured to alter instruction do to high-stakes testing

5) Tell me about another time you felt pressure that you did things differently in your classroom because of high-stakes testing
6) Describe a lesson you taught in class today
7) Describe the factors you used in making instructional decisions for this lesson
8) Tell about the resources you used for the lesson
    a. How did you decide to used these resources
    b. If they are teacher made, what prompted you to make your own activities
9) Describe another lesson you plan to teach tomorrow
10) What factors did you use to determine that this is a lesson you should teach tomorrow?
11) Tell me about the resources you will use for this lesson
    a. How did you decide to use these resources
    b. If they are teacher made, what prompted you to make your own activities

Appendix B

Visual data prompt

For our scheduled interview on _____, please provide one or more photographs that represent the experience of impacts of high-stakes testing and the cognitive dissonance this creates for you and your beliefs about quality instructional practice. The photo(s) should not contain students. They can be literal or figurative in nature. Be creative and please share with me how the photos represent your experience.