How Do District Level and Building Level Leaders Collaborate to Implement Mandated Change?

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ACKNOWLEDGEMENTS

To say that I stand on the shoulder of giants is almost an understatement. It is only with the help and support of so many that I find myself at the end of a long journey. I am so grateful for the many individual who have supported and encouraged me along the way.

I would like to begin by thanking the two leaders who gave so much of their time and expertise going beyond what I expected and asked of them. Their generosity, patience, and graciousness enabled me to fumble my way through qualitative research ending up with this research case study. These leaders allowed their story to be told so that others may learn from it.

I would also like to express my gratitude to my dissertation committee members, Dr. Leanne Kallemeyn, whose initial research methodology course motivated me to pursue case study research, and Dr. James Breunlin, who serendipitously appeared early in my career and was the reason I persevered to teach.

Without Dr. Marla Israel, my dissertation director, I may not have persevered to the end. Dr. Israel provided unending guidance and clarity during the entire dissertation process. She had a keen sense of giving just the right amount of support and encouragement allowing me to pace myself with gentle reminders and encouragement. What I am most thankful for is Dr. Israel’s unwavering belief in me as a leader.
I would be remiss if I did not take this opportunity to acknowledge the gratitude I have to my Loyola classmates and friends, Drs. Wendy Custable and Steve Plank. I jumped when given the chance to learn with these two amazing individuals because I knew they would push me as a learner and as an educational leader. Not only did they help me grow as a leader, we have a lot of great memories through the process.

Most importantly, I would like to thank my brother who never doubted I would finish (though he might have questioned why), and to my husband, who believes in everything I do, never once laughed when I told him about this program, and supported me every step in this long journey.
To my husband and best friend, Jim, who has always supported, encouraged and listened.

And to my brother, Greg, who is always there for me, no matter what.
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This research study examined how school leaders, in particular the associate superintendent of curriculum and a junior high school principal, in the same district collaborated to plan for and implement mandated change. In this research study, the mandated change was that of the State’s adoption of the Common Core State Standards for Mathematics.

This study utilized a case study methodology. The case study included one case of an associate superintendent of curriculum for the district and a junior high school principal located in suburban Cook County bounded within the timeframe of August 2012 to October 2013. The district identified had demonstrated academic achievement in mathematics and a significant minority student population. Interviews of the assistant superintendent of curriculum and middle school principal from the district were conducted and artifacts collected. Participants were asked questions about how they developed their own knowledge of the CCSS for Mathematics, what implementation plans they had developed or planned to develop for the middle school, and the extent and nature of the relationship between the central office and middle school leadership as it related to implementation of the CCSS for Mathematics.

This study concluded that factors that contribute to meaningful change in the fact of state mandates include a clear vision for curriculum, instruction, and student achievement, a comprehensive communication structure, a culture of support and collaboration, and extensive and well thought out professional learning to support both
teachers and leaders in the process of change. However, the multiple organizational layers and the redundancy of information and knowledge building across the district in the form of numerous larger group meetings may be an indication of wasted resources in terms of personnel and time. Further research is needed to explore how systems and structures at the leadership level developed as a result of mandated change translate into classroom practice and student learning.
CHAPTER I

INTRODUCTION

The *Common Core State Standards* Initiative is a state-led effort that brought together the National Governors Association Center for Best Practices and the Council of Chief State School Officers. The goal of this collaboration was the creation of rigorous standards beginning with the subjects of reading and mathematics grades kindergarten through twelfth grade. The *Common Core State Standards* (CCSS, 2010) identify knowledge and skills in reading and mathematics intended for all students regardless of their post-high school goals be it college or entry directly into the workforce. That is, the intent of the Standards is to identify key content and practices in the areas of reading and mathematics that will prepare students to be successful either in the pursuit of post-secondary education or vocational interests. In June of 2010 the *Common Core State Standards* were released and to date, 45 states have adopted these standards. School districts in states that have adopted the *Common Core State Standards* are in the position of determining how to move forward with state mandated change. How will district and school leaders work together to implement these new standards? For the purposes of this study, the *Common Core State Standards (CCSS) for Mathematics* were of particular interest.

U.S. History of Standards in Mathematics

Standards in mathematics are not new. In 1957, the Russian launch of Sputnik resulted in a push for “new math” that was designed to better prepare U.S. students in
mathematics. The 1970’s witnessed a return to an emphasis of “back-to-basics” in mathematics where rote memorization was emphasized. The release of *A Nation at Risk* in 1983 once again brought educational reform to the forefront. Recommendations contained in the report included increasing high school mathematics requirements to three years. The National Council of Teachers of Mathematics (NCTM) subsequently published three seminal documents. In 1989, the *Standards for Curriculum and Evaluation Standards for School Mathematics* placed greater emphasis on problem solving and conceptual understanding of content. Shortly thereafter, NCTM released *Professional Standards for Teaching Mathematics* (1991) and *Assessment Standards for School Mathematics* (1995) containing recommendations for teaching and assessing grade school mathematics. Lastly, the *Principles and Standards for School Mathematics (PSSM)* (NCTM, 2000) built upon the 1989 NCTM standards providing a vision for teaching and learning of mathematics that included *Process Standards* (i.e., problem solving, reasoning and proof, communication, representation, and connections) describing the ways that students should apply mathematical content. Soon after in 2001, *Adding It Up: Helping Children Learn Mathematics* (National Research Council) highlighted five strands that combine to capture mathematical proficiency (i.e., adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition). NCTM followed up in 2006 and 2009 by releasing two documents to further develop the conceptual ideas and reasoning processes encapsulated in *PSSM: Curriculum Focal Points for Prekindergarten through Grade 8: A Quest for Coherence and Focus on High School Mathematics: Reasoning and Sense Making*. 
All of the preceding history informed the creation of the *CCSS for Mathematics*. Contained within the *CCSS for Mathematics* are content standards as well as *Standards for Mathematical Practice*. The *Mathematical Practices* build upon the NCTM *Process Standards* and the mathematical proficiencies in *Adding It Up*. The aforementioned journey through the history of mathematics education demonstrates that standards in mathematics have long existed. The creation and adoption of the *CCSS for Mathematics* is built upon a history of standards that seek to provide students access to curriculum and instruction that supports and leads to the learning of mathematics in meaningful and connected ways in which students make sense and reason about the mathematical content. What makes the *CCSS for Mathematics* different than earlier standards is the *required* implementation of the *CCSS* as mandated by state adoption of the standards. Furthermore, the *CCSS for Mathematics* goes beyond content standards by mandating the implementation of the *Mathematical Practices*.

**Implementing Mandated Standards in Mathematics**

Illinois was quick to adopt the *CCSS 2010*. In a press release dated June 24, 2010, Illinois State Board of Education Board Chair Jesse H. Ruiz was quoted,

> The goal is to have fewer, clearer and higher standards focused on college and career expectations. Our Board supports these new standards because they are essential for our students, for their futures and for the future economy of Illinois. We look forward to working with all interested parties in implementing these standards in classrooms throughout the state. (Illinois State Board of Education, 2010)

State Superintendent of Education Christopher A. Koch further elaborated by stating, “It is vital that we establish clear, consistent and rigorous learning standards to ensure our students, teachers and parents have a clear understanding of what students need to know
and be able to do to be prepared for success after high school.” The CCSS are said to be more focused and clear, internationally benchmarked, and encompass Twenty-first Century Skills.

To date, the State of Illinois has given limited direction to districts as to implementation of the CCSS. In addition, the State is part of an 18-state consortium called Partnership for the Assessment of Readiness of College and Careers [PARCC] (2014) that is developing an assessment to be implemented in 2014-2015. In October 2011, PARCC released The Model Content Frameworks for Mathematics, which is intended to bridge the CCSS for Mathematics with the forthcoming assessment. The framework highlights in more detail the emphasis of particular standards and the progression of standards beginning in grade 3 and extending through grade 11. With the adoption of new state standards and the forthcoming new assessment, it behooves district and school leaders to be proactive in learning about CCSS 2010 and planning for implementation of these standards.

Mandated change is certainly not new to district and school leaders. No Child Left Behind legislation required testing and specific reporting of student achievement. Mandates in the State of Illinois have also come in the form of required Pledge of Allegiance and a moment of silence as well as requirements related to teacher evaluation. Although one might argue the pros and cons of each mandate, few have quite the far-reaching impact that the CCSS for Mathematics is likely to have on district and school curriculum leaders. Any mandated change presents district and school leaders with unique challenges. However, the CCSS for Mathematics demands that district leaders
prepare their teachers to go beyond familiarity with content standards and gain the necessary pedagogical content knowledge needed for students to reason about and with mathematics. The implementation of the *CCSS for Mathematics* will directly impact curriculum, instruction, learning, and assessment in districts and schools in Illinois.

**Curriculum Leadership at the Building and District Level**

Leaders in the positions of principal or assistant superintendent for curriculum are instructional and curricular leaders. It is essential for the assistant superintendent and building principal to work together to ensure a shared district vision is enacted upon while meeting the diverse needs of each building. This collaboration is especially crucial in the implementing of any district-wide change.

The middle school is of particular interest within the K-8 school system structure. A review of scores on standards benchmarks indicates U.S. students’ performance in mathematics is subpar with other highly industrialized nations (Gonzales et al., 2008). Moreover, recent research points to “setbacks” by students in the area of mathematics as they transition from elementary school to middle school potentially lasting until tenth grade (Schwerdt & West, 2011). A coherent and focused effort to develop and implement the *CCSS for Mathematics* by district and school leaders in the middle school will be central to student success on state assessments.

**The PRIME Leadership Framework**

How is effective leadership, as it relates to mathematics, defined? Various frameworks exist describing school leadership (Fullan, 2001; Kipp, Quinn, & Sharratt, 2012; Marzano, 2012). However, only one leadership framework is specific to
mathematics education. *The PRIME Leadership Framework* is a research-affirmed framework that describes principles and indicators for leaders in teaching and learning mathematics (National Council of Supervisors of Mathematics [NCSM], 2008). The four principles of *The PRIME Leadership Framework*, Equity, Teaching and Learning, Curriculum, and Assessment, capture the essential overarching themes central to mathematics educational leaders. Within each principle, *The PRIME Leadership Framework* identifies three indicators or actions that leaders must undertake to lead others in high quality and effective mathematics education around the areas of curriculum, instruction, and assessment for the benefit of all students. Leadership development is a complex web combining various facets of leadership including ongoing development of self-knowledge and the ability to effectively lead others in collaborative work. For some leaders, such as assistant superintendents of curriculum, a third facet of leadership is leading beyond a single department or building. These three “stages” of leadership development are identified in *The PRIME Leadership Framework* as “know and model” (development of one’s own knowledge and expertise), “collaborate and implement” (leading others), and “advocate and systematize” (extending one’s sphere of influence across a district or beyond to the state or national level). *The PRIME Leadership Framework* (see Figure 1) is a complementary tool to identify leadership characteristics and actions of leaders of mathematics education seeking to implement the *CCSS for Mathematics* in all grades.
**Figure 1. The PRIME Leadership Framework**

*Note:* This figure captures the four principles and respective indicators of *PRIME.*

**Purpose of Study**

*The PRIME Leadership Framework* was used as the conceptual framework for this research study. The purpose of this study was to explore the actions in which K-8 district and school leaders are engaged and how these leaders interact with one another as they seek to implement mandated change. The State of Illinois’ adoption of the *CCSS for Mathematics* was an opportunity to explore in detail these leadership actions and the nuances of the relationship between district level and building level leaders. The *CCSS for Mathematics* requires that district and building leaders review and potentially change their mathematics curriculum leading to changes in instruction and assessment practices. Furthermore, implementation of the *CCSS for Mathematics* will require professional
development for teachers in the mathematics classroom necessitating the communication and collaboration between the assistant superintendent for curriculum and building principal.

**Research Questions**

Specifically, this study examined how the assistant superintendent of curriculum and building principal of a middle school collaborated to implement the state-adopted *Common Core Standards for Mathematics*. This study sought to address the following research questions:

1. What is the nature and extent of the roles of the assistant superintendent of curriculum and middle school principal in planning for and implementing the *Common Core State Standards* for mathematics in grades 6 through 8?

2. In what ways do the assistant superintendent of curriculum and middle school principal work together to plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

3. What practices facilitate the collaboration between the assistant superintendent of curriculum and middle school principal as they plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

4. What practices create obstacles to collaboration between the assistant superintendent of curriculum and middle school principal as they plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?
Significance of the Study

School districts may not always welcome state mandated change. At the same time, school leaders must make decisions on how to move forward with the implementation of such directives. A case study analysis of how an assistant superintendent of curriculum and middle school principal communicate and collaborate to plan for and implement *CCSS for Mathematics* in meaningful ways may inform other district and school level leaders on actions that support or hinder collaborative efforts to instigate and lead change in their respective school district. This study provides insights into how these leaders tackle the significant task of implementation of a state mandate and the manner in which district-level and building-level instructional leaders work together to implement such change.

Methodology

The methodology used to address the above research questions was a case study methodology. To explore and better understand how the assistant superintendent of curriculum and the middle school principal developed their own knowledge and led a middle school to integrate *CCSS for Mathematics*, an instrumental case study (Stake, 1995) provided the lens by which to gain insight as to how these curriculum leaders approached learning about and implementing state mandated standards. Moreover, context was critical in making sense of the influence and impact that school leaders’ actions, words, and practices had on the school’s implementation of state standards. Only through actual interactions and communication within the district and school context could the researcher hope to better understand the extent and nature of the assistant
The case study included one case of an assistant superintendent of curriculum for the district and a middle school principal located in suburban Cook County (excluding Chicago public schools) bounded within the timeframe of August 2012 to October 2013. Intensive interviews of the assistant superintendent of curriculum and middle school principal from the district were conducted and artifacts collected. Participants were asked questions about how they developed their own knowledge of the CCSS for Mathematics, what implementation plans they had developed or planned to develop for the middle school, and the extent and nature of the relationship between the central office and middle school leadership as it related to implementation of the CCSS for Mathematics.

For this case study, a middle school in Cook county that had met or exceeded state standards in mathematics (as identified using state-reported data found on the Interactive Report Card http://iirc.niu.edu/) and had a language minority population of nearly 20 percent in 2012 was selected.

**Limitations**

This research study has several limitations to consider in applying findings to other situations. These limitations include:
1. Case study, by its very design, is intended as an exploratory research methodology. Although petite generalizations (Stake, 1995) can be made, broad generalizations are not generally applicable.

2. The intent of this research study was to learn more about the relationship between district level and building level leadership as mandated change is implemented. Because this study focused on a school that had met state standards, nuances in an existing culture of academic success may be difficult to identify and separate from confounding factors.

3. Each state has unique policies and practices, and even within a state, different geographical areas have distinctive perspectives, challenges, and resources. Similarly, the manner in which middle schools and junior high schools operate is often significantly different than in either elementary or high school contexts. The sample for this study is centered on a suburban county of Chicago. The findings may not be applicable to different geographical or socio-economic areas.

**Summary**

Whether at the state or national level, mandated change in education is unavoidable and by definition non-discretionary. However, the manner in which schools choose to embrace these directives can impact the academic achievement of its students. When leaders collaborate in effective ways to develop plans for implementation of change, both teachers and students benefit. The State of Illinois adoption of the *CCSS for*
Mathematics creates an ideal opportunity to research the practices and policies of schools meeting state standards so that all might profit.

**Glossary**

Assistant superintendent of curriculum – The assistant superintendent of curriculum in a school district oversees the implementation of federal, state, and local policies as they relate to student achievement.

**CCSS – Common Core State Standards** refers to both the English-Language Arts and mathematics standards that were created through a state-led effort coordinated by the National Governors Association Center for Best Practices and the Council of Chief State School Officers and adopted by the State of Illinois in 2010.

**CCSS for Mathematics** – These are the subset of Common Core State Standards that are specific to mathematics that includes both the content standards as well as the Standards for Mathematical Practice.

**ELL** – English-language learners are those students whose first language is something other than English. Illinois School Report Card refers to this population of students as “limited-English proficient.” In this research, these terms are used interchangeably.

**Interdisciplinary team** – An interdisciplinary team is a group of teachers across disciplines that each teach the same group of students.

**Limited-English proficient** – The term used on the Illinois School Report Card to identify students who are eligible for transitional bilingual programs. In this research, this term is used interchangeably with English-language learner (ELL).
Middle school – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8 (Merriam-Webster, 2012).

PARCC – “The Partnership for Assessment of Readiness for College and Careers (PARCC) is a group of states working together to develop a set of assessments that measure whether students are on track to be successful in college and their careers” (PARCC, 2014).

Principal – The principal is the ultimate authority in the building responsible for leading and managing resources to support the education of students who attend the school.

_The PRIME Leadership Framework_ – This is a research-affirmed framework developed by the National Council of Supervisors of Mathematics (2008) that outlines four principles and 12 indicators for leaders of mathematics education.

Sheltered Instruction Observation Protocol [SIOP] – SIOP is a research-based instructional model for use with who are English-language learners (Center for Applied Linguistics, 2014).
CHAPTER II
LITERATURE REVIEW

*Common Core State Standards – A Call for Action*

In June of 2010, the *Common Core State Standards (CCSS)* were officially released for English-language arts and mathematics, and very quickly several states adopted the CCSS as their state standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). The CCSS, resulting from a joint initiative coordinated by the National Governors Association Center for Best Practices and the Council of Chief State School Officers, were lauded as taking evidence-based research about rigorous content that would prepare students for college or careers post-high school (*Common Core State Standards*, 2010) to create standards that would prepare students to increase achievement on international benchmarks. The U.S. has long been accused of teaching too much content with little depth – the old adage that characterizes U.S. curriculum as “a mile wide and an inch deep.” In addition, standards across states varied so significantly that a comparison of state standards was virtually impossible and raised concerns of equity in the mathematics education received by students (Reed, 2009). State standards differed by expectation of rigor, language used to describe standards, at what grades content was taught, and the content specified in the standards. A student moving from California to Illinois had no expectation of a smooth transition to a new school. It is the intent of the writers of the CCSS that the content
students are expected to learn in English-language arts and mathematics will be less in quantity yet more focused and coherent as well as more consistent across states.

To date, 45 states have adopted the CCSS as their state standards. The result is that states and school districts are scrambling to implement the standards before assessments are put in place in the near future. Some states have made progress toward implementation offering school districts greater direction and support while other states have put some initial supports in place (Gewertz, 2011). Regardless the progress of an individual state, in the end, it is up to each school district to implement the mandated change as required by the CCSS state adoption. More specifically, a question to be answered is how will the assistant superintendent of curriculum and building principals of middle schools collaborate to implement the State adopted *Common Core Standards for Mathematics* (*CCSS for Mathematics*)? This chapter summarizes some of the relevant literature to better understand the underlying issues that inform this question.

The *CCSS for Mathematics* for grades 6 through 8 represents a significant change from standards of the past. Some of these changes include an expectation of conceptual understanding, fluency with standard algorithm for multi-digit division by grade 6, introduction of negative numbers, a deeper and more complex understanding of rational numbers as well as ratios and proportional reasoning (Briars, Asturias, Foster, & Gale, 2013), to name a few of the changes. For most district and schools, this likely means that leaders not only need to create or identify curriculum and instructional resources, but professional development will be critical in order to support teachers who have limited or
no knowledge and experience in some of mathematics content and instructional practices expected in the implementation of the CCSS for Mathematics.

**Implementing Mandated Change**

Federal and state mandates have long been a part of education (Cuban, 1990: Hansen, 1993) and are viewed by some as a conduit to motivate change (van der Vegt & Knip, 1990). Looking back to the 1980’s, *A Nation at Risk* (National Commission on Excellence in Education, 1983) resulted in a number of mandates calling for such changes as increased graduation requirements, higher levels of rigor in course work, and more time spent on learning. In the decades that followed, the recommendations called for in *A Nation at Risk* led to more national commission reports, executive action, and state legislative changes (Firestone, Fuhrman, & Kirst, 1983) with mixed impact on education at the national and local levels (U.S. Department of Education, 2008). Standardized testing of students proliferated together with a sense of accountability. Time students spend learning has not substantially changed, and while progress has been made in the area of mathematics, little progress has been made in regards to reading.

Fuhrman and Elmore (1990) report that state control of education is often erroneously assumed to result in loss of local control when in reality states set minimum requirements that can realistically be applied uniformly and in meaningful ways across districts. That is, districts have the latitude as to how implementation occurs. Regardless of the origin of the mandate, ultimately the district determines the exact nature and extent of the implementation of governmental dictates. In fact, whether a reform effort is sustainable is dependent on a school’s strategy for handling change, local conditions, and
their experiences with reform (Datnow, 2005). Petrides (2004) suggested proactive strategies to capitalize on external accountability measures could serve as a means to implement organizational change. Strategies such as increased faculty access to data, persistent and consistent decisions, and practices supporting implementation of the targeted change can lead to meaningful change.

Yet at this time, two years after the release of the CCSS, many districts are ill prepared to fully implement the CCSS. “Barely half the school districts in states that have adopted the common standards are taking essential steps to implement them, and most cite inadequate state guidance as a major problem in moving forward, a new study finds” (Gewertz, 2011). Other reasons for the slow implementation of the standards are also attributed to budget constraints and a desire for more information about the assessment instruments.

Kelly (1999) argues that mandates are a form of coercion and, therefore, do not tend to work to affect meaningful change. Rather, excellence results from choice and a commitment to change. Thus, the manner in which state or national mandates are implemented at the school level relies on the conscious decisions school leaders make about how and when to implement federal or state requirements. In a study of three high schools that were identified to have a culture supporting quality education, researchers determined that district-level administrative support of teachers making sense of initiatives and change had an effect on how well the initiative was implemented (Louis, Febey, & Schroeder, 2005). As part of the process of collective sense making, participants developed a sense of professional responsibility toward the regulated change,
and regardless of the structure that districts employed to address the initiatives, collegial conversations were vital to the sense making process.

Fernandez, Ritchie, and Barker (2008) examined the implementation of a mandated physics curriculum and posited that transparency of the process by which curriculum would be developed and its anticipated impact on current practices was key to a committed engagement of teachers in the process. The researchers further proposed that teachers need structured support as they wrestle with the way changes translate to classroom practice.

In his book, Change Leader (2011), Fullan suggests that in order for today’s leaders to implement and sustain lasting change, they must understand what motivates their staff. According to Fullan, effective leaders motivate by learning from experience as participant learners in the change process. These leaders seek to understand those who disagree with them, determine how to motivate others, and create collaborative cultures. Israel and Kasper (2004) suggest that leaders use “reframing” theory as a way to examine their role in change. “Reframing is the switching of administrative perspectives during the change process to uniquely observe and capture the moment” (p. 16). Implementing and effectively managing change requires that leaders be able to reframe their perspective as change evolves in a district or school.

Senge (1990) proposes that in order for organizations to be dynamic, adaptive, and responsive to change, they must evolve to become “learning organizations.” In a world that is ever changing, Senge argues that organizations need to be prepared to reinvent themselves. The dimensions that distinguish learning organizations from other
institutions are systems thinking, personal mastery, mental models, building shared vision, and team learning. Effective leaders are able to think and act systemically in a holistic manner to enact meaningful change. Senge views leaders, not so much as determining the vision, but rather responsible for building capacity through a shared leadership model.

**Middle Schools**

The middle school, in its current reincarnation, has evolved over several decades. Regardless of how one might define middle school, it is generally accepted that students in these middle grades have challenges that are unique to adolescents. It seems that the middle school has suffered from somewhat of an identity crisis. In 2002, the *New York Times* labeled middle school as “the Bermuda Triangle of public education” (p. 22). Thompson and Homestead (2005) differentiated middle schools or juniors high schools from lower elementary or high school buildings by four components: grade configuration, interdisciplinary teaming, scheduling, and specialized programs. Alexander (as cited in Thompson & Homestead, 2005) defined a middle school as “a school having at least three grades and not more than five grades, and including at least grades six and seven” (p. 1). Bedard and Do (2005) citing the lack of a common definition of middle schools, defined middle schools as either containing grades 5 through 8 or grades 6 through 8. In 2011, the National Middle School Association changed the name of its organization to the “Association for Middle Level Education” citing that “middle level education” is common nomenclature in the field of education regardless of the name of the building.
From the perspective of the Association for Middle Level Education, the focus should be on students 10 through 15 years old and not necessarily the structure of the school.

As the definition and characterization of middle schools evolved, other research and reports were emerging, that examined the unique needs of middle grades. In 1989, the Carnegie Council on Adolescent Development convened a task force that published *Turning Points: Preparing American Youth for the 21st Century*, a report that examined American adolescents with recommendations about the education of students in the middle grades. One recommendation included the development of a core set of knowledge that would be taught to all middle grade school students.

Erb (2000) examined the impact of implementation of the recommendations identified in *Turning Points* and found that regardless of the structure of the school that contains middle level grades, there exist key elements that are instrumental in effectively influencing student performance at this age level. Many of these features reflect collaborative environments in which teachers work together around curriculum, instructional, and behavioral issues involving shared students. Erb further articulated the need for administrative support for this collaboration in the form of time and space.

Middle school students seem especially vulnerable to issues of transition and often experience a negative impact on academic achievement. In a study that examined the effectiveness of junior high schools (grades 7-9) compared to middle schools (grades 6-8), Bedard and Do (2005) estimated the impact of moving from a junior high system to a middle school system would result in a 1 to 3 percent decrease for on-time high school graduation rates. Dhuey (2011) found that in analyzing achievement growth in
mathematics and reading in British Columbia for grades 4 through 7 students in middle or junior high school experienced a negative effect on their respective scores in each area as compared to students attending a school structured kindergarten through grade 8. In his research, Asplaug (1998) not only reported a greater decline in achievement of students who moved from a middle school to high school than students transitioning from a K-8 school to a high school, he found that the achievement of students in a middle school that served several elementary schools was lower than that of students who transitioned from a single elementary school to one middle school. EdSource (2010), an educational research group, examined the overall achievement of middle school students in California and found no difference in the achievement between K-8 and 6-8 students. The study found that students faced a greater challenge in transitioning from elementary to middle school than from middle school to high school. Schwerdt and West (2011) made similar conclusions citing that although student achievement dropped in both the transition to middle school and the transition to high school, the drop in student achievement were greater and more persistent in the transition to middle school. In addition, Schwerdt and West found that absences increased with entry to middle school. Reising (2002), on the other hand, suggests that in spite of several larger urban districts moving to a K-8 school system in an attempt to increase academic rigor, it is only through a middle school model that students can receive an education from teachers with specialized training to contend with the “unique developmental challenges” (Shouten, 2002, as cited in Reising, p. 60) of young adolescents. William Alexander holds a similar view as evident in his rewrite of his 1963 address “The Junior High School: A Changing View” (1995). He writes that
junior high schools would benefit from services that would support the individualization of programs, whether in the area of guidance or curricular.

The middle grades can be a challenging time for adolescents, both academically as well as socially. In 2004, the Rand Corporation published *Focus on the Wonder Years: Challenges Facing the American Middle School*, a monograph detailing the state of middle schools in the U.S. Researchers concluded that not only were eighth graders not meeting proficiency standards as measured by the National Assessment of Educational Progress but that students expressed feelings of isolation, loneliness, and intimidation in middle school. The report further concludes that the vision of middle schools has not been realized. More specifically, motivational and social-emotional factors have not addressed the unique needs of young adolescents. Additionally, middle school teachers and administrators have not received training specific to students in these grades.

Middle schools offer a particular challenge to school leaders in a time of mandated change. Children in the middle grades are transitioning between elementary grades and high schools in ways that extend beyond academics. The *CCSS for Mathematics* is likely to increase the academic expectations for middle school students. However, schools and school leaders must balance implementing more rigorous academic expectations with the emerging social needs of students in the middle grades.

**Middle School Mathematics**

In spite of reporting the highest percentage ever of eighth grade students at or above the level of proficient in 2011, two-thirds of U.S. students remain below proficient as measured by the National Assessment of Educational Progress (U.S. Department of
Concerns specifically with middle school mathematics curriculum and instruction are not new and go back as far as the 1980’s (Flanders, 1987; Steen, 1986). Evidence suggests that a decline in academic achievement in general is one outcome of the transition of students from elementary to middle school (Asplaugh, 1998; Dhuey, 2011). In particular, moving to the middle school presents unique challenges for students in the subject of mathematics. In a longitudinal study of student motivation, Eccles et al. (1993) found that the change in the mathematics classroom environment from sixth grade to seventh grade contributed to a decline in student motivation. Eccles and colleagues identified a number of factors that contributed to the middle school classroom environment, including limited opportunities for students to make decision, tighter control of students, and students feeling less efficacious. Other differences that have been recognized between elementary and middle school mathematics teaching and learning relate to the resources available to teachers, level of difficulty of the content, and expectations for students (Schielack & Seeley, 2010). Schielack and Seeley further noted that students are typically given more homework and expected to have “a higher level of focused concentration” in class.

Textbooks are arguably the most influential resource to mathematics teachers. A teacher makes decisions, about such matters as the content and sequencing that are often guided by the textbook (Grouws & Smith, 2000; Grouws, Smith & Sztajn, 2004). Schielack and Seeley (2010), report that middle school textbooks tend to look substantially different and contain a greater degree of content difficulty and content-specific vocabulary. Concurrently, researchers determined that half of the teachers used
the textbook to make decisions about what was taught whereas the other half used district or state curriculum guidelines to decide the content taught. Regardless, teachers relied heavily on the textbook to make decisions about how and what mathematics to teach.

The CCSS for Mathematics are not just a change in content for many schools and districts, but the CCSS for Mathematics require that instruction in mathematics looks different than it has in the past.

Developing teachers’ capacity to enact these new standards (CCSS for Mathematics) in ways that support the intended student learning outcomes will require considerable changes in mathematics instruction in our nation’s classrooms. Such changes are likely to occur only through sustained and focused professional development opportunities for those who teach mathematics. (Sztajn, Marrongelle, Smith, & Melton, 2012, p. 7)

In order to embrace and implement change in instruction and curricular approach, teachers must be provided with professional development opportunities directed at both content as well as pedagogy (Manouchehri & Goodman, 1998). In an ethnographic study of the implementation of standards-based curricular materials by middle school mathematics teachers, Manouchehri and Goodman, found that teachers who had used a more traditional approach to the instruction of mathematics tended to view the standards-based curricular materials as lacking and “an affront to the strategies, methods, and materials they had developed and used for some time and what they considered the legitimate mathematics for the grade level they taught” (p. 32). Smith (2000) conducted a case study of a sixth grade teacher who tended to be more traditional while she sought to implement a reform-based mathematics curriculum. Through reflection and conversations with colleagues, the teacher attempted to resolve a dilemma about what student success
looked liked during instruction. Smith reported that this process of seeking to resolve the dilemma resulted in meaningful professional growth for the teacher.

**Assistant Superintendent for Curriculum and Middle School Principals**

In a review of middle listed in the mastery directory of all public K-12 schools for 2011-2012 as part of the Directory of Educational Entities in Illinois (Illinois State Board of Education, 2012), middle schools are typically either part of districts containing grades kindergarten through high school or combined solely within an elementary district that includes grades up through eighth grade. Regardless of the type of district, the middle school is part of a larger system. As such, leadership exists at two levels: district level and building level. At the building level is the middle school principal. Building principals oversee instruction, evaluation of teachers, and the general operations of their school. Existing at the district level is the superintendent who is ultimately responsible for all district operations, and the assistant superintendent for curriculum who is primarily responsible for the integrity of curricular design and implementation across the district. In situations regarding mandated change, such as the adoption of the *CCSS for Mathematics*, there is a level of cooperation that must exist between the middle school principal and assistant superintendent. Research provides some insights as to extent to which each of these leaders contributes individually and collectively to mandated change.

William A. Firestone (1989) from Rutgers examined the manner in which districts make use of state reform. In spite of historical research suggesting that districts would “comply minimally with mandates” (p. 151), even as early as the 1980’s some school districts responded to mandates in positive ways. Such districts were found to have the
will and capacity to implement reform in anticipatory ways that would go beyond minimal requirements. In 2009, Firestone argued that the notion of accountability has increased the coherence of school improvement through more centralized control. Firestone further argued that a student learning culture is ultimately more effective than one of accountability.

The adoption of the *CCSS for Mathematics* as the state standards in Illinois requires that districts analyze and enact needed changes to their mathematics curriculum and instruction so to align with the *CCSS for Mathematics*. Manouchehri and Goodman (1998) acknowledged the importance of leadership to engage teachers in meaningful mathematics reform,

The activities of teachers individually and collectively depended heavily on school and district-level leadership from a mathematics coordinator, principal, or an expert teacher with a high reputation in the school district. The presence or absence of progressive leadership was instrumental for all teacher participants’ continued use of the programs. (p. 34)

For the middle school principal, the implementation of new curriculum such as that required by the *CCSS for Mathematics* provides an opportunity to focus the work of teachers on common standards and high quality instruction that is developmentally appropriate (Clark & Clark, 2000). Characteristics of successful middle school principals include shared leadership, facilitating professional development, and leading with a focus on instruction (Sanzo, Sherman, & Clayton, 2011). The success of any efforts toward school improvement is reliant on the principal creating an environment that supports and embraces professional growth as part of the school culture (DuFour & Berkey, 1995). In one study of the role of the principal in five Illinois high schools in the process of
implementing mandated change, principals who viewed the mandated change as an opportunity to collaborate were more likely to involve teachers in the process (Gibson, 1996). This supports Tripses’ (1998) findings that principals relied on collaboration as an opportunity to engage teachers in the change process. In her findings, Tripses also reported that principals who took advantage of mandated change to support school improvement were determined to be effective problem solvers who sought “to use a state mandate to create meaningful change in their schools” (p. 200). In a case study of three middle school principals seeking to create inclusionary school environments, principals who practiced distributed leadership and continuously shared their vision made progress toward change.

Waite (2002) suggests that the principal by herself is challenged to realize any meaningful school improvement.

These excellent principals of excellent schools may not create school improvement alone, but they serve as a catalyst for it, a spark plug … The principal sits as gatekeeper to his or her school. As such, mandates from above filter through the principal’s office. The principal also acts as a filter for much of the information that flows from the school to others …. (p. 164)

In a case study of a principal of a high poverty, high achieving intermediate school, Rinder (2007) characterized the principal as using effective communication, relationships and collaborative decision-making to hold individuals accountable to expectations of standards-based instruction. The research is replete with evidence of the importance of effective communication in implementing change. Gibson (1996) found that in schools where communication networks already existed, teachers demonstrated a higher degree of commitment to the change. Similarly, White-Smith and White (2009) found that high
school principals who were able to articulate a clear vision for desired change had a positive effect on student achievement outcomes. Furthermore, when school leaders and teachers engage in dialogue around school reform efforts, the teams create shared mental models of the work to be done (Chrispeels, Daly, Burke, & Johnson, 2008).

There is little doubt as to the importance of the principal in change and school improvement. Yet, the middle school principal is part of a system in which district leadership plays a significant part in determining the focus, direction, and supports available to the principal in the process of school improvement or implementation of mandates. In examining the relationship between the principal and district leadership, Leithwood and Montgomery (1982) conducted a literature review of the effectiveness of elementary school principals and found that one challenge faced by these principals was in their relationship with central administrators. Researchers found that the central office tended to initiate change with little input from the principal and little support for district initiatives. Furthermore, communication between building principals and the district administration was minimal. More recently, McLaughlin, Talbert, and the Center for Teaching and Policy (2003) concluded that principals were supportive of district support of school improvement. In fact, they found that minimal district office support limited the effect of reform efforts.

Rorrer, Skrla, and Scheurich (2008) identified four roles at the district level in relation to educational reform: (a) provide instructional leadership; (b) align district policies and practices to support reform; (c) establish policy coherence; and (d) advance equity. Districts tend to take on the role and responsibility of aligning state policy and
mandates to the district vision. Moreover, district leaders “actively shaped and engaged in the implementation of state accountability policies by integrating, rather than imposing accountability into the core aspects of organizational relationships, culture, policies, and practices” (p. 324). Kaltenecker (2011) identified the role of the assistant superintendent for curriculum to include: (a) creating and communicating a vision; (b) building the capacity of others; (c) promoting collaboration, (d) coordinating initiatives; and (e) building and maintaining relationships. Moreover, the collaboration between district office leaders and principals is considered to be crucial to sustained school improvement across the district focused on instructional improvement (Leverett, as cited in Kaltenecker, 2011). The participants in Kaltenecker’s case study research “agreed that their relationship with building principals were vital to enacting their roles and responsibilities in the district” (p. 103). More specifically, the six assistant superintendents for curriculum viewed part of their responsibilities to include support of the principal as the instructional leader and to provide support for the development of the leadership capacity of the principal.

In a qualitative study that examined linkages between the central office and schools in the process of reform-oriented actions, Johnson and Chrispeels (2010) acknowledged that linkages could be advantageous as well as create obstacles. In addition to such factors as “a strong instructional leadership, a systemwide focus on achievement, and a consistency of instruction” (p. 739), Johnson and Chrispeels contend that relational and ideological linkages are instrumental in moving a district forward in ways that “enhance[e] commitment and professional accountability, ensur[e] a coherent
focus, and promot[e] organizational learning” (p. 765). The middle years are especially formidable and impressionable. The ways in which the central office and middle schools collaborate can have a lasting and profound effect on the academic and social emotional development of these adolescents.

**Theoretical Framework**

*The PRIME Leadership Framework* (National Council of Supervisors, 2008) or *Principles and Indicators for Mathematics Education Leaders* identifies the knowledge and skills a leader must possess so to lead others to change in ways that result in increased student achievement in mathematics. The framework is comprised of four principles of leadership in mathematics with three key indicators for each domain. The principles (equity, teaching and learning, curriculum, and assessment) collectively communicate the crucial domains that require actions in order to positively impact student learning of mathematics. The details of each principle follow.

**Equity**

Effective leaders have a moral purpose (Fullan, 2011; Sergiovanni, 1992) that serves as a driving force for their work. In education, the moral purpose is success for all students. Moral leaders have an internal barometer that will always point them in the direction that will increase student learning as they seek to address any and all gaps in student achievement. In mathematics specifically, Flores (2007) argues that the gap in achievement in particular populations of students is more of an issue of an “opportunity gap” where students do not have the opportunity to take meaningful and rigorous mathematics. Oakes (1985) recognized that practice of tracking students into different
levels of mathematics delegated struggling students to classes focused on computational skills at the expense of higher-level reasoning. Leaders need to create a shared vision around beliefs, values, and practices that ensure students have the opportunities and support to learn. The equity principle speaks to the vision a leader provides that is focused on access to a rigorous and coherent mathematics curriculum for all students taught by highly qualified teachers. According to PRIME, the leader must identify the subpopulations of students who are under performing and seek to address inequities in curriculum, instruction, and assessment that exist so to eliminate the achievement gap. The indicators or actions that leaders in mathematics education must take include attending to gaps in mathematics achievement, access to rigorous and relevant mathematics, and the collaboration of all teachers to address inequities in teaching and learning of mathematics.

Teaching and Learning

Sergiovanni (1992) writes, “Teaching cannot be standardized … [teachers] need to create knowledge in use as they practice” (p. 35). Teachers learn to become effective at what they do in the classroom. In an attempt to learn more about effective teacher evaluation, the Bill and Melinda Gates Foundation undertook the Measures for Effective Teaching (MET) project (2010). One finding of this study of over 3,000 classroom teachers was that teachers lack in general instructional skills (TNTP, 2012). Danielson (2007) recognizes the complexity of teaching including the importance of teacher knowledge of content and pedagogy. Furthermore, she places high value on continuous reflection and growth that is inherent in the most effective teachers. The Teaching and
Learning principle reflects a leader’s appreciation and practices that highlight the importance of mathematical content knowledge as well as the specialized knowledge and skills required to teach students mathematics. Indicators within the Teaching and Learning principle include the focus of every teacher on learning of mathematics by each student, the use of best practices in planning and instruction by mathematics teachers, and the ongoing commitment of faculty toward their professional learning.

**Curriculum**

In *Excellence in Teaching* (2010), Erickson acknowledges the positive aspect of standards by providing “a basic blueprint of what students must know and be able to do as productive citizens of a democratic society” (p. 17). She goes on further to say that standards are not a curriculum and curriculum development must take place at the local level. To best meet the needs of students today, Erickson argues for a curriculum that focuses on conceptual development of ideas through higher-order instruction. Marzano, Waters, and McNulty (2005) identify “guaranteed and viable curriculum” (p. 83) as one key factor in regards to school reform. Viable refers to the feasibility that the curriculum can be taught within the allotted instructional time. Guaranteed means that each teacher is held accountable to teach the articulated curriculum. According to *The PRIME Leadership Framework* leaders of teachers of mathematics lead their faculty to collaborate in ways that ensure a mathematics curriculum that is coherent, relevant, and articulated across grades. The leader assures the curriculum encapsulate high expectations for students while preparing them “to think critically in problem-solving environments” (p. 35). To realize this vision for curriculum, the leader ensures alignment
of curriculum and resources to state and national standards while collaborating with teachers to implement a curriculum around mathematics that is “relevant and meaningful” (p. 39). Lastly the curriculum principal states that effective leaders of school mathematics ensure the intended curriculum is taught and that needed interventions are enacted.

**Assessment**

Stiggins, Arter, Chappuis, and Chappuis (2006) recognize two uses of assessment data: assessment of learning and assessment for learning. Assessment of learning is used to determine if a student learned what was intended. Assessment for learning, on the other hand, occurs while learning is happening. One might view assessment of learning as summative where the data is useful in evaluating programs (Popham, 2008) and assessment for learning as formative whereby the information is used to inform instruction and provide students with feedback (Popham, 2008). In the end, assessment is a valuable source of information for both teachers and students (Guskey, 2007).

Leadership for assessment refers to the use of assessment tools and strategies to make programmatic and instructional decisions in the content area of mathematics. Leaders can best move teachers forward in their use of formative assessment through building-based teacher learning communities dedicated to gradual implementation, choice in assessment strategies, and accountability with support (Wiliam, 2007). Data is integral to provide “feedback for students, teachers, and administrators – all in the service of improving student achievement for each and every student” (p. 46). Indicators within the assessment principle that capture effective leadership in mathematics education include: each teacher
engages in ongoing assessment that is aligned to curricular expectations, teachers use formative assessment methods and data to inform teaching and student learning, and lastly, summative assessment data are used by teachers to evaluate the effectiveness of the mathematics curricular program.

In its entirety, *The PRIME Leadership Framework* identifies 12 indicators for effective leadership of mathematics teachers within the four principles of equity, teaching and learning, curriculum, and assessment. Recognizing that leaders have varying degrees of knowledge and expertise, the framework further differentiates leadership development across three stages. In general, a leader at stage one is developing leadership of self and is seeking to increase her personal knowledge about a particular facet of leadership. Leadership of others is captured in stage 2 at which point a leader in mathematics education seeks to influence and lead others to engage in practices that have a positive impact on student achievement. In stage 3, leaders are extending their sphere of influence beyond their building to the district level or beyond. Thus, specific actions have been identified for each indicator at each stage. For example, within the Teaching and Learning principle is an indicator that “every teacher participates in continuous and meaningful mathematics professional development and learning in order to improve his or her practice” (p. 29). A stage 1 leader is increasing her knowledge of effective professional development in mathematics and beginning to identify areas for potential learning for her teachers. A leader at stage 2 is working with teachers in professional learning experiences and involved in providing professional learning experiences. The
stage 3 leader is facilitating the implementation of district-wide professional development opportunities.

*The PRIME Leadership Framework* (see Figure 2) provides a theoretical framework by which to evaluate the level of leadership development in the implementation of reform actions or mandates in the content area of mathematics. The framework can be used either for self-reflection and professional growth by a leader, or as in this case, the framework provides a lens to analyze leadership actions and beliefs in implementing mandated change in school mathematics.

**Figure 2. The PRIME Leadership Framework**

*Note:* This figure captures the four principles and respective indicators of *PRIME.*

*The PRIME Leadership Framework* will serve as the conceptual framework for analyzing the case study data. Using the four principles and respective indicators of
PRIME, data will be coded aligned to the framework. Furthermore, The PRIME Leadership Framework embraces the cyclic nature of leadership development. Defining characteristics are identified within each indicator at three different stages of leadership development: stage 1 – leadership of self, stage 2 – leadership of others, stage 3 – leadership in the extended community. Analysis of the case study will involve a coding process that connects to the principles, indicators, and stages of leadership development.

Summary

Mandated change is not new to schools. However, with the recent adoption of the CCSS for Mathematics in so many states across the U.S. as their state standards, it begs the question how will schools choose to approach the mandate? Middle schools have their own unique challenges and the implementation of the CCSS for Mathematics will only add to the list. Historically, middle school students have struggled to demonstrate any significant gains in mathematics achievement. Looking toward the future, school leadership will need to be particularly mindful in providing teachers with the needed curricular and instructional support required by the CCSS for Mathematics. Principals have the potential to lead middle school teachers toward meaningful change in the mathematics education of their students. However, the level of collaboration between middle school principals and assistant superintendents of curriculum will likely play a significant role in the manner by which the CCSS for Mathematics is implemented.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this research study was to explore how district level and building level leaders effectively collaborate to implement mandated change. In particular, the relationship between the assistant superintendent for curriculum and the building principal as they planned for and implemented the *CCSS for Mathematics* was central to this study.

A qualitative case study methodology was used to collect and analyze data to answer the following research questions:

1. What is the nature and extent of the roles of the assistant superintendent of curriculum and middle school principal in planning for and implementing the *Common Core State Standards* for mathematics in grades 6 through 8?
2. In what ways do the assistant superintendent of curriculum and middle school principal work together to plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?
3. What practices facilitate the collaboration between the assistant superintendent of curriculum and middle school principal as they plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?
4. What practices create obstacles to collaboration between the assistant superintendent of curriculum and middle school principal as they plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

This chapter outlines the details of the methodology that was utilized to conduct this research study. This includes the participants, data sources, data collection procedures, analysis and generalizations, reporting, and lastly, strengths and limitations of the study.

**Case Study Research Methodology and Design**

The questions this study sought to answer were best explored through qualitative methods. The qualitative researcher was interested in how individuals made meaning out of their experiences within their environment (Merriam, 1998). Moreover, in order to observe and identify influences and practices that informed the collaborative relationship between two school leaders, an instrumental case study (Stake, 1995) provided the researcher with the lens by which to gain insight as to how these individuals individually and collectively made sense of their working relationship as they implement mandated change.

Context was critical to understand the influence and impact that the environment had on the professional relationship of two key instructional leaders. In using qualitative methods, a researcher was in the ideal position to observe and gather data in a naturalistic setting. Only through actual interactions and communication within the school context could the researcher have hoped to better understand the extent and nature of the
relationship between the assistant superintendent of curriculum and the building principal. Given that context could not be separated from the respective roles of the assistant superintendent of curriculum and the principal, a case study provided a methodology to address the research questions in an authentic manner (Mabry, 2009; Stake, 1995; Yin, 2009). The case study was bounded by limiting data collection to interviews and documents that were directly associated with the collaborative relationship of the assistant superintendent and junior high or middle school principal as they planned for and implemented mandated change in the form of the CCSS for Mathematics. The case study was also bounded within the timeframe of August 2012 to October 2013.

One K-8 school district that had demonstrated academic success in mathematics and had at least a 20% language minority student population and a minimum of 30 percent population of students from low-income households as identified using state-reported data a found on the Illinois Interactive Report Card (http://iirc.niu.edu/) was asked to participate in the case study. Detailed interviews with the assistant superintendent of curriculum and the respective middle school principal were conducted prior to observations of the two leaders in a collaborative setting (e.g., professional development planning or implementation) had been completed. Data collected from documents procured from the school district and the transcribed interviews were coded and analyzed using The PRIME Leadership Framework to identify patterns and make petite generalizations about the nature and extent of collaboration between the assistant superintendent of curriculum and middle school principal as they sought to plan for and implement the CCSS for Mathematics.
Participants

The sampling method was a combination of a critical case (Flybjerg, 2006) and one of convenience. The intent of this research was to gather information and insight to better understand the interaction between the assistant superintendent of curriculum and building principal as they collaborated to implement mandated change. A critical case is a sampling technique best suited to research that seeks to potentially make petite generalizations (Flybjerg, 2006). The sampling strategy used for this case study was also one of convenience (Miles & Huberman, 1994). Interviews and observations were an integral part of the data collection. Thus, location and accessibility of participants and buildings was essential. However, in an attempt to lessen researcher bias, the chosen county was one in which the researcher neither resided nor was employed.

The participants for this study were one pair of assistant superintendent of curriculum and middle school principal from a K-8 school district in suburban Cook (outside the Chicago Public School system) or DuPage counties in Illinois. As a first step, utilizing the Illinois Freedom of Information Act, a request was made from the State of Illinois for a list of middle schools in Cook and DuPage counties (see Appendix A). Cook and DuPage counties had been selected due to the extensive size and number of districts as well as proximity to the researcher. Potential school districts within Cook and DuPage counties were identified using state-reported data as found on the Illinois Interactive Report Card (http://iirc.niu.edu/). The sample pool was first limited to school districts that met the following criteria: (1) Researcher had no personal and minimal, if any, professional connection to the district; (2) the district had made adequate yearly progress
(AYP) in the area of mathematics for the last three years; (3) at least one of their middle
schools had also made AYP for the last three years; (4) had at least a 20% language
minority student population; and (5) had at least a 30% low income student population.
Standardized test results were critical as a school district that had measureable success
was likely to have relevant information from which others might glean insights. From
there, a list was created by ordering, from high to low, the school district’s average
percent for the last three years of “all students” meeting or exceeding state standards as
measured on the Illinois Standard Achievement Test (ISAT).

Once a district was identified meeting the aforementioned criteria, the
superintendent was contacted for his or her assent to participate in this research study (see
Appendix B for Letter of Cooperation – District Superintendent). After the
superintendent agreed, the district’s assistant superintendent of curriculum and middle
school principal were contacted to secure his and/or her agreement to participate (see
Appendix C and D for the respective Letters of Cooperation).

Data Sources

The role and responsibilities of both the assistant superintendent of curriculum
and the middle school principal are complex and varied. For the purposes of this research
study, how these two school leaders collaborated to implement mandated change was of
particular interest. Therefore, a variety of data sources were necessary in an attempt to
capture the multi-faceted nature of this collaborative relationship. Each data source was
expected to provide evidence essential to addressing the research questions and to
developing a detailed picture of the nature of the interactions between the assistant
superintendent and principal as well as practices and policies that contributed to this reciprocal relationship. In other words, together the multiple data sources were intended to triangulate the data (Yin, 209). To provide a more detailed picture data around structures, practices, and policies of the interactions of the assistant superintendent of curriculum and middle school principal related to implementing the state mandate of CCSS for Mathematics was gathered from the following sources:

- Semi-structured focused interviews with the assistant superintendent of curriculum and the middle school principal;
- Observation of multiple events where the assistant superintendent of curriculum and middle school principal interact (e.g., planning or implementing a staff development around the CCSS for Mathematics);
- District and school mission, vision, and school improvement plan;
- Professional development plans that had been developed and/or implemented in the district in the prior year related to the planning and implementation of the CCSS for Mathematics;
- Other documentation as available on the district or school website.

Semi-structured focused interviews with the assistant superintendent of curriculum and the middle school principal – Interviews were one of the key data collection tools for this study. Interviews enabled the researcher to gather data that was not directly observable and provided insight as to how others interpreted events (Merriam, 1998). The purpose of the interview (see Appendix G, H, I, and J for interview questions prior and following observations) was to explore the beliefs and knowledge
each participant had about the planning and implementation of the *CCSS for Mathematics* in the district and the targeted middle school as well as individual beliefs about their respective roles in collaborating to implement mandated change. As a major data source, the interviews also informed how other data collection activities were approached and gave insight as to how might be undertaken.

Due to the potential supervisory relationship of the assistant superintendent of curriculum and middle school principal, the assistant superintendent was interviewed first to better protect the contents of the interview with the middle school principal. Interviews with each leader were conducted prior to any observation. The initial interviews laid foundational insights into the nature of the relationship between the two.

The semi-structured focused nature of the interview required that questions related to the research questions be developed in advance of the interview. Yet depending on the responses of the interviewee, flexibility was necessary. Thus, additional questions were asked, and the order of the questions varied in order so that the interviewer could respond to “the emerging worldview of the respondent” (Merriam, 1998, p. 74). The interviews were conducted in person and took approximately an hour. The interviews were audio-recorded and later transcribed (see Appendix K for the Letter of Consent).

Observation of one or more events where the assistant superintendent of curriculum and middle school principal interacted around matters involving *CCSS for Mathematics* – Observing the assistant superintendent for curriculum and middle school principal served multiple purposes. Merriam (1998) identifies several reasons for using observation as a data collection tool. In order to gather data to address the research
questions about the interactions and practices of the participants, this is best accomplished in a more natural setting than an interview situation. The observation of an event involving the assistant superintendent of curriculum and middle school principal, such as a professional development session or other meeting around the CCSS for Mathematics, provided the researcher with insights that the participants may have taken for granted. Data collected in the observation served to triangulate other data.

Possible events to consider for observation were determined during the initial interviews with the assistant superintendent for curriculum and middle school principal and were mutually agreed upon by both leaders and the researcher (see Appendix K for the Letter of Consent). Data collected during the observation was through researcher field notes and any other supporting documentation, such as handouts or other resource material. These events were neither audio or videotaped. Participants of these events were only identified by their roles. Their personal identities were not revealed.

District and school mission and vision – The district and school mission and vision is typically a document that illustrates the shared understanding of the purpose and future direction of the district and school. The creation and implementation of a district’s school improvement plan identifies the stated and acted upon priorities in a district or school. An analysis of these documents was viewed in light of other data to determine the consistency and alignment of the words and actions of the assistant superintendent of curriculum and middle school principal with the mission and vision of the district and school as well as provide additional insights to the collaborative nature of the relationship between the two leaders.
Professional development plans that had been developed and/or implemented in the district in the prior year related to the planning and implementation of the *CCSS for Mathematics* – The State of Illinois adopted the *CCSS for Mathematics* in June of 2010. School districts have had three years to begin to plan for and implement the new state standards. Any actions already taken related to the implementation of the *CCSS for Mathematics* were meaningful to better understand the current climate of the district and school. Additionally, previous actions and plans were useful in comprehending the role that assistant superintendent and principal have played in the implementation of *CCSS for Mathematics* up to the time of the case study.

Other documentation available on district or school website – These days, district and school websites are a wealth of information about the beliefs, commitments, and actions of districts and school leaders. Whether school board agendas and minutes, news-related items, or districts school improvement plans, the public availability of such documents can reveal relevant data about how a district and school collaborate or more specifically, how the district or school are beginning to address implementing *CCSS for Mathematics*. Furthermore, insights gleaned from an analysis of pertinent documentation available on the website proved to be fruitful in informing the semi-structured interviews with the assistant superintendent of curriculum and the assistant principal of the middle school.

Yin (2009) identifies advantages and disadvantages of the preceding three types of documentation; the mission and vision statement; artifacts related to professional development around the *CCSS for Mathematics* documentation of the district; and other
relevant documentation. Advantages of these key artifacts included the ability to be viewed repeatedly in unobtrusive ways, tendency to reflect broader ideas, and provided details about operations and culture. The disadvantages of such documentation could have been the accessibility and the bias of the author.

The choice of data sources was very deliberate. Each data source sought to uncover the actions and words both the assistant superintendent of curriculum and the middle school principal used to plan for and implement mandated change. The data sources were complementary and not only provided a detailed picture of the assistant superintendent of curriculum and middle school principal but also acted to triangulate the data (Yin, 2009).

**Data Collection Procedures**

Primary data was collected over the course of a six-month period. The following timeline provided a sequencing of data collection events. Events were intentionally spread out to allow time for ongoing analysis of data.

Using the Illinois Interactive Report Card (http://iirc.niu.edu/), a K-8 suburban school districts in Cook (outside the Chicago Public School system) with a middle school that had met AYP for the last three years in mathematics, had approximately a 20% language minority student population, and at least a 10% low income student population was identified. The superintendent was contacted by phone to ascertain willingness to participate in the research study (see Appendix F for telephone protocol). Once the district superintendent had agreed and signed the letter of cooperation (see Appendix B), the district assistant superintendent of curriculum and middle school principal were
contacted by email and phone to invite their participation in the research study (see Appendix F for telephone protocol). When both had agreed and signed the letter of cooperation (see Appendices C and D), a meeting time and location were scheduled at the convenience of each participant. Table 1 summarizes the developed plan for data collection sources and the anticipate timeline.

Table 1

*Data Collection Sources and Timeline*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Data Type</th>
<th>Week in Timeline</th>
<th>Anticipated Time Required</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss research with assistant superintendent and middle school principal and receive consent.</td>
<td>N/A</td>
<td>1-4</td>
<td>1 hour</td>
<td>Assistant superintendent’s or middle school principal’s office or phone call</td>
</tr>
<tr>
<td>Scan district and school website</td>
<td>Artifacts</td>
<td>1-4</td>
<td>2-4 hours</td>
<td>N/A</td>
</tr>
<tr>
<td>Focused interview with assistant superintendent and middle school principal</td>
<td>Interview</td>
<td>4-8</td>
<td>1 – 1 ½ hours</td>
<td>Assistant superintendent’s or middle school principal’s office</td>
</tr>
<tr>
<td>District and school mission and vision</td>
<td>Artifacts</td>
<td>4-8</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Prior PD plans related to <em>CCSS for Mathematics</em></td>
<td>Artifacts</td>
<td>4-12</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Observe assistant superintendent and middle school principal collaborate</td>
<td>Observation</td>
<td>6-16</td>
<td>2-8 hours</td>
<td>District office/school building</td>
</tr>
</tbody>
</table>

Once letters of cooperation from the district and school leaders had been obtained and prior to the interviews, the district and school websites were explored for relevant documentation including, but not limited to, the district and school mission and vision.
The website(s) was also searched for any documentation related to the *CCSS for Mathematics* or other professional development plans or information. The identification and initial analysis of such documents prior to the interviews helped to inform the semi-structured interview questions.

The researcher used a semi-structured focused interview process to ask both the assistant superintendent of curriculum and the middle school principal about work to date related to the planning and implementation of the *CCSS for Mathematics*. Events observed were identified during the initial interviews, and data was collected via researcher field notes and corresponding artifacts. The interview questions were emailed to the assistant superintendent and middle school principal in advance of the interview. Prior to the interview, each participant signed the letter agreeing to participate in the interview.

Following is a sequence of actions that were taken at the time of the interviews:

1. Informed the participant of:
   a. The purpose and procedures of the study;
   b. Any possible risks involved;
   c. His or her name would not be shared nor would their school’s identity be revealed;
   d. A transcript of the interview would be shared with him or her at the conclusion of the study.

2. Obtained the signed consent of the participant (see Appendix K).

3. Audiotaped the interview.
4. In the process of the interview, determined events to be observed where the assistant superintendent and middle school principal were to collaborate in regards to planning and implementation of *CCSS for Mathematics*, including specifics, such as time, location, etc.

5. Prior to the conclusion of the interview, arranged to collect documentation and artifacts related to the planning and implementation of *CCSS for Mathematics* within the district and/or middle school.

6. Immediately following the interviews and observations, completed a synopsis and “interpretive commentary” (Stake, 1995) that were key to capture initial impressions, tone, body language, etc. that may be lost after time passes.

7. Had the interview transcribed by a transcriptionist (see Appendix L for the confidentiality agreement).

8. After all data had been collected, engaged each participant in a member check (Merriam, 1998) by providing him or her with a copy of his or her transcripts to seek corrections and further clarifications.

**Analysis and Generalizations**

Yin (2009) contends that careful consideration is given to the manner in which a case study will be analyzed at the time that the case study protocols are developed. In doing case study research, the researcher may be at a loss as to how to begin the analysis of her data if the data was not collected with a method of analysis in mind. Creswell (2003) outlines a six-step process for analyzing qualitative data:

1. Organize and prepare data for analysis.
2. Read through all the data to develop a “general sense” of the data.

3. Begin to analyze the data through the process of coding.

4. Create descriptions “involv[ing] a detailed rendering of information about people, places, or events” (p. 193).

5. Determine how emerging descriptions and patterns will be represented.

6. Interpret the data.

Organizing, preparing, and reading through the data (steps 1 and 2) – Accomplishing the first step of organizing and preparing data involved transcribing the recorded interviews using a professional service (see Appendix L for Confidentiality Agreement for Transcription Services). In addition, all field notes were typed to make for easier reading. In the second step, Creswell (2003) describes the importance of completing a read through of all data so to gain a general idea of the data. Initial impressions, tone, and emerging ideas were captured at this stage and later refined.

Process of coding data (step 3) – “Coding is analysis” (Miles & Huberman, 1994, p. 56). As the researcher codes data, meaning is assigned to the data and voluminous amounts of data are distilled to central ideas and descriptions. Coding of data occurred on two levels. A first level of coding occurred through the lens of The PRIME Leadership Framework (2008). Data was coded using the overarching principles and respective indicators as detailed in The PRIME Leadership Framework. These principles and indicators are as follows:

- Equity
  - Addressing gaps in mathematics achievement expectations for all student
populations.

- Providing each student access to relevant and meaningful mathematics experiences.
- Teachers work interdependently in a collaborative learning community to erase inequities in student learning.

- Teaching and Learning
  - Pursuing the successful learning of mathematics for every student.
  - Implementing research-informed best practices and using effective instructional planning and teaching strategies.
  - Participating in continuous and meaningful mathematics professional development and learning so to improve the practice of teaching.

- Curriculum
  - Implementing the local curriculum and using instructional resources that are coherent and reflect [CCSS mathematics] standards.
  - Implementing a curriculum that is focused on relevant and meaningful mathematics.
  - Implementing the intended curriculum with needed intervention and making certain it is attained by every student.

- Assessment
  - Using student assessments that are congruent and aligned by grade level or course content.
  - Using formative assessment processes to inform teacher practice and
student learning.

- Using summative assessment data to evaluate mathematics grade-level, course, and program effectiveness.

Captured in *The PRIME Leadership Framework* was also the cyclic nature of the ongoing professional development of leaders. Within each indicator, characteristics were further delineated depending on a leader’s particular stage of leadership. Thus, the analysis of the semi-structured interviews also included coding of the stage of leadership (i.e., stage 1 – leadership of self, stage 2 – leadership of others, stage 3 – leadership in the extended community).

Secondly, theoretical propositions (Yin, 2009) were utilized as a strategy to code and analyze the data. The research questions were founded on what is known about the role of the assistant superintendent of curriculum and the middle school principal in implementing mandated change together with identified indicators of leading in mathematics education. Thus, the research questions served as a crucial step in guiding the second level of coding. Using a spreadsheet or database, the research questions were delineated. Then as data were analyzed, connections to each research question were identified. Using a pattern matching process (Yin, 2009), codes were created as themes and patterns emerge.

As is the situation in case study research, a *progressive focusing* was employed (Parlett & Hamilton, as cited in Stake, 1995) throughout the data collection. In other words, as the research proceeded additional data was collected and analyzed resulting in enhancement and refinement of questions and relevant findings. Progressive focusing
helped to ensure the research questions remained relevant as well as served to continuously refine the analysis and interpretations.

The purpose of an instrumental case study (Stake, 1995) is to develop a greater understanding of a particular area of interest or research question. Through the process of analyzing and developing a better understanding of a situation, generalizations will result. More specifically, petite generalizations (Stake, 1995) related to a specific case study while not generalizable to an entire population can provide great insight into a case. In light of the research questions related to the role of the assistant superintendent of curriculum and the middle school principal in planning for and implementing mandated change, the researcher was hopeful that generalizations could be made related to identifying specific behaviors or actions that might be present (or lacking) in the collaborative relationship between the assistant superintendent for curriculum and the middle school principal who lead others to implement mandated change.

Determine how emerging descriptions and patterns will be represented (step 5) – Integral to the analysis was determining how the case study data would be represented. Whether a narrative reporting of patterns and descriptions was used or a more visual display, the data representation would bridge the analysis and the reporting of the findings. Yin (2009) suggests that a case study researcher should not wait until after data has been analyzed and interpreted before composing the case study report. Waiting until the end can make the report seem overwhelming. Thus, data representations were developed early in the data collection process and evolved as more data was collected and analyzed.
Interpret the data (step 6) – At this final stage, the researcher made sense of the data by making connections and furthering existing research. As it related to this research study, the data analysis was used to address the research questions that sought to reveal lessons learned from this case study of a district that had demonstrated success and how the assistant superintendent for curriculum and middle school principal collaborated to plan for and implement the *CCSS for Mathematics*.

**Bias Minimization**

To minimize bias, the researcher excluded schools in the county in which she was employed. Thus, the researcher was much less likely to personally know either the middle school principal or assistant superintendent of curriculum. Furthermore, the researcher’s work experience was solely in high school districts. A research focus at the middle school level minimized the chance of any relationships the researcher may have had with school personnel. Lastly, the researcher kept a journal throughout the data collection process. The ongoing reflection better enabled the researcher to identify any possible biases that emerge so that she could remove or distance herself as needed to remain as unbiased as possible in her interpretations and analyses.

To further minimize bias, the assistant superintendent of curriculum and middle school principal were each given a copy of their respective transcribed interviews to review. A review of the transcripts served two purposes. First, the participants could ensure that the data collected was accurate. Secondly, reading the transcribed interview provided an opportunity to further expound relevant and meaningful information. These member checks further served to triangulate and add validity to researcher interpretations
of data (Stake, 1995).

**Strengths and Limitations of the Study**

School leaders are often in the position of having to act on mandates from a variety of governmental agencies. Although some mandates may have minimal influence on curriculum and instruction, other mandates, such as the state adoption of the *CCSS for Mathematics*, have a direct impact on what happens in the classroom. The assistant superintendent of curriculum and the principal are collectively responsible for implementing mandated change in such a way that teachers are given the support so change has a positive impact on student achievement. Thus, this research study has the potential to provide insight as to the collaborative nature of the relationship between the assistant superintendent of curriculum and principal that could be informative to other districts implementing change. This case study provides an in-depth look into the actions and words of an assistant superintendent-principal team in a school that has a history of demonstrated academic success. By closely studying this relationship through a case study, patterns of behavior, decisions, and practices of the intricacies inherent in the collaborative partnership between the assistant superintendent and principal began to emerge.

This research study has limitations. First, a case study methodology is limited to petite generalizations. Findings cannot be extracted to apply to general populations or circumstances. Furthermore, the sample of participants was small and limited to a small geographic area, mainly a suburban county. Another limitation of this study was the inexperience of the researcher in the case study methodology. The researcher may have
had biases and personal interpretations that influenced emerging patterns. Lastly, a potential limitation was that the researcher may not have been able to separate actions that were part of the assistant superintendent’s and principal’s personality and natural behavior from those actions that were deliberate and from the perspective of a school leader. At the same time, a case study methodology allowed for an in-depth analysis in ways that other research methodologies did not.

**Risk Minimization**

As a safeguard against the potential supervisory nature of the relationship between the assistant superintendent of curriculum and middle school principal, interviews were intentionally sequenced so that the assistant superintendent of curriculum preceded that of the middle school principal. In that way, the researcher was less likely to be put in the position of sharing information from the interview of the middle school principal that may be sensitive or be construed as negative or insubordinate in any way. Responses from the interviews were not shared with the other party. All electronic, audio, and paper copies of notes, interviews, artifacts, etc. were kept secure such that the researcher was the only person with access.

**Summary**

This chapter outlined the research methodology used to address the primary research questions of this study:

1. What is the nature and extent of the roles of the assistant superintendent of curriculum and middle school principal in planning for and implementing the Common Core State Standards for mathematics in grades 6 through 8?
2. In what ways do the assistant superintendent of curriculum and middle school principal work together to plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

3. What practices facilitate the collaboration between the assistant superintendent of curriculum and middle school principal as they plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

4. What practices create obstacles to collaboration between the assistant superintendent of curriculum and middle school principal as they plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

Identified in this chapter were the participants, data sources, data collection procedures, analysis and generalizations, reporting, and lastly, strengths and limitations of the study.
CHAPTER IV

THE CASE

The researcher had set out to specifically examine the collaborative relationship between a district-level leader and building-level leader as they planned for and implemented mandated change. In the end, the case study revealed the complexity and interwoven nature of players beyond the initial focus. Moreover, as the case study progressed, the multi-layered organization chart was uncovered as well as recent changes to the district’s leadership structure that happened just prior to the onset of the case study. The researcher made the pragmatic decision to maintain primary focus on the associate superintendent of curriculum and instruction and the junior high school principal.

Key leaders in the case study who contributed to the district’s planning and implementation of the CCSS for mathematics included the associate superintendent for curriculum and instruction, director of math, science, and health, math coaches, junior high school principal, and junior high math department chair. Each of these people had varying levels of involvement in the district work around the CCSS for mathematics over events that spanned from spring 2012 through October 2013. Additionally, below is a chronological list of key district events that occurred during this timeframe and essential to the development of this case study.

• Fall 2012 – Presentation to district leaders on district structural and instructional changes as a result of CCSS and PARCC assessments.

• October 2012 – General Administrative Meeting on CCSS update.

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• February 2013 – Update on district CCSS implementation to board of education.
• March 2013 – Memo from associate superintendent to junior high school principals detailing district structural and instructional changes.
• April 2013 – Update to board of education regarding structural and instructional changes.
• Spring and summer 2013 – CCSS for mathematics district task force convened and development of curriculum.
• Summer 2013 – District professional development symposium.
• August 2013 – Administrator retreat on implementation of CCSS.
• August 2013 – Interview with associate superintendent
• August 2013 – General administrator meeting on Math Acceleration.
• September 2013 – Interview with junior high school principal
• October 2013 – Junior high administrative support meeting
• October 2013 – Junior high team meeting

Results

The purpose of this study was to examine how school leaders collaborated to implement mandated change. Specifically, with the adoption of the CCSS for Mathematics school leaders must make decisions as to how their district will move forward to translate the standards for mathematics into curriculum, instruction, and assessment. The case study methodology used in this research project was bounded by limiting data collection to interviews, observed events, and documents that were directly
associated with the collaborative relationship of the assistant superintendent and junior school principal as they were involved in planning for and implementing mandated change in the form of the CCSS for mathematics. The case study was also bounded within the timeframe of August 2012 to October 2013.

A qualitative case study methodology was used to collect and analyze data to answer the following research questions:

1. What is the nature and extent of the roles of the assistant superintendent of curriculum and junior high school principal in planning for and implementing the Common Core State Standards for mathematics in grades 6 through 8?

2. In what ways do the assistant superintendent of curriculum and junior high school principal work together to plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

3. What practices facilitate the collaboration between the assistant superintendent of curriculum and junior high school principal as they plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

4. What practices create obstacles to collaboration between the assistant superintendent of curriculum and junior high school principal as they plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?
The chapter will detail how the case study was conducted including the decisions and subsequent actions of the researcher. The collection of data sources will be explained, and the case study data is presented.

**Identifying the District and School**

In the design of this case study, the researcher sought to identify a K-8 school district that would serve as an exemplar. To that end, criteria for the case study district identified a “successful” district as one that met the following criteria: (1) Researcher had no personal and minimal, if any, professional connection to the district; (2) the district had made adequate yearly progress (AYP) in the area of mathematics for the last three years; (3) at least one of their middle schools had also made AYP for the last three years; (4) had at least a 20% language minority student population; and (5) had at least a 30% low income student population. Furthermore, the district was limited to the geographical area of Cook or DuPage counties, not including Chicago Public Schools.

Although the FOIA request was specific for middle schools and junior high schools, the spreadsheet received electronically from the Illinois State Board of Education contained all schools within the state of Illinois. The first step to cull down the list was to identify school names that contained “middle school” or “junior high” in the school name in the counties of Cook and DuPage. The next step for the researcher was to begin to use the above criteria to identify potential districts. The researcher than attempted to use the Illinois Interactive Report Card (http://iirc.niu.edu/) to identify districts that had made AYP in mathematics for the last three years. However, she found the website challenging as a means to provide the needed data. Thus, the researcher used
the ISBE website for school report cards (http://webprod.isbe.net/ereportcard/publicsite/getsearchcriteria.aspx) as a way to identify districts and schools that made AYP overall and specifically in mathematics. She began by looking up each middle school/junior high school and examining the district report card for 2012. For each district, the researcher recorded the district number, the percent of limited English proficient and of low-income student populations. Using the school report card data, it was noted whether the district made AYP in mathematics for 2012, 2011, and 2010. If this proved to be the case, then the middle schools/junior high schools in the district were reviewed to record whether AYP was made in mathematics for the same three school years. The process was completed for the shortened list of middle schools/junior high schools in Cook and DuPage counties.

At the conclusion of this process, it was evident that no district and its respective middle school/junior high school(s) met the criteria initially established to identify an exemplar district. No district met the requirements of high student achievement, particularly in mathematics, and a diverse student populations as measured by the percent of limited-English proficient and low-income student populations. A review of the data indicated that it would be challenging, if not impossible, to find a district with a more diverse population that also made AYP in mathematics for three years. Thus, the researcher altered the criteria used to identify the exemplar district. First, it was important that the district had some level of diversity. If the case study was to illuminate interesting data that might prove useful to other districts, districts must see something of themselves in the case study, including a diverse student population. Using 2012 statistics, districts
that had a minimum of 10% language minority and at least 20% low-income student population were identified. For this subgroup of districts, the list was further refined by identifying districts that made AYP overall for the last three years. Because it was relatively unusual for districts with a more diverse student population (minimum 10% language minority and at least 20% low-income) to have made AYP for the last three school years, the decision was made to put aside the criteria that the district had also made AYP in mathematics for the last three years. Instead, the researcher used the narrowed list to identify districts that made AYP in mathematics for at least two of the three last years and examined whether their middle schools/junior high schools made AYP in mathematics for the last three years.

In the end, six districts were identified as potential case studies. The fourth district contacted agreed to participate in the research study. One district did not have a district level curriculum person. Another district elected to not participate, and the third district did not return calls to the researcher. The superintendent of the cooperating district connected the researcher with the associate superintendent of curriculum to work through the details of collecting data.

The district in this case study was a large, suburban K-8 district located in Cook county Illinois. The district had over 10,000 students across several elementary schools and five junior high schools with approximately 20% low income and 20% limited English student population. Using Illinois Standards Achievement Test (ISAT) cut scores prior to 2013 (when scores were recut), over 90% of students in the district met or exceeded state standards. Ninety-five percent of district students met or exceeded state
standards in mathematics. The identified district labeled their middle grade schools as *junior high schools* whereby students progress through a multi-period day moving between content areas. For the remainder of this case study, the term *junior high school* will be used rather than the term *middle school* or *middle high school*.

The selected junior high school, from the five in the district, in which the participating principal led, was chosen combining sampling criteria and input from the associate (assistant) superintendent of the district. The junior high school housed grades seventh and eighth with a student population of about 600 students. Using 2012 state-reported data, the junior high school student population was about 11% limited English (predominantly Spanish) and over 23% were identified as low income. The junior high school made AYP in mathematics for the years 2010-2012.

**Logistics and Data Collection**

As mentioned previously, early in the summer of 2013 the superintendent connected the researcher with the associate superintendent of curriculum. In an initial phone conversation, the researcher shared her research questions and outlined the plan for data collection. The purpose of the research was to examine how the roles of a district level curriculum person and a junior high school principal interacted to implement mandated change. Thus, the researcher and associate superintendent of curriculum determined that he would be the district level person as his primary responsibility was to oversee curriculum in the district even though he had other district level administrators that supported his work at the district and school level. Thus, for purposes of this research case study, the role of *associate superintendent of curriculum* was considered
Because a key purpose of the case study was to examine the collaborative relationship between the associate superintendent of curriculum and junior high school principal, the researcher initially planned to target a junior high school principal who had worked with the associate superintendent of curriculum the longest of any of the junior high school principals and had worked together at least two years in their current positions. In consultation with the associate superintendent for curriculum, the principal chosen was new to her role, though she had been in the district for over two years and had been working tangentially with the associate superintendent in her various district roles. The associate superintendent felt her background in coaching mathematics would exemplify the district work around implementation of the *CCSS for Mathematics*, and the school for which she was principal had the highest diversity of any of the junior high schools in the district. The associate superintendent for curriculum “introduced” the junior high school principal and researcher via email. Even though the junior high school principal was on vacation, she quickly agreed to participate in the case study, and the two set up an initial meeting to discuss logistics.

As part of the initial conversations, the researcher and associate superintendent and the researcher and junior high school principal discussed the researcher’s plans for data collection. The initial plan for data collection was as follows (see Table 2).
Table 2

Data Collection Sources

<table>
<thead>
<tr>
<th>Activity</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan district and school website</td>
<td>Artifacts</td>
</tr>
<tr>
<td>Focused interview with associate superintendent and junior high school principal prior to observations</td>
<td>Interview</td>
</tr>
<tr>
<td>District and school mission and vision</td>
<td>Artifacts</td>
</tr>
<tr>
<td>Prior PD plans related to CCSS for Mathematics</td>
<td>Artifacts</td>
</tr>
<tr>
<td>Observe associate superintendent and junior high school principal collaborate</td>
<td>Observation</td>
</tr>
<tr>
<td>Follow up interview with associate superintendent and junior high school principal after observations</td>
<td>Interview</td>
</tr>
</tbody>
</table>

The original plan included collection of artifacts and one observation involving the associate superintendent and junior high school principal. However, in the conversation with the associate superintendent and subsequently with the junior high school principal additional observations were offered. Once analysis of the observations and data commenced, the researcher determined that an in-depth follow-up interview with the associate superintendent and junior high school principal was unnecessary due to the amount of data collected. However, email communication was used to request clarifying artifacts, such as organization chart and job descriptions, as well as to gather clarifying information in relation to the organizational chart and the role of the assistant superintendent (to be discussed later in the chapter). The resulting data sources and when they were collected are outlined below in Table 3. Data sources are listed in order of when they were obtained. The period of August 2012 to October 2013 of the planning and implementation process was the central focus of this study.
Table 3

**Data Collection Sources and Timeline**

<table>
<thead>
<tr>
<th>Data</th>
<th>Data Type</th>
<th>Date of Origin of Data</th>
<th>Date of Data Collection</th>
<th>Who Provided Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Scan district and school website</td>
<td>Artifact</td>
<td>July 2013</td>
<td>July 2013</td>
<td>Researcher</td>
</tr>
<tr>
<td>2 District and school mission and vision (website) (2013i)</td>
<td>Artifact</td>
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<td>July 2013</td>
<td>Researcher</td>
</tr>
<tr>
<td>3 Interview with associate superintendent of curriculum</td>
<td>Interview</td>
<td>August 2013</td>
<td>August 2013</td>
<td>Associate Superintendent</td>
</tr>
<tr>
<td>4 Interview with junior high school principal</td>
<td>Interview</td>
<td>September 2013</td>
<td>September 2013</td>
<td>Junior High School Principal</td>
</tr>
<tr>
<td>5 District General Administrator Meeting</td>
<td>Observation</td>
<td>October 2013</td>
<td>October 2013</td>
<td>Associate Superintendent</td>
</tr>
<tr>
<td>7 District General Administrator Meeting – District curriculum pacing guide for CCSS for Mathematics (handout) (2013f)</td>
<td>Artifacts</td>
<td>October 2013</td>
<td>October 2013</td>
<td>Director of Math and Science</td>
</tr>
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<td>8 Structural and Instructional Changes Dictated by the CCSS and PARCC Assessments – presented to District leaders in fall 2012 (PowerPoint presentation) (2012a)</td>
<td>Artifact</td>
<td>Fall 2012</td>
<td>October 2013</td>
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<tr>
<td>9 District General Administrative Meeting. Common Core and PARCC Update (PowerPoint) (2012b)</td>
<td>Artifact</td>
<td>October 2012</td>
<td>October 2013</td>
<td>Associate Superintendent</td>
</tr>
<tr>
<td>11 March 19, 2013 memo to Junior High Principals, Junior High Assistant Principals, and Cabinet from Assistant Superintendent regarding Structural and Instructional Changes Dictated by the CCSSs and PARCC Assessment. (Memorandum) (2013n)</td>
<td>Artifact</td>
<td>March 2013</td>
<td>October 2013</td>
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<td>12 April 4, 2013 Regular Board of Education Meeting – Structural and Instructional Changes Dictated by the CCSS and PARCC Assessment. (2013m)</td>
<td>Artifact</td>
<td>April 2013</td>
<td>October 2013</td>
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<td>Seventh Grade: CCSS for Mathematics Curricular Resources (resource binder) (2013r)</td>
<td>Artifact</td>
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<td>June 11-12, 2013, District X Professional Development Symposium Reflection on Practice (program) (2013k)</td>
<td>Artifact</td>
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<td>17</td>
<td>Administrator Retreat. DX Instructional Leadership: Embedding Common Core Aligned Curriculum and Structures into Daily Practice. (PowerPoint) (2013h)</td>
<td>Artifact</td>
<td>August 2013</td>
<td>October 2013</td>
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<td>19</td>
<td>Junior High Administrative Instructional Support Meeting</td>
<td>Observation</td>
<td>October 2013</td>
<td>October 2013</td>
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<tr>
<td>21</td>
<td>Junior High Administrative Instructional Support Meeting, Job Alike presentation copy. (handout) (2013b)</td>
<td>Artifact</td>
<td>October 2013</td>
<td>October 2013</td>
</tr>
<tr>
<td>22</td>
<td>Preparation notes for junior high school SIP meeting to district leadership. (Word document) (2013a)</td>
<td>Artifact</td>
<td>October 2013</td>
<td>October 2013</td>
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<td>Junior High School team meeting</td>
<td>Observation</td>
<td>October 2013</td>
<td>October 2013</td>
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<tr>
<td>26</td>
<td>Email interview with junior high school math chair.</td>
<td>Interview</td>
<td>May 2014</td>
<td>May 2014</td>
</tr>
<tr>
<td>27</td>
<td>Interview with Director of Math, Science &amp; Health</td>
<td>Interview</td>
<td>May 2014</td>
<td>May 2014</td>
</tr>
<tr>
<td>28</td>
<td>Organizational chart and job descriptions</td>
<td>Artifact</td>
<td>August 2013</td>
<td>June 2014</td>
</tr>
<tr>
<td>29</td>
<td>Email communication with associate superintendent regarding organizational chart.</td>
<td>Email questions</td>
<td>June 2014</td>
<td>July 2014</td>
</tr>
<tr>
<td>30</td>
<td>Email communication with junior high school principal regarding math department chair.</td>
<td>Email questions</td>
<td>June 2014</td>
<td>July 2014</td>
</tr>
</tbody>
</table>
The District Leadership

As part of the data collection for this research case study, an organization chart was gathered (refer to Figure 3). The district’s organizational chart revealed a level of leadership between that of the associate superintendent and the junior high school principals. This newly discovered position was that of assistant superintendent. In a follow-up email to the associate superintendent, the roles and responsibilities of the assistant superintendent were clarified, in general as well as specific to the planning and implementation of the CCSS for Mathematics.

The assistant superintendent was promoted to her position part way through the district’s planning and implementation of the CCSS. Once in her new position, the assistant superintendent worked with the associate superintendent and the director of math, science, and health throughout the CCSS process. She collaborated on vision, structures, and professional learning plans, as well as teacher and leader support.

It could be argued that the assistant superintendent played a significant role in the district’s work regarding CCSS implementation. However, for purposes of this case study, the focus and data collected centered on the associate superintendent and junior high school principal. The decision was made in consultation with the associate superintendent. His position was new, and he had played a major role in defining and leading the CCSS implementation.

Associate Superintendent

In such a large district, it is perhaps not surprising that several district level positions existed. In addition to the superintendent, district-level leadership included an
associate superintendent and multiple assistant superintendents. The major part of the responsibility of the associate superintendent was to work with other district personnel and district principals on curriculum, instruction, and assessment. Thus, for the purposes of this case study, the associate superintendent in this particular district fulfilled similar responsibilities of working with building-level leaders around issues of curriculum, instruction, and assessment as would an assistant superintendent might in smaller districts. The associate superintendent for curriculum had been in the district for nine years including four years as a principal of a K-6 building. He went on to become assistant superintendent for the department of student learning, and the year of the case study became associate superintendent.

**District Director of Math, Science, and Health**

Upon analysis of the case study, it became apparent that the role of the director of math, science, and health would need to be acknowledged and explained. Thus, after obtaining approval from the associate superintendent, the researcher interviewed the director of math, science, and health to better understand his supporting and collaborative role in the relationship between the associate superintendent and junior high school principal even though the interview was not part of the original data collection plan. Reporting to the associate superintendent was the assistant superintendent for the department of student learning, and the team to this assistant superintendent included several directors (see Figure 3), including the director of math, science, and health. In this case study, while not the focus of the research, the director of math, science, and health worked closely with the associate superintendent and building principals to implement
the CCSS for Mathematics across the district. He had been in the district for seven years and involved in mathematics in some capacity for five years. In his interview, the director of math, science, and health related that he had “daily conversations” with the associate superintendent though a formal meeting happened each month with all the directors and the associate superintendent. As the director noted, the leadership structure at the district level was to balance the collaborative process across the district with “being tight on content.” In other words, collaboration was key to building capacity around a district curriculum. Five mathematics coaches reported to the director of math, science, and health. The director met with the coaches once a week, and once a month the associate superintendent met with the mathematics team about what was happening at schools and how best to provide support in the schools.

The director of math, science, and health was present at each of the district level meetings, including the administrator retreats, general administrator meetings, and meetings with junior high school principals. While the director of math, science, and health worked with school leaders, he was not present at the observed team meeting at the junior high school.
Figure 3. District X Organizational Chart for Department of Student Learning

Note: This figure details out the organization of the department for which the associate superintendent had oversight.
School-level Leadership

Junior High School (Middle School) Principal

This was the first year as principal for the junior high school leader in this case study. Prior to this year, she had been in the district serving in the roles as assistant principal for a couple of the elementary schools as well as for one of the other junior high schools. Prior to coming to the district, she served as a mathematics coach and teacher at an elementary school in another suburban district. In the initial data collection plan, it was intended that a junior high school principal would meet the following criteria: (1) The junior high school principal would have worked with the associate superintendent of curriculum the longest of any of the junior high school principals in the district; and (2) She and the associate superintendent of curriculum would have worked together for at least two years in their current positions. As the researcher consulted with the associate superintendent of curriculum to identify a junior high school in the district, to participate in the case study; this junior high school principal was deliberately chosen for three reasons. First, while she was new to her role as junior high school principal, she had been in the district in an instructional leadership capacity for over two years working. This worked involved working with the associate superintendent in various capacities. Secondly, due to the focus on implementation of the CCSS for Mathematics, the associate superintendent felt her background in mathematics coaching would effectively highlight the work of the district in the area of mathematics. Lastly, this junior high school had the greatest diversity in student population out of all the junior high schools. The associate superintendent for curriculum “introduced” the junior high school principal and
researcher via email. Even though the junior high school principal was on vacation, she quickly agreed to participate in the case study, and the two set up an initial meeting to discuss logistics.

**Math Department Chair**

One other relevant player to the research case study turned out to be the math department chair who in turn reported to the junior high school principal. Similar to the director of math, science, and health, the math department chair emerged as a leader that played a part in the implementation of the *CCSS for Mathematics*. She was another layer of support with and between the junior high school principal and classroom teachers. As the principal explained in the initial meeting, she was given the choice of hiring a department chair of either literacy or of mathematics. After reviewing the credentials of her teachers, the junior high school principal felt the teachers were in greater need of support in the area of mathematics.

As with the director of math, science, and health, analysis of the data resulted in seeking additional information from the math department chair. Thus, following approval from both the associate superintendent as well as the junior high school principal, questions were emailed to the junior high math department chair as a way to gain additional data. The math chair had been in her role for two years and a teacher of mathematics for 11 years. She was in the classroom and worked closely with the junior high school principal to support teachers in their implementation of the *CCSS for Mathematics*. When asked how she interacted with classroom teachers, she wrote:

> I work collaboratively with other teachers on a daily basis. We interact as a department daily, usually several times a day. I also interact with other
teachers from other buildings in district usually once a month. We work together and share ideas regarding curriculum and classroom management. Many times we divide up lessons and each team member is responsible for sharing ideas for students in each individual tier. Some teachers develop extensions for tier 1 students and other for tier 2 and tier 3. (Email with junior high school math department chair, May 2014)

She went on to explain that she and the junior high school principal communicated on a daily basis about her work and support of 7th and 8th grade mathematics teachers.

The math department chair was not part of district level meetings, such as the administrator retreat, general administrator meetings, or the junior high school principal meetings. She was part of team meetings at the junior high school and was present at the observed junior high school team meeting.

Table 4 contains a summary of key people within the case study and their attendance at district or school meetings that are referenced in this case study.

Table 4

Presence of Key People at District/School Meetings

<table>
<thead>
<tr>
<th>District/School Meeting</th>
<th>Associate Superintendent</th>
<th>Director of Math, Science, &amp; Health</th>
<th>Math Coaches</th>
<th>Junior High School Principal</th>
<th>Jr. High Math Dept. Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>District General Administrators*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CCSS for Mathematics Task Force</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Administrator Retreat</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Junior High Administrative Instructional Support*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Junior High Mathematics Team*</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Note: The researcher observed one of each meeting marked with an asterisk (*).
Overview of The PRIME Leadership Framework

The PRIME Leadership Framework served as the conceptual framework for this case study (see Figure 4). The framework describes actions and attributes of effective leadership in mathematics education. The three indicators within each of the four principles of equity, teaching and learning, curriculum, and assessment, delineate what is essential in the development and practice of leading in a K-12 school system. In examining how district and school leadership sought to plan for and implement the CCSS for Mathematics, The PRIME Leadership Framework provided the lens by which to examine how the associate superintendent and junior high school principal were viewed as leaders of school mathematics and the level to which their actions were aligned to support and lead in ways that positively impact the teaching and learning of mathematics.

Figure 4. The PRIME Leadership Framework

Note: This figure captures the four principles and respective indicators of PRIME.
Underlying Assumptions of The PRIME Leadership Framework

“The PRIME Leadership Framework does not describe or endorse any specific leadership style” (p. 2). At the same time, the framework is ensconced in three essential assumptions: “1) Success for every student, teacher, and leader; 2) Research-informed teacher actions; and 3) Teacher collaboration and professional learning” (p. 2). These foundational assumptions were readily apparent at both the district and junior high school levels. Subsequently, each assumption is described in more detail below together with how each assumption is evident in the case study.

On the back cover of The PRIME Leadership Framework, it is written that the framework can be used to “guide conversations and actions about leadership” and leaves interpretation open as to whether leadership is the actions of an individual or institution. In beginning to analyze data collected for the case study, it became apparent that the associate superintendent and other district leaders had put in place programs, structures, and processes at the district level. Thus, in capturing and analyzing the case study data, it was helpful to distinguish PRIME leadership indicators evident at both ground level and at the balcony level. Leadership could be seen in individuals and systemically. In other words, as data was organized evidence at the individual leadership level was distinguished from evidence at the district level.

Success for Every Student, Teacher, and Leader

It is imperative that leaders hold the perspective that a vision of academic success for every student is non-discretionary. If not a pre-requisite, a co-requisite for student success is success for each teacher and leader. In order to address student inequities that
exist in school systems, an assumption to The PRIME Leadership Framework is that leaders must recognize and address the need for ongoing professional learning and support for teachers. When teachers have the knowledge, skills, and access to a rigorous, coherent curriculum, they are in a better position to “ensure access, equity, and excellence for every mathematics students” (p. 2). Simultaneously, successful and effective leaders must continue to grow and develop in the knowledge and skills so to lead others.

As part of each observed event, and contained within collected documentation, was conveyed a piercing focus on success for every student, teacher, and leader in this case study. The district had three goals:

1) Students who have attended the district schools for at least one year will be at grade level in reading and math upon entering third grade as measured by Measures of Academic Progress (MAP); 2) Each school will close the achievement gap for all students in reading and math as measured by both district and state assessments; and 3) Each school will perform at or above the 90th percentile (top 10% nationally) in meeting individual student growth targets in reading and math as measured by Measures of Academic Progress (MAP). (District X, 2013i)

These student-focused and growth-oriented goals communicated a commitment to addressing achievement gaps and targeting success for every student. The district had challenged itself to outperform most other districts across the nation. These goals could be found most everywhere in the district. The goals were readily found on the district website (District X, 2013i). Both the associate superintendent and the junior high school principal had the goals displayed in their respective offices.

The associate superintendent emulated high expectations and success for every student in his interview. “You have to believe from the top that [CCSS] matters. And it
does matter … if you spend any time looking at the standards, this is really what is good for kids. And again, when it emanates from [the superintendent] from the top, I think people are more apt to buy into it as well.” The associate superintendent displayed his commitment to the district mission and vision through the decor in his office. Displayed was each goal in a separate frame that sat high upon his desk credenza. The goals were part of the presentations at the summer administrative retreat (District X, 2013f) and the general administrator meetings (District X, 2013g). Student success was also emphasized time and time again through the focus on district programs and practices that identified and provided targeted intervention to students combined with high expectations for all students (District X, 2012a, 2013k, 2013n, 2013o). Each month the district convened all building principals and district leaders for a general administrator meeting. These meetings included the director of math, science, and health though typically did not include the math department chairs. The purpose of these meetings was communication and collaborative professional learning around district goals and initiatives for leaders across the district. In a general administrator meeting early in the school year, leaders were told that the focus of the year would be the implementation of the CCSS and that the CCSS “establishes a new minimum for ALL students” (District X, 2013g) in the district.

An integral part of the conversations throughout the case study centered on being clear as to expectations for implementation of the CCSS while at the same time recognizing that teachers would need ongoing support to put into practice the newly mandated changes in curriculum, instruction, and assessment. In a regular monthly meeting with the junior high school principal and other district junior high school
principals (where the director of math, science, and health was present though the math department chair was not) the associate superintendent foreshadowed to principals that teachers might get frustrated with the changes in curriculum and instruction given the district implementation of the CCSS (observation of meeting in October 2013). He emphasized to the group that the “shift for us where we are tight is teachers must teach the curriculum. Now standards come first … all students must have the opportunity to demonstrate what they know at grade level.” The associate superintendent further cautioned principals to provide students with required accommodations for instruction without changing the student learning expectations. His message to principals was that students were to receive needed interventions but not at the expense of rigor and high curricular expectations. The associate superintendent reminded the principals, referring to teachers working with ELL or special education students, to “not let them dumb down” instruction or learning outcomes. In other words, teachers will be expected to address gaps in student learning through various supports that did not include a watering down of the curriculum (observation of meeting in October 2013, District X, 2012a, 2013g, 2013h, 2013n).

At the beginning of each year, the district convened an administrator retreat that included district level leaders, including the associate superintendent and director of math, science, and health, as well as building principals. Much of the focus of the retreat in August 2013 was on the implementation of the CCSS laying out the expectations for the work ahead for the school year (District X, 2013h). Details were provided about curriculum, instruction, assessment, and professional learning opportunities. In this
gathering of district and building leaders, each was reminded that leadership is “intentional.” Leaders had a sense of accountability, worked to build capacity, and embraced leadership as a learning experience. This philosophy of leadership was evident in the retreat presentation (District X, 2013h) that stated leaders “establish realistic expectations and take responsibility for outcomes; have a deep sense of self-knowledge and recognize that their strengths come with blind spots; and leaders recognize that avoiding difficult situations means failing twice – failing to succeed and failing to learn from a mistake.” Moreover, “visionary leadership” was emphasized.

Reflective of a philosophy that believed in success for every student, teacher, and leader, the leaders in the district were encouraged to embrace the district implementation of the CCSS as an opportunity to lead teachers to prepare students for college and career readiness. Building leaders were to view and present themselves as “lead learners.” Leaders were reminded that teachers would need time and support to “learn and process new expectations” that went beyond a new curriculum and expectations for students. The implementation of the CCSS should be viewed as “hard work worth doing” and “an opportunity to improve our schools” (District X, 2013h).

**Research-informed Teacher Actions**

A second assumption of *The PRIME Leadership Framework* is that to best achieve improved student performance in mathematics, the practices of teachers and decisions of leaders must be informed by research. Often teachers and leaders engage in old habits or practices that have no connection to best practice. In the collection of evidence for this case study, research and best practice could be found embedded
throughout district materials and resources, including the materials of the consultant (District X, 2013p), the district curriculum binders (District X, 2013q, 2013r), and the observation look-fors (District X, 2013f). Instruction was to be student-centered and revolved around tasks that were cognitively challenging to students at an appropriate level. Research-informed teacher actions were also evident in the district’s math acceleration program that was repeatedly referred to in observations and documentation (interviews with associate superintendent and junior high school principal; General Administrator Meeting observed; Junior High Instructional Support Meeting; District X, 2012a, 2012b, 2013a, 2013g, 2013h, 2013k, 2013n). The acceleration program was specifically designed to identify students in a timely manner and provided targeted help in the area of mathematics. Lastly, the director of math, science, and health emphasized strategies for effective discourse in the mathematics classroom during the Junior High Instructional Support Meeting observed (observation; District X, 2013b).

**Teacher Collaboration and Professional Learning**

A third assumption of *The PRIME Leadership Framework* emphasizes the crucial role of teacher collaboration and ongoing professional learning for all adults. Professional learning communities are essential to ensure that teachers are working together toward increased student achievement for the benefit of all students while engaged in a culture that embraces learning for adults to the same level as it does for students. To what extent was teacher collaboration and professional learning apparent in this case study? The expectation and modeling of collaboration and continuous professional learning was witnessed at all levels.
The message of how collaboration was valued in the district was first heard in the interview with the associate superintendent. When asked initial questions about the district implementation of the CCSS, he responded:

Any time I am asked really questions about anything, about curriculum, about Common Core, I always go back to PLC because I think anybody studying our district needs to understand that that framework of professional learning communities, that's the anchor. That's the umbrella, that's the foundation that everything is built on … collaborative processes and systems and structures in our schools are pretty consistent and embedded. (Interview with associate superintendent, August 2013)

The year began with the administrator retreat where district leaders, including the director of math, science, and health, and building principals came together to ensure a clear direction was set for the year and that supports and practices were in place to support this direction (District X, 2013h; Interview with associate superintendent, August 2013). The administrator retreat in August of 2013 focused on the year’s implementation of the CCSS. Leaders were presented with expectations for the work ahead that school year. As part of the retreat, leaders were given multiple opportunities to share insights, challenges, and questions thereby increasing their understanding and ability to act upon the shared district expectations. In the retreat, leadership was emphasized recognizing that principals are “lead learners” who should be taking informed risks within the constraints of the outlined actions.

Each month the district leaders facilitated a general administrator meeting. These monthly gatherings were opportunities for continued support for principals as well as a time for reinforcing and extending the knowledge and skills of principals (associate superintendent interview, observation of General Administrator Meeting). In general
administrator meetings in the fall of 2012, time and energy was devoted to building the knowledge of principals about the CCSS. Principals became familiar with the contents and instructional shifts contained with the CCSS, what the vision was for the PARCC assessments, and the work that would be ahead for the district and its schools (District X, 2012a, 2012b). In the fall of 2013 at one of the general administrator meetings, principals were reminded of the instructional shifts of the CCSS. At that time, principals were also given specifics as to the expected pacing of the new district CCSS curriculum and where curricular teams should be in regards to instructional units (District X, 2013e). In addition, principals were provided with classroom observation “look-fors” as related to instructional shifts in the mathematics classroom (District X, 2013f). They were given specific indicators in which to observe and provide teachers with feedback regarding the instructional shifts required as part of the implementation of the CCSS for Mathematics.

Collaboration and embedded professional learning were also apparent at the regularly scheduled Junior High Administrative Instructional Support Meeting, a gathering between the associate superintendent, director of math, science, and health, and the junior high school principals. At the observed meeting, the associate superintendent facilitated a dialogue with the junior high school principals using an agenda reflecting items of support, coherence across buildings, and learning from one another District X, 2013c). In the observed meeting, principals shared their success and challenges regarding implementation of the CCSS. The case study junior high school principal shared how it was “amazing to see the transition” of teaching from a more traditional way to a more student-centered approach. Several other principals followed up with questions about
ways she was supporting her mathematics teachers. Another principal shared that he is “driving planning time” so implementation is easier for teachers. A principal commented that her mathematics coach has helped math teachers plan focused questions around the intended learning. When a principal shared how their student support teams were working with the mathematics intervention program (Math Acceleration), the associate superintendent questioned how time was being allocated to accomplish this. More specifically, principals shared challenges and solutions to support teacher implementation, scheduling, and utilizing resources.

The importance of teacher collaboration was a resounding and often repeated mantra across district events. At a general administrator meeting in early 2013, leaders were reminded that a key component of professional learning communities was collaborative teaming, high quality instruction planned by the collaborative team, and mathematics interventions planned and delivered to students by teams (District X, 2013g). Teacher collaboration was repeatedly emphasized. In the junior high school principals meeting, principals were reminded by the associate superintendent that science and mathematics teachers should be working together to emphasize common vocabulary embedded in the *CCSS for Mathematics* (observation). In response, junior high school principals shared that teachers were meeting more often in their teams than was required in order to implement curricular changes with fidelity.

Across the district, each Wednesday was dedicated time set aside for collaborative teams. The work of teams for the 2013-2014 school year was around the implementation of the *CCSS* (Interview with associate superintendent and junior high school principal).
The junior high school principal made it a point to regularly attend the mathematics team meetings and her mathematics department chair (interview with junior high school principal, September 2013; interview with mathematics department chair, May 2014). The mathematics background of the junior high school principal and her ability to communicate a clear vision of *CCSS for Mathematics* implementation translated into support and clear direction as to the work in which the team was engaged. In an observed team meeting, the junior high school principal worked with the team to prepare for a board presentation about the work of the team around the *CCSS*. The junior high school principal, her mathematics department chair, and her mathematics teachers were all present. This building-specific meeting did not include district level leaders or mathematics coaches. The principal sat amongst the teachers while the department chair facilitated the conversation.

A slide in the presentation given at the August 2013 general administrator meetings summed up the district philosophy regarding collaboration, “Professional learning communities in [the district] – the engine that drives all instructional practice” (District X, 2013g).

**Stages of Leadership Development**

*The PRIME Leadership Framework* is encapsulated in four principles (equity, teaching and learning, curriculum, and assessment) with each principle further delineated by three indicators. Just as teachers are expected to continuously challenge themselves to grow and develop in their craft, so too should leaders. To this end, *The PRIME Leadership Framework* views leadership as a cyclic process of learning and modeling
combined with leading others, and for some leaders, influencing and leading beyond the brick and mortar of the school building. In *The PRIME Leadership Framework* these “stages” of leadership development differentiate between personal growth in knowledge and skills (Stage 1: Leadership of Self), leading others in their collaborative growth and implementation of best practice to benefit student learning (Stage 2: Leadership of Others), and the leadership of mathematics teaching and learning at the district level or greater educational community (Stage 3: Leadership in the Extended Community). Depending on the stage of leadership development, the characteristics and expectations differ. It should be noted that these stages are not necessarily seen as “levels” of attainment. For example not all leaders should necessarily aspire to stage 3 where leadership extends to a broader community, such as the district, state, or national level. In addition, the cyclical nature of the stages regularly happens as leaders gain knowledge and skills in some areas (e.g., effective instruction) while developing expertise in other areas of leadership (e.g., assessment practices). As the field of education continues to evolve and more is known about educational systems and student learning, a leader at a stage 3 may find herself at stage 1 as new initiatives or goals are adopted. In analyzing the data for the case study, the stages were useful in helping to better differentiate the knowledge and actions of the associate superintendent and junior high school principal as well as policies and structures at the district level. Therefore, within each indicator of every principle of *The PRIME Leadership Framework*, data relevant to the various stages of leadership development has been identified.
Analysis and Organization of Data

Data for the case study was analyzed using The PRIME Leadership Framework. As data was collected, the research was reviewed to obtain a general sense of the data and begin to explore linkages to the framework. Once all data was collected, it was coded according to The PRIME Leadership Framework identifying patterns and the emerging story of the case. Thus, the organization of the case study data mirrors that of The PRIME Leadership Framework organization around the four principles (equity, teaching and learning, curriculum, and assessment). Within each principle, data was coded to indicators across the three stages of leadership development (stage one – self, stage two – others, stage three – extended community). Reporting the data beginning with stage one and progressing to stage three may seem logical. That is, begin with the knowledge of a leader and track the progression of leadership toward a greater influence, such as the district level. However, for this case study stage three reflected the actions and expectations as set forth at the district level. Thus, in analyzing the case study, it made greater sense to start with the larger lens of the district and zoom in to comprehend how district expectations were put into practice at the team and leader level within the building. So while the table data displays show stages from left to right, the case study data is reported beginning with stage three. Moreover, as noted earlier, The PRIME Leadership Framework was written with the individual leader in mind. However, what became apparent in collecting and analyzing the case study data, district-level programs, structures, and processes contributed to the ways in which the associate superintendent and junior high school principal collaborated and went about their work to implement the
For example, under the equity leadership indicator in *PRIME*, the first indicator is “teacher addresses gaps in mathematics achievement.” This speaks to collecting and analyzing data to ensure that all populations of students are demonstrating high levels of mathematics achievement. As will be detailed later, this was evident at the “principal” level in the junior high school principal’s use of data to monitor student progress. This was also evident at the “district” level in the explicit expectations that “Each school will perform at or above the 90th percentile (top 10% nationally) in meeting individual student growth targets in reading and math as measured by Measures of Academic Progress (MAP)” (District X, 2013i). Hence, as a way to better reveal patterns, the case study data was organized in the following manner: each indicator within the four principles of *The PRIME Leadership Framework* beginning with evidence of stage three leadership and delineated by principal, associate superintendent, and/or district.

The work, role, and relationship of the associate superintendent and junior high school principal were the leaders of primary interest for this research case study. Thus, their roles in the various district and school actions and decisions were emphasized even though other leaders, such as the director of math, science, and health and the math department chair, may have had a significant role in the various events around the implementation of the *CCSS for Mathematics*.

### Equity Leadership

According to *The PRIME Leadership Framework*, it is imperative that leaders in mathematics education keep at the forefront of their work a clear and unrelenting focus on addressing and seeking to erase inequities that result in achievement gaps for certain
groups of students. As part of this work, leaders need to ensure that all students are held to high standards, provide interventions and supports for students, and seek to monitor and promote the ongoing growth of each student (see Table 5 for actions toward the PRIME equity principle identified in the case study data).

Equity Leadership – “Each teacher addresses gaps in mathematics achievement expectations for all student populations” (NCSM, p. 12). The stage 1 leader, in regards to the equity principle, is focused on identifying and developing knowledge specific to student populations that are under-performing (leadership of self) whereas the stage 2 leader engages teacher teams in using data to identify and monitor gaps in student achievement across all populations (leadership of others). The stage 3 leader ensures that a district-wide plan is in place to systemically use data to identify and monitor student achievement across all populations (leadership in the extended community).

Evidence of stage three leadership in the equity principle around a district-wide plan for using data was found to typically involve the associate superintendent of the district and district-level leadership and was clear throughout district presentations, meetings, and communication. The emphasis of addressing achievement gaps began at the district level. The district goals clearly communicated the importance of high expectations for all students (District X, 2013i). The district goals were as stated:

- Students who have attended district schools for at least one year will be at grade level in reading and math upon entering third grade as measured by Measures of Academic Progress [MAP] (Northwest Evaluation Association, 2014).
### Table 5

*Equity Leadership – Case Study Data*

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teachers address gaps in mathematics achievement.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Monitoring of student achievement (MAP, ISAT). (1, 3, 4, 8, 9)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• Monitoring of tiered intervention (4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Teams use data to set individual student goals in math. (4, 11, 22, 23)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Progress monitoring for all students. (3, 4, 5, 8, 11, 17, 18, 19, 22, 23)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Team use of data to monitor progress of students in math support program. (4, 19, 22, 23)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Planned “data retreat” with teachers. (4)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>District goals set targets for student achievement. (2, 3, 4, 8, 12)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Specific focus on under-performing students. (3, 4, 5, 8, 9, 11, 16, 17, 18, 20, 22, 23)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Criteria for identifying students for tiered intervention. (9, 11, 17, 19)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Expectations for prioritizing math support for students. (3, 4, 5, 8, 9, 11, 16, 17, 18, 20, 22, 23)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Associate superintendent visit to junior high school. (2)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Teachers provide access to relevant and meaningful mathematics experiences.

- CCSS for Math task force. (1, 3, 8, 10, 13, 14, 24)
- Math Acceleration. (3, 4, 5, 8, 9, 11, 16, 17, 18, 20, 22)
- Framework for Balanced Mathematics. (9, 15, 17, 18)
- Expectations for instruction in mathematics.
- SIOP training. (22, 23)

Instructional shifts are identified. (3, 4, 5, 8, 9, 11, 12, 17)
- District CCSS Math task force. (1, 3, 8, 10, 13, 14, 24, 25)
- District scope and sequence across all grades. (7, 13, 14, 23)
- Math time allotment for instruction. (3, 4, 8)
- Explicit use of support personnel. (3, 4, 8)
- Specific time allocation for Math Acceleration and skill/content focus. (3, 4, 8)
- Guidelines for scheduling tiered support. (8, 11, 18, 19)
- SIOP training and strategies. (15, 22)

Teachers work interdependently.

- Team preparation for SIP presentation. (4, 22, 23)
- Time for regular team meeting. (4, 23)
- Principal involvement in team meetings. (4, 19, 23)
- Focus the work of teams. (3, 4, 17)
- Team goal setting for individual students to accelerate growth for all students. (4, 22, 23)

- Expectations for collaborative teaming. (3, 16, 19)
- Math Acceleration. (3, 5, 8, 9, 11, 17, 18)
- Job-alike meetings (4, 19)

Note: Numbers in parentheses indicate data sources as identified in Table 3. (*) Denotes with support/involvement from math department chair. (+) Denotes with support/involvement from director of math, science, and health.
• Each school will close the achievement gap for all students in reading and math as measured by both district and state assessments.

• Each school will perform at or above the 90th percentile (top 10% nationally) in meeting individual student growth targets in reading and math as measured by Measures of Academic Progress (MAP).

These goals were also evident on the walls of the office of each the associate superintendent as well as the junior high school principal. The associate superintendent had each goal displayed in separate frames on the top of his desk. The principal had one framed sheet containing the goal in her office. The district goals were also captured on a slide as part of district-wide presentation to leaders in fall of 2012 as the district was beginning to lay the foundation for the work ahead around the *CCSS for Mathematics* (District X, 2012a). As the associate superintendent emphasized in his interview, “They are the three school improvement goals that we have. So everything that we do keeps coming back to how we monitor improvement in those three areas.” Further proof of a focus on student achievement and the importance of data could be found in a report to the board of education on the district’s implementation of the *CCSS* making explicit connections to student achievement data (District X, 2013m).

Further evidence of stage 3 leadership within the equity principle centered on the intentional and intense focus of interventions in the area of mathematics. Characteristics of stage 3 could be seen through the work and voice of the associate superintendent as well as the programs and actions of the district. At the district level, specific focus was devoted to underperforming students in mathematics through the district-wide program of Math Acceleration. Seizing on the implementation of the *CCSS for Mathematics* as an
opportunity to implement a district-developed mathematics intervention program, the
associate superintendent sought to address inconsistencies across the district. In his
interview, he stated:

We had little patch programs like after school stuff and before school stuff
and lunchtime tutoring stuff. There were a couple of schools that were
experimenting with what we call flex scheduling where a couple of days a
week they would trim some minutes off of their regular periods of day to
carve out an extra period for kids to get some extra support in math. But
none of that stuff is systematic, the way it is now. (Interview with
associate superintendent, August 2013)

To address these inconsistencies across the district in regards to intervention
programs, the associate superintendent and director of math, science, and health were
instrumental in leading the design of the Math Acceleration program. As the associate
superintendent put it, “You should have an aligned approach to what you are doing
during a math acceleration period, so that it's coherent and congruent with what goes on
during initial instruction.” This program was created to provide consistent, coherent,
focused, and timely support to targeted underperforming students. The Math Acceleration
program delineated clear criteria and protocols for the implementation of this intervention
(see Appendix M for the details of the Math Acceleration program). The expectations and
specifics of the program were communicated multiple times over the last couple of years
both verbally as part of administrative meetings as well as in writing. These events and
artifacts include the 2013 August Administrative Retreat (District X, 2013h); a number of
the General Administrator meetings (observed meeting October, 2013; District X, 2012a,
2012b, 2013f, 2013g); in a memo to junior high principals, assistant principals, and the
district cabinet from the associate superintendent (District X, 2013n); and as part of the
junior high school principals meeting with the associate superintendent (observed junior
high administrative instructional support meeting, October 2013). More detail about some of these events follows.

At the district’s annual administrative retreat held in August of 2013 (attended by district administrators and principals), the message communicated was that the implementation of the CCSS translated to closing the district’s achievement gap with daily acceleration opportunities aligned to curriculum for all students (District X, 2013h). As shared with district leaders, the district was moving from enrichment and intervention to acceleration for all students. As early as the spring of 2013, the associate superintendent in a memo to junior high principals articulated the expectations for implementation of the Math Acceleration program (District X, 2013n). He explained how resource staff was to be utilized and how to prioritize their work in supporting students. As he stated in his memo, “There is currently a great deal of variance across our junior highs with regard to the way buildings are scheduling their ELL Resource Teachers and SSTs (Student Support Teams).” The district expectations were intended to reduce the variance of support provided to students across the district. As another follow up to ensure that the Math Acceleration program was being implemented with fidelity, the associate superintendent questioned the junior high school principals in their regular monthly meeting about placement of students into the program (observed, October 2013). As he shared in his interview, “It [Math Acceleration] was so important to have that in place and it had to be systemic across the board in order -- our special education teachers, our bilingual research teachers, our interventionists, those folks were going to be asked to teach math acceleration.” Evidence of the associate superintendent’s monitoring the level of implementation of the district’s Math Acceleration plan came out in the interview with
the junior high school principal when she explained that the associate superintendent was scheduled to come visit her school to observe the implementation of the Math Acceleration program to gather data and provide feedback.

The junior high school principal also demonstrated elements of stage 3 leadership within the equity indicator of addressing gaps in student achievement. In the observation of her mathematics teacher team meeting in October 2013, she commented on teachers “rocking it out” when it came to implementation of the Math Acceleration as 59% of students in the program had doubled their growth. In the notes the junior high school principal and her math department chair had prepared for their presentation to the district leadership team, she had captured MAP and ISAT data for the last couple of years (District X, 2013a). She had also disaggregated data by subpopulations (e.g., English language learners, special education). The junior high school principal and math department chair had gathered this data to illustrate where their students had progressed in mathematics achievement together with identified areas for future growth and priorities.

Stage 2 of the first indicator of the equity principle is about the involvement of teacher teams in the process of monitoring student achievement across all subpopulations. Beginning in the fall of 2013, the district began an implementation of their Math Acceleration program “at our junior high levels for any kid that is below the 40th percentile in our math assessments or for kids that are non-proficient on classroom common assessments that are being administered,” according to the associate superintendent. Using the district-determined benchmarks, the junior high school principal identified groups of students in need of additional support for her building. She
worked with teachers to identify students in her school for Math Acceleration (observed in team meeting, October 2013). In the interview, she demonstrated to the researcher how she used the district’s student information system to monitor student performance in the Math Acceleration program. Data played a recurring role in conversations with teachers. She stated, “I am very transparent about our data to say: Look here is our data and this is the past practices that you had. It wasn't working.” Furthermore, her mathematics teacher team notes provided the specifics as to the data she used with her teams. In particular, she monitored student achievement through regular analysis of the Northwest Evaluation Association’s Measures of Academic Progress (MAP) assessment (2014) and annual analysis of ISAT scores (District X, 2013a). The principal shared that a common goal setting process with students is used by all teachers in mathematics and improvement goals are specific to the skill a student is targeting and aligned to essential outcomes (observation of team meeting, October 2013). Teacher teams, collaboratively with the math department chair, set MAP growth goals for each student to achieve double and triple growth in mathematics scores. Together with the mathematics teacher team, the junior high school principal and the math department chair reviewed trend data for all students as well as highlighting data specific to Hispanic students (13% increase of students who met or exceeded on ISAT scores) and limited English proficient students (18% increase of students who met or exceeded on ISAT scores) (District X, 2013a). Regular monitoring of effectiveness of support programs was done through daily skill checks, feedback from teacher teams on student performance, and increased proficiency on common assessments. Finally, to build analytic skills of her teachers, the junior high school principal told her mathematics teaching team that she was planning for a “data
retreat” in the future whereby teacher teams would increase their capacity to use data to identify and support student learning.

Stage 1 evidence of the first indicator within the equity principle was apparent in data involving the junior high school principal, associate superintendent, and at the district level. Detailed above was the emphasis of the collection and analysis of data across the district by all leaders. The district set goals and monitored student achievement across subpopulations (District X, 2013i) that were reiterated by the associate superintendent in his interview.

If you looked at our old data and Illinois recalibrated ISAT cut scores ... we went pre-PLC to having zero 90/90 schools than last year, I want to say that 19 of our schools were 90/90 district schools, meaning 90 percent of our kids met our student state standards ... [with recalibrated ISAT scoring] our district percentages in math went from 94 percent meets/exceeds on the ISAT to now being 81 percent with the new cut scores. And in reading we went from 91 to 76 point something. (Associate superintendent, interview August 2013)

Equity Leadership – “Every teacher provides each student access to relevant and meaningful mathematics experiences” (NCSM, p. 15). For this PRIME equity indicator, a stage 1 leader is developing knowledge and strategies that present mathematics as an important discipline connected to students’ experiences while at the same time examining school practices to ensure all students have access to rigorous mathematics curriculum. At stage 2, the leader works with teachers to create and implement meaningful mathematics lessons centered on important mathematics and ensures that teachers are providing high quality instruction to all students. The stage 3 leader works at the district level to make certain that the mathematics program is aligned across and within grades. This stage leader also regularly examines practices to guarantee that students are not
limited in their access to rigorous and relevant mathematics while simultaneously providing interventions for struggling students.

Examining evidence indicative of stage 3 leadership gives better insight and understanding as to actions happening at stage 2. Thus, analysis begins at stage 3. As a way to ensure that every teacher in the district provided each student with access to rigorous mathematics and high quality instruction around the *CCSS for Mathematics*, the associate superintendent built several structures at the district level. Planning for the implementation of the *CCSS for Mathematics* began in spring 2012. In the fall of 2012 at a general administrator meeting, the associate superintendent began to emphasize the instructional shifts of focus, coherence, and rigor (District X, 2012a) that would be required as part of the implementation of the *CCSS for Mathematics*. In particular, the CCSS would bring about “access to more complex concepts” for all students through a curriculum focused strictly on the *CCSS for Mathematics* developed in a way that was coherent and thoughtfully built across grades. Soon after this meeting early in the fall of 2012, the associate superintendent convened a district-wide CCSS task force (District X, 2012a, 2012c, 2013o). The charge of the task force, as outlined in the description of the task force, was to use the *CCSS for Mathematics* and the PARCC assessment to create grade-level documents to “clarify key instructional and assessment practices for teams to implement” (District X, 2012c). The resulting work of this group of selected teachers and district leaders (including the junior high school principal) was curriculum documents, expectations for instruction, and assessment materials to be used across the district by all teachers (District X, 2013p, 2013q, 2013r) as directed by the associate superintendent, director of math, science, and health, and facilitated by consultants.
The associate superintendent worked with the district-level instructional support team to put together several other structures and expectations to ensure all students had access to the CCSS mathematics curriculum. In his interview the associate superintendent explained that before the district work around the CCSS and an emphasis on professional learning communities, the time devoted to mathematics instruction had varied across the junior high schools:

We had three different elementary math curriculums that worked, and the district buildings were able to pick and choose between those three. No instructional consistencies at our junior highs. I mean, in terms of electives, they were all offering different things. (Interview with associate superintendent, August 2013)

Moving forward all junior high schools were required to devote 60 minutes of core mathematics instruction each day to every student (Interview with associate superintendent, August 2013; District X, 2012a). The district rolled out the Balanced Mathematics Framework (see Appendix O for details of the Balanced Mathematics Framework) that specified how the 60 minutes was to be divided between numeracy development, main instruction focused on developing understanding, and guided instruction in which to provide differentiated support (District 2012a, 2013g). At the same time, the associate superintendent recognized that historically the district did not have a systemic plan for mathematics support for students.

We had reading extension classes that were the literacy acceleration opportunity for our junior high kids. We had little patch programs like after school stuff and before school stuff and lunchtime tutoring stuff. There were a couple of schools that were experimenting with what we call flex scheduling where a couple of days a week they would trim some minutes off of their regular periods of day to carve out an extra period for kids to get some extra support in math … But none of that stuff is systematic, the way it is now. So now in literacy and in math for any of those kids that we see as struggling students, they do have the opportunity,
and it is built into the structure of the school day now. (Interview with associate superintendent, August 2013)

Additionally, the associate superintendent and director of math, science, and health, created similar specific dictates for implementation of the Math Acceleration program (see Appendix M) designed to provide students with targeted mathematics support (District X, 2012a, 2013n, 2013g; Observation of junior high administrative instructional support meeting, October 2013). These non-discretionary expectations included explicit use of English Language Learner (ELL) teachers and student support team personnel, spelled out criteria how the Math Acceleration time was to be organized, and dictated the content focus of the intervention (see Appendix N). In anticipation of scheduling concerns by junior high school principals, the associate superintendent also provided guidelines for setting up tiered mathematics support for students within the school day (District X, 2012a, 2013g, 2013n; Observation of junior high administrative instructional support meeting, October 2013).

The district-level instructional support team, led by the associate superintendent, presented to district leaders specific strategies to be used with students during the Math Acceleration program block (observation of district general administrator meeting, October 2013). Not only were leaders reminded of how to structure the time within the intervention time period, leaders were given specific instructional strategies for teachers to implement, such as the use of number lines, strip diagrams, and arrays. During the observed junior high administrative instructional support meeting (October 2013), principals were told by the director of math, science, and health that the cumulative
review portion of the Math Acceleration block was an opportunity “for students to see connections between various mathematical ideas.”

The associate superintendent’s instructional support team was also cognizant that teachers would benefit from focused support. As a way to arm teachers with instructional strategies and skills to best instruct particular populations of struggling students, teachers were provided with professional development opportunities, such as Sheltered Instruction Observation Protocol (SIOP) (Center for Applied Linguistics, 2014), a model of instruction specific to ELL students (District X, 2013k).

The aforementioned actions illustrate the work that was taking place at the district level to ensure all students had access to meaningful and rigorous mathematics that included interventions to support struggling students. According to The PRIME Leadership Framework, the stage two leader works directly with teachers to ensure students have “access to relevant and meaningful mathematics experiences” (NCSM, 2008). In this case study, the direct work with teachers happened most often with the junior high school principal. However, the associate superintendent and director of math, science, and health designed and implemented professional learning opportunities to engage teachers. The district sanctioned the CCSS for Mathematics task force that included the participation and work of teachers (District X, 2012a, 2012c, 2013o). The associate superintendent oversaw and was instrumental in leading this work together with his director of mathematics, science, and health. Teachers were a critical part of the process and were intentionally sought out, as the associate superintendent explained,

We completely revamped our literacy program in kindergarten through 8th grade. We did it by using task force teams of about 60-plus teachers from every school and grade level in the district … we sent out applications
district wide for teachers who were interested. We were looking for people who had particular strong background in math instruction that we knew were solid lead teachers for us in the district. (Interview with associate superintendent, August 2013)

Other evidence of stage two leadership demonstrated by the associate superintendent was through his work at the district level. He supported teachers’ ability to give students access to meaningful mathematics curriculum and instruction through various professional development opportunities (District X, 2013j, 2013k).

The junior high school principal in both her words and actions demonstrated her commitment to the mandates and expectations articulated across the district by the associate superintendent. In talking about the work of her teacher teams to support certain populations of students, the principal explained,

> What about the IEP kids, because there are so many deficit areas? How do I modify for those kids with Common Core? Or the ELL students who are Level 1 students, Level 2 students, what do I do with those kids? So trying to help the teachers along that process as well of what do we do with these kids that have major gaps in their understanding? But if you look at Common Core, we really want to keep them on to grade level. So let's not dummy down, it is all about maybe they need more time so we have the math acceleration. (Interview with junior high school principal, September 2013)

The junior high school principal and math department chair worked directly with the mathematics teacher teams on a weekly basis to make certain implementation of the instructional and curricular expectations as designed by the CCSS for Mathematics task force were met and put into practice within the mathematics classroom (interview with junior high school principal, September 2013). In her scheduling and use of resources, she implemented the district specified Math Acceleration program, including time in the
school day set aside for tiered intervention and the use of ELL and student support team personnel to work with targeted students. The principal explained,

Mondays I meet just with acceleration teachers to make sure they are teaching the same essential outcomes. They have the materials. How are they building that conceptual understanding? What kind of manipulatives are they using? Is this the most effective way to teach? How are they posing those high level questions or those problem-solving activities especially if you have like an ELL student who may be a Level 1 or 2? Which we have had an influx of newcomers come into the school, so we have had a lot of discussion of how to support them through the process. (Interview with junior high school principal, September 2013)

The junior high school principal and her math department chair worked with teachers to design lessons and instruction reflecting the district CCSS mathematics curriculum, specifically through the involvement of struggling students in goal setting and identifying strategies to address targeted goals. The principal’s teacher teams worked to create lessons for the Math Acceleration instruction. She emphasized with her teacher teams how to “implement problem solving tasks that engage students to apply their math knowledge to real world problems and situations” on a daily basis (Observation of junior high administrative instructional support meeting, October 2013; District X, 2013a). She communicated and supported her teachers in implementing daily numeracy development and skill checks to inform teacher decisions about flexible grouping of students for instructional purposes (Observation of junior high administrative instructional support meeting, October 2013; District X, 2013a).

The junior high school principal put into practice not only what had been communicated from the associate superintendent in regards to identifying students who were underachieving, but worked with her math department chair to assist mathematics teacher teams to go further in supporting these students. She and her teams provided
mathematics interventions in the following ways (Interview with junior high school principal, September 2013; Observation of junior high school mathematics team meeting, October 2013; District X, 2013a):

- Acceleration classes aligned to core instruction.
- Students below 40th percentile met on a daily basis.
- Implemented SIOP strategies across all content areas.
- Provided frequent and timely interventions for underperforming students based on progress monitoring in addition to students in any of the following subgroups: special education, Hispanic, ELL, free and reduced lunch.
- Focused on individual student and his/her specific need.
- Provided SIOP refresher training.
- Progress monitoring acceleration and IEP/ELL students were given daily skill checks.

As part of her constant monitoring of student learning, the principal regularly checked data that provided her with a succinct snapshot of students receiving different levels of supports, how they were moving between the levels, and how they were progressing in response to the intervention programs (Interview with junior high school principal, September 2013; Observation of junior high school mathematics team meeting, October 2013; District X, 2013a).

Equity Leadership – “Every teacher works interdependently in a collaborative learning community to erase inequities in student learning” (NCSM, p. 18). At stage 1 and 2 the PRIME leader understands and models, respectively, a collaborative teaching
and learning environment recognizing the power of teachers working together to “erase inequities in student learning” (NCSM, 2008, p. 61). The stage 3 leader helps to create and sustain a collaborative environment throughout the entire school system across the district.

At the stage 3 level, the associate superintendent in his interview acknowledged the pervasive practice and expectation of collaboration that the district had been working on for approximately seven years with the help of consultant experts on professional learning communities to develop and sustain a culture of teacher collaboration centered on student learning (Interview with associate superintendent, August 2013; District X website). The district developed the expectation and necessary structures (e.g., time during the school day) to allow and require teachers to collaborate around teaching and learning (interviews with associate superintendent and junior high school principal; District X, 2013h). In a general administrator meeting, the associate superintendent voiced to the group of district leaders that implementation of the CCSS was to be guided by the four questions that ground professional learning communities (DuFour, DuFour, & Eaker, 2008) thereby reinforcing the district’s commitment to a process of continuous improvement built upon professional learning communities.

1) What do we want our students to know?

2) How will we know if they have learned it?

3) What will we do if students have not learned it?

4) What will we do if they are ready to move ahead?

Collaboration was embedded throughout the district beginning at the district level. “We have a team of a Director of Math and Science [and health], a Director of Literacy, a
Bilingual Director and Executive Director for Special Ed. So all the district-level instructional support directors are housed there and we work together as a team,” reported the associate superintendent (Interview, August 2013). Moreover, the associate superintendent met and collaborated regularly as part of the general administrative team, and he facilitated monthly meetings with the junior high school principals where frequently the director of math, science, and health was in attendance. Within the district were instructional support positions in the areas of mathematics, literacy, science, and social studies in the role of coaches. One Wednesday a month, those professionals across the district who had the same role met for a “job alike” meeting to collaborate (referenced in junior high administrative instructional support meeting and by junior high school principal in October 2013 observations). The purpose of these meetings was to share strategies, challenges, and successes. Collaboration was a theme in district professional development offerings. Sessions emphasizing collaboration were offered as part of district professional development (District X, 2013k). “Communication, Collaboration, Commitment: A Systematic Process for Effective PLCs” and “Better Together: Moving from a Good PLC to a Great PLC” were just a couple of the workshops offered to district participants. The sessions provided strategies and tools to effectively collaborate.

When it came to the district implementation of *CCSS for Mathematics*, the associate superintendent communicated to district leaders the expectation of common planning time for mathematics teacher teams of a minimum of once per week. As he stated in his interview, the district worked for several years to “embed collaborative practices in our system … [and creating] systematic approaches to intervention and acceleration for kids.” Furthermore, in preparing for implementation of the *CCSS*, grade
level team trainings were arranged to support teachers in increasing their knowledge and skills as they prepared for the structural and instructional shifts required in implementing the *CCSS for Mathematics* (Interview with associate superintendent, August 2013; District X, 2013j, 2013k) in addition to the collaborative work of the *CCSS for Mathematics* task force (District X, 2012c).

In a presentation about the Math Acceleration program at a general administrator meeting, the associate superintendent reminded district leaders of the expectation that professional learning communities “drive all instructional practice” (District X, 2013h). The work of collaborative teams was to plan high quality initial instruction that was “delivered to ALL students” and aligned to the districts *CCSS* curriculum. In addition, the collaborative teams were responsible for planning and delivering the Math Acceleration instruction to targeted students. The expectation of teams to collaborate to implement the Math Acceleration program was repeated to district leaders frequently through written communication and general administrator meetings and typically from the associate superintendent and/or the director of math, science, and health (District X, 2012a, 2012b, 2013g, 2013h, 2013n; observation of general administrator meeting, October 2013; observation of junior high school instructional support meeting, October 2013).

At the junior high school, the principal fulfilled the expectations articulated by the associate superintendent as she and her math department chair led teams to see that student progress was monitored and tracked and that teams were providing appropriate interventions (Observed in junior high school mathematics team meeting, October 2013; District X, 2013a), further demonstrating elements of stage 2 leadership. Her mathematics teams met each week, and she attended these meetings. As she stated in her
interview, “I go into every math PLC. I collaborate with them … So there is a lot of legwork on my part just to be in those PLCs and be an active participant.” At her junior high school, teachers collaborated around implementation of the district CCSS curriculum, and the principal saw her role as supporting her teachers in this work. Junior high school teachers also collaborated in their teams to plan instruction, use and reflect on common formative assessments, and monitor student growth (District X, 2013a).

**Teaching and Learning Leadership**

*The PRIME Leadership Framework* principle for teaching and learning captures the importance of the mathematical content and pedagogy knowledge that a leader requires to lead herself and others such that students can demonstrate achievement in school mathematics. Leading others in the teaching and learning of mathematics requires that a leader know and understand student learning of mathematics necessitates students actively and intellectually engage with the content in ways that embrace problem solving and critical thinking. To accomplish this, teachers need the skills and strategies to facilitate instruction around meaningful mathematics where students are involved in productive struggle and discourse as they learn mathematics. In order to accomplish this vision for teaching and learning of mathematics, the *PRIME* leader engages in three indicators shown in Table 6. Following Table 6 is the narrative describing and displaying these data.
### Table 6

**Teaching and Learning Leadership – Case Study Data**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Principal (+)</td>
<td>Associate Superintendent (+)</td>
<td>District</td>
</tr>
<tr>
<td>Successful learning of mathematics for every student.</td>
<td>• Criteria for identifying tiered interventions. (4, 22) X</td>
<td>• District CCSS for Mathematics Task Force. (13, 14, 24, 25) X</td>
<td>• Structural and instructional changes dictated by the CCSS and PARCC. (3, 5, 8, 9, 11, 12, 17, 18) X</td>
</tr>
<tr>
<td>Implementation of research-informed planning and teaching strategies.</td>
<td>• Support and expertise in mathematics instruction. (1, 4)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Research-affirmed mathematics instruction strategies. (3, 4, 6, 8, 11, 13, 14, 17, 18, 20, 22)</td>
<td>X</td>
<td>X</td>
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<td></td>
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<td>X</td>
</tr>
<tr>
<td></td>
<td>• Balanced Mathematics Model. (8, 9, 11, 12)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Continuous and meaningful mathematics professional learning.</td>
<td>• Professional readings. (3, 4)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Observations inform professional learning focus. (4, 23)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• District professional opportunities for leaders. (4, 5, 16, 17, 18, 24)</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses indicate data sources as identified in Table 3. (*) Denotes with support/involvement from math department chair. (+) Denotes with support/involvement from director of math, science, and health.
Teaching and Learning Leadership – “Every teacher pursues the successful learning of mathematics for every student” (NCSM, p. 25). The stage 1 leader seeks the knowledge of effective instructional practices and an understanding of how students learn mathematics, especially for groups of students who may struggle. She increases her understanding of instructional strategies to provide effective interventions to underachieving students. Subsequently, the stage 2 leader uses this knowledge to facilitate the work of collaborative teams in the development and implementation of research-affirmed instructional strategies and common curricular outcomes that support the mathematics learning of all learners. At stage 3, the leader implements and monitors a systemic plan of continuous instructional improvement and student achievement, monitors and responds to student achievement, and celebrates success.

As discussed previously, the associate superintendent led his instructional support team, including the director of math, science, and health, to develop and communicate the structural and instructional changes as required by the district’s adoption and implementation of the CCSS for Mathematics (District X, 2012a, 2012b, 2013g, 2013h, 2013m, 2013n). As early as fall of 2012, the associate superintendent and the director of math, science, and health began to lay the foundation for the district’s plan for implementing the CCSS for Mathematics. One major structural change shared with district leaders was that “common planning time should be allocated to discuss mathematics with the same level of focus devoted to literacy” (District X, 2012a). At the junior high school level, minute allocations were rolled out for each subject area and the specifics for tiered intervention in the form of Math Acceleration was spelled out. In other words, the district was taking advantage of the state adoption of the CCSS for
Mathematics to make system-wide structural changes to scheduling and allocation of resources to better support students in the area of mathematics. In addition, the associate superintendent and the director of math, science, and health outlined the anticipated instructional changes in the form of the Balanced Mathematics Framework (see Appendix O). The Balanced Mathematics Framework specified how mathematics instruction would be allocated between building fluency, developing conceptual understanding, and providing tiered instructional support. A systemic plan for implementation of the CCSS was created and embraced as an opportunity to positively impact student achievement across all populations. As the associate superintendent put it,

Common Core actually came to us at a perfect time … giving [the public] a more accurate picture of how our kids truly are performing when it comes to college and career readiness is a good thing. And it also gives us the impetus to then go into our curriculum again and make some tough decisions about what we need to do, what we need to adjust. (Interview with associate superintendent, August 2013)

To this end, clear criteria and protocols for identifying students in need of additional instruction, use of resources, scheduling time for instructional support, and instructional focus were created and communicated in the terms of the Math Acceleration (see Appendix M) program and Balanced Framework for Mathematics (see Appendix O). The structure of the Math Acceleration program included how building principals were expected to divide required time between development of numeracy, shared whole class instruction, and cumulative review, all of which were to be explicitly tied to the core CCSS mathematics curriculum (District X, 2012a, 2012b, 2013g, 2013h, 2013m). In March of 2013, the associate superintendent sent a memorandum to junior high school principals that once again laid out the specific non-negotiable expectations for the
“structural and instructional changes dictated by the CCSSs and PARCC assessment” (District X, 2013n). In his written communication the associate superintendent made clear that in regards to structural shifts for junior high schools “we will hold tight to the expectations that all schools will expand their Math courses to 60 minutes to enable teachers to fully implement the District X Balanced Mathematics Model along with the realigned mathematics curriculum being developed by our Common Core Math Task Force.” He went on to further articulate the “tight expectations” of the district’s instructional shifts of “curriculum-aligned Balanced Mathematics Acceleration.” Also included in the memorandum from the associate superintendent was how junior high school principals were required to schedule resource staff. These actions as outlined by the associate superintendent were presented again to district building leaders as part of a general administrator meeting at the beginning of the next school year (District X, 2013g). Junior high school principals were entrusted to apply these structures and protocols in their respective buildings. At the observed monthly meeting with the junior high school principals in October of 2013, the associate superintendent inquired specifically about implementation of the Math Acceleration program and reiterated district expectations for the implementation of the program, such as how students were being placed into the program and the use of support personnel to staff the intervention.

As discussed previously within the equity principle, student achievement was continuously monitored and used to make curricular and instructional decisions. In his interview, the associate superintendent referred to district level student achievement as measured on standardized tests.

If you looked at our old data and Illinois recalibrated ISAT cut scores, so
we can be more in alignment with what high school achievement scores look like. You know, if you were looking at our achievement data, we went pre-PLC to having zero 90/90 schools than last year, I want to say that 19 of our schools were 90/90 district schools, meaning 90 percent of our kids met our student state standards. However, the state comes in and recalibrates the cut scores and those numbers plummet, not as dramatically in [our district] as they have around us, but I think our district percentages in math went from 94 percent meets/exceeds on the ISAT to now being 81 percent with the new cut scores. And in reading we went from 91 to 76 point something. (Interview with associate superintendent, August 2013. Note: 90/90 refers to a school that scored in the 90\textsuperscript{th} percentile in both reading and mathematics as measured by the MAP)

According to the associate superintendent, this recalibration in measuring student achievement provided further impetus to capitalize on the changes required by the implementation of the \textit{CCSS for Mathematics}.

Further evidence of stage 3 leadership in the \textit{PRIME} teaching and learning indicator for successful learning of mathematics for every student was found in the celebration of successes. The junior high school principal highlighted her “successes” in the notes she and her math department chair had prepared for the presentation to the district administrative team about her school. Some of the successes she noted and would eventually report out regarding the 2012-2013 school year were the increase of ISAT scores, especially in Hispanic and limited-English proficient student populations and closing the achievement gap in reading for tier 3 students. Her notes were organized by guiding questions given to her by the associate superintendent. Thus, the reporting out of academic progress to district administration was to include a celebration of successes for the school. In the end, each school would likewise report out.

Stage 2 indicators were apparent in the evidence at the district level as well as through the associate superintendent and junior high school principal. At the district
level, teachers were engaged through the work of the district task force in collaborating around translating the *CCSS for Mathematics* into a curricular document (District X, 2013o, 2013q, 2013r). The associate superintendent and director of math, science, and health worked with the consultant who led district mathematics teachers and leaders to create grade level scope and sequence, write student-friendly learning targets, and identify unit-by-unit prerequisite skills (District X, 2013p). Embedded in the work with the consultant, teachers experienced professional learning around instructional strategies to create higher cognitive demand tasks and formative assessment tools. At the general administrator meeting in October 2013, district principals were provided an updated pacing guide indicating where teams should be at that point in the year in relation to the district *CCSS* mathematics curriculum (District X, 2013f).

At least once per week, the junior high school principal and her math department chair worked with the teams of mathematics teachers to plan lessons using the district curricular materials and resources. In regards to teacher involvement with curriculum, she shared in her interview,

> I think from the district level, too, they are always looking for feedback so I am always encouraging my teachers to look at the curriculum. What is not working? Or what would be better and kind of developing a reflection sheet on that so that when the task force or the math task force comes back together they can bring those suggestions to the team and then have -- you know, revamp the curriculum to make it better for the following year.  

(Interview with junior high school principal, September 2013)

As a former mathematics coach, the principal also conveyed how she felt her mathematics background better enabled her to support the work of her mathematics teacher team in relation to the district work of the *CCSS for Mathematics*. 
I think one thing that stands out is I am a math geek and I have a math background being a math coach. And so loving math myself, I think I am a great support. Like even resources that I have, I'm like scrambling through boxes and like: Here, here are some materials you can look through. You need some kind of ideas especially those math accelerations when you talk about using math manipulatives. So I am trying to provide those different supports for -- I don't know every principal have that background. I don't know if you can support them in that way. (Interview with junior high school principal, September 2013)

She used her background and knowledge of mathematics content and pedagogy, combined with district expectations, to ensure that her teachers were collaborating on lesson design, developing shared expectations for student learning in the classroom, and creating common assessments. The principal saw her role as one to support teachers and ensure they were headed in the right direction.

But my goal -- and I keep reiterating to my department chairs that I completely understand that. Like I understand being a teacher that you don't always want the administrator in there, but if I am not in there and you are going down the wrong track, then I feel like I am not really supporting you at all because then you are going to come back when our results are not showing that we are progress -- that we are not making movement and then it will be on my shoulders because I was not in there to support you. (Interview with junior high school principal, September 2013)

Her teachers worked together to monitor student learning and give needed interventions building from individual student goal setting (District X, 2013). When she and the math department chair met with teachers, she would ask the teacher team such questions as “How are they building that conceptual understanding? What kind of manipulatives are they using? Is this the most effective way to teach? How are they posing those high level questions or those problem-solving activities especially if you have like an ELL student who may be a Level 1 or 2?” (interview with junior high school principal, September 2013)
principal, September, 2013) focusing their collaborative conversation on effective instruction.

Although stage one indicators were not always immediately apparent in the case study data, the junior high school principal described how she regularly monitored students in her school at each tiered intervention level and worked with her teachers to use strategies to support learners. This evidence was found in her preparation notes for the junior high school improvement meeting (District X, 2013a) and in her interview. The notes prepared by the principal and math department chair reported data on students across sub-populations (ELL and IEP) and used multiple data (e.g., MAP, ISAT). It one point in speaking with the researcher, the principal spoke directly to supporting limited English language learners.

Or the ELL students who are Level 1 students, Level 2 students, what do I do with those kids? So trying to help the teachers along that process as well of what do we do with these kids that have major gaps in their understanding? But if you look at Common Core, we really want to keep them on to grade level. So let's not dummy down, it is all about maybe they need more time so we have the math acceleration. They are in a [class] which is lower level, but you might have to reteach a number of times before there is mastery. (Interview with junior high school principal, September 2013)

Teaching and Learning Leadership – “Every teacher implements research-informed best practices and uses effective instructional planning and teaching strategies” (NCSM, p. 27). The stage 1 leader for this teaching and learning indicator understands how students learn mathematics and what effective instruction in the mathematics classroom looks like. She is aware of the components of well-designed lesson planning and can recognize effective, research-affirmed mathematics teaching in a classroom setting. At stage 2, the leader uses this knowledge to support collaborative teacher
dialogue, reflection, and growth in regards to implementation of high quality instruction in the mathematics classroom. The stage 3 leader ensures a district-wide plan for continuous evaluation and ongoing improvement in the area of mathematics teaching and learning.

In October of 2012, the associate superintendent presented to leaders across the district the essential elements of the CCSS and the anticipated impact these new standards would have for the district, both from a structural as well as an instructional perspective (District X, 2012a). A key element of the instructional changes was the rollout of the Balanced Mathematics Framework that articulated the “tight” expectations of how much instructional time would be devoted to mathematics instruction and how that time would be allocated between numeracy development, shared instruction, and guided instruction (see Appendix O for the Balanced Mathematics Framework). Moving forward, the district would put into place clear and specific expectations for mathematics instruction and providing students tiered support in the content area. These expectations were again underscored later that fall at a general administrator meeting (District X, 2012b), in a memorandum from the associate superintendent to junior high school principals in the spring of 2013 (District X, 2013n), and to the board of education later that spring (District X, 2013m). The message of “tight” expectations was reiterated in the associate superintendent’s interview,

I did a presentation, then, I want to say it was in November … the tight expectations we put out in the district. The title of the presentation was: Curriculum and Structural changes Dictated by PARCC and the Common Core. And it was basically laying out for [principals] what we viewed as the offensive game plan that we were going to have to take to conquer the new set of challenges. (Interview with associate superintendent, August 2013)
In her interview, the junior high school principal’s response reflected her knowledge of district expectations around the Balanced Mathematics model. “We also have, I am sure [associate superintendent] shared with you the templates that you should be doing this amount of time of numeracy skills, this amount of time for shared [instruction] and then guided [instruction].”

An additional indicator of a “systemic continuous process of mathematics instructional improvement” (NCSM, 2008, p. 27) was in the development and implementation of the Math Acceleration program. This intervention program was introduced to district leaders in fall of 2012 (District 2012a, 2012b), restated to district leaders in detail in a memorandum from the associate superintendent in March of 2013 (District X, 2013n), communicated to the board of education as part of a CCSS presentation in April 2013 (District X, 2013m), and then a focus of a general administrator meeting in August of 2013 (District X, 2013g). The Math Acceleration program mandated that teacher support numeracy development “based on an understanding of the operations and thinking strategies” aligned to the curriculum (District X, 2012a). The “shared instruction” portion of the Math Acceleration intervention should “include opportunities for work with visual representations of the concepts” and “continue developing understanding through the [CCSS] Mathematical Practices” (District X, 2012a). Consistent and systemic application of the expectations and structures of the Math Acceleration program was also found in the work of the junior high school principal. In her notes for the district school improvement presentation (District X, 2013a) she explained that she was addressing the tenets of the district acceleration program in the following ways:
• Acceleration classes aligned to core instruction.
• Students below 40th percentile met on a daily basis.
• Implementing SIOP strategies across all content areas
• Provide frequent and timely interventions for IEP, Hispanic, ELL, FRL underperforming students based on progress monitoring.
• Focus on individual student (name and need).
• SIOP refresher training.
• Progress monitoring acceleration and IEP/ELL students will daily skill checks.

At the monthly meeting with the junior high school principals, the associate superintendent had each principal share a progress check of the CCSS implementation to date, including successes and challenges principals had experienced in their buildings (Observation of junior high administrative instructional support meeting, October 2013). In the conversation with the group, the associate superintendent reminded principals that teachers of the Math Acceleration program need to use their instructional space effectively, not merely teaching from the front of the room. He further suggested that principals should monitor teachers with which they may have concerns about the effectiveness of their teaching by completing walk-throughs of their classroom during instruction as well as collecting teachers’ lessons. In other words, it was the role and responsibility of the junior high school principals to monitor effective implementation of district expectations around instruction mathematics instruction by teachers. Although in attendance, the director of math, science, and health the meeting was facilitated by the
associate superintendent and most all of the contributions were made by the junior high school principals.

As further evidence of the district’s systemic plan for improvement of instructional planning and classroom practices, at the general administrator meeting in the fall of 2013 (observation, October 2013), principals were reminded that the implementation of the *CCSS for Mathematics* was comprised of the following:

- *CCSS Standards for Mathematical Practice*
- Instructional shifts from what was present in the traditional mathematics classroom
- Supporting student discourse during instruction
- Application of the district’s Balanced Mathematics Framework
- Calculator guidelines from PARCC
- Numeracy targets as articulated in *CCSS for Mathematics* - grades 7 and 8

In the general administrator meeting observed in October 2013, the associate superintendent and the director of math, science, and health iterated that the ultimate goal in mathematics was to develop student independence through teacher-led explicit modeling of the targeted standard, followed by guided application of the skill, leading to the end result of the independent application of the standard by the student in a district-developed *CCSS* performance task.

Another example of stage 3 leadership focused on supporting every teacher to engage in effective instructional planning and classroom practices was reflected in the district’s job-alike meetings. Job alikes were those professionals who share similar responsibilities in supporting teachers and students. For example those who served in the
capacity of coaching teachers in the area of mathematics were considered “job alikes.” At
the meeting of junior high school principals, the associate superintendent reminded the
principals of the upcoming job-alike meetings. The director of math, science, and health
facilitated these job-alike meetings. According to handouts provided to the principals
(District X, 2013d), the next meeting contained professional development to ensure
consistency of instructional and curricular implementation aligned with the CCSS.
Specifically, the job-alike time would begin with a reminder of district goals that students
would demonstrate grade level proficiencies, specific instructional strategies, and time for
the job alike professionals to collaboratively discuss how each would take this new
learning back to teachers.

In the interview with the associate superintendent, he shared his perspective on
sustained and coherent district-wide support.

Any time we do a presentation … I send the PowerPoint out to our administrators. I tell them: Use them. We are not just doing the
presentations to education you all, that is part of what we are trying to do, but we are also trying to give them the tools they need to then go back out
and present to their staff. And take them word for word, you don't even
have to cite us, I don't care, but that's the district message and the more
consistent we are the better off everybody is going to be. (Interview with
associate superintendent, August, 2013)

Evidence of stage 2 leadership of the teaching and learning indicator of teacher
implementation of research-informed instructional planning and teaching strategies was
uncovered at the district, associate superintendent, and junior high school principal level.
A PRIME leader facilitates the growth of teachers by knowing teachers’ pedagogical
skills and knowledge. When the district leadership came together at the beginning of the
2013-2014 school year, building leaders were told that the implementation of the CCSS
for Mathematics was an opportunity for “visionary leadership” in which they could “lead with focus and coherence” preparing all students for college and future careers (District X, 2013h). Specifically, building leaders were expected to enact “tight expectations” around structures and instructional practices. District leadership communicated to building principals that teachers were to engage in instruction involving problem solving in context and opportunities for students to become fluent using multiple representations in mathematics (e.g., graphical, numeric) in ways that “pursue conceptual understanding, procedural skill and fluency, and application” (District X, 2013h). As part of the Math Acceleration block, teachers were to carry out shared instruction in ways that give students “opportunities for work with visual representations of concepts” (e.g., number lines, strip diagrams, arrays) (District X, 2013g). The junior high school principal viewed her role as an instructional leader and coach. She explained in her interview, “So as administrators we sat in those meetings [professional development around lesson planning connected to the CCSS] with our teams and helped, kind of work with them through that process, being more of an instructional coach within those meetings.”

Seizing on the district’s implementation of the CCSS for Mathematics, the associate superintendent also spoke to engaging and supporting teacher growth around research-informed practices by increasing teacher knowledge and skills in how students learn, instruction, and assessment. In addition, the district increased its commitment to instructional coaching in the content area of mathematics.

You know, our teachers weren't familiar prior to last year with Webb's depth of knowledge documents that anchor so much that’s in this work. We needed to give them new question frames and new assessment examples that were in the type of format of questions and assessments kids will get in a Common Core aligned curriculum …. And one of the other
things we did is we expanded our district level instructional coaching
support team in math. We now have [five] total instructional coaches in
math. And what we've done is we have assigned those coaches out clusters
of schools, five or six schools, each that they are assigned to provide
support with the implementation of this work. (Interview with associate
superintendent, August 2013)

Though the associate superintendent referenced the work of the mathematics
instructional coaches, it was the responsibility of the director of math, science,
and health to collaborate directly with the coaches to guide and support their work
across the district and in individual schools (Interview with director of math,
science, and health, May 2014).

The stage 2 teaching and learning leader is able to determine where each teacher
is at as an effective teacher and able to facilitate the professional growth of each teacher.

At the October 2013 general administrators meeting, principals were given a handout
identifying *CCSS for Mathematics* “classroom look-fors” (District X, 2013e). This
resource tool presented principals very specific teacher and student actions for which to
observe in a mathematics classroom that was effectively implementing the district
curricular and instructional shifts indicative of the CCSS. These actions were specific in
the focus on what an observer would view teachers and students doing during a
mathematics lesson. These mathematics classroom “look-fors” included (District X,
2013e):

- The lesson reflects the shifts (focus, coherence, rigor) required by the *CCSS for Mathematics*.
  - The lesson focuses only on mathematics within the grade-level standards
  - The lesson explicitly builds on students' prior skills and knowledge;
students are discussing the connections

• Instructional practices allow all students to master the content of the lesson.
  o Teacher uses explanations, representations and/or examples to make the mathematics of the lesson explicit.
  o Questions and problems prompt students to share their thinking.
  o A variety of student solution methods are shared and examined together to support understanding.
  o There is a variety of what students produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.
  o Checks for understanding are used throughout the lesson to assess progress of all students.

• Students are provided with opportunities to exhibit mathematical practices in connection with the content of the lesson.
  o Teacher uses strategies to keep all students preserving with challenging tasks/problems.
  o Teacher establishes a classroom culture in which students explain their thinking.
  o Students talk about and ask questions about each other's thinking in order to clarify or improve their own mathematical understanding.
  o Teacher connects students' informal language to precise mathematical language appropriate to their grade level.

• Students use appropriate tools strategically when solving a problem.
The junior high school principal practiced a hands-on approach to working with her teachers, and her walk-through observations of mathematics lessons resulted in regular conversations and feedback to teachers as they implemented the *CCSS for Mathematics*. She emphasized such instructional strategies as using multiple mathematical representations and the inclusion of high cognitive demand tasks with her mathematics teacher teams. In her interview, she shared,

I think we have really good teachers here. They are amazing math teachers. But it is just restructuring their idea of you're more of that facilitator …. it is how do we build that knowledge in our teachers how to use manipulatives? They have never done it before. So I think the curriculum they have written has helped them through that development. (Interview with junior high school principal, September 2013)

Moreover, the principal recognized the importance of not only facilitating conversations with teachers around research-affirmed instructional practices, she supplemented the collaborative dialogue with classroom visits.

And so all of my teams have, you know, like we meet and we really look through those lesson plans to ensure that that is happening. And then just how do we implement those higher-level questions for kids? How do we provide those problem-solving tasks for kids where they are really applying their mathematics to real life? That's interesting and it is really neat to be an active participant in those classes, too. So although I am there for their PLCs, to help support them in that way. I also love going into the classrooms and just watching the teacher and how they are implementing especially when you look at the practice standards [CCSS Standards for Mathematical Practice]. (Interview with junior high school principal, September 2013)

With input from teachers, mathematics coaches, and building leaders from across the district, both a district-wide curriculum identifying the essential outcomes by grade level as well as scope and sequence had been developed aligned to the *CCSS for*
Mathematics (District X, 2013o, 2013q, 2013r). In particular, the curriculum guide for grades seventh and eighth contained the following detail for each unit:

- CCSS standard(s) to which unit was aligned
- District-specific student learning target
- Explanation and examples
- Instructional strategies
- Instructional resources/tools
- Common misconceptions
- Mathematical connections
- Lessons
- Unit assessments and quizzes
- Additional resources (e.g., CCSS Standards for Mathematical Practice, questions designed to develop mathematical thinking linked to each of the Standards for Mathematical Practice).

The curricular resources included an emphasis on the development and implementation of mathematical tasks that required students to engage at a higher cognitive level and provided teachers with instructional tools in addition to the district developed curriculum (District X, 2013q, 2013r). The associate superintendent realized that he needed the means to disseminate this learning opportunity and newly developed knowledge to other teachers in the district. As a means to accomplish this the associate superintendent shared in his interview that

After every task force meeting, our Math and Science Director would write up [the meeting notes] -- basically we would do a one-page summary
of the key material that was presented because we wanted those reps to go back to faculty meetings in between the task force meetings and give a report that these are the big picture items that are going on. These are the things we discussed. (Interview with associate superintendent, August 2013)

In team meetings, the principal worked with teachers to use the district’s curricula binders for grades 7th and 8th to implement the *CCSS for Mathematics* using effective instructional strategies. In addition, she met regularly with her mathematics department chair to ensure that district structures were being implemented in mathematics classrooms, and she regularly visits classrooms. In her interview, she stated “So although I am there for their PLCs, to help support them in that way, I also love going into the classrooms and just watching the teacher and how they are implementing especially when you look at the practicing standards.”

When it came to supporting every teacher to implement best practice in the mathematics classroom, the stage one leader develops and models her knowledge of research and effective pedagogy. The district demonstrated its commitment to supporting both student and teacher implementation of effective mathematics instruction through the investment in several content-specific positions ranging from the director of mathematics, science, and health as a member of the associate superintendent’s team, and five mathematics coaches throughout the district (District X website, 2013; Interview with director of mathematics, science, and health, May 2014). In this case study, the principal’s background and experience in the mathematics classroom as a teacher and a mathematics coach gave her a strong foundation from which to build (District X website, 2013). When given the choice to hire a literacy or mathematics chairperson, she made the decision that based on their credentials, her teachers would be better served and
supported with a mathematics department chair (Interview with junior high school principal, September 2013).

Additional evidence of effective pedagogy was seen in a continual focus on research-affirmed mathematics instruction throughout the collected artifacts and interviews. The district’s Balanced Math Framework outlined the balance between numeracy development, shared instruction, and cumulative review (District X, 2012a, 2013g, 2013h), and the associate superintendent reiterated to junior high principals the non-negotiable elements of the framework (District X, 2013n). The director of math, science, and health emphasized to principals the role of student discourse in the mathematics classroom providing principals with specifics how help teachers in this regard (District X, 2013b). The director of math, science, and health also identified for principals the “core actions” to look for during classroom walk-throughs. Included in these look-fors were such research-affirmed strategies as use of multiple representations, questioning to reveal student thinking, emphasis of multiple solution strategies, and checks for understanding throughout the lesson (District X, 2013e).

Teaching and Learning Leadership – “Every teacher participates in continuous and meaningful mathematics professional development and learning in order to improve his/her practice” (NCSM, p. 29). The stage 1 or 2 PRIME teaching and learning leader is committed to the continuous professional growth of her self and her teachers. She models and embeds opportunities for reflection and growth for all teachers. She uses her knowledge of the content and pedagogy of her teachers to inform the emphasis of professional learning. The stage three creates and implements a district-wide
professional development plan and provides the time needed for ongoing growth for the adults knowing that in the end it will benefit student learning.

At both the district level and the building level, professional learning opportunities were an inherent part of the culture of the district. The superintendent of the district made a point of sharing this fact in one of his articles posted to the district website.

In order to continue to support our teachers with implementing our curriculum effectively, a wide range of professional development experiences have been provided to staff across the district. Last May, the district facilitated intensive staff development sessions for all grade-level teams on the instructional shifts associated with delivering a curriculum truly aligned to the Common Core State Standards. Over the summer months, teachers from grade-level teams from all schools in the district came together for staff development sessions focused on planning for the successful rollout of our revised curriculum this fall. District, as well as building-based, staff development opportunities have been provided this fall to further support teachers with implementing this important work. Additionally, the district has invested in instructional coaching supports in the areas of literacy and math to ensure our teachers receive job-embedded professional development supports that directly connect to improving instructional practices in each of our classrooms. (District X website, posted November 2013)

Early in the planning phase of CCSS for Mathematics adoption and implementation, the associate superintendent created a professional learning plan for both teachers and leaders. In the fall of 2012, the associate superintendent laid out for the district leaders the professional development that would be provided across the district in regards to understanding the district’s expectations for structural and instructional shifts as a result of implementing the CCSS for Mathematics (District X, 2012b). The professional learning opportunities articulated in Table 7 demonstrated PRIME stage
three leadership in that it demonstrated the comprehensive district professional
development plan.

Table 7

District Professional Learning Activities – CCSS for Mathematics

<table>
<thead>
<tr>
<th>Activity</th>
<th>Target Audience</th>
<th>When Offered</th>
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</thead>
<tbody>
<tr>
<td>General Administrator Meeting – CCSS Introduction (District X, 2012a)</td>
<td>District and building leaders</td>
<td>Fall 2012</td>
</tr>
<tr>
<td>Structural and Instructional CCSS Shifts (Interview with associate superintendent)</td>
<td>Principals and their leadership teams</td>
<td>January 2013</td>
</tr>
<tr>
<td>Task Force (District X, 2012c, 2013p)</td>
<td>Teachers and leaders</td>
<td>Spring 2013</td>
</tr>
<tr>
<td>Introduction to district curriculum resources (referenced in District X, 2012a)</td>
<td>Teacher teams</td>
<td>May 2013</td>
</tr>
<tr>
<td>2-day district symposium (District X, 2013k)</td>
<td>Teachers and leaders</td>
<td>Summer 2013</td>
</tr>
<tr>
<td>Administrator Retreat (District X, 2013h)</td>
<td>District and building leaders</td>
<td>August 2013</td>
</tr>
<tr>
<td>General Administrator Meetings – CCSS implementation (District X, 2013g)</td>
<td>District and building leaders</td>
<td>2013-2014 school year</td>
</tr>
<tr>
<td>Junior High School Principals Meetings (District X, 2013b)</td>
<td>Junior High School Principals</td>
<td>2013-2014 school year</td>
</tr>
<tr>
<td>District courses (District X, 2013j)</td>
<td>Teachers</td>
<td>2013-2014 school year</td>
</tr>
</tbody>
</table>

The systemic district professional development plan began with the district
leadership. In the fall of 2012, district leaders were collectively introduced to the CCSS
for Mathematics and what the implications of the implementation of this mandate were
for both instructional and structural shifts within the district (District X, 2012a). The
following January, the associate superintendent and the director of math, science, and
health presented to the principals and their respective building leadership teams specifics
on these shifts and the resulting changes that would occur at the school level (Interview with associate superintendent, August 2013).

Much of the district and building professional development was built around the work of *CCSS for Mathematics* task force. While the outcome of the group was to develop curriculum and materials aligned to the *CCSS for Mathematics* (District X, 2012c), task force members engaged in professional learning in the process. The associate superintendent and director of math, science, and health worked with outside consultants who facilitate each meeting with the task force members. Over the course of a semester in winter/spring of 2013, the group met for five full days of work and professional learning. By the end of May, task force members had participated in the following work and professional learning activities (District X, 2013p):

- Reviewed and discussed the *CCSS for Mathematics* and the PARCC assessment kindergarten through 8th grade.
- Learned a process for creating units aligned to the *CCSS* and embedding the SMPs and high cognitive demand instructional and assessment tasks into the unit plans.
- Developed knowledge of progression of mathematical concepts across grades used to develop curriculum scope and sequence.
- Developed student learning target statements.
- Created or identified high cognitive demand tasks for the various grade levels.
- Outlined prerequisite knowledge, skills, vocabulary, and notation for each unit.
• Compared newly developed unit work with current curricular materials and textbook series.

• Determined instructional calendars for implementation the subsequent school year.

• Developed common assessments and scoring rubrics for each grade level unit.

Beginning in May of 2013, grade level team meetings were provided a full-day training around the curricular materials and resources that the CCSS district task force had created, and two days were set aside in the 2013-2014 school year for teacher teams to evaluate and provide feedback around the curricular materials (Interview with associate superintendent, August 2013). As the associate superintendent described it,

We had enough in place that we were ready to do whole grade level team trainings. What we did in May is every grade level team in the district was brought over to district office and we provided them basically Common Core 101 and overview of the instructional resources that these task forces had developed. They got full-time with our math department. (Interview with associate superintendent, August 2013)

Over the summer of 2013 the district had a professional development symposium with 64 sessions presented by district teachers and designed to support faculty and staff in understanding and implementing the CCSS (District X, 2013k). These sessions included such topics as “Math in the Content Areas”; “Math Acceleration”; “Junior High Math Enrichment”; “Understanding the District’s Newly Developed Scope and Sequence Documents for Mathematics”; “High Cognitive Demand Assessment Tasks”; and “Incorporating Depth of Knowledge Levels into Daily Instructional Practice.”

Throughout the 2013-2014 school year, the district offered salary credit course offerings around the CCSS content standards, developing computation strategies (by grade level),
modeling mathematically, designing student-engaged lessons, and strategies for use in sheltered classes (District X, 2013j). As a result of the feedback from the summer symposium, the associate superintendent and the director of math, science, and health offered “what we called year-long planning sessions using the new curricular resources in math” (Interview with associate superintendent, August 2013).

The associate superintendent’s team also developed many professional learning opportunities for leaders to support their work around the CCSS for Mathematics. In the fall of 2012, building leaders were presented with the plan for the district’s work and implementation of the CCSS (District X, 2012a). The structural and instructional shifts were communicated to leaders and subsequent support was provided later that school year to assist building leaders and their team leaders in planning their master schedule, creating the structures for the acceleration program, and building staff consensus around the structural and instructional shifts of the CCSS (District X, 2012a; Interview with associate superintendent, August 2013).

The administrative retreat at the beginning of the 2013-2014 school year focused on the implementation of the CCSS across the district. As a part of a focus on building clarity and coherence around the district implementation, leaders were asked to share with one another the following (District X, 2013f):

- How support for the CCSS implementation would be built.
- Ways to schedule observations to ensure the “work is successfully enacted.”
- Approaches to the use of staff development time “to support the tight expectations in place across the district.”
- Strategic ways to use their resources (e.g., time, money, personnel) in regards to implementing the CCSS.

Later that fall at the general administrator meeting, time was devoted to reiterating district goals and expectations for mathematics instruction that included student discourse, use of the district’s Balanced Mathematics Framework, emphasis of the SMP, and calculator guidelines from PARCC (observation of General Administrator meeting, October 2013). The associate superintendent and the director of math, science, and health also spent time with the group of leaders to remind them of the curricular emphasis of numeracy and tools available to support and engage students to develop numeracy knowledge and skills in the classroom. Moreover, they worked with leaders to make the Math Acceleration program more effective. To this end, a video of an actual district teacher and students was used as an instructional tool to emphasize targeted, small group tiered instruction during Math Acceleration time. Principals were also reminded that the district-level instructional support team and mathematics coaches were available to assist teachers with strategies. Specifically with the junior high school teachers, the associate superintendent and the director of math, science, and health followed up with principals about needed support for their respective teachers (Observation of Junior High Administrative Instructional Support meeting, October, 2013). As the associate superintendent put it,

Virtually every meeting we did last year (and this year) related to this work in some way, shape or form … We always did updates on what the Common Core task forces were doing, you know from general sessions that I did on PARCC questions, on the latest that was coming down in that regard. That -- those topics permuted those agenda throughout so our principals needed to be aware of it. (Interview with associate superintendent, August 2013)
The PRIME Framework teaching and learning indicator focused on the professional development of teachers emphasizes that the stage 2 leader “facilitate(s) participation in collaborative site-based professional development” (p. 29). Collaboration is not only an essential component throughout the framework, but recall that it is one of the underlying assumptions. Over the last 14 years, the district has been very intentional in developing a collaborative, professional learning approach to their work. In his interview, the associate superintendent stated,

So any time I am asked really questions about anything, about curriculum, about Common Core, I always go back to PLC because I think anybody studying our district needs to understand that that framework of professional learning communities, that's the anchor. That's the umbrella, that's the foundation that everything is built on. So when something like Common Core comes along it's not like we're all of a sudden dropping everything that we've done. Common Core just gives you a new minimum. You know, it is the new 'what' kids need to know and be able to do. (Interview with associate superintendent, August 2012)

Across the district, 40 minutes before classes each day were devoted to collaborative team time and, on Wednesdays students were released from classes a half-hour early to allow for weekly professional learning time for teachers (District X website, July 2013; Interview with associate superintendent, August 2013; interview with junior high school principal, September 2013).

While many of the professional learning opportunities were created and offered at the district level, the junior high school principal encouraged the involvement of her teachers in the district events. She shared that she felt teacher team conversations around the district curriculum materials provided her teachers with a professional learning experience. “So that's been like they have had that opportunity for professional development this year at the very beginning to kind of developing those lessons and
understand what Common Core is asking for those different shifts, and then preplanned before the school year even started” (interview with junior high school principal, September, 2013). The principal elected to use the initial two institute days of the year focused on teacher conversations involving the CCSS.

The junior high school principal also capitalized on teacher team conversations and observations to further teacher growth in regards to the CCSS for Mathematics. From her perspective as a leader, she sought to make the most of collaborative learning using district allotted team time.

So when you look at your PLC time, they have 40 minutes a day. Then you have your Wednesday professional development, that's more time. We try to look at those Wednesday professional development times as well when we can provide them more time to collaborate …. I use it for -- I go into every math PLC, I collaborate with them. (Interview with junior high school principal, September 2013)

The principal viewed her role as supporting teachers in their growth around the implementation of the CCSS.

So that's always like the struggle of pushing them, providing that support with time. And it's funny, it's that -- the teams, like they want that time, but they also want time without the administrator being in there … I understand being a teacher that you don't always want the administrator in there, but if I am not in there and you are going down the wrong track, then I feel like I am not really supporting you at all because then you are going to come back when our results are not showing that we are progress -- that we are not making movement and then it will be on my shoulders because I was not in there to support you. (Interview with junior high school principal, September 2013)

Evidence of the junior high school principal’s facilitation of collaborative dialogue with teachers around professional learning was observed in the team meeting (Observation, October 2013). The principal focused teachers to reflect on the instructional and curricular changes that had been put in place to support students and the
implementation of the *CCSS for Mathematics*. Specific actions included collaborative identification of students who struggle with content or skills, focus on high cognitive demand tasks, design and use of formative assessments, and embedding of the *CCSS for Mathematics Standards for Mathematical Practice* (District X, 2013a). The practices of the junior high school principal were reflective of expectations set at the district level. In the words of the associate superintendent, “That if you're now going to do math acceleration, that's going to be a team approach; then you also have to have common planning allocated to math” (Interview with associate superintendent, August 2013).

At stage 1, the principal’s active involvement with her teams enabled her to target professional learning to the needs of her teachers. She reflected on this in her interview.

So there is a lot of legwork on my part just to be in those PLCs and be an active participant. And then we meet with the coach, too, and we discuss with them what is our next move? Like what supports does this team need that we see that they are struggling with? (Interview with junior high school principal, September 2013)

When it came to her own growth, the junior high school principal sought to increase her knowledge and skills to lead teachers in effective teaching and learning of mathematics through involvement at district events and professional reading. Some of her readings included such books as *School Leader’s Guide to the Common Core* (Bellanca, Fogarty Pete, & Stinson, 2013) and *How to Teach Thinking Skills Within the Common Core* (Bellanca, Fogarty, & Pete, 2012) (Interview with junior high school principal, September 2013). The associate superintendent also shared that reading professional books was a key element of his own growth (Interview with associate superintendent, August 2013). The junior high school principal’s professional learning involvement within the district included the *CCSS for Mathematics* task force (District X, 2013p),
general administrator meetings (Observed October 2013; District X, 2013g),
administrator retreat (District X, 2013h), and the district summer symposium (District X, 2013k).

Curriculum Leadership

*The PRIME Leadership Framework* states, “A mathematics curriculum document is a developmental listing of knowledge and skills for which students should demonstrate mathematical competence” (NCSM, 2008, p. 34). It is the responsibility of the leader to ensure that clear indicators for success are articulated and reflect meaningful, relevant mathematics tied to local, state, and national standards for mathematics. The leader also shoulders the responsibility that the intended curriculum is, in fact, the curriculum that is enacted in classrooms by teachers. The indicators for the curriculum principle capture the knowledge, skills, and expectations for leading around mathematics curriculum. Table 8 identifies actions toward the *PRIME* curriculum principle identified in the case study data. Following Table 8 is the narrative describing and displaying these data.

Curriculum Leadership – “Every teacher implements the local curriculum and uses instructional resources that are coherent and reflect state standards and national curriculum recommendations” (NCSM, p. 36). The leader at stages 1 and 2 has familiarity with state and national standards and uses this knowledge to work collaboratively with teachers to develop local curriculum. The stage 3 level leader both ensures that curriculum across the district is aligned with state and national standards and that the curriculum is being implemented as intended.
Table 8

Curriculum Leadership – Case Study Data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Stage 1</th>
<th></th>
<th>Stage 2</th>
<th></th>
<th>Stage 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of local curriculum and instructional resources that are</td>
<td></td>
<td>Principal (*)</td>
<td>Associate Superintendent (+)</td>
<td>District</td>
<td>Principal (*)</td>
<td>Associate Superintendent (+)</td>
</tr>
<tr>
<td>coherent and aligned to state standards.</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>• High cognitive demand tasks. (3, 4, 24)</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>• Concrete-representational-abstract model. (4, 18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• District CCSS for Mathematics Task Force. (3, 4, 10, 25)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>• 7th and 8th grade curricular resources. (13, 14)</td>
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<tr>
<td>• Charge of CCSS for Mathematics Task Force. (25)</td>
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<td></td>
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<tr>
<td>• Expectation for “consistent understanding and implementation of</td>
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<td></td>
<td></td>
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<tr>
<td>district’s tight expectations.” (5, 6, 7, 8, 9, 10, 11, 12, 17)</td>
<td></td>
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<td></td>
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<tr>
<td>Implementation of a relevant and meaningful mathematics curriculum.</td>
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<tr>
<td>• CCSS for Mathematics connections to Science. (4)</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>• Focus and expectation for applications in mathematics curriculum. (4, 17)</td>
<td></td>
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<tr>
<td>• Emphasis of the Standards for Mathematical</td>
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<tr>
<td>• District CCSS for Mathematics Task Force. (3, 4)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>• Building level teacher use of curricular materials. (4)</td>
<td></td>
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<tr>
<td>• District focus on mathematics. (3, 8, 9, 17)</td>
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<td>• Building capacity of leaders and teachers. (8, 17)</td>
<td></td>
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<tr>
<td>• Meetings with Task Force to evaluate curricular materials. (3)</td>
<td></td>
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<td></td>
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<tr>
<td>Practice. (4, 17, 18, 20) • Model rationale and characteristics of meaningful mathematics curriculum. (3, 4)</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Implementation of intended curriculum with needed interventions ensuring attainment by every student. • Working with teacher teams. (4, 23) • Observing classroom instruction. (4, 6)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>• District CCSS for Mathematics Task Force. (3, 10, 24, 25) • Teacher curriculum involvement. (3, 4)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ensuring staff accountability across district. (4, 5, 8, 9, 11, 17, 19) • Communicating expectations for curriculum implementation. (7, 19)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Note: Numbers in parentheses indicate data sources as identified in Table 3. (*) Denotes with support/involvement from math department chair. (+) Denotes with support/involvement from director of math, science, and health.*
Evidence of district-level curriculum implementation and review was found repeatedly throughout the district’s planning and implementation phase. In fall of 2012, the associate superintendent put out a call for the “Common Core Math and Literacy Task Forces” (District X, 2012c). The task force was comprised of over 60 mathematics teachers and some building principals (including the junior high school principal in this case study) who came together over the course of 18 months to develop the district’s K-8 CCSS aligned curriculum (Interview with associate superintendent, August 2013). The bulk of the curriculum development was done with the assistance of an outside consultant who worked with the task force for five days in the spring of 2013 (District X, 2013p). The associate superintendent described some of the sought after characteristics of task force members.

We were looking for people who had particular strong background in math instruction that we knew were solid lead teachers for us in the district. We knew that we were going to get a huge response, and we knew that we had to have a balance in terms that we wanted every building represented, and we wanted multiple reps at every grade level to do the work of essentially breaking apart the standards, being full trained. (Interview with associate superintendent, August 2013)

Another example of the district’s systemic approach to continuous instructional improvement and review (stage 3 leadership) was the commitment to regularly “check ins” with members of the task force to see what was working and what needed to be changed.

There’s three meetings that we have structured this year already …. Essentially what we are doing at those meetings is [director of mathematics and science] with the math group … is going to be checking in. And the essential goal of those meetings is: ‘How are we doing?’ We are going to structure guiding questions in those sections for those teacher leaders that built the curriculum to talk with us about how it is actually going. What are our successes, what is not going well? Are there things
we need to adjust in the curriculum we wrote? Are there things that need to be changed? Are there things that we got wrong? We have to be open to that and we have to be willing to listen. (Interview with associate superintendent, August 2013)

The junior high school principal reiterated the district’s inclusion of teachers in the curriculum review process.

I think from the district level, too, they are always looking for feedback so I am always encouraging my teachers to look at the curriculum. What is not working? Or what would be better and kind of developing a reflection sheet on that so that when the task force or the math task force comes back together they can bring those suggestions to the team and then have -- you know, revamp the curriculum to make it better for the following year. (Interview with junior high school principal, September 2013)

The district expectation for “consistent understanding and implementation of the district’s tight expectations” in regards to CCSS for Mathematics curriculum and instruction was clearly articulated to district and building leaders at the leadership retreat in August 2013 (District X, 2013h). To support coherent implementation of the CCSS for Mathematics curriculum, the associate superintendent with the involvement of the director of math, science, and health developed and repeated expectations several times over the course of 18 months beginning in fall of 2012 (District X, 2012a) and continuing through the 2012-2013 school year into the 2013-2014 school year in the way of district general administrator meetings (District X, 2012b, 2013e, 2013f), district administrative retreat (District X, 2013h), and junior high principal meetings (District X, 2013b). In his interview, he reiterated some of the ways he communicated expectations around implementation of the CCSS for Mathematics district curriculum.

So prior to us sending anything out, I had done a presentation at our general administrator's meeting. We meet once a month with everybody. It is all the directors. It is all the principals. It is all the assistant principals, the superintendent and cabinet. And essentially what I did is an overview
of what was coming down the pipe with recalibrated ISAT scores because we already knew about that in the fall of last year … when you look at the different level of rigor and expectations that is built into those sample [PARCC] assessment items versus what we have been doing, it is huge. (Interview with associate superintendent, August 2013)

The associate superintendent further communicated expectations for a consistent and coherent implementation of CCSS curriculum in an update to the district’s board of education (District X, 2013o) and in writing to junior high principals (District X, 2013n). In each document, the associate superintendent outlined the rationale for adopting the *CCSS for Mathematics*. Specifically,

> Next fall we will hold tight to the expectation that all schools will expand their Math courses to 60 minutes to enable teachers to fully implement the District X Balanced Mathematics Model along with the realigned mathematics curriculum being developed by the Common Core Math Task Force. (District X, 2013n)

Later that fall, the director of math, science, and health gave leaders a copy of the scope and sequence for the school year up to that point and told principals that their teams should be on track with the *CCSS for Mathematics* curriculum according to the pacing guide (District X, 2013f). In another example, the associate superintendent and the director of math, science, and health presented the building leaders with the essential mathematical outcomes for grades K through 8 (District X, 2012b). These outcomes were color coded according to the level of emphasis within the curriculum. Leaders and teachers were instructed to use these color-coded essential outcomes to prioritize when determining interventions for students.

As discussed previously, in the fall of 2012 the associate superintendent and district leaders embraced the adoption of the *CCSS for Mathematics* creating a teacher-involved task force to translate the spirit and content of the *CCSS for Mathematics* into a
district-wide curriculum thereby demonstrating PRIME stage two level leadership in the area of curriculum (District X, 2012c, 2013o). The task force was charged with the following work:

- Analyzing the CCSS for Mathematics.
- Reviewing the PARCC assessment framework.
- Rewriting district essential outcomes to align with the CCSS and PARCC assessment.
- Identifying any gaps between district curriculum, instruction, and assessment practices and that of the CCSS and PARCC assessment.

The associate superintendent worked with outside consultants to facilitate the work of the district task force (Interview with associate superintendent, August 2013; District X, 2013p). Meetings were scheduled for a full day once a month from January through May 2013. The resulting work of the CCSS for Mathematics task force was curriculum binders that contained the scope and sequence for each grade, tasks, and potential assessments (District X, 2013q, 2013r). Specifically, the binders contained elements such as direct alignment and identification of the respective CCSS standards, district essential outcomes and student learning targets, common student misconceptions, mathematical connections and prerequisite mathematical knowledge, instructional strategies, lessons, and unit assessments. With the facilitation of the consultants, teachers collaborated to accomplish the following (District X, 2013p):

A complete scope and sequence for the CCSS Standards … consisting of 6-8 units of instruction for the Academic year. Each Unit of Instruction contained...

- All CCSS Standards for each grade level unit, including an emphasis of what’s new and needs to be emphasized.
• All learning targets in student friendly “I can” language.
• All pre-requisite knowledge skills necessary for the unit.
• All vocabulary and notation for the unit.
• All high cognitive demand tasks for the unit.
• All connections to current curriculum materials and resources.
• Assessment protocols and formative assessment process for the unit.

Lastly, the task force was scheduled to meet at least three times during the year of implementation. The purpose of the meetings was to seek input form the group about the effectiveness and viability of the material created by the task force. As the associate superintendent put it, “The task force will give us a litmus of where we are actually at, how things are going, what the climate is, we will know. It will validate a lot of what we know in the district” (Interview with associate superintendent, August 2013).

At level one, the junior high school principal shared that she worked with teachers to engage student learning of mathematics around high cognitive demand tasks and using the district student learning model of beginning instruction with a concrete representation followed by scaffolded and focused instruction to guide students toward other representations of mathematical concepts and then leading to an abstract understanding of mathematical ideas (Concrete-Representation-Abstract model) (interview with junior high school principal, September 2013; District X, 2013a). In her interview, she stated:

So for instance on Thursdays, I am always in the PLC room with everybody. Mondays I meet just with acceleration teachers to make sure they are teaching the same essential outcomes. They have the materials. How are they building that conceptual understanding? What kind of manipulatives are they using? Is this the most effective way to teach? How are they posing those high level questions or those problem-solving activities especially if you have like an ELL student who may be a Level 1 or 2? (Interview with junior high school principal, September 2013)
The associate superintendent also referred to the connections between curriculum and instruction and the need to engage teachers in professional learning to make these connections explicit:

[The consultants] were working on us with what [consultant] refers to as high cognitive demand tasks that we were trying to embed into every unit. You know, our teachers weren't familiar prior to last year with Webb's depth of knowledge documents that anchor so much that's in this work. We needed to give them new question frames and new assessment examples that were in the type of format of questions and assessments kids will get in a Common Core aligned curriculum. (Interview with associate superintendent, August 2013)

The agenda from the consultant resources from their work to develop a K-8 CCSS for Mathematics curriculum also revealed an emphasis on effective instructional techniques such as formative assessment and high cognitive demands tasks (District X, 2013p) and the instructional emphasis of connecting various mathematical representations (concrete-representational-abstract) was reiterated to leaders in a general administrators meeting (District X, 2013g).

Curriculum Leadership – “Every teacher implements a curriculum that is focused on relevant and meaningful mathematics” (NCSM, p. 39). For the leader at stage 1 and 2, the leader uses her understanding of curriculum “focused on relevant and meaningful mathematics” (p. 64) to engage teacher teams in the development and implementation of a mathematics curriculum that is coherent and aligned across and within grades. Evidence of district monitoring and refinement of the mathematics curriculum is a component of stage 3.

As stated earlier, the associate superintendent and district leadership viewed the state mandated adoption of the CCSS for Mathematics as “seizing the opportunity to lead
with focus and coherence” (Interview with associate superintendent, August 2013; District X, 2013h). In spite of standardized test results that did not necessarily reveal a problem with the district’s curriculum, the district seized on the CCSS as a way to rewrite their district mathematics curriculum. According to the associate superintendent in his interview,

Yeah, but 81 (percent of students meeting state standards after ISAT was recalibrated) is good. We have no schools that are down in the 40s and 30s and I know districts around us do, which says our intervention systems are pretty good in those buildings. But we also have a response that: No, we are doing some things differently, and it starts with the curriculum. We completely rewrote our mathematics curriculum. (Interview with associate superintendent, August 2013)

The district viewed the CCSS as a way to infuse a greater emphasis on mathematics curriculum and instruction into the goals and work of the district. Prior to work around the CCSS, one district goal underscored the grade-level attainment of students in reading. Moving forward, the goal included grade-level attainment of students in mathematics as well (District X, 2012a). At the administrator retreat in August of 2012, leaders were informed of “key shifts reflected in DX’s realigned curriculum.” These three shifts were identified as a shift in focus, coherence, and rigor (District X, 2013h). In particular, the district’s CCSS aligned mathematics curriculum would capitalize on the three shifts of focus, coherence, and rigor in the following ways (District X, 2013h):

- Focus: “Focus strongly where the standards focus.”
- Coherence: “Carefully connect the learning within and across grades so that students can build new understanding on foundations built in previous years. Begin to count on solid conceptual understanding of core content and build on it.”
- Rigor: “In major topics, pursue conceptual understanding, procedural skill and fluency, and application.”

Further evidence of stage three leaders could be found in the manner in which the
district developed system continuous improvement in implementing a curriculum focused on “relevant and meaningful” mathematics. The associate superintendent and district were intentional about seeking to build the capacity of leaders and teachers to implement and analyze the curriculum. In the administrator retreat at the beginning of the 2013-2014 school year, time was devoted to a discussion of “building capacity.” Leaders were reminded that they were “lead learners” and “teachers need opportunities to learn and process new expectations – not just a new scope and sequence” (District X, 2013h). Early in the process of *CCSS for Mathematics* implementation, the associate superintendent shared with district leadership (including directors and principals) the professional development focus for district leaders and teachers to include: mathematics in the content areas, math acceleration, understanding the district’s scope and sequence, development of high cognitive demand assessment tasks, and incorporating depth of knowledge levels into daily instructional practice (District X, 2012a).

Review of the curriculum, as previously discussed, was built into the work of the mathematics task force whereby the task force would reconvene to report out on progress of the curriculum implementation and make changes as needed (Interview with associate superintendent, August 2013, see p. xx). In analyzing the case study data, stage three indicators began to bleed into indicators at stage two level leadership where leaders “engage teachers and teachers teams in developing and implementing meaningful and relevant mathematics curriculum for each course or grade level.” To ensure the implementation of the curriculum remained “relevant and meaningful” to students and teachers, the associate superintendent built in check points for teacher teams,
… to reflect on the implementation of the new scope and sequences developed in Language Arts and Math, provide our content directors with feedback, review district data trends and determine next planning steps as we look ahead to the PARCC assessment being fully launched during the 2014-2015 school year. (Interview with associate superintendent, August 2013)

The associate superintendent further explained,

Instructional coaches were connecting with the teachers on those task forces to look at the work they were doing and refining things because sometimes the quality of what was in the documents they were creating wasn't good enough, you know…. And in between meetings those groups [of grade level teachers] were meeting as well and a lot of times [the director of mathematics and science], myself, the instructional coaches were connecting with the teachers on those task forces to look at the work they were doing and refining things because sometimes the quality of what was in the documents they were creating wasn't good enough, you know. (Interview with associate superintendent, August 2013)

Moreover, the director of math, science, and health met regularly with grade level teams from the task force to discuss and dialogue about the curriculum design and implementation. The associate superintendent viewed the conversations of the grade level team as a further assessment of the new curriculum implementation, “Those grade level pull out meetings … will give us a litmus of where we are actually at, how things are going, what the climate is … It will validate a lot of what we know in the district” (Interview with associate superintendent, August 2013).

In addition to working directly with her mathematics teacher teams, the junior high school principal’s actions and expectations went beyond simply supporting mathematics teachers in implementing the district curriculum. She and her math department chair collaborated with teachers to build their expectations and increase their skills to include more than a focus on development of mathematical skills, evidence of stage two-level leadership, and she recognized the involvement of teachers as part of the
curricular process. In her interview the principal explained, “The math department
compacted that curriculum and they have all of the materials and lessons for them. There
are so many, they over planned to give the teachers the flexibility of picking and
choosing as well” (interview with junior high school principal, September 2013).

Stage 1 level leadership for the curriculum indicator that focuses on
implementation of “relevant and meaningful mathematics” emphasizes the individual
leader’s own knowledge and modeling of important components of the mathematics
curriculum including connections and applications to other disciplines. Unlike many of
the other indicators, evidence of stage 1 leadership was apparent at both the principal and
associate superintendent level.

Prior to the junior high school team meeting, the junior high school principal
explained she worked to ensure that her mathematics teachers were able to make
connections to science and include more modeling and application problems during
instruction. Part of the professional development with her teachers was a focus on
modeling and real world connections and how to embed this into instructional planning
and curriculum. She further explained she has worked with her mathematics and science
teachers to connect the *CCSS for Mathematics* to the science curriculum. To support this
work, the principal and the math department chair met twice a month with mathematics
and science teachers to discuss how the *CCSS for Mathematics* connected to the science
curriculum. One specific example the principal shared was when science and
mathematics teachers had a “rich discussion” about mean versus average (conversation
with junior high school principal prior to junior high school team meeting, October
2013). The expectation that students would be able to apply the mathematics they were
learning was communicated at the administrator retreat. Leaders were told that “rigor” in mathematics included “conceptual understanding, procedural skill and fluency, and application” (District X, 2013h).

The junior high school principal demonstrated evidence of her awareness, understanding, and modeling of meaningful and relevant mathematics by her expectation of her teachers to embed the CCSS SMP as an integral part of their planning and instruction to support student development as problem solvers and mathematical thinkers. In preparing for her school improvement plan presentation to district administrators, she highlighted that teachers were “Engag(ing) students into productive struggle (CCSS Standards for Mathematical Practice 1) and construct(ing) viable arguments and critiqu(ing) the reasoning of others (CCSS Standards for Mathematical Practice 3)” (District X, 2013a). The principal’s emphasis of the CCSS Standards for Mathematical Practice was likewise reflected at the district level to administrators at the leadership retreat (District X, 2013h), at a general administrators meeting (District X, 2013g), and at the junior high administrative instructional support meeting (District X, 2013b).

The focus of the case study was to examine the ways in which the associate superintendent and junior high school principal interacted and collaborated to implement the CCSS for Mathematics. What were apparent in their respective interviews were the similarly aligned beliefs in relation to mathematics curriculum. In their interviews, both the associate superintendent and junior high school principal demonstrated stage one-level leadership through their words around the district’s mathematic curriculum. Pertinent quotes from each leader are identified in Table 9.
Table 9

Leader Demonstration of Meaningful and Relevant Mathematics Curriculum

<table>
<thead>
<tr>
<th>Associate Superintendent Statements from Interview (August 2013)</th>
<th>Junior High School Principal Statements from Interview (September 2013)</th>
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<tbody>
<tr>
<td>• Common Core just gives you a new minimum. You know, it is the new 'what' kids need to know and be able to do.</td>
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<tr>
<td>• So giving [board members and community] a more accurate picture of how our kids truly are performing when it comes to college and career readiness is a good thing. And it also gives us the impetus to then go into our curriculum again and make some tough decisions about what we need to do, what we need to adjust.</td>
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<td>• I think that some of the stuff that we uncovered with our work with [the consultant] and by dissecting that curriculum against the new standards the entire structure of that curriculum is off for what Common Core is telling us we need to do. If you are going to teach less and go deeper [the publisher curricular] is not it.</td>
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<tr>
<td>• The idea that you have to implement all this new curriculum and you're getting in the trenches with the teachers to provide that support.</td>
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<tr>
<td>• I also love going into the classrooms and just watching the teacher and how they are implementing especially when you look at the [CCSS] Practice Standards.</td>
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<tr>
<td>• It's perfecting the curriculum that we have in place because any type of curriculum that you develop, you have to revise and revise. It's continuous improvement. So they have that opportunity. And then as administrators, we are also in those meetings as well with the teachers.</td>
<td></td>
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<tr>
<td>• There is that confidence level of like we are really producing these kids for the future to make them very, very successful, to collaborate and talk about their thinking and think at a deeper level than what we have produced in the past.</td>
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<tr>
<td>• It is pretty scary going to a different district. I just went to my son's curriculum night the other night and his math teacher said, ‘You know, now this new Common Core movement, we are doing connected math. I do like connected math but it is a very problem-solved base ... it's not like in the past and we would have to know how to multiply and divide. Now it's all problem-solved based type of math and kids are applying their math.’ And I thought, no, kids do need to learn fluency. I am like you missed half of the boat. You took one component of it, but they do have to learn how to be efficient with these other skills as well.</td>
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<tr>
<td>• We would never say it is not okay for kids to read, right? So I think it is putting more of the emphasis in math and for the kids to say: You know that to be successful in life you have to do some of these skills. You have to apply them. Apply them in real life situations as well.</td>
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</table>
Curriculum Leadership – “Every teacher implements the intended curriculum with needed intervention and makes certain it is attained by every student” (NCSM, p. 41). The stage 1 leader understands the difference between the written curriculum, the curriculum implemented in the classroom, and the curriculum learned by students and her actions reflect an alignment between all three curricula. The stage 2 leader collaborates with mathematics teacher teams to ensure the written curriculum is aligned across grades, and she will address any inconsistencies in the implemented curriculum that may occur amongst teachers or across teacher teams. The stage 3 leader creates processes to ensure the district curriculum is implemented consistently and with fidelity across all schools and monitors for continuous improvement as a result of the implemented curriculum.

Over the two-year implementation of the CCSS for Mathematics, the message has been repeated across district meetings, conversations, and professional learning experiences (stage 3 leadership): implementation of the CCSS district-aligned curriculum with fidelity. In his interview, the associate superintendent noted that “We needed to tighten up those systems and we needed to get back to basics in the district about having a common understanding of what a guaranteed viable curriculum is.” Most every meeting for the last couple of years involving district principals included discussion, professional learning, and support around the implementation of the CCSS for Mathematics that was coherent, systematic, and consistent (District X, 2012a, 2012b, 2013h, Observation of general administrator meeting, October 2013). As part of the district mantra regarding implementation of CCSS-aligned curriculum was the message of the required instructional and structural shifts (District X, 2012a). At every observed event and analyzed documentation, the associate superintendent reminded principals of the
instructional shifts of focus, coherence, and rigor in the mathematics curriculum. The associate superintendent and the director of math, science, and health worked relentlessly with principals, in particular, to clarify and follow up on district expectations for the structural shifts (e.g., Math Acceleration program, Balanced Mathematics Framework). These conversations, professional learning experiences, and check-ins happened at the beginning of the year during the administrator retreat (District X, 2013h), throughout the year at the general administrator meetings (District X, 2012a; Observation of general administrator meeting, October 2013), and as part of the monthly junior high school principals meeting (Observation junior high administrative instructional support meeting, October 2013). Principals were relentlessly reminded of the district’s “tight expectations” and the role of the principals to lead their faculty and staff to implement the district expectations with fidelity while supporting the adults as they engaged in challenging changes in curriculum and instruction. During the administrator retreat, leaders were reminded that as a leader, it was part of their work to “ensure staff accountability” and to “confront non-aligned practices.” At the general administrator meeting in early fall of the implementation year, principals were handed the scope and sequence for the CCSS for Mathematics for each of the grades as well as the respective unit assessments (District X, 2013f). Principals were reminded that their teachers’ pacing of the curriculum should be in line with district expectations. In the coming months, similar documents would be provided so that principals could monitor the pacing of the curriculum implementation in their respective buildings making adjustments or seeking support as may be needed. In addition to the general administrator meetings and junior high administrative instructional support meetings, the associate superintendent detailed out “structural and instructional
changes dictated by the CCSS and PARCC assessment” to junior high school principals (District X, 2013n). The four-page memo provided background information on district mathematics proficiency levels, “tight expectations” of processes that each principal was expected to implement, instructional expectations for how time was spent for mathematics instruction and intervention, and how to schedule resource staff to support district expectations. During the observed junior high administrative instructional support meeting, the associate superintendent directed each principal to report out on the implementation progress of the CCSS in their buildings (observation, October 2013).

The scope and sequence given to administrators at the general administrative meeting (District X, 2013f) and the dialogue facilitated by the associate superintendent at the junior high administrative support meeting (observation, October 2013) mentioned above, also serve to provide evidence of how the district and associate superintendent not only ensure implementation of the district curriculum with fidelity, but how each activity also served to communicate to leaders expectations for the manner by which curriculum was to be implemented.

According to The PRIME Framework, stage 2 level leadership for this indicator in the curriculum principle is evident in how teachers were implementing curriculum in a manner with fidelity to the district curriculum and with consistency across teams and buildings. A component of this indicator also involves the teacher development of a vertically articulated curriculum.

Many of the structures and processes that have been identified previously also served to ensure that teacher teams were part of the curriculum development and, as one might expect, implementation of the curriculum in a consistent manner. Recall that the
District *CCSS for Mathematics* Task Force was led by consultants and informed and directed by the associate superintendent and director of math, science, and health. The task force might be identified as the clearest and most intentional vehicle by which teachers were engaged in creating a vertically articulated curriculum (District X, 2012c, 2013o). As part of the curricular development process, teachers explored the progression of mathematical concepts across grades to support a vertically articulated curriculum (District X, 2013p). The resulting curricular product, the grade-level curricular resource binders (District X, 2013q, 2013r), contained the connecting standards from earlier grades as part of the design.

Other examples of stage 2 level leadership around teacher curriculum support included the involvement of teachers outside the scheduled task force gatherings and the manner by which all teachers were kept informed of curriculum development to ensure greater consistency of implementation. These summaries were compiled and distributed by the director of math, science, and health. In support of a consistent implementation by teachers of the district-created curriculum, the associate superintendent shared how they included teachers:

> What we did in May is every grade level team in the district was brought over to district office, and we provided them basically Common Core 101 and overview of the instructional resources that these task forces had developed. They got full-time with our math department…to really walk through the resources. (Interview with associate superintendent, August, 2013)

The associate superintendent went on to explain other ways teachers have been involved in ensuring consistency of curriculum implementation:

> After every task force meeting, [our Math and Science Director] would write up -- basically we would do a one-page summary of the key material
that was presented because we wanted those reps to go back to faculty meetings in between the task force meetings and give a report that these are the big picture items that are going on. These are the things we discussed. (Interview with associate superintendent, August, 2013)

The associate superintendent also described how teachers were involved with ongoing review and feedback regarding curriculum implementation:

Those grade level pull out meetings will follow the task force meetings so it will give us -- the task force will give us a litmus of where we are actually at, how things are going, what the climate is, we will know. It will validate a lot of what we know in the district. (Interview with associate superintendent, August, 2013)

In her interview, the junior high school principal affirmed teacher involvement with the curriculum. “I think from the district level, too, they are always looking for feedback so I am always encouraging my teachers to look at the curriculum” (interview with junior high school principal, September 2013).

Stage 1 level leadership in *The PRIME Framework* emphasizes the leader who observes, understands, and models the alignment of the intended, implemented, and attained curriculum. Analysis of case study data revealed that predictably this evidence was found at the principal level where the leader is working most directly with teachers.

As described earlier, the junior high school principal works regularly with teachers to support and monitor implementation of the curriculum. One way in which she collaborated teachers was through her participation in team meetings each week (interview with junior high school principal, September 2013; observed team meeting, October 2013). Her leadership approach was very hands-on. In her interview, she explained one practice she employed, “I meet with all of
my department chairs and kind of look through their lesson plans making sure that we were implementing the district structures that need to be in place” (interview with junior high school principal, September 2013). She further shared how she took a hands-on approach with teachers, “So you are thinking about a lot of things at once. One, the idea that you have to implement all this new curriculum and you're getting in the trenches with the teachers to provide that support.”

Both at the level of the junior high school principal and the district level, observation of teachers around expectations related to the CCSS mathematics was a common practice. As noted previously, district administrators were given specific look-fors in regards to teacher instructional strategies and student engagement during a general administrator meeting (District X, 2013e). Although many of the indicators were centered on instruction, the first indicator focused on implementation of curriculum: “The lesson focuses on mathematics within the grade-level standards.” The junior high principal explained that she used classroom observations to monitor implementation of the CCSS for Mathematics, “I also love going into the classrooms and just watching the teacher and how they are implementing especially when you look at the practicing standards” (Interview with junior high school principal, September 2013).

**Assessment Leadership**

The *PRIME* leader takes the perspective that assessment is an integral part of teaching and learning, and assessment serves multiple purposes. Assessment data is crucial to inform instruction and make timely adjustments to actions and strategies in order to increase student learning. The leader knows that assessment provides evidence as
to how well students are achieving the targeted learning outcomes and when teachers might need to make adjustments to instruction. Assessment is also a critical tool in making decisions about the effectiveness of curricular programs. Similar to the other PRIME principles, the stage 1 leader for assessment is developing her knowledge and skills around assessment distinguishing between assessment data to inform instruction versus assessment data to make programmatic decisions. The stage 2 leader collaborates with teacher teams in their design and implementation of assessment to ultimately increase student learning. Finally, the stage 3 leader creates district level structures to support assessment literacy and the effective use of data. Table 10 distinguishes actions toward the PRIME assessment principle identified in the case study data. Following Table 10 is the narrative describing and displaying these data.
### Table 10

**Assessment Leadership – Case Study Data**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
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<tbody>
<tr>
<td><strong>Student assessments aligned with grade level.</strong></td>
<td>Principal (*)</td>
<td>Associate Superintendent (+)</td>
<td>District</td>
</tr>
<tr>
<td>• Assessment used to inform instruction. (22)</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>• Team lesson planning. (3, 22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Common assessments. (22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• District <em>CCSS for Mathematics</em> Task Force. (13, 14, 24)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of formative assessment processes to inform teacher practice and student learning.</strong></td>
<td>Principal (*)</td>
<td>Associate Superintendent (+)</td>
<td>District</td>
</tr>
<tr>
<td>• Use of data to identify students in need of intervention. (4, 9, 22)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• District <em>CCSS for Mathematics</em> Task Force (13, 14)</td>
<td></td>
<td></td>
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<tr>
<td>• Team development and use of checks for understanding. (4, 22)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Use of formative assessment processes to inform teacher practice and student learning.</strong></td>
<td>Principal (*)</td>
<td>Associate Superintendent (+)</td>
<td>District</td>
</tr>
<tr>
<td>• District <em>CCSS for Mathematics</em> Task Force (13, 14)</td>
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<tr>
<td>• Team development and use of checks for understanding. (4, 22)</td>
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<td></td>
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<tr>
<td>• Building level SIP presentations. (22)</td>
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</table>
| Use of summative assessment data to evaluate mathematics program effectiveness. | • Impact of PARCC. (3)  
• SIP team preparation. (22, 23) | X | X | • District CCSS for Mathematics Task Force (13, 14)  
• Use of MAP and ISAT data. (22, 23) | X | X | • Mathematics Acceleration. (8)  
• Communication of assessment results. (1, 3, 22, 25) | X | X |

**Note:** Numbers in parentheses indicate data sources as identified in 493. (*) Denotes with support/involvement from math department chair. (+) Denotes with support/involvement from director of math, science, and health.
Assessment Leadership – “Every teacher uses student assessments that are congruent and aligned by grade level (or course content)” (NCSM, p. 49). At stage 1, the PRIME leader has an understanding that what is important is what is assessed and that assessments should reflect the important and relevant mathematics. She knows that curriculum, instruction, and assessment must be aligned. Lastly, she recognizes that inconsistencies in how students are assessed create inequitable learning expectations and experiences for students. A leader at stage 2 works to ensure that teacher teams create and implement assessments tied to articulated learning outcomes tied to the curriculum. This leader also creates professional learning opportunities for teachers to collaborate around assessment to build understanding and congruency around assessment expectations and practices. The stage 3 leader creates systems and procedures that result in continuous review of district assessment instruments and practices. He creates and supports learning opportunities whereby adults increase their knowledge and proficiency around assessment design and use. Finally, the stage 3 leader ensures that the community is informed as to the role of assessments and assessment data on student achievement is publicly reported.

The case study district demonstrated characteristics of stage 3 level leadership at the associate superintendent and district level. Embedded in the work of the District CCSS for Mathematics Task Force was updating local assessments “to respond to changing conditions” (NCSM, 2008, p. 49). The state adoption of the CCSS for Mathematics also necessitated a new state assessment system that was to be developed by Partnership for Assessment of Readiness for College and Careers (PARCC) (2014). Thus, the task force was charged with “examining the assessment framework established by
PARCC” and “identifying potential gaps in our curriculum, instruction and assessment practices related to the CCSS and PARCC Assessment” (District X, 2012c). The teachers and leaders engaged in reviewing the PARCC Model Content Framework (PARCC, 2013) in order to identify gaps between expectations of student learning measured on PARCC and district expectations (Interview with associate superintendent, August 2013; District X, 2013p). The task force used the PARCC Model Content Framework and CCSS to guide in the rewriting of grade-level essential outcomes. As part of their collective work, the task force created unit assessment and quizzes for use by grade level teams in the classrooms. In the final grade-level curriculum resource binders, each unit contained an end of unit assessment aligned to CCSS for Mathematics (District X, 2013q, 2013r).

Further evidence of stage 3 level leadership was apparent in the numerous professional development and learning opportunities regarding assessment knowledge and skills by leaders and teachers. The consultant’s work with the District CCSS for Mathematics Task Force included “implementation of highly effective formative assessment processes and practices for sustaining CCSS proficiency” (District X, 2013p) supporting teacher assessment literacy specifically as related to CCSS for Mathematics. The associate superintendent was well aware that teachers were in need of professional development in regards to assessments as evident by his interview response, “We needed to give them new question frames and new assessment examples that were in the type of format of questions and assessments kids will get in a Common Core aligned curriculum” (Interview with associate superintendent, August 2013).
At the leadership level, the associate superintendent recognized the importance of leaders in the district understanding of how the state assessment was changing and how this would impact curriculum, instruction, and assessment in their respective buildings. He shared in his interview,

“So prior to us sending anything out, I had done a presentation at our general administrator's meeting. We meet once a month with everybody, it is all the directors, it is all the principals, it is all the assistant principals, the superintendent and cabinet. And essentially what I did is an overview of what was coming down the pipe with recalibrated ISAT scores because we already knew about that in the fall of last year. We were able to do some projections about what our actual data reality was going to be. And we at that point also had sample PARCC assessment items. (Interview with associate superintendent, August 2013)

As a way to provide additional support to building leaders, the associate superintendent and his instructional team gave principals the scope and sequence identifying the respective assessments with the expectation that principals would ensure the use of the district-developed assessments even though principals already had access to curricular materials (Observed general administrator meeting, October 2013). District leaders received ongoing professional learning opportunities in order to develop their assessment literacy. The general administrator meeting in October 2012 focused on informing district leaders on the coming PARCC assessments (District X, 2012b). The associate superintendent and his team explained the logistical details of the assessments as well as the content and format. Leaders were presented with the instructional shifts of focus, coherence, and rigor and how these shifts were reflected in the new assessments being designed.

Another characteristic of stage 3 level leadership was ongoing communication with the larger community about “the role, process, and results of assessments” (NCSM,
An analysis of the district website found a couple of ways in which the district was communicating with the broader community and stakeholders. Each month the superintendent posted a message. In February of 2013, the superintendent issued two different messages. One message explained the CCSS, what its adoption meant for students and teachers, and how the district would work to ensure that students were prepared for the increased expectations of the CCSS and the subsequent assessment. In his second message, the superintendent explained the role and charge of the District CCSS for Mathematics Task force. Also included on the website were dates of assessments, and a parents’ guide to success. As stated on the district website:

The National PTA has developed The Parent Guide to Success to help parents understand how this Common Core State Standards will change what is being taught in the classroom and new strategies and techniques that will be used to give our students the 21st Century skills they will need to be college- and career-ready. (District X, website retrieved July 2013)

Ongoing dialogue about the implementation of the CCSS and the assessments was a regular part of the district work. As the associate superintendent noted in his interview,

Virtually every meeting we did last year related to this work in some way, shape or form, there were updates coming from myself, from [directors of math and science and literacy] … We always did updates on what the Common Core task forces were doing, you know from general sessions that I did on PARCC questions, on the latest that was coming down in that regard. That -- those topics permuted those agenda throughout so our principals needed to be aware of it.

The associate superintendent regularly communicated with the district board of education providing regular updates. In early February of 2013, he provided the board of education with an outline of the planned work of District CCSS for Mathematics Task Force and a summary of subsequent steps planned to prepare district teachers for implementation of the CCSS, the role that PARCC would play in measuring student achievement in the
future, and the new ISAT cut scores together with the implications for the district (District X, 2013o). The associate superintendent told the board with the upcoming PARCC assessment in 2014-2015, “heightened emphasis will be placed on the ability of our students to apply knowledge through higher-order critical thinking skills... develop strong conceptual understanding in math ...” (District X, 2013o).

In April of 2013, the associate superintendent explained to the board of education the “structural and instructional changes dictated by CCSS and PARCC assessment” (District X, 2013m). He went into depth about the changes to the school day, how time and resources were to be allocated, and the implementation of Math Acceleration and the Balanced Mathematics model. During the presentation, the associate superintendent discussed the district’s next steps in the implementation of CCSS.

At stage 2, the junior high school principal and associate superintendent disclosed how teacher teams use common assessments to guide the mathematics students should learn. The associate superintendent explained in his interview that assessments were part of the task force created curricular materials, and that “[t]hese are sample assessments you can, as teams, make decision on how you do it, but I wanted our teachers to know what to teach” (Interview with associate superintendent, August 2013). This message of using the assessments to inform the mathematics inherent in the instructional planning of CCSS curriculum was also reiterated in the junior high school principal’s SIP notes, “Common assessments more aligned with CCSS – making sure they address ‘I Can’ statements” and “Analyzing assessments ahead of time to design our lessons to the level that expected for students to be successful” (District X, 2013a).
Further evidence of stage 2 level leadership was found once again in the teacher-involved collaborative work as part of the task force. As mentioned previously, led by a consultant, the associate superintendent, and the director of math, science, and health, teachers were involved in the development of district and school level assessments aligned with the *CCSS for Mathematics* and the task force designed lessons (District X, 2013p, 2013q, 2013r).

*PRIME* stage one level leaders support teacher teams in their use of assessment to inform instruction, ensure that the forms of assessments are aligned with instructional expectations, and the leader addresses inequities created by “inconsistent assessment instruments and appropriate grading practices” (NCSM, 2008, p. 49). Although all elements of this indicator were not identified in the data, in the SIP notes compiled by the junior high school principal and her math department chair, it was expressed that teachers regularly “reflect on common assessment and lesson planning to determine re-teaching structures and areas for improvement on instruction.”

Assessment Leadership – “Every teacher uses formative assessment processes to inform teacher practice and student learning” (NCSM, p. 51). An understanding of formative assessment and effective student feedback is the hallmark of the stage 1 leader, and the stage 2 leader facilitates teacher teams to develop this knowledge and implementation. The stage 3 level leader seeks to support the knowledge and use of formative assessment and feedback at the district level.

The hallmark of a stage 3 level leader is a systemic process for teacher teams to analyze data as a way to inform instruction and provide students with timely feedback. This level three leader also keeps all stakeholders abreast of assessment data gathered
from multiple sources. The inclusion of assessments as part of the curricula material
development (District X, 2013q, 2013r) conveyed the importance that the associate
superintendent placed on teacher use of assessments as part of student learning. The task
force group experienced professional learning around the development of assessment
tasks that would cognitively challenge students, and these tasks became a part of the
curricular resources for the district. The task force members also analyzed district
assessments with the expectations contained in the PARCC assessments to ensure gaps
between the two was addressed. Perhaps the strongest pieces of evidence toward the
district’s expectations of assessment to inform learning were part of the work of the task
force. Task force members accomplished two tasks, in particular, that demonstrated the
district’s view toward formative assessment: (1) Input toward the creation of a standards-
based report card; and (2) the development of scoring rubrics for assessments (District X,
2012c, 2013q, 2013r).

The SIP presentation preparation by the junior high school principal and her math
department chair, as required by the district, identified how teacher teams use common
assessments to inform instruction (District X, 2013a). Furthermore, a tenet of the
district’s Mathematics Acceleration required that teacher teams use common assessments
to identify students for goal setting and intervention support (District X, 2012a).

As discussed in the previous section, the ways in which the district and associate
superintendent engaged stakeholders in dialogue about the role, process, and use of
assessment results, also served to communicate assessment data from multiple sources.
On the district’s website, an entire page was devoted to assessment identifying all the
assessment types, what they measure, and how the data is used. Included on the web page
was a link to a PBS resource on standardizing testing (PBS, 2014) that identified the types of standardized tests and political and social issues related to standardized testing. Throughout the school year, the superintendent would discuss the district goals and assessment results in his monthly bulletin posted on the district website. In the fall of each school year, the district’s director of assessment presents to the board of education the results from the various district assessments (Interview with associate superintendent, August 2013). The junior high school principal related assessment results from MAP, ISAT, and local assessments in the context of her work with teacher teams and district initiatives (District X, 2013a).

The stage 2 level leader works with teacher teams in the design and use of formative assessments to “optimize opportunities for every student to learn” (NCSM, 2008), and the stage one level leader works with teachers modeling best practices in regards to using formative assessment and understanding its role in student learning. The associate superintendent explained that one outcome of the District CCSS for Mathematics Task Force was the design of multiple formative assessments built into the unit plans, “There was still refining that we had to do with the assessments, like we had mid-unit assessments built into the math curriculum and end-of-unit assessments built in” (Interview with associate superintendent, August 2013). The junior high school principal’s teacher teams used formative assessment data on common assessments and checks for understanding to determine the extent to which students had learned the intended mathematical outcomes (Interview with junior high school principal, September 2013; District X, 2013a). Teacher teams used these data points to identify students and write student-specific goals to implement interventions. As noted previously, the
principal and her math department chair regularly used formative assessment data provided by teacher teams to monitor student learning of both individual students as well as groups of students across tiered interventions (District X, 2013a). The junior high school principal met weekly with her teachers to support teachers to use assessment data to identify students in need of interventions. In her interview, she shared, “So trying to help the teachers along that process as well of what do we do with these kids that have major gaps in their understanding” (interview with junior high school principal, September 2013). Her SIP planning notes also demonstrated how she had worked with teachers to use formative assessment to set individual student goals and tailor design interventions (District X, 2013a). Her actions modeled expectations as set by the district through the Math Acceleration program that relied on teacher team use of common formative assessments to identify students for intervention (District X, 2012a).

Assessment Leadership – “Every teacher uses summative assessment data to evaluate mathematics grade-level, course, and program effectiveness” (p. 53). Just as a stage one level leader needs to be knowledgeable and informed about formative assessment, so too should she be informed about the use of summative assessment data to evaluate the effectiveness of school mathematics programs. The stage two level leader supports teacher teams in their understanding use of summative assessment data to refine curriculum and instructional programs with the end goal of improved student learning. In addition to developing structures and evaluating summative data across the district, the stage three leader shares assessment data with the broader community.

The associate superintendent clearly embraced state-reported data as a way to improve district programs as evident when he commented about the re-normed ISAT
scores by the state, “Giving a more accurate picture of how our kids truly are performing when it comes to college and career readiness is a good thing. And it also gives us the impetus to then go into our curriculum again and make some tough decisions about what we need to do, what we need to adjust” (Interview with associate superintendent, August 2013).

Moreover, MAP data played a key part in district goals and measuring the improvement of the district. The district goals (District X website) were as stated:

- Students who have attended district schools for at least one year will be at grade level in reading and math upon entering third grade as measured by Measures of Academic Progress [MAP] (Northwest Evaluation Association, 2014).

- Each school will close the achievement gap for all students in reading and math as measured by both district and state assessments.

- Each school will perform at or above the 90th percentile (top 10% nationally) in meeting individual student growth targets in reading and math as measured by Measures of Academic Progress (MAP).

ISAT was another summative data measurement often cited by the district and evident in various documents and observed events. The associate superintendent capitalized on the new cut scores for the state’s ISAT assessment to motivate and support implementation of the CCSS. He shared this connection between the new ISAT scores and the rigor of the CCSS curriculum with the board and the district leadership group in the fall of 2012 (District X, 2012a). At the annual administrator retreat in August of 2013, part of the rationale given for district implementation of the CCSS was that the “renormed ISAT and pending PARCC assessment present a new data reality” and an opportunity to “close the achievement gap” in the district (District X, 2013h). Summative data, such as MAP and ISAT, was reported on the district website, and the associate superintendent
shared this information with the board.

*PRIME* stage three level leaders also communicate with stakeholders of assessment results. As reported in the previous section “every teacher uses formative assessment processes to inform teacher practice and student learning,” the district and associate superintendent communicated assessment data in a multitude of ways (District X website; Interview with associate superintendent, August 2013; District X, 2012c; District X, 2013b) including:

- District website.
- Annual presentation to district board of education.
- Superintendent’s message.
- Building level SIP board presentations.

Like the evidence cited for the assessment indicator related to formative assessment in the section immediately preceding, the District *CCSS for Mathematics* Task Force, comprised predominately of classroom teachers and included the junior high school principal, developed both formative and summative assessments aligned to the district-developed *CCSS for Mathematics* curriculum (District X, 2013q, 2013r). As part of this process, task force members analyzed district assessments against expectations inherent in the PARCC assessments to inform the development of district summative and formative assessments.

The junior high school principal demonstrated stage two level leadership when she engaged teachers in the use of summative data to both identify students who may need additional intervention and support as well as to monitor progress toward school and district goals. Per district guidelines, the principal and her math department chair together
with her teachers used MAP scores to identify which students to place into the Math Acceleration program (Interview with junior high school principal, September 2013; District X, 2013a). District guidelines for identifying students for tiered support were as follows (District X, 2013g; 2013n):

- Tier 1: Above MAP 40th percentile and proficient on common assessments.
- Tier 2: Between MAP 10-39th percentile or non-proficient on common assessments.
- Tier 3: Below MAP 10th percentile and not making gains with tier 2 supports.

MAP data were also used to monitor student progress over the course of the year and across grades. As they prepared for their school improvement presentation to district leaders, the junior high school principal and teachers viewed and discussed ISAT and MAP data for the last couple of years as a way to examine the impact of work and programs happening at the junior high school.

A PRIME stage one level leader is about “develop(ing) and model(ing) an understanding of summative assessment and its impact on student learning” (NCSM, 2008, p. 53) and makes certain that assessments enable students can demonstrate the mathematics they have learned. In his interview, the associate superintendent exhibited his understanding of how summative assessment can affect student learning in a number of statements (Interview with associate superintendent, August 2013):

- These are things that we should have been doing anyway but Common Core and PARCC and this whole transition that is going on with assessment and standards right now give us the perfect momentum and reason to push even harder to make it happen right now.
• The context of education right now is about transition to the new standards, to the new assessment measures that are coming down the line.

• When you look at the different level of rigor and expectations that is built into those sample (PARCC) assessment items versus what we have been doing, it is huge.

The junior high school principal demonstrated her understanding of summative assessments and how they influenced student learning and the ability of students to demonstrate the mathematics they know through her SIP planning (District X, 2013a, observation of team meeting, October 2013). As the junior high school principal participated in the team meeting, she and her teachers reviewed how students were identified “all students by name and need. PLCs know CUSP students (those students on the borderline between levels of intervention) and are ensuring that these students are challenged throughout the day” and how MAP data was used as part of the student goal setting and to provide appropriate interventions (District X, 2013a; Observation of junior high school team meeting, October 2013).

Summary

The purpose of this case study, bounded within the timeframe of August 2012 to October 2013, was to examine of educational leaders respond to mandated change. More specifically, this case study look at the roles and relationships of the associate superintendent and junior high school principal and how they collaborated in regards to planning for and implementing the CCSS for Mathematics. This chapter provided a reporting of the case study data based on the conglomerate of data sources. These data sources and timeline can be found in Table 11.
Table 11

Case Study Data Sources

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In Table 12 is a summary of a timeline of district and junior high school events that occurred within this case study bounded from between August 2012 and October 2013.

Table 12

Case Study Data Sources

<table>
<thead>
<tr>
<th>Date of Event</th>
<th>Description of Event</th>
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<tbody>
<tr>
<td>Fall 2012</td>
<td>Structural and Instructional Changes Dictated by the CCSS and PARCC Assessments – presented to District leaders</td>
</tr>
<tr>
<td>October 2012</td>
<td>District General Administrative Meeting. Common Core and PARCC Update</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>Common Core Math and Literacy Task Forces – Task force description and application published.</td>
</tr>
<tr>
<td>Spring – Summer 2013</td>
<td>Eighth Grade: CCSS for Mathematics Curricular Resources Task Force met.</td>
</tr>
<tr>
<td>Spring – Summer 2013</td>
<td>Seventh Grade: CCSS for Mathematics Curricular Resources Task Force met.</td>
</tr>
<tr>
<td>March 2013</td>
<td>March 19, 2013 memo to Junior High Principals, Junior High Assistant Principals, and Cabinet from Assistant Superintendent regarding Structural and Instructional Changes Dictated by the CCSSs and PARCC Assessment.</td>
</tr>
<tr>
<td>April 2013</td>
<td>April 4, 2013 Regular Board of Education Meeting – Structural and Instructional Changes Dictated by the CCSS and PARCC Assessment.</td>
</tr>
<tr>
<td>June 2013</td>
<td>District X Professional Development Symposium Reflection on Practice</td>
</tr>
<tr>
<td>August 2013</td>
<td>Administrator Retreat. DX Instructional Leadership: Embedding Common Core Aligned Curriculum and Structures into Daily Practice.</td>
</tr>
<tr>
<td>October 2013</td>
<td>District General Administrator Meeting.</td>
</tr>
<tr>
<td>October 2013</td>
<td>Junior High Administrative Instructional Support Meeting.</td>
</tr>
<tr>
<td>October 2013</td>
<td>Junior High School team meeting.</td>
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CHAPTER V
DISCUSSION

The case study in this research sought to illuminate how leaders in education approached and collaborated when faced with mandated change bounded within the timeframe of August 2012 to October 2013. In this chapter, case study findings were used to address each of the following research questions.

1. What is the nature and extent of the roles of the associate superintendent of curriculum and junior high school principal in planning for and implementing the Common Core State Standards for mathematics in grades 6 through 8?

2. In what ways do the associate superintendent of curriculum and junior high school principal work together to plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

3. What practices facilitate the collaboration between the associate superintendent of curriculum and junior high school principal as they plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

4. What practices create obstacles to collaboration between the associate superintendent of curriculum and junior high school principal as they plan for
and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

**Discussion and Findings of Research Questions**

Following is the discussion and findings for each research question as it relates to the case study and previous research as found in the literature.

**Research Question 1**

What was the nature and extent of the roles of the associate superintendent of curriculum and junior high school principal in planning for and implementing the *Common Core State Standards* for mathematics in grades 6 through 8?

Both district-level leadership (the associate superintendent) and school-level leadership (the junior high school principal) play a crucial role in teacher initial participation and continued involvement in the process of change (Manouchehri & Goodman, 1998). Thus, it was important to more closely examine the roles and involvement of each of these people in the implementation of the CCSS for mathematics within the district.

**The associate superintendent.** According to research, the district level leadership position of associate superintendent is critical in effective implementation of educational reform. The roles and responsibility of the associate superintendent, taken from a balcony view perspective, are complex and run the gamut from creating and communicating a vision for the targeted change, providing instructional leadership and capacity building, and ensuring coherence of district policies and practices (Rorrer, Skrla, & Scheurich, 2008; Kaltenecker, 2011). The associate superintendent in the case study
embodied all the various elements identified in the research of a district-level leader of
curriculum and instruction.

The associate superintendent and his team used the state mandated
implementation of the CCSS to create a coherent, district plan that addressed curriculum
development, focused interventions, loose-tight (Weick, 1976) expectations for
instruction, and a professional learning plan for leaders, teacher leaders, and classroom
teachers to effectively implement structural and instructional changes across the district.
The district had tight expectations for the structural and instructional shifts yet the district
was loose in giving building principals flexibility in how these changes were rolled out
and supported with each of their respective faculty. Such a systemic and systematic plan
supports research claiming that a district-level cohesive plan is key to a sustainable effort
to affect change (Datnow, 2005). Prior to the summer of 2012, the associate
superintendent and his team created a systemic plan for implementation of the CCSS
embracing the state mandate as an opportunity to address inconsistencies in access to
high quality curriculum and instruction for all student populations. According to the
associate superintendent, “…[CCSS] also [gave] us the impetus to then go into our
curriculum again and make some tough decisions about what we need[ed] to do, what we
need[ed] to adjust” (Interview with associate superintendent, August 2013). The associate
superintendent created a vision of mathematics curriculum and instruction that was used
to develop the plan, communicate expectations for implementation, and created structures
of coherence and support around this vision. In the general administrator meeting
observed in October 2013, the associate superintendent and the director of math, science,
and health iterated that the ultimate goal in mathematics was to develop student
independence through teacher-led explicit modeling of the targeted standard, followed by guided application of the skill, leading to the end result of the independent application of the standard by the student in a district-developed CCSS performance task.

Using the vision for curriculum and instruction, the associate superintendent and his team articulated the instructional and structural changes necessary to achieve the vision. Specifically, the Balanced Mathematics Framework and Math Acceleration program were designed. The Balanced Mathematics Framework detailed the tight expectations for the amount of time for mathematics instruction and how that time would be divided between numeracy development, shared instruction, and guided instruction. The Math Acceleration program specified the tight expectations of how students would be identified and how support for mathematics intervention would be provided. Both of these district initiatives were created to address the inconsistencies across the district in regards to time devoted to mathematics instruction and intervention support.

Furthermore, the associate superintendent communicated that the vision of mathematics curriculum and instruction would be achieved through the collaborative process of a professional learning community.

As part of his work in planning for and implementing the CCSS for mathematics, the associate superintendent created and utilized several district mechanisms to communicate with stakeholders and ensure coherence in understanding and implementation of district policies and programs, a critical component to meaningful change (Petrides, 2004). Over the course of the data collection for the case study, the associate superintendent communicated through annual administrative retreats, monthly general administrator meetings, junior high school principal meetings, and school board
updates. Each of these events was an opportunity to reiterate and clarify the loose-tight of
district expectations in developing capacity, implementation, and giving support in
regards to the CCSS for mathematics. Administrative retreats were used to introduce
district leaders to the why, what, and how of CCSS for mathematics implementation.
Monthly general administrator meetings were used to clarify expectations regarding
implementation of CCSS and provide leaders with collaborative professional learning
opportunities. For example, the mathematics classroom “look fors” and the curriculum
pacing guides both articulated “tight” expectations related to instruction and curriculum,
respectively. The regular junior high administrative support meetings that the associate
superintendent led were used to check-in with junior high school principals to assess the
level of implementation coherence and identify areas in which to provide additional
support for principals as they led their teacher teams and executed the district’s structural
and instructional changes (e.g., how time was allocated for Math Acceleration and how
personnel were being utilized to provide students with interventions). The associate
superintendent not only communicated the work to be done across the district, but he also
monitored the extent, manner, and level of fidelity of implementation in each building.
He utilized the junior high administrative support meetings, individual school
improvement reports to the board, and visits to schools as ways to monitor the level of
district coherence of CCSS for mathematics implementation.

Data analysis of the case study showed evidence of the associate superintendent
as an instructional leader whose team was responsible for numerous professional learning
events developed specifically for district leaders and teachers. Very early in planning for
the implementation of the CCSS for mathematics, the associate superintendent and his
team developed a comprehensive and multi-year plan for professional development. Some of the leader-focused professional development was embedded into monthly general administrator meetings. One example occurred in the fall of 2012 when district leaders learned about the up-coming format and expectations of the PARCC assessments. The associate superintendent and his team developed professional learning opportunities for teachers offered in the summer and during the school year. Additional professional learning support directly connected to the office of the associate superintendent was evident in the increase in mathematics coaching staff.

Perhaps the most significant professional learning opportunity the associate superintendent led was the district’s CCSS for mathematics task force. According to research, teachers tend to be overly reliant on textbooks as curriculum (Grouws & Smith, 2000; Grouws, Smith & Sztajn, 2004). The associate superintendent and his team worked with a consultant to bring together teachers, teacher leaders, and administrators to develop their own curricular resources that would be used across the district. The associate superintendent wanted to garner the collective buy-in from teachers utilizing their expertise and knowledge to further build their understanding and capacity in mathematics curriculum and instruction as they collaborated to create a district-wide mathematics curriculum aligned to the CCSS for mathematics. In the process of the task force developing curricular materials, teachers received professional development focused on mathematics content and instruction – components instrumental to implementing sustained change (Manouchehri & Goodman, 1998).

The junior high school principal. In the research, the principal is identified as playing several roles in the implementation of mandated change. The principal is viewed
as the conduit between the central office and the middle school building (Kaltenecker, 2011; McLaughlin, Talbert, & the Center for Teaching and Policy, 2003; Waite, 2002). In this case study research, the junior high school principal’s role involved more actual implementation of the CCSS for mathematics than it did of the planning for implementation. Understandably, her involvement was concentrated within her building in the work with her math department chair and teams. The junior high school principal was responsible for taking district-level policies and practices and overseeing the manner in which her teacher teams put the structural and instructional shifts into practice. Her regular participation in annual administrative retreats, monthly general administrative meetings, monthly junior high principal meetings, and regular conversations with the associate superintendent and his team prepared the junior high school principal to communicate district vision and expectations to her teachers.

It is the successful junior high school principal who develops a culture of shared leadership, facilitates professional learning opportunities, and leads with a focus on instruction (Sanzo, Sherman, & Clayton, 2011). As evident in this case study, the junior high school principal embraced her role as the instructional leader. She collaborated with her math department chair on ways to support teachers to effectively implement the district’s structural and instructional shifts around the CCSS for mathematics. She facilitated professional learning opportunities through observations, team meetings, and conversations with teachers centered on curriculum, instruction, and assessment materials developed at the district level. Through these conversations, the junior high school principal aided teachers to better understand the work to be done (Chrispeels, Daly, Burke, & Johnson, 2008). The junior high school principal embraced the district’s
implementation of the CCSS for mathematics as a chance to focus collaborative teacher work on meaningful instruction (Clark & Clark, 2000; Danielson, 2007; Tripses, 1998).

The junior high school principal also capitalized on the district work around the CCSS for mathematics to engage teachers in the process of using data to identify students for interventions and problem-solve through ways to support struggling students in a timely manner. She regularly used data and involved her teacher teams in the use of data to inform their assessment and instructional decisions. For example, ISAP, MAP, and formative assessment data were used to identify students for the Math Acceleration program and tiered support. Lastly, the junior high school principal used these data, and the implementation of mandated change, as a reason to change current practices (DuFour, DuFour, & Eaker, 2008; van der Vegt & Knip, 1990; Wellman, 2012).

According to the district’s organizational chart as it appeared at the end of the case study, the junior high school principal reported directly to the assistant superintendent. However, the junior high principal also had regular dealings, mostly in larger group structures, with the associate superintendent, and she collaborated with the director of math, science, and health at the district level and within her building. The junior high school principal availed herself of further mathematics curriculum and instruction support through her math department chair. The junior high school principal communicated and collaborated with each of these people to some extent with regards to the teaching and learning of mathematics and the implementation of the CCSS for Mathematics.
Research Question 2

In what ways did the associate superintendent of curriculum and junior high school principal work together to plan for and implement a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?

A review of the research reveals that the success of implementation of mandated change is predicated on the manner and level of interaction between leaders at the district and building level (Kaltenecker, 2011; van der Vegt & Knip, 1990). In fact, research supports that minimal district level support is counterproductive at the school level (McLaughlin, Talbert, & the Center for Teaching and Policy, 2003). In this case study research, the associate superintendent for curriculum and instruction and the junior high school principal worked together extensively to implement the CCSS for mathematics. It must be noted that much of the collaboration between these educational leaders was part of regularly scheduled district meetings that included other leaders and not solely between the two individuals.

An overview of the case study demonstrates that the interactions between the associate superintendent for curriculum and instruction with the junior high school principal were numerous and varied as to the level of interaction between the two leaders. More often than not, the interaction between the leaders was within a large district gathering. However, evidence showed that interactions also existed in smaller focused groups and one-on-one.

The case study data uncovered several instances in which the associate superintendent for curriculum and instruction and the junior high school principal interacted through formal meetings that included other leaders. For example, the annual
district administrative retreat was partially developed by the associate superintendent of curriculum and his team and presented to district leaders, including the junior high school principal. Likewise, the associate superintendent was instrumental in designing, presenting, and leading other structured gatherings regarding the CCSS for mathematics, such as the monthly general administrator meetings. In the aforementioned situations, the associate superintendent and junior high school principal did not necessarily interact directly, but rather the principal was a participant amongst other district leaders (ranging in numbers from 50 to 70 people in any one meeting), in the communication and professional learning opportunities around the district vision and expectations of the CCSS for mathematics implementation. The junior high school principal’s membership in the district’s CCSS for mathematics task force was another example of limited direct interaction between the associate superintendent of curriculum and the junior high school principal. Her involvement was of a participant amongst a group of about 60 to 70 teachers and leaders while the associate superintendent worked with a consultant and the director of math, science, and health.

The monthly gatherings of the junior high school principals with the associate superintendent and his team were another opportunity that brought together the associate superintendent of curriculum with the junior high school principal. This group of approximately 8 to 10 leaders was facilitated by the associate superintendent and was intended to encourage support and collaboration between district and building level leaders as well as amongst the junior high school principals. Over the course of the case study, the agenda of these meetings typically included CCSS for mathematics implementation items. The associate superintendent facilitated conversations involving
use of resources, challenges in the junior high schools, and reiteration of the loose-tight
district expectations. This smaller sized group enabled the associate superintendent and
the junior high school principal to interact more directly than they were able to during the
larger district administrative meetings (Bolman & Deal, 2008).

Finally, the associate superintendent of curriculum and the junior high school
principal worked together in indirect ways involving no direct face-to-face
communication. The associate superintendent communicated expectations for CCSS for
mathematics implementation through his memorandum written and delivered to junior
high school principals. Language taken from the memorandum to junior high school
principals makes clear the non-negotiable actions required, “Next fall we will hold tight
to the expectation that all schools …. The expectations coming from the CCSSs and
PARCC will require all of our junior high schools …” (District X, 2013n). Additionally,
the junior high school principal was directed, through the associate superintendent, to
prepare a school improvement plan report informing the school board of the goals and
work of the junior high school principal’s building.

Occasionally interactions between the associate superintendent of curriculum and
the junior high school principal were one-on-one. However, more frequently these
interactions were within large groups, such as administrator meetings and professional
development situations. Within this case study, the associate superintendent worked
much more closely with the director of math, science, and health, and in turn, the junior
high school principal worked more closely with the director of math, science, and health
and her math department chair. Such an organizational structure is not typically found in
other smaller districts. Initial districts contacted for participation in this case study had smaller student populations and, therefore, flatter organizational structures.

**Research Question 3**

What practices facilitated the collaboration between the associate superintendent of curriculum and junior high school principal as they planned for and implemented a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

While the current research is relatively scarce in specifying particular practices or strategies for effective or ineffective collaboration between the associate superintendent of curriculum and the junior high school principal, what does emerge in the research is the importance of creating and sustaining a culture of learning to effect meaningful change in the face of mandates (Firestone, 1989) around a clearly articulated vision (Israel & Kasper, 2004; Senge, 2006; White-Smith & White, 2009). Another key element to support mandated change is a collaborative environment (Erb, 2000; Tripses, 1998) whereby processes are transparent and teachers are actively involved in the change process given structured support (Bolman & Deal, 2008; Fernandez, Ritchie, & Barker, 2008). Data from the case study identified other components and practices that appeared to support collaboration between the associate superintendent of curriculum and the junior high school principal. Some of the practices were overt while others were subtler in how the practices supported the collaboration between the two leaders. In fact, many of the structures that served to facilitate collaboration between these two stakeholders were inherent in the culture and operation of the district as a whole.
Plainly evident in the case study was a clear vision for the district focused on student achievement. The district vision permeated throughout the interviews with each leader in that both individuals had the district goals displayed in their offices and made explicit references to them. Beginning with the initial administrative retreat, student achievement was used to embrace the CCSS for mathematics mandate as an opportunity to improve student learning. The district’s three goals spotlight on student achievement in mathematics and reading acted as a mantra (Collins, 2001; Fullan, 2011) that was tied to every decision (e.g., Math Acceleration program) and connected to each professional learning opportunity (e.g., general administrator meetings and the junior high school team meeting). Furthermore, across the district was a shared commitment to research informed curricular and instructional practices. The district task force, convened through the associate superintendent and attended to by the junior high school principal, was founded on meaningful implementation of a curriculum that encapsulated the CCSS for mathematics and delivered using a district dictated structure (e.g., Balanced Mathematics Framework).

District developed structures were key in facilitating the collaboration between the associate superintendent for curriculum and instruction and the junior high school principal. The Balanced Mathematics Framework and Math Acceleration program defined expectations of instruction and student support around which the case study leaders collaborated. Other district resources that acted to support the collaboration of the associate superintendent and principal included the task force resource binders, the curriculum pacing charts, and the observer CCSS for mathematics look-fors.
The articulated, coherent, and systemic plan the district had for implementation of the CCSS for mathematics across all schools essentially required collaboration between the associate superintendent and all building principals, including the junior high school principal. At the onset, district and building leaders were privy to a well laid out plan that included structural and instructional shifts (Bolman & Deal, 2008). The associate superintendent and his team left little to chance when it came to what change would look like and how principals were to realize this change in their respective buildings (Fullan, 2011). The multiple professional learning opportunities gave leaders several chances to share their questions and experiences as they implemented the changing curriculum and new structures for instruction and student interventions.

Collaboration and a focus on data were two additional district practices that worked to facilitate the work between the associate superintendent of curriculum and the junior high school principal (Fullan, 2011). Collaboration was an expectation throughout the district from the top, whereby the associate superintendent and his team worked closely together, to the teacher level where teams met regularly around issues of curriculum, instruction, and assessment. Moreover, the associate superintendent and his team regularly met with the junior high school principals, and the junior high school principal in the case study meet weekly with her teacher teams. The commitment to a collaborative culture and expectation was seen in the time allotted for educators to meet and extended as far as providing professional learning workshops emphasizing collaboration. Within a focus on collaboration was an emphasis and practice of data driven dialogues across all levels (Fullan, 2011). As mentioned previously, both the associate superintendent and junior high school principal referenced the district goals of
student achievement as measured on the ISAT and MAP assessments. Further, data were used at the junior high school by the principal and teacher teams to identify students and to report out progress to the school board.

Teacher involvement in the planning and implementation of the CCSS for mathematics coupled with support given to teachers were more examples of practices that facilitated collaboration between the associate superintendent and junior high school principal. The teacher involvement on the CCSS for mathematics task force and the subsequent utilization of those resources in the classrooms and with teacher teams necessitated collaboration between the district and school leader. The process began with district expectations as articulated by the associate superintendent and his team, followed by the principal working with her teacher teams, and completing the circle by collaborating with the associate superintendent and other junior high school principals to share experiences and challenges (Collins, 2011). Support for teachers was built into the different levels at the district and building level. The organizational chart for the district revealed that a commitment in resources to mathematics was evident in the position of Director of Math, Science, and Health combined with five mathematics coaches for the district (Bolman & Deal, 2008). At the school building level, the junior high school principal had elected to hire a math department chair rather than a literacy department chair to ensure teachers had resources available to them as they implemented the CCSS for mathematics. These positions were additional layers and communication mechanisms to carry out the district expectations for the CCSS.

The district’s commitment of resources to an extensive professional development plan was another practice that resulted in facilitating the collaboration between the
associate superintendent and junior high school principal (Bolman & Deal, 2008). Most of the professional learning activities and events were embedded in the daily work of leaders and teachers. The district, through the work of the associate superintendent’s office, was intent on building the capacity of its leaders and teachers to implement the CCSS for mathematics as envisioned by district leadership. The associate superintendent and his team devoted part of each leadership meeting to the implementation of the CCSS for mathematics. The junior high school principal and her math department chair regularly facilitated teacher teams in lesson design and instruction reflecting the CCSS for mathematics curriculum. The expectation and practice was for principals to use observations as a way to identify implementation of the CCSS in the mathematics classroom and provide teachers with feedback to improve practice aligned with the CCSS. Finally, the director of math, science, and health and his coaches met with principals and teacher teams to guide implementation of district expectations around curriculum and instruction.

One last but crucial practice that facilitated the collaboration between the associate superintendent of curriculum and junior high school principal in the planning and implementation of the CCSS for mathematics was communication (Weik, 1976). According to the research, communication is a key component to change in school systems (Fullan, 2004; Gibson, 1996). The message that the implementation of the CCSS for mathematics was an opportunity to enact structural and instructional change was repeated and pervasive throughout the organization. Some instances of when this message was communicated include a general administrative meeting in fall of 2012 (District X, 2012a), a memorandum to junior high school principals (District X, 2013n),
an update to the board of education (District X, 2013m), and at an administrative retreat (District X, 2013h). The expectations and specifics of changes dictated by the district were repeated at each district meeting, within conversations, and as a part of professional learning experiences over the course of the case study research. Whether at the administrative retreat, general administrator meetings, junior high school principal support meetings, teacher team meetings, written memorandums, board meeting updates, or in interviews, the message was consistent about the changes expected in the district and the support that was provided to ensure fidelity to the CCSS for mathematics district implementation plan (Bolman & Deal, 2008). Evident in the operations of the district were the multiple linkages of systems and processes. Communication was multi-layered and spiraled including all employee levels and a part of most every meeting. The continual message from the associate superintendent and junior high school principal emphasized the shifts in instructional practice, development of a mathematics curriculum that was meaningful and relevant, deliberate attention to the CCSS Standards for Mathematical Practice, application of the district’s Balanced Mathematics Framework and Math Acceleration programs with fidelity, and support for teachers throughout the implementation process.

**Research Question 4**

What practices created obstacles to collaboration between the associate superintendent of curriculum and junior high school principal as they planned for and implemented a plan for integration of the Common Core State Standards for mathematics in grades 6 through 8?
As noted previously, a review of research identified practices that tended to allow change to happen in school systems in meaningful and effective ways (Fernandez, Ritchie, & Barker, 2008; Fullan, 2011, 2007; Louis, Febey, & Schroeder, 2005; Petrides, 2004; Senge, 1990). For the most part, the district in the case study emulated each of those practices (Creating and sustaining a culture of learning, vision focused on student achievement, commitment to research informed curricular and instructional practices, a coherent and systemic plan, collaborative and data-driven culture, teacher participation and support, professional development embedded in daily work, tight linkages between district administrators and building leaders). This was not surprising as this particular district was chosen as an exemplar from which to study systems and processes that appeared to be successful in the implementation of mandated change. A close examination specifically of practices that may have hindered collaboration between the associate superintendent of curriculum and the junior high school principal revealed a few potential obstacles.

The organizational structure of the district was such that multiple layers existed at the district level (refer to Figure 5). The associate superintendent reported to the district superintendent. The assistant superintendent for the department of student learning in turn reported to the associate superintendent, and the director of math, science, and health, who supervised the mathematics coaches, was underneath the assistant superintendent. The district’s junior high school principals reported to the assistant superintendent. These layers of leadership resulted in numerous meetings and regular dialogue between the various leaders that may have contributed to clarity and coherence across the district. However, much of the collaboration between the targeted leaders in this research case
Figure 5. District X Organizational Chart for Department of Student Learning

Note: This figure details out the organization of the department for which the associate superintendent had oversight.
study was done at a distance through either larger group meetings or through the director of math, science, and health as the intermediary. The district’s linkages capitalized on leader and teacher will to build capacity to plan for and implement the CCSS for Mathematics. While the structures and linkages supported coherence and fidelity of implementation, in the end, the multiple layers of leadership in the district mitigated the extent to which the associate superintendent of curriculum and the junior high school principal collaborated. Over the duration of the case study, data pointed to the fact that both the associate superintendent and junior high school principal were able to articulate the district’s vision for implementation of the CCSS for Mathematics (Interview with associate superintendent, August 2013; Interview with junior high school principal, September 2013; Observation of general administrator meeting, October 2013; Observation of junior high instructional support meeting, October 2013; District X, 2012a; District X, 2012b; District X, 2013h). Through words and actions, both district leaders demonstrated the will and capacity to articulate and take action aligned with district-defined expectations for instructional and structural changes. Yet, over the course of the case study that spanned a timeframe of August 2012 to October 2013, the only evidence of a direct, one-on-one collaboration between the associate superintendent and junior high school principal was a reference made by the principal in her interview that she communicated with the associate superintendent via the phone. The commitment to district resources in time for multiple, large group meetings, combined with allocation of dollars toward salaries of administrators, suggests that the multiple layers of district leadership created unnecessary and costly redundancy given both the will and capacity. The junior high school principal, director of math, and math chair demonstrated both the
will and capacity to implement changes as mandated by adoption of the CCSS for mathematics.

**Limitations of Research**

One limitation to this dissertation research was inherent in the methodology of case study research. Broad generalizations are not possible as the case study data is so tightly focused on one school district and findings cannot necessarily transfer to other districts. Furthermore, governing municipalities have unique policies and practices, distinctive perspectives, challenges, and resources potentially making application of research findings problematic. Similarly, the manner in which middle schools and junior high schools operate is often significantly different than in either elementary or high school contexts (Thompson & Homestead, 2005). Lastly, the sample for this study was centered in a suburban county of Chicago. The findings may not be applicable to different geographical or socio-economic areas.

The intent of this research study was to learn more about the relationship between district level and building level leadership as mandated change was implemented. Because this study focused on a school that had met state standards, nuances in an existing culture of academic success may be difficult to identify and separate from confounding factors, such as existing practices, community involvement, and other leadership influences. Moreover, the organizational structure of the district was multi-tiered with a layer of leadership between the associate superintendent and junior high school principal in addition to a district level director of mathematics. Thus, much of the collaboration that occurred between the associate superintendent and junior high school principal was mostly at a distance, that is, as part of larger groups rather than one-on-one.
More direct collaboration between these two leaders might look very different and reveal different strengths and challenges. For purposes of this case study, an exemplar district was identified as having demonstrated academic success in mathematics and had a significant language minority student population. Other districts that met the necessary criteria and declined the invitation to participate in this research were smaller with fewer buildings and less administrative leadership layers. In all likelihood, findings from a case study involving one of these other districts would have been applicable to more districts, as most K-8 districts tend to be smaller with fewer resources.

Two factors emerge from the case study that would behoove educational leaders to consider when reflecting on the data in this case study. First, a balcony view of the case study reveals that leaders spent a significant amount of time in meetings within larger groups. The well articulated professional development plan and the regular meeting of district administrators may have supported coherence, yet the many meetings and time spent in larger groups may contribute to a meeting fatigue or divert valuable time from beneficial or needed conversations between individuals. A second factor for educational leaders to consider is the fact that district budgets are tight with no relief in sight. School boards and district leaders have a fiduciary responsibility to their communities. It may very well be possible that what the case study district has accomplished in regards to implementing mandated change in a coherent and systemic manner could be achieved with less administrative layers.

The PRIME Leadership Framework provided a lens through which to analyze the case study data. In evaluating the case study district against the principles and indicators of The PRIME Leadership Framework, the combination of the actions of the district and
its leaders indicated the district was generally an exemplar reflecting the ideals of the framework. PRIME was build upon the assumptions three assumptions: (1) Success for every student, teacher, and leader; (2) Research-informed teacher actions; and (3) Teacher collaboration and professional learning. Each of these assumptions was embedded in the daily work at the district and school as well as espoused by both the associate superintendent and junior high school principal. The district vision statement of success for students (District X, 2013i) was visible in many of the artifacts collected and evident in each of the interviews. The district’s commitment to success for teachers and leaders was intertwined with the many opportunities for professional learning through summer and school-year professional development (District X, 2013j, 2013k) and the administrative retreats and meetings (District X, 2013f, 2012a, 2012b). Each of these events also reflected research-informed teacher actions as did the respective interviews with the associate superintendent and junior high school principal.

More evidence was found at stages two and three of The PRIME Leadership Framework than at stage one. Stage one (leadership of self) was not the focus of this case study, and, therefore, data collection did not focus on this aspect of mathematics education leadership. Stage two (leadership of others) and stage three (leadership in the extended community) was more plentiful as data was concentrated on how district leaders led others in implementing mandated change. Not only was evidence found for each of the four principles of PRIME (equity, teaching and learning, curriculum, and assessment), multiple examples of events and artifacts were identified for each indicator within the principles, thus triangulating the district and leader’s alignment to PRIME. Evidence for assessment was not as abundant in this principle as others. Lack of evidence toward the
assessment principle is likely more indicative of the data collected rather than the practices of the district and leaders.

The use of *The PRIME Leadership Framework* had its limitations as a conceptual framework. *The PRIME Leadership Framework* was designed to view leadership in mathematics education as an individual across several indicators within four principles. The four principles of equity, teaching and learning, curriculum, and assessment are inextricably related and connected in the school environment. Thus, when viewing data, such as the district’s Balanced Math Framework, the program cut across several principles and indicators. Additionally, the district and leaders each had a role related to the program. In the end the data collected was often challenging to clearly delineate between *PRIME* indicators and principles and across stages. The process of aligning data to specific indicators in the framework may have resulted in missed patterns during the analysis of the case study.

Lastly, a limitation of this research was the limited experience of the researcher in case study methodology. As such, the researcher’s level of observational or analytic skills may have resulted in limited ability see critical emerging patterns.

**Recommendations for Future Research**

Mandates are an inherent part of public education. Whether at the federal level, state level, or regional level, government has a vested and political interest in policies of education. The manner in which districts approach the planning and implementation of such mandates will have a profound impact as to the effectiveness of change on school leaders, teachers, and students. The relationship and ways in which district-level leaders collaborate with school leaders is paramount in contributing to meaningful and lasting
change. This research case study examined the ways in which the associate superintendent and junior high school principal collaborated to implement mandated change revealing practices and policies that resulted in engaging leaders and teachers purposeful and relevant change around curriculum, instruction, and assessment. What remains unanswered is the extent to which the structures embraced and practiced in this school district are applicable in other districts. Furthermore, three of the leaders mentioned in the study (the junior high school principal, the director of math, science, and health, and the math department chair) all had content expertise in mathematics. What contribution might their knowledge of mathematics curriculum and instruction have made in the planning and implementation of the CCSS for mathematics at the district and school level? Would the junior high school principal been able to facilitate her teacher teams to the same level around literacy as she was in the area of mathematics? Perhaps principal leadership programs would benefit from a greater emphasis on curriculum, especially in core areas such as literacy and mathematics.

As mentioned previously, The PRIME Leadership Framework was limiting as a conceptual framework. This mathematics education leadership framework was written for the individual leader and had not been used previously to analyze a district and its leadership structure for effectiveness in the area of K-12 mathematics. The National Council of Supervisors of Mathematics, the author of PRIME, might consider generating a companion framework to be used at the district level to examine effectiveness of district and building level leadership to support the teaching and learning of mathematics. Rather than stages, this “new” framework might differentiate between the knowledge and skills needed by the district-level curriculum leader, the building-level leader, a mathematics
coach, and a teacher/team leader across the principles of equity, teaching and learning, curriculum, and assessment. Furthermore, the framework would illustrate how these leaders collaborate to support a comprehensive mathematics program.

By design, this case study was exploratory identifying initial processes and systems that support and move forward change intended to have a positive impact on student learning. Therefore, further research is needed to determine the applicability of the research findings to other districts.

Summary

The adoption of the Common Core State Standards (CCSSI, 2010) by many states has resulted in significant challenges for districts and school leaders as they make decisions and put plans into place as to how they will approach this mandate. In issues related to curriculum, the district and school leaders typically must work together to ensure change that is relevant, planned, and supported. Often the leaders that have key roles in the process of curricular and instructional change are the assistant superintendent of curriculum and instruction and the building principal. At the same time, the junior high school years are a crucial transitional time for students. Thus, for purposes of this research case study, questions arose as to how the assistant superintendent and middle school principal collaborate to implement mandated change. Specifically, this research case study sought to address the following research questions:

1. What is the nature and extent of the roles of the associate superintendent of curriculum and junior high school principal in planning for and implementing the Common Core State Standards for mathematics in grades 6 through 8?
2. In what ways do the associate superintendent of curriculum and junior high school principal work together to plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

3. What practices facilitate the collaboration between the associate superintendent of curriculum and junior high school principal as they plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

4. What practices create obstacles to collaboration between the associate superintendent of curriculum and junior high school principal as they plan for and implement a plan for integration of the *Common Core State Standards* for mathematics in grades 6 through 8?

The methodology used to conduct this research was a case study methodology. The case study included one case of an associate superintendent of curriculum for the district and a junior high school principal located in suburban Cook County (excluding Chicago public schools) using criteria that would identify the district as an exemplar. Characteristics of the district included a language minority population of nearly 20% in 2012 and having demonstrated academic success as measured on state assessments. Data collection included interviewing the associate superintendent of curriculum and junior high school principal, gathering of various artifacts, and observations of numerous events involving the two research participants.

Analysis of the case study suggests that in the case of mandated change leadership at the district level must have a vision of the implemented change with a clearly
articulated plan that includes communication, professional development, and support for leaders and teachers. A district that has truly embraced and embodies the necessary conditions of a professional learning community (e.g., collaboration and data driven) will treat implementation of mandated change as a shared, collaborative process that requires active participation at the district and building level, from the superintendent to the classroom teacher. The expectations for implementing major educational change in a district needs to be spiraled, repeated, and reinforced as an integral part of the regular operations of the district and schools. Whether the change is mandated from outside the school district or originates from within, stakeholders need to be clear as to the tight expectations of the district balanced against the differentiated needs of individual schools as those expectations are balanced against give building leaders the autonomy to implement district change in ways that support their work and the needs of their teachers. Research is clear that when teachers have both the will and capacity, they will actively engage in the processing in meaningful ways (Firestone, 1989; Israel & Kasper, 2004; Weick, 1976).

Perhaps the most significant finding from this case study is that in today’s world of implementing mandated change, districts need to be cognizant of how change is enacted and critically assess structures in light of financial responsibility to their stakeholders. District leaders must be able to determine the point at which coherence and support become overly redundant resulting in excess cost with little in return for the investment of time and money. In the end, perhaps the most significant lesson to be taken from this case study is that mandated change could be embraced as an opportunity to embrace instructional and structural changes rather than as a dictate to rebel against,
while at the same time being mindful of their fiduciary obligations to their stakeholders.

Mandated change does not have to be, nor can it be, a scapegoat for unfettered use of resources. However, when change is thrust upon districts, leaders can and must move forward in thoughtful, deliberate, and responsible ways.
APPENDIX A

ILLINOIS STATE BOARD OF EDUCATION FOIA REQUEST
October 31, 2012

Dear Mr. Vanover

I, Gwendolyn Zimmermann, hereby request that the Illinois State Board of Education produce the following public records pursuant to the provisions of the Illinois Freedom of Information Act, 5 III.Comp.Stat.Ann.140/1 et seq. for the purpose of Doctoral research at Loyola University Chicago which is being supervised by Dr. Marla Israel Ed.D., Associate Professor in the School of Education.

1. **The name, district name, district mailing address, email address, and phone number of all Illinois public middle school or junior high school principals within suburban Cook and DuPage counties.**

Please produce the requested records to **Gwendolyn Zimmermann, 796 Lindsey Ln, Bolingbrook, IL 60440** or (if provided electronically) to gzimmermann@luc.edu within (7) working days of your receipt of this request [ILL.Comp.Stat.140/3(c)]. If the requested records cannot be produced within seven (7) working days, please notify me in writing of the reason(s) for the delay and the date by which requested records will be available.

If you do not understand this request, or any portion thereof, or if you feel you require clarification of this request, or any portion thereof, please contact me at 630-564-7711.

Thank you for your attention to this matter.

Sincerely,

Gwendolyn Zimmermann

Sent via email to FOIA@isbe.net
APPENDIX B

LETTER OF COOPERATION – DISTRICT SUPERINTENDENT
March 1, 2012

**Project Title:** How do district level and building level leaders collaborate to implement mandated change?

**Researcher:** Gwendolyn Zimmermann

**Faculty Sponsor:** Dr. Marla Israel Ed.D. – Dissertation Research Study: Case Study

**Introduction:**
You are being asked to take part in a research study being conducted by Gwendolyn Zimmermann for a dissertation study at Loyola University Chicago under the supervision of Dr. Marla Israel Ed.D., Associate Professor in the School of Education.

You are being asked to participate because you are a leader in a district with demonstrated student success in mathematics at the middle school level. Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

**Purpose:**
The purpose of this study is examine how the assistant superintendent of curriculum and middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics.

*Assistant superintendent of curriculum* – The assistant superintendent of curriculum in a school district oversees the implementation of federal, state, and local policies as they relate to student achievement.

*Middle school* – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8.

*Principal* – The principal is the ultimate authority in the building responsible for leading and managing resources to support the education of students who attend the school.

**Procedures:**
If you agree to be in the study, you will be asked to allow me to participate in the following activities:

- Interview your assistant superintendent of curriculum and middle school principal about how they are planning for and implementing the *Common Core State Standards* for mathematics, both individually as well as collaboratively (approximately one hour per interview).
• Observe one or more activities over the course of a 9-month period in which the assistant superintendent of curriculum and middle school principal collaborate (e.g., planning or implementing staff development around the Common Core State Standards for mathematics).
• A follow up interview with each the assistant superintendent of curriculum and middle school principal after all observations have been completed (approximately one hour per interview).
• Collection of the following documents and artifacts: professional development plans or documentation related to the planning and implementation of the Common Core State Standards for mathematics.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There may be a benefit to having the voice of your district leadership heard and the opportunity to reflect on their own leadership practices. Furthermore, your district’s contribution may provide emerging school leaders a clearer understanding of how district and building leaders in K-8 districts with proven success in mathematics are collaboratively planning for and implementing mandated change.

Confidentiality:
• Research notes and any documents collected will be stored and made available only to the researcher. When not in use, notes and documents will be secured, and upon completion of the research will be destroyed.
• Pseudonyms will be used in lieu of actual names when developing the dissertation study.
• Although only the researcher will have access to notes and collected documents, other people within your school environment may be aware that the assistant superintendent of curriculum and middle school principal are being interviewed as part of this research assignment, however the researcher will not share the contents of the interview with anyone from your school or district.

Voluntary Participation:
Participation in this study is voluntary. If the assistant superintendent of curriculum, middle school principal, or you does not want to be in this study, none of you have to participate. Even if you, the assistant superintendent of curriculum, and middle school principal decide to participate, each of you is free not to answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:
If you have questions about this research study, please feel free to contact:
Researchers:
  • Gwendolyn Zimmermann at gzimmermann@luc.edu/ (630) 564-7711
The Dissertation Director:
  • Dr. Marla Israel at misrael@luc.edu / (312) 915-6336
If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

References:

Statement of Consent:
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to allow your assistant superintendent of curriculum and middle school principal to participate in this research study. You will be given a copy of this form to keep for your records.

Participant’s Signature ____________________________ Date __________

Researcher’s Signature ____________________________ Date __________
APPENDIX C

LETTER OF COOPERATION –

ASSISTANT SUPERINTENDENT OF CURRICULUM
LETTER OF COOPERATION
ASSISTANT SUPERINTENDENT OF CURRICULUM

March 1, 2012

Project Title: How do district level and building level leaders collaborate to implement mandated change?
Researcher: Gwendolyn Zimmermann
Faculty Sponsor: Dr. Marla Israel Ed.D. – Dissertation Research Study: Case Study

Introduction:
You are being asked to take part in a research study being conducted by Gwendolyn Zimmermann for a dissertation study at Loyola University Chicago under the supervision of Dr. Marla Israel Ed.D., Associate Professor in the School of Education.

You are being asked to participate because you are a leader in a district with demonstrated student success in mathematics at the middle school level. Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:
The purpose of this study is examine how the assistant superintendent of curriculum and middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics.

Assistant superintendent of curriculum – The assistant superintendent of curriculum in a school district oversees the implementation of federal, state, and local policies as they relate to student achievement.

Middle school – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8.

Principal – The principal is the ultimate authority in the building responsible for leading and managing resources to support the education of students who attend the school.

Procedures:
If you agree to be in the study, you will be asked to allow me to participate in the following activities:
• Interview you about how you and the middle school principal are planning for and implementing the Common Core State Standards for mathematics, both individually as well as collaboratively (approximately one hour).
• Observe one or more activities over the course of a 9-month period in which you and middle school principal collaborate (e.g., planning or implementing staff development around the Common Core State Standards for mathematics).
• A follow up interview with you after all observations have been completed (approximately one hour).
• Collection of the following documents and artifacts: professional development plans or documentation related to the planning and implementation of the Common Core State Standards for mathematics.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There may be a benefit to having your voice heard and the opportunity to reflect on your own leadership practices. Furthermore, your contribution may provide emerging school leaders a clearer understanding of how district and building leaders in K-8 districts with proven success in mathematics are collaboratively planning for and implementing mandated change.

Confidentiality:
• Research notes and any documents collected will be stored and made available only to the researcher. When not in use, notes and documents will be secured, and upon completion of the research will be destroyed.
• Pseudonyms will be used in lieu of actual names when developing the dissertation study.
• Although only the researcher will have access to notes and collected documents, other people within your school environment may be aware that you are being interviewed as part of this research assignment, however the researcher will not share the contents of the interview with anyone from your school or district.

Voluntary Participation:
Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free to not answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:
If you have questions about this research study, please feel free to contact:
Researchers:
• Gwendolyn Zimmermann at gzimmermann@luc.edu/ (630) 564-7711
The Dissertation Director:
• Dr. Marla Israel at misrael@luc.edu / (312) 915-6336
If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

**References:**

**Statement of Consent:**
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to participate in this research study. You will be given a copy of this form to keep for your records.

____________________________________________   __________________
Participant’s Signature  Date

___________________________________  ___________________
Researcher’s Signature  Date
APPENDIX D

LETTER OF COOPERATION – MIDDLE SCHOOL PRINCIPAL
March 1, 2012

**Project Title:** How do district level and building level leaders collaborate to implement mandated change?

**Researcher:** Gwendolyn Zimmermann

**Faculty Sponsor:** Dr. Marla Israel Ed.D. – Dissertation Research Study: Case Study

**Introduction:**
You are being asked to take part in a research study being conducted by Gwendolyn Zimmermann for a dissertation study at Loyola University Chicago under the supervision of Dr. Marla Israel Ed.D., Associate Professor in the School of Education.

You are being asked to participate because you are a leader in a district with demonstrated student success in mathematics at the middle school level. Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

**Purpose:**
The purpose of this study is to examine how the assistant superintendent of curriculum and middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics.

*Assistant superintendent of curriculum* – The assistant superintendent of curriculum in a school district oversees the implementation of federal, state, and local policies as they relate to student achievement.

*Middle school* – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8.

*Principal* – The principal is the ultimate authority in the building responsible for leading and managing resources to support the education of students who attend the school.

**Procedures:**
If you agree to be in the study, you will be asked to allow me to participate in the following activities:

- Interview you about how you and assistant superintendent for curriculum are planning for and implementing the *Common Core State Standards* for mathematics, both individually as well as collaboratively (approximately one hour).
• Observe one or more activities over the course of a 9-month period in which you and the assistant superintendent of curriculum collaborate (e.g., planning or implementing staff development around the Common Core State Standards for mathematics).
• A follow up interview with you after all observations have been completed (approximately one hour).
• Collection of the following documents and artifacts: professional development plans or documentation related to the planning and implementation of the Common Core State Standards for mathematics.

Risks/Benefits:
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There may be a benefit to having your voice heard and the opportunity to reflect on your own leadership practices. Furthermore, your contribution may provide emerging school leaders a clearer understanding of how district and building leaders in K-8 districts with proven success in mathematics are collaboratively planning for and implementing mandated change.

Confidentiality:
• Research notes and any documents collected will be stored and made available only to the researcher. When not in use, notes and documents will be secured, and upon completion of the research will be destroyed.
• Pseudonyms will be used in lieu of actual names when developing the dissertation study.
• Although only the researcher will have access to notes and collected documents, other people within your school environment may be aware that you are being interviewed as part of this research assignment, however the researcher will not share the contents of the interview with anyone from your school or district.

Voluntary Participation:
Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free to not answer any question or to withdraw from participation at any time without penalty.

Contacts and Questions:
If you have questions about this research study, please feel free to contact:
Researchers:
• Gwendolyn Zimmermann at gzimmermann@luc.edu/ (630) 564-7711
The Dissertation Director:
• Dr. Marla Israel at misrael@luc.edu / (312) 915-6336
If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.
References:

Statement of Consent:
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to participate in this research study. You will be given a copy of this form to keep for your records.

_______________________________   __________________
Participant’s Signature               Date

_______________________________   __________________
Researcher’s Signature               Date
APPENDIX E

SCRIPT FOR TELEPHONE INVITATION TO PARTICIPATE IN RESEARCH – SUPERINTENDENT
Telephone Script to Request Participation in Interview

Hello, my name is Gwen Zimmermann. I am a doctoral student in the Educational Leadership program at Loyola University Chicago. Given the adoption of the Common Core State Standards, I am interested in researching the question of how successful K-8 suburban districts plan for and implement mandated change.

Specifically, the purpose of this research is to examine how the assistant superintendent of curriculum and the middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics. As superintendent of the district, I am seeking your consent to contact the assistant superintendent of curriculum and your middle school principal to ask their consent for an interview of approximately 1 hour in duration.

There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life. Everything you say will be held in confidence and pseudonyms will be used in lieu of actual names when developing the dissertation study. Are you willing for me to contact your assistant superintendent of curriculum and middle school principal?

If the response is yes:

Thank you. I will send you in the mail the interview questions and a “Cooperation to participate in the Study” form. Once you return the form, I will contact you to schedule a time and place for the interview. Please email me at gzimmermann@luc.edu or call me at 630-564-7711 if you have any questions. Have a good day.
If no response is no:

Thank you for your time. If you change your mind or have any questions regarding this research study, please email me at gzimmermann@luc.edu or call me at 630-564-7711. Have a good day.
APPENDIX F

SCRIPT FOR TELEPHONE INVITATION TO PARTICIPATE IN RESEARCH –
ASSISTANT SUPERINTENDENT OF CURRICULUM AND
MIDDLE SCHOOL PRINCIPAL
Telephone Script to Request Participation in Interview

Hello, my name is Gwen Zimmermann. I am a doctoral student in the Educational Leadership program at Loyola University Chicago. Given the adoption of the Common Core State Standards, I am interested in researching the question of how successful K-8 suburban districts plan for and implement mandated change.

Specifically, the purpose of this research is to examine how the assistant superintendent of curriculum and a middle school principal in their district collaborate to implement the State adopted Common Core Standards for Mathematics. As superintendent of the district, I am seeking your consent to an interview of approximately 1 hour in duration.

There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life. Everything you say will be held in confidence and pseudonyms will be used in lieu of actual names when developing the dissertation study. Are you willing for me to contact your assistant superintendent of curriculum and middle school principal?

If the response is yes:

Thank you. I will send you in the mail the interview questions and a “Cooperation to participate in the Study” form. Once you return the form, I will contact you to schedule a time and place for the interview. Please email me at gzimmermann@luc.edu or call me at 630-564-7711 if you have any questions. Have a good day.

If no response is no:
Thank you for your time. If you change your mind or have any questions regarding this research study, please email me at gzimmermann@luc.edu or call me at 630-564-7711. Have a good day.
APPENDIX G

SEMI-STRUCTURED INTERVIEW QUESTIONS FOR INITIAL MEETING WITH
ASSISTANT SUPERINTENDENT OF CURRICULUM
Interview Questions
for
Assistant Superintendent for Curriculum

The purpose of this study is examine how the assistant superintendent of curriculum and middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics.

Middle school – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8.

Background Information Questions

1. How long have you been at this district?
2. How long have you been in this role in the district?
3. What roles have you had previously in the district?

Planning and Implementing the CCSS for Mathematics

1. How do you stay informed about the state mandates as they relate to the CCSS?
2. What steps have you taken to learn specifically about the CCSS for Mathematics?
3. What is your role to inform other district stakeholders about the CCSS for Mathematics?
4. What steps or plans have you developed to date about the implementation of the CCSS for Mathematics for the district?
5. What steps or plans have you developed to date about the implementation of the CCSS for Mathematics, specifically for the middle school grades?
6. What future steps will you take toward the implementation of the CCSS for Mathematics at the middle school level?
7. What do you perceive as barriers to overcome in implementing the CCSS for Mathematics?

Collaboration between Assistant Superintendent and Middle School Principal

1. In what ways do you and the middle school principal communicate about curriculum, instruction, and assessment?
2. What characteristics do you feel are essential in a collaborative relationship between an assistant superintendent of curriculum of a K-8 district and a middle school principal to ensure meaningful implementation of the CCSS for Mathematics?
3. Up to this point, how have you and the middle school principal worked together around the CCSS in general?
4. Up to this point, how have you and the middle school principal worked together around the CCSS for Mathematics?
5. How will you and the middle school principal collaborate in the future in regards
to the CCSS for Mathematics?
6. What supports do you provide the middle school principle in implementing the CCSS for Mathematics?
7. Can you provide a story that exemplifies what has gone well so far?

References:
APPENDIX H

SEMI-STRUCTURED INTERVIEW QUESTIONS FOR INITIAL MEETING WITH MIDDLE SCHOOL PRINCIPAL
Interview Questions for Middle School Principal

The purpose of this study is to examine how the assistant superintendent of curriculum and middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics.

Assistant superintendent of curriculum – The assistant superintendent of curriculum in a school district oversees the implementation of federal, state, and local policies as they relate to student achievement.

Middle school – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8.

Principal – The principal is the ultimate authority in the building responsible for leading and managing resources to support the education of students who attend the school.

Background Information Questions

1. How long have you been at this district?
2. How long have you been in this role in the district?
3. What roles have you had previously in the district?

Planning and Implementing the CCSS for Mathematics

1. How do you stay informed about the state mandates as they relate to the CCSS?
2. What steps have you taken to learn specifically about the CCSS for Mathematics?
3. What is your role to inform stakeholders in your school about the CCSS for Mathematics?
4. What steps or plans have you developed to date about the implementation of the CCSS for Mathematics for your school?
5. What future steps will you take toward the implementation of the CCSS for Mathematics at the middle school level?
6. What do you perceive as barriers to overcome in implementing the CCSS for Mathematics in your school?

Collaboration between Assistant Superintendent and Middle School Principal

1. In what ways do you and the assistant superintendent for curriculum communicate about curriculum, instruction, and assessment?
2. What characteristics do you feel are essential in a collaborative relationship between an assistant superintendent of curriculum of a K-8 district and a middle school principal to ensure meaningful implementation of the CCSS for
3. Up to this point, how have you and the assistant superintendent for curriculum worked together around the CCSS in general?

4. Up to this point, how have you and the assistant superintendent for curriculum worked together around the CCSS for Mathematics?

5. How will you and the assistant superintendent for curriculum collaborate in the future in regards to the CCSS for Mathematics?

6. What supports do you feel the assistant superintendent for curriculum can provide you as you implement the CCSS for Mathematics in your building?

7. Can you provide a story that exemplifies what has gone well so far?

References:
APPENDIX I

EMAIL QUESTIONS FOR ASSISTANT SUPERINTENDENT OF CURRICULUM
AFTER OBSERVATIONS
Questions to the associate superintendent about the role of the assistant superintendent:

1. How would you summarize the difference in your role as associate superintendent versus that of the assistant superintendent?
2. How does the assistant superintendent interact with you?
3. How does the assistant superintendent interact with Director of Math, Science, and Health?
4. How does the assistant superintendent interact with the junior high school principals?
5. What was/is the assistant superintendent’s role in the planning and implementation of the *CCSS for Mathematics* for the district?
APPENDIX J

EMAIL QUESTIONS FOR JUNIOR HIGH SCHOOL MATH DEPARTMENT CHAIR
Questions emailed the junior high school math department chair:

1. Please describe your role.
2. How long have you been in your role?
3. How does your role interact with teachers?
4. How does your role interact with the associate superintendent/JRHS principal?
5. What has been your role in the development and implementation of the *CCSS for Mathematics*?
APPENDIX K

CONSENT TO PARTICIPATE – ASSISTANT SUPERINTENDENT OF CURRICULUM AND MIDDLE SCHOOL PRINCIPAL
CONSENT TO PARTICIPATE

March 1, 2012

Project Title: How do district level and building level leaders collaborate to implement mandated change?
Researcher: Gwendolyn Zimmermann
Faculty Sponsor: Dr. Marla Israel Ed.D. – Dissertation Research Study: Case Study

Introduction:
You are being asked to take part in a research study being conducted by Gwendolyn Zimmermann for a dissertation study at Loyola University Chicago under the supervision of Dr. Marla Israel Ed.D., Associate Professor in the School of Education.

You are being asked to participate because you are a leader in a district with demonstrated student success in mathematics at the middle school level. Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Please read this form carefully and ask any questions you may have before deciding whether to participate in the study.

Purpose:
The purpose of this study is to examine how the assistant superintendent of curriculum and middle school principal collaborate to implement the State adopted Common Core Standards for Mathematics.

Middle school – A building considered to be a middle school will consist of grades 5 through 8 or grades 6 through 8.

Procedures:
If you agree to be in the study, you will be asked to allow me to participate in the following activities:
• Interview you about how you and assistant superintendent for curriculum are planning for and implementing the Common Core State Standards for mathematics, both individually as well as collaboratively. (approximately one hour).
• Collection of the following documents and artifacts: professional development plans or documentation related to the planning and implementation of the Common Core State Standards for mathematics.
**Risks/Benefits:**
There are no foreseeable risks involved in participating in this research beyond those experienced in everyday life.

There may be a benefit to having your voice heard and the opportunity to reflect on your own leadership practices. Furthermore, your contribution may provide emerging school leaders a clearer understanding of how district and building leaders in K-8 districts with proven success in mathematics are collaboratively planning for and implementing mandated change.

**Confidentiality:**
- Research notes and any documents collected will be stored and made available only to the researcher. When not in use, notes and documents will be secured, and upon completion of the research will be destroyed.
- Pseudonyms will be used in lieu of actual names when developing the dissertation study.
- Although only the researcher will have access to notes and collected documents, other people within your school environment may be aware that you are being interviewed as part of this research assignment, however the researcher will not share the contents of the interview with anyone from your school or district.

**Voluntary Participation:**
Participation in this study is voluntary. If you do not want to be in this study, you do not have to participate. Even if you decide to participate, you are free to not answer any question or to withdraw from participation at any time without penalty. Prior to the conclusion of this research, you will be provided a copy of the transcript and tentative interpretations in order for you to respond with corrections and clarifications.

**Contacts and Questions:**
If you have questions about this research study, please feel free to contact:
Researchers:
- Gwendolyn Zimmermann at gzimmermann@luc.edu/ (630) 564-7711
The Dissertation Director:
- Dr. Marla Israel at misrael@luc.edu / (312) 915-6336
If you have questions about your rights as a research participant, you may contact the Loyola University Office of Research Services at (773) 508-2689.

**References:**

**Statement of Consent:**
Your signature below indicates that you have read and understood the information provided above, have had an opportunity to ask questions, and agree to participate in this research study. You will be given a copy of this form to keep for your records.
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APPENDIX L

CONFIDENTIALITY AGREEMENT FOR TRANSCRIPTION SERVICES
Confidentiality Agreement
Transcription Services

I, ______________________, transcriptionist, agree to maintain full confidentiality in regards to any and all audiotapes and documentation received from Gwendolyn Zimmermann related to her doctoral study: How Do District Level And Building Level Leaders Collaborate To Implement Mandated Change? Furthermore, I agree:

1. To hold in strictest confidence the identification of any individual that may be inadvertently revealed during the transcription of audiotaped interviews, or in any associated documents.

2. To not make copies of any audiotapes or computerized files of the transcribed interview texts, unless specifically requested to do so by Gwendolyn Zimmermann.

3. To store all study-related audiotapes and materials in a safe, secure location as long as they are in my possession.

4. To return all audiotapes and study-related documents to Gwendolyn Zimmermann in a complete and timely manner.

5. To delete all electronic files containing study-related documents from my computer hard drive and any back up devices.

I am aware that I can be held legally liable for any breach of this confidentiality agreement, and for any harm incurred by individuals if I disclose identifiable information contained in the audiotapes and/or files to which I will have access.

Transcriber’s name (printed): ____________________________________________

Transcriber’s signature: ________________________________________________

Date: ____________________
APPENDIX M

MATHEMATICS ACCELERATION PROGRAM
District Mathematics Acceleration Program

Identifying Students for Tiered Support

• Tier 1: Above MAP 40th Percentile and Proficient on Common Assessments
• Tier 2: Between MAP 10-39th Percentile or Non-Proficient on Common Assessments
• Tier 3: Below MAP 10th Percentile AND NOT MAKING GAINS WITH TIER 2 Supports

Student Groupings

• 1-8 for Tier 2 and Tier 3 maximum group size
• 1-12 for Tier 1 maximum group size

District Required Expectations for Implementing Mathematics Acceleration (“What is ‘tight’”)

30 Minutes of Daily Acceleration

• Curriculum Aligned Acceleration
• Intervention from the classroom instruction

• Mathematics Acceleration Block: Curricular Aligned Acceleration - ALL Tiers
  o Numeracy Development (5 minutes)
    ▪ Building fluency in arithmetic
    ▪ Based on an understanding of operations and thinking strategies

• Shared Instruction (10 minutes)
  o Include opportunities for work with visual representations of the concepts (Concrete-Representational-Abstract)
  o Number Lines
  o Strip Diagrams
  o Arrays
  o Continue developing understanding through the Mathematical Practices

• Cumulative Review (15 minutes)
  o Provide opportunities for students to see connections between various mathematical ideas
APPENDIX N

SCHEDULING RESOURCES FOR THE MATHEMATICS
ACCELERATION PROGRAM
Scheduling Resources for the Mathematics Acceleration Program

(as written in a memo from the Associate Superintendent to Junior High School Principals)

Scheduling of Resource Staff

The following are the district guidelines for the scheduling priorities of our Junior High SSTs and ELL Resource Teachers:

**Junior High School Student Support Team Personnel:**

- **First Priority** - working with EIP students and others with like needs during Mathematics Acceleration
- **Second Priority** - providing push-in supports in Math during Guided Math (SSTs do not need to push in for full Math period)
- **Third Priority** - providing push-in or pullout support for students with emotional/behavioral needs and/or students with autism or intellectual disabilities who are included in the general education environment
- **Fourth Priority** - providing push-in supports in Social Studies and Science focused around the development of Math skills in these content areas.

**Junior High School English Language Learner (ELL) Resource Teachers:**

- **First Priority** - working with identified ELL students and others with like needs during Math Acceleration
  - Note: All Level 1 and Level 2 students must be assigned a Reading Acceleration class that will serve as their resource period.
  - Note: Level 3 and Level 4 students will only be assigned to these classes if they fall below the 40th percentile on MAP reading and/or MAP math or show non-proficiency on common assessments; push in supports must still be provided to all Level 3 and 4 students daily.
- **Second Priority** - providing push-in supports in LA during Guided Reading and Math during guided Math (ELL teachers do not need to push in for full LA or Math periods)
- **Third Priority** - providing push-in supports in Social Studies and Science focused around the development of Literacy and Math skills in these content areas
APPENDIX O

DISTRICT BALANCED MATHEMATICS FRAMEWORK AT THE
JUNIOR HIGH SCHOOL LEVEL
District Balanced Mathematics Framework

at the Junior High School Level

In addition to the Mathematics Acceleration program expectations, all Junior High mathematics courses are expected to fully implement the District’s Balanced Mathematics Model calling for the following:

60 minutes of mathematics instruction each day.

• Numeracy Development (10 minutes)
  o Building fluency in arithmetic
  o Based on an understanding of the operations and thinking strategies

• Shared Instruction (20 minutes)
  o Main instructional tasks for the lesson
  o Developing understanding through the *CCSS Standards for Mathematical Practice*

• Guided Instruction (30 minutes)
  o Provide tiered support
  o Use questions that scaffold or extend lesson or lesson tasks
APPENDIX P

DISTRICT JOB DESCRIPTIONS
Associate Superintendent

- **Assessment**
  - Prepare and provide on-going support as it relates to the implementation of the new PARCC assessment (Partnership for Assessment of Readiness for College and Careers)
  - Liaison between District X and the Illinois School Board of Education

- **Curriculum**
  - Oversee the alignment of the current District X essential outcomes to the Common Core Standards
  - Provide training to administrators and teachers related to the new standards

- **Professional Development**
  - Develop an aspiring leaders cohort
  - Oversee the continued implementation of the Professional Learning Community principles

- **School Learning Structures**
  - The expansion of Math and Science Academies
  - The expansion of dual language and language immersion schools
  - The expansion of the STEM curriculum
  - Liaison between District X and District XX

- **Labor Management**
  - Implement the new contract as it relates to enhanced compensation
  - Implement the new administrator evaluation to guarantee compliance with PERA 2010
  - Oversee the district office volunteer team

- **Contract Negotiations**
  - Work closely with the Superintendent to prepare for the 2014-15 bargaining session
  - Implement the new SEEO appraisal tools

- **Administrator Development and Recruitment**
  - Develop and lead an aspiring leaders cohort
  - Coordinate the selection process for all administrators

- **Teacher Appraisal**
  - Support principals in developing Professional Growth Plans for tenured teachers receiving a “Needs Improvement” rating
  - Represent the district in the remediation and potential recommendation to terminate tenured teachers

- **Legislative Networking**
  - Chair the Legislative Networking Committee
  - District Representative on Ed-Red
  - Work with the Board of Education and Superintendent to effectively lobby legislators on the potential impact of any laws on District X

- Co-facilitate the Board of Education policy committee
TITLE: ASSISTANT SUPERINTENDENT – INSTRUCTIONAL SERVICES

QUALIFICATIONS: Illinois State Administrative Certificate
Superintendent Endorsement Preferred
Comprehensive Preparation and Experience with Curriculum,
Staff Development, and Communications

REPORT TO: Superintendent

CONTRACT: 12 Month

SALARY: Ranging from $96,000 to $108,500 plus TRS pension and a
comprehensive benefit plan

JOB DESCRIPTION:
Supervise and coordinate the development of the district’s
curriculum and learning technologies in cooperation with the
curriculum committees, field leaders, chairpersons, directors,
instructional coordinators and principals.

Primary Responsibilities:
Administer periodic comprehensive reviews of instructional and
learning technology programs as implemented and recommend
needed staff development, and/or program revisions;

Supervise the selection processes relating to texts and
instructional materials, learning technologies and software.
Recommend purchases to the Superintendent. Direct
distributions to schools and classrooms;

Direct articulation activities, across and between grades in the
district; and between District X and District XX personnel, in
regard to curriculum and instruction;

Assist directors and coordinators, principals in regular review of
professional development needs related to classroom methods
and content, supervision of instruction and program services to
buildings;

Assist the Superintendent in organizing, preparing appropriate
reports and in the implementation of the district’s goals, keeping
instructional sections in conformance with State Guidelines;
With Superintendent and central administration, periodically
engage staff and community in long range planning and
evaluation/revision of program goals and services.
TITLE: PRINCIPAL

QUALIFICATIONS: · Illinois Administrative Certificate allowing the holder to be a school principal
· Minimum two years experience as a teacher

REPORT TO: Superintendent

CONTRACT: 12 Month

SALARY: Merit

JOB DESCRIPTION: The principal is the chief executive head and the instructional leader of the school. The principal is responsible for planning and implementing the instructional program in his/her building. He/she is responsible for administering and supervising the total operation of the school. The principal's prime concern is improvement of instruction. He/she endeavors to provide the best possible educational opportunities for all children. As the chief executive of the school, the principal shall be responsible for the implementation of Board of Education policies and administrative regulations. The principal shall act in an advisory capacity to the superintendent and the assistant superintendents in matters pertaining to the building curricula, instruction and staff development. He/She shall be responsible for the evaluation of personnel assigned to his/her building.

Primary Responsibilities

Demonstrates knowledge of instructional best practices.

Maintains a clean, safe and secure environment for all personnel.

Implements strategies and systems to manage conflict.

Interprets Board policies and legal requirements to staff.

Demonstrates skills in motivating others to achieve common goals.

Nurtures, supports, and participates in the school leadership team(SLT).

Utilizes various approaches to attain a positive school climate.
Utilizes a variety of group process skills in interaction with the staff, parents, and students.

Demonstrates skill in working as a team member.

Demonstrates skills in supervision and/or working with others.

Follows a plan of supervision and evaluation for all certificated and classified personnel for which he/she has supervisory responsibility.

Works cooperatively with the personnel office in the selection, transfer, retention or dismissal of school employees.

Maintains a climate conducive to learning.

Demonstrates an ability to assist others in the application of effective teaching and learning principles.

Employs strategies designed to promote effective use of learning time.

Utilizes services of district resources and outside agencies in solving instructional problems.

Assist staff with the use of test data to evaluate instructional programs and monitor student progress.

Supervises and monitors programs for exceptional children.

Fosters good communications between parents, teachers and students concerning student progress.

Creates a climate of high expectations in the school, characterized by a tone of respect and recognition for teachers, students, parents and community.

Demonstrates coherence in oral and written communications.

Stays current and informed on District directions related to policy, curriculum instruction and staff development.

Perform other tasks and responsibilities as assigned by the Superintendent.
TITLE: DIRECTOR OF MATH INSTRUCTION

QUALIFICATIONS: Type 75
Master’s Degree with concentration in math or related field
Comprehensive knowledge of the content and methodology related math/science instruction
Evidence of successful teaching and administrative experiences in Elementary or Junior High
Evidence of successful leadership experience in school-based math/science initiatives

REPORT: Assistant Superintendent for Instructional Services

CONTRACT: 12 month

SALARY: Merit

JOB DESCRIPTION: Primary Responsibilities

The District X Director of Math Instruction will work collaboratively with the Assistant Superintendent of Instructional Services to:

Coordinate the K-8 curriculum, instruction, assessment and professional development for math and science instruction

Serve as the primary District X resource on all matters of math teaching and learning

Monitor and communicate trend data in district math and science achievement

Support school personnel in analyzing and interpreting state and district data for continuous improvement of student achievement in math and science

Organize and implement research-based professional development opportunities for teachers and administrators to improve student achievement in math and science

Actively support implementation of district math and science programs
Assist with the writing and management of grants related to math instruction

Facilitate, advocate and monitor the alignment of math and science curriculum, instruction, assessment and performance reporting

Continually monitor and share best-practice research in math instruction

Coordinate and facilitate math curriculum development and review process

Develop, coordinate, monitor and evaluate responsive district-wide math intervention programs

Coordinate and monitor district-wide math and science programming and personnel

Work collaboratively with all departments of instruction to improve student achievement in math and science

Perform other tasks and responsibilities as assigned by the Assistant Superintendent of Instructional Services
TITLE: DEPARTMENT CHAIRPERSON
(Language Arts, Mathematics, Science/Health, Social Studies)

QUALIFICATIONS:
· Bachelor of Science Degree, Master's Degree preferred
· Minimum two years teaching experience
· Major in Subject

REPORT TO: Building Principal

CONTRACT: 10 Month

SALARY: Teacher Salary Schedule plus Stipend

JOB DESCRIPTION: Department Chairperson positions involve principal supervised teaching and department coordination for an assigned junior high building.

**Responsibilities in the Assigned Junior High**

Implement performance responsibilities of the junior high subject teacher job description.

Offer assistance to teachers regarding methods and materials used in the department.

Plan, organize and preside over departmental teacher meetings and circulate minutes.

Coordinate utilization of departmental texts and/or materials.

**Central Curriculum Responsibilities**

Attend subject related planning and staff committee meetings scheduled by Curriculum Directors or Coordinators.

Communicate and collect staff input regarding district curriculum planning and special projects, through school-based department meetings.

Keep abreast of current trends in respective subjects through educational literature, attendance at professional organizations.

Articulate District approved curriculum to members of the department.
REFERENCE LIST


District X. (2013a, October). (Junior High School) 2013-2014 School Improvement Snapshot. Junior High School Principal notes and outline for team presentation to district leadership team.


District X. (2013c, October). Agenda for junior high administrative instructional support meeting (Handout).

District X. (2013d, October). Content area job alike for junior high administrative instructional support meeting (Handout).

District X. (2013e, September). District “look-fors” as identified on handout presented at General Administrators Meeting (Handout).


District X. (2013i). District X mission and vision statement on district website.


District X. (2013m, April 4). Regular Board of Education Meeting – Structural and Instructional Changes Dictated by the CCSS and PARCC Assessment.

District X. (2013n, March 19). Memo to Junior High Principals, Junior High Assistant Principals, and Cabinet from Assistant Superintendent regarding *Structural and Instructional Changes Dictated by the CCSSs and PARCC Assessment* (memorandum).


District X. (2012a, Fall). *Structural and instructional changes dictated by the CCSS and PARCC Assessments* – presented to district leaders (PowerPoint presentation).


Dhuey, E. (2011). *Middle school or junior high? How grade level configuration affect academic achievement*. University of Toronto: Centre for Industrial Relations and Human Resources.


VITA

Gwendolyn Zimmermann resides in the Chicagoland area with her husband. She earned a Bachelor of Science degree in 1994 from Northeastern Illinois University in Chicago, Illinois majoring in mathematics with an endorsement in secondary education. While working as a classroom teacher at West Chicago Community High School in West Chicago, Illinois, Gwen earned a Masters of Science in Teaching Mathematics from the University of Illinois at Chicago in 1998, and in the summer of 2002, Gwen earned her doctorate in mathematics education from Illinois State University. She acquired her administrative certification in July 2004. In the spring of 2008, she began the doctoral program in Educational Administration and Supervision at Loyola University in Chicago, Illinois.

Gwen began her administrative career in 2003 as Mathematics Department Chair at Hinsdale Central High School in Hinsdale, Illinois. In 2006 she became Director of Mathematics at Adlai E. Stevenson High School District 125 in Lincolnshire, Illinois, and became Assistant Principal of Teaching and Learning in 2012 where she is currently holding the same position.
The Dissertation submitted by Gwendolyn Zimmermann has been read and approved by the following committee:

Marla Israel, Ed.D., Director
Associate Professor, School of Education
Loyola University Chicago

Leanne K allemeyn, Ph.D.
Associate Professor, School of Education
Loyola University Chicago

R. James Breunlin, Ed.D.
Clinical Assistant Professor, School of Education
Loyola University Chicago