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Effective Response To Intervention In Middle School

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EFFECTIVE RESPONSE TO INTERVENTION IN MIDDLE SCHOOL

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ABSTRACT

This applied mixed methods program evaluation sought to increase student proficiency in mathematics at a rural middle school in central Mississippi. The program focused on improving student achievement through effective professional development. Quantitative and qualitative data was used to gage the program's effectiveness. Research supporting an effective Response to Intervention Model, professional learning communities, and teacher development was cited and used to construct the program's implementation framework.

DEDICATION

This work is dedicated to my loving husband, Dimitri Ellison and Joshua ReShawd Ellison, who is my personal gift from God. You are my ultimate source of support. This work would not have been possible had it not been for my financial provider and caring mother, Christine Taylor. You taught me to be a woman of integrity and boldness while facing insurmountable challenges. I am especially grateful for the many friends who kept me grounded and without whose tireless encouragement I would have given up long ago. Above all, I dedicate this arduous journey to my secret partner in crime whose memory will live in my heart forever, my brother, Lawrence Charles Davis. Lawrence was the epitome of hard work and determination. He was my little brother, but a role model who taught me failure is not an option. Lawrence is my source of encouragement even beyond his earthly departure. I know this accomplishment makes him proud.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

Statement of the Problem

"Teaching matters more than any other factor in a student's school years" (Jensen, 2013, p. 7). By providing quality education, teachers can build the connection between a child's hope and reality for a better life. According to Hanushek (2005), quality teaching can break the cycle of poverty. Jensen (2013) suggests children in poverty have less exposure to words than children of more affluent neighborhoods and attain less literacy components and experiences. Research analysis conducted by Hart and Risely (2003) concluded students living in poverty speak approximately 168 words an hour as opposed to 310 words per hour by students who come from homes of professional parents.

Students who struggle with the components of reading have difficulty comprehending complex mathematical skills and often fail to persevere with math word problems. Increasing students' literacy and math aptitude is vital in ensuring they are able to compete statewide, nationally, and globally with their peers. Quality Tier I instruction and effective interventions can bridge learning gaps for struggling learners. Tier I instruction encompasses educational best practices used to address the standards at the appropriate grade level and depth of rigor. Providing students with effective interventions will help them develop skills necessary to master the standards. Every child deserves the opportunity to have his or her performance looked at in

hopes of being selected as a potential candidate for future jobs and economic advancement opportunities in lieu of reviewing data to determine if another penal institution should be built.

Description of the Problem

This applied mixed methods program evaluation used the Response to Intervention model and effective professional development to improve teacher effectiveness for math teachers and curtail existing academic deficits in math at Byram Middle School (BMS). Byram Middle School is located in central Mississippi in Hinds County. It is a part of Hinds County School District. By implementing a Response to Intervention (RtI) model with intentional professional supports, the teachers support the learning needs of students with the goal to increase the school's academic standing for state reported data. According to the 2016 - 2017 test results, Byram Middle School (BMS) was a D rated school. The middle school received a total of 322 points, falling short of a level C rating by eight points. A closer look at the data revealed 33.6% of the students were proficient in reading and 25.5% were proficient in mathematics. According to the state test results, there was a need to increase student achievement and ensure students received a quality education at BMS.

Table 1
Byram Middle School Accountability Ratings

Year	*Rating*	*W/O Waiver*	*Reading Prof.*	*Math Prof.*	*Science Prof.*
2013-2014	B	C	62.3%	69.4%	69.4%
2014-2015	B	D	39.9%	30.8%	61.9%
2015-2016	C		33.4%	31.8%	50.0%
2016-2017	D		33.6%	25.5%	64.7%

The Mississippi Department of Education (MDE) accountability and accreditation data from 2013 – 2016 for Byram Middle School illustrated a decline in student achievement in mathematics and other content areas (see Table 1)

Hinds County School District (HCSD) is a diverse district serving the towns of Bolton, Byram, Edwards, Learned, Raymond, Terry, and Utica. The majority of businesses in the district are small businesses with fewer than ten employees. The school district is the largest employer in the area with over 700 employees. Hinds County School District employs more than 400 teachers and has a student enrollment of over 5,700. It has a total of 11 schools, which include the Career and Technical Center and Main Street Restart Center, the district's alternative school. Six of the eleven schools are Title I schools and receive additional funding, based on their economic needs, to support learning. The district has an overall poverty rate of 78.24%. Eighty-two percent of the students are African American/Black, 16% Caucasian, and the remaining two percent consists of a combination of Asian, Hispanic, Native American, Pacific Islander, and/or multi-racial.

According to the Mississippi Department of Education Accreditation and Accountability Model, Hinds County School District was rated a C district in 2016. Hinds County School District has made numerous modifications over the past two years to improve student achievement district wide; however, there was still a need to provide interventions to increase student literacy and mathematical reasoning to improve achievement and raise graduation rates. To become college and career ready, students must be given a strong foundation to ensure success on the secondary and collegiate levels. Gaps in learning between elementary and middle school can cause students to struggle and lag behind their peers.

The central issue of concern for this action research study was the strategic support given to teachers to effectively implement a RtI plan at Byram Middle School. Response to Intervention (RtI) is a research-based model constructed to ensure each child receives equity in learning across all levels (Ridgeway, Price, Simpson, & Rose, 2012). The model is composed of three levels, each with a more individualized and intentional degree of focus than the previous. The first level is Tier I which is for all students. It consists of high quality classroom instruction with a curriculum aligned to the state standards. If students are not successful at this level, they move to Tier II where they receive supplemental instruction for identified skill deficits with documented progress monitoring. A student is referred to Tier III when the progress monitoring shows the differentiated instruction has not helped the student close the learning gap. At Tier III the interventions become more intensive, frequent, and longer in duration. If students are not demonstrating mastery through the interventions of Tier III, then they may receive a referral for an evaluation to identify if special education services are necessary.

Assessment data from students at BMS showed some students lacked core skills. If these deficiencies are not addressed, students' academic growth may suffer and leave them unprepared to compete with their peers. There was a need to develop an effective Response to Intervention (RtI) program to increase the mathematical literacy skills of BMS students. Adequately addressing math skills supported the district's mission to provide a high quality education to all students. This applied mixed methods program evaluation was designed to build teacher capacity, increase student achievement, increase student engagement, and boost students' confidence levels.

Importance of the Problem

Building teacher capacity was necessary when working with students who lacked motivation and interest in the traditional school setting. Many students needed motivation and encouragement to strive for academic success. Effective teachers make clear connections to learning and students' lives (Blum, 2005). When students feel connected with the lesson, they take ownership of their learning by forming a bridge with what they already know and the new information being learned to adjust their schemas in a process Piaget (1973) termed accommodation. Students who are engaged with the learning process generally continued to progress academically and lowered their risk of dropping out of school. Successful literacy and math attainment were the gateways to academic success and ensured students were college and career ready. Through increased teacher capacity, students received best practices in instruction and were equipped with the content necessary for learning.

The issue of increasing math skills in students was a concern among educators. Educators continued to search for effective ways to strengthen student success and decrease the growing rate of illiterate adults across the nation. Brown (2014) has been involved in understanding how to support students' language and literacy development in the early years, and researchers Ecklund and Lamon (2008) sought to improve reading achievement through increased motivation for elementary students. However, there was limited research on effective mathematical strategies for RtI best practices at the secondary level. As a preventive measure to circumvent student retention, students need mathematical interventions (Minskoff & Alsopp, 2003). The task of improving students' math achievement through best practices remains a challenge in school districts across the nation.

Teachers needed professional development to strengthen their use of research-based teaching strategies in order to deliver effective core content during whole group instruction and provide strategic direct instruction to learners in small groups. In order to increase the scores on the national data reports, it was imperative to provide teachers with effective strategies for delivering quality Tier I instruction and support to students who needed interventions to better grasp the concepts. Professional Learning Community (PLC) meetings were used to build teacher capacity and ensure a sustainable RtI process was used to increase effective teaching and student learning (Mundschenk and Fuchs, 2016). Professional Learning Community meetings provided opportunities for teachers to review data and work collaboratively on plans for improvement. It was important to create and model a collaborative learning environment with effective homogeneous grouping. The quality of learning increased when teachers incorporated instructional strategies discussed during PLC meetings. Students with instructional support and incentives were more motivated to do their best work at all times.

Audience

Students and teachers were the ultimate beneficiaries of an effective RtI process. Effective Tier I instruction reduced gaps in learning. Teachers who made the most of their Tier I instruction provide students with the foundations they needed to be successful and were able to foresee possible misconceptions. When learning was not progressing as expected, teachers needed to intervene based on evidence presented in the data. Student progress monitoring was important for all learning levels. The action plan in this project provided strategic opportunities to improve teacher effectiveness in the classrooms. The program evaluation of the action plan assessed the needs identified by the faculty and the next steps to increase teacher capacity for

increasing student achievement. Successful schools provide communities with an educated population of people who contribute to the growth and increased income of their communal area.

Purpose Statement

The purpose of this applied mixed-methods program evaluation was to improve teacher effectiveness through strategic support given to mathematics teachers for effectively implementing a RtI plan at Byram Middle School. To be successful, teachers at BMS needed to consistently collaborate in Professional Learning Communities (PLC) and implemented the components of the Response to Intervention (RtI) model with fidelity. Existing quantitative data was gathered through Mississippi Department of Education's statewide Mississippi Academic Assessment Program (MAAP) ratings and Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) testing to determine the effectiveness of the implemented RtI and PLC strategies. Qualitative data was gathered through observations, exit tickets, and open ended surveys in order to understand the perceptions of the stakeholders for the purpose of improving the RtI program and intervention strategies used at Byram Middle School. This program evaluation sought to assess the effectiveness of the action plan and provide data to make further improvements.

Research Questions

Two questions guided the evaluation of the effectiveness of the program:

1. Does the 2018 end of year MAAP data illustrate improved student achievement in mathematics?
2. Does the spring NWEA data project an increase in student achievement for mathematics since the first baseline assessment?

Three questions were used for the process evaluation to improve the program:

3. How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance?
4. How can BMS improve teacher effectiveness through professional learning communities?
5. Based on teachers' responses, what identified interests are most needed to better support Tier I of the RtI process?

Overview of the Study

Successfully improving teacher effectiveness by implementing an effective Tier I process in the RtI model with progress monitoring focused on increasing student achievement at BMS. Chapter One gave an overview of the problem, purpose of the study, and research questions. Chapter Two is an in-depth look at the research conducted prior to this dissertation in practice. The research has been organized by various themes to support the theoretical framework of providing quality professional development on implementing the RtI model with fidelity and using research based interventions to increase student achievement. Chapter Three describes the mixed methods evaluation research design. Chapter Four provides the research findings from the research design used in Chapter Three. Lastly, Chapter Five postulates a summary of all findings through a detailed discussion based on the outcomes from the data and instruments used to quantify and qualify the research. This document ends with a conclusion and suggestions for future research.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

Developing a conceptual understanding of the Response to Intervention model and identifying evidence-based strategies were the basis for this review of literature. As education evolves, so does the practices put in place to increase student achievement. The Mississippi Department of Education supports a Multi-Tier System of Support (MTSS). This leveled instructional system was designed to support the enrichment and remediation of students. At the center of MTSS is the Response to Intervention (RtI) model. It is research-based and constructed to ensure each child receives equity in their learning across all levels. Researchers provide a snapshot of the history and development of the RtI process:

> The 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA) explicitly allowed the use of student's response to instruction when identifying a learning disability, with less dependence on discrepancy between potential and achievement. To address the flexibility that IDEA allows, many states and school districts have begun transitioning away from the previous identification model and moving toward a form of Response to Intervention. (Zirkel and Thomas, 2010, pp. 60-61)

To further explain their research, Zirkel and Thomas (2010) provide an explanation of how states create guidelines for RtI. The document list Mississippi and other states as adopting the support system into state policy. Lembke, Hampton, and Beyers (2012) identified two important inferences about the implementation of RtI drawn from state initiatives. The first inference is RtI

models may be successfully implemented in schools to meet the needs of struggling learners. Secondly, RtI models assumed different identities and formats across different schools and districts (Lembke, Hampton, & Beyers, 2012). According to Zirkel and Thomas (2010), the Mississippi Department of Education has policies to include RtI-relevant provisions specific to special education identification and universal screening or early intervention services.

According to Smith and Okolo (2010), the RtI model was one of the primary identification and instructional models for school districts across the United States. Response to Intervention, a three-tier model, allowed students to advance through intensive prevention and intervention phases. The tiers became more individualized as students progressed from one tier to the next. The goals of the RtI model are to ensure all students receive high quality instruction, to identify struggling learners early, and to provide additional individualized support tailored to address specific deficit areas (Ridgeway, Price, Simpson, & Rose, 2012). Positive outcomes associated with effectively implementing an RtI model include increased collaboration, enhanced multi-tiered instruction for all learners, fewer inappropriate referrals to special education, a positive shift in school culture, and shared leadership among stakeholders (Rinaldi, Averil & Stuart, 2011). Successful RtI models encourage educators to use evidence-based practices that consist of six components (McDaniel, Albritton & Roach, 2013).

Components of RtI

McDaniel, Albritton, and Roach (2013) provided the following overview for each component of the RtI model. The first component involves administering a universal screener to all students. The screener should be designed to identify students with learning disabilities or at-risk for failure (McDaniel, Albritton, & Roach, 2013). The second component is Tier I; it consists of teachers using evidence-based instructional methods during their primary

instruction. The third component provides students who have been identified as at-risk with early intervention through targeted, Tier II supports and strategies. General education teachers are responsible for Tier I and Tier II (McDaniel, Albritton, & Roach, 2013). Tier III is the fourth component of the RtI model and students in this tier are pulled out of the classroom for individualized interventions and support. The fifth component is progress monitoring. The last component is made up of a team of stakeholders who collaborate together to make data-driven decisions. Their decisions are based upon each student's individual data. During this component, the committee decides the next steps for each child as they move throughout the tier process (McDaniel, Albritton, & Roach, 2013). The committee analyzes the assessment instruments used to make data-driven decisions to help transition students from one tier to the next.

The first step of the RtI process is the initial universal screening of all students to gain data for identifying deficits and gaps in learning compared to their peers. Researchers (Lembke, Hampton, & Beyers, 2012) recommend administering the universal instruments during the onset of school in the fall, at the end of the first semester in the winter, and again in the spring to ensure the interventions are being administered and monitored with fidelity (Lembke, Hampton, & Beyers, 2012). Educators use data from the universal screener to make informed decisions about students' academic growth.

Successful transitions between tiers provide equity in student learning. According to Baker, Fien, and Baker (2010), schools need a robust system of prevention and intervention in order to be successful. These three researchers believe "when students are not making adequate progress, an essential first, yet often ignored, step is to rule out poor instruction" (p. 1). When implemented with fidelity, an effective RtI model should be seen as a multi-faceted,

comprehensive feedback system encompassing a variety of reliable assessment instruments, high quality instruction, and the utilization of data to inform instruction. In addition, teachers may enhance their lessons by providing explicit instructions and giving detailed feedback to students about errors and misunderstandings (Baker, Fien, & Baker, 2010).

The Tier I level is universal to all students and includes quality instructional practices across all grades and content. All students are Tier I students unless it is determined through data they need more individual or intense interventions. Next is Tier II, a strategic level to address the learning deficits identified through assessment data. For the Tier II interventions, Vaughn, Cirino, Wanzek, Wexler, Fletcher, Denton, and Francis (2010) examined three phases. Phase one consisted of teachers spending seven to eight weeks teaching small group lessons. Partner reading was one of the evidence-based strategies used. Phase two lasted approximately 18 weeks and targeted specific learning deficits. The last phase of the Tier II interventions lasted ten weeks and was devoted to helping students apply strategies taught in phases one and two. Several Tier II effective strategies were used throughout the study.

In order to increase rates of success, students' progress must be carefully monitored. Checking for and monitoring students' understanding is an active and ongoing process (McDaniel, Albritton, and Roach, 2013). According to Smith and Okolo (2010), effective progress monitoring should include analyzing data, providing feedback, and reviewing missed concepts (Smith & Okolo, 2010). Progress monitoring should also be used to ensure interventions are being implemented with fidelity (Lembke, Hampton, & Beyers, 2012). Consistent progress monitoring allows for flexibility between tiers (Ridgeway, Price, Simpson, & Rose, 2012).

Powell and Stecker (2014) also instill the importance of evaluating the success of the interventions consistently each week. Progress monitoring probes allow teachers to individualize instruction and support struggling students as mentioned by Powell and Stecker (2014). Teachers should use the data gathered to make accommodations and modifications to their interventions in order to meet the needs of their students. As changes are made to the intervention plans, teachers continuously monitor their students' progress and alter the instruction as needed to accommodate individual deficits and build students' knowledge to help them be successful. Through awareness of research-based practices, teachers can adapt instruction to meet the needs of their students and support them with proven strategies of intense interventions (Powell & Stecker, 2014).

Generally, 80% to 90% of students in a classroom will succeed with effective, evidence-based Tier I instruction and will not need additional support (Crawford, 2014). Five to fifteen percent will need targeted instruction at the Tier II level, and only one to five percent will need intense and individualized Tier III interventions. According to Crawford (2014), the three elements of an effective RtI assessment component are a clear definition of what student success looks like at each tier, valid and reliable measures of student performance, and a visual graph of student progress data. Unreliable data can cause RtI teams to make poor decisions when deciding to move students from one tier to the next. Therefore, normative data should be used to determine what constitutes low achievement and the criteria for moving from one tier to the next (Crawford, 2014).

Data-driven decisions require the RtI team to aggregate student data and look for a trend in progress (McDaniel, Albritton, & Roach, 2013). The RtI team is comprised of administrators, teachers, counselors, interventionists, and sometimes parents who serve together on a committee

to make decisions based on the individual needs of each student. The committee works to analyze student data and design a plan for intervention. McDaniel, Albritton, & Roach (2013) emphasize the importance of gathering multiple points of data to determine next steps for the students. Student data should be on a positive trajectory and moving at an appropriate rate. If the data illustrates growth is being made toward the goal, then the team can trust the interventions in place are reliable. Following student data and using it to guide instruction and interventions helps the RtI team understand how students are progressing and the intervention effectiveness. Involving the student is an intricate part of the process and helps them be successful by building a sense of ownership in learning.

RtI Stakeholders

In a research study conducted by Bean and Lillenstein (2012), educators who used effective RtI models were asked three guiding questions: What were the thoughts and perceptions of educators about their roles? How has their role and functions changed? And, what skills were essential in order to effectively improve instruction for all students (Bean & Lillenstein, 2012)? Based on the results of question two, Bean and Lillenstein (2012) compiled a list of the changing roles key stakeholders must make to implement the RtI model effectively. The new role of the principal should be to empower others, be actively involved in the implementation, and establish conditions for success (Bean & Lillenstein, 2012). According to Meyer and Behar-Horenstein (2015), school leaders can best support teachers in the RtI program by providing teachers with training in collaborative data analysis, offering professional development on effective evidence-based interventions, allocating resources and support at all levels, and increasing visibility in classrooms. Professional learning community meetings are essential in providing teachers with the resources necessary to understand the school's goals to

increase student achievement (Bellanca and Brandt, 2010). The primary roles of the instructional coaches are to assist with management and coordination of the RtI implementation process and to use a collaborative approach with teachers to increase incorporation of evidence-based instructional strategies (Bean & Lillenstein, 2012). The changing roles of the special educator include teaching students who may or may not have an individualized education program (IEP) and working collaboratively with teachers to teach the core curriculum (Bean & Lillenstein, 2012).

Results from question three of Bean and Lillenstein's (2012) research revealed seven essential skills key stakeholders should possess for a successful RtI implementation. Key stakeholders should have in-depth knowledge of literacy development and instructional strategies, the ability to interpret and to use data results to make decisions about instructional goals and interventions, the ability to differentiate instruction in a way that is appropriate and engaging materials and methods are used to help all students achieve, the ability to work collaboratively with others to achieve a common goal, a commitment to lifelong learning, leadership skills, and proficiency when using technology. These essential skills allow key stakeholders to change their mentality and establish joint responsibility for the success of all students (Bean & Lillenstein, 2012). This research study highlighted the importance of key stakeholders embracing changing roles as schools work to create collaborative learning environments in which everyone works together to improve learning for all students.

In addition to involving students and teacher support teams, parents play an intricate role in the successful implementation of an RtI framework. An article written by Byrd (2011) sought to answer questions as to why and how schools should educate and involve parents in the Response to Intervention process. According to Byrd (2011), many parents want to know what

they can do at home to help their child be more successful at school. However, parents may have trouble grasping the terminology used in the educational setting. Educators should purposefully involve parents in the RtI process because the RtI model, in particular, can be complex and difficult to understand since it is a problem-solving model. Strategies to educate and involve parents include explaining how the tiers work, discussing the different types of interventions, recruiting parent leaders, and developing a parent RtI committee (Byrd, 2011). Administrators, curriculum coordinators, teachers, parents, and students are all vital to the successful implementation of the RtI framework.

RtI at the Middle and Secondary Level

The method of utilizing a Response to Intervention (RtI) model to increase student engagement and achievement has become a normal system within most school district operations. Before the 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA), many secondary schools had no structured programs to combat the growing literacy deficit among middle and high school students (Brozo, 2009). With the 2004 reauthorization of the IDEA came the Response to Intervention framework; however, due to limited research at the secondary level, many middle and high schools had to develop their own methods to implement effective tiered interventions for adolescents. Brozo (2009) recommends educators at the middle and secondary level consider three questions when deciding how to structure their RtI models. The first question to consider is if the traditional RtI model typically used in the elementary setting has a structure suitable to the upper levels. In a self-contained classroom, a teacher instructs the same group of students throughout the entire day and can easily incorporate language arts while providing whole group, small group, and individualized instruction as needed. On the contrary, middle and high school teachers generally only teach one subject

(Brozo, 2009). The second question posed by Brozo (2009) is whether or not the traditional preventive RtI model is the most effective model for secondary students since adolescents need more than surface-level basic skills to be successful at the middle and high school level. In middle and secondary settings, students must be able to take ownership of their learning, to apply concepts, and to use a wide range of literacy strategies (Brozo, 2009). According to Brozo (2009), a missing component of the traditional RtI framework is the promotion of self-efficacy among adolescent students. The last question middle and secondary educators should consider is if the traditional RtI framework can provide responsive instruction to all students. Since the RtI framework requires the use of evidence-based strategies, it limits secondary teachers' abilities to use diverse and creative instructional strategies as they teach culturally and academically diverse students (Brozo, 2009).

Additionally, research conducted by Fuchs, Fuchs, and Compton (2010) suggest the RtI framework used in elementary schools encourages three practices which may not apply to middle and high school students. The first practice necessitates using two rounds of screening in order to categorically identify at-risk students. At the middle and high school level, academic deficits are already evident. For this reason, it is not necessary to allocate resources to screening for the purpose of identifying students at-risk of academic failure (Fuchs, Fuchs, & Compton, 2010).

The second practice common to elementary RtI frameworks, but not necessarily effective in middle and high school, is determining how responsive students are to remedial interventions. For example, although research demonstrates skill specific small-group tutoring delivered in the early grades can improve the academic achievement for elementary children, academic deficits associated with middle and high school make many students resistant to the remedial interventions utilized at the middle and high school levels. Middle and high school students can

be less responsive to Tier II interventions due to low motivation and poor academic self-confidence (Fuchs, Fuchs, & Compton, 2010). The last elementary RtI practice middle and high school students may not benefit from is the habit of using the same type of intervention from one grade to the next. According to Fuchs, Fuchs, and Compton (2010) innovation is required to address the academic needs of adolescents since they tend to be less motivated and require specialized instruction targeting specific areas of weaknesses. Since the primary goal of the traditional RtI framework is to identify and then work to prevent further achievement gaps, the aforementioned ineffective elementary practices suggest high-quality primary prevention may be the most beneficial method for middle and high school students. The goal of a middle and high school RtI framework should be to reduce and eliminate already known academic deficits (Fuchs, Fuchs & Compton, 2010). Therefore, to produce reliable and substantial growth outcomes for middle and high school students, Fuchs, Fuchs, and Compton (2010) recommends using a modified RtI framework in which all students receive effective evidence-based classroom instruction and severely at-risk students are immediately placed in Tier III (Fuchs, Fuchs & Compton, 2010).

Evidence-based Strategies

Robins and Antrim (2013) supported a well-planned RtI program to ensure success. They determined the best method of evaluating the implementation of the RtI process was to evaluate each student's progress for improvements in academics and/or behavior. Robins and Antrim (2013) state, "The results are not immediate, but they are cumulative" (p. 45). As the students' acquisition of knowledge continues to grow, they gain ownership of their knowledge for long-term usage (Robins & Antrim, 2013).

According to Lenski (2011), content area teachers should provide students with strategies specific to their discipline, provide students with opportunities to apply those content specific strategies, and provide students with a plethora of differentiated materials. Tier II interventions targeting specific reading skills, such as identifying text features, making inferences, and note taking should be taught using the texts and topics provided by content area teachers (Lenski, 2011).

In order to increase the success and effectiveness of RtI programs, RtI strategies should be evidenced-based and implemented with fidelity (Smith and Okolo, 2010). RtI strategies applicable to middle and high school include graphic organizers, peer tutoring, and instructional planning tools. Organizational tools offer many benefits since students with learning disabilities often fail to grasp big idea concepts because they struggle to see coherent patterns and frameworks. Organizational tools, such as graphic organizers, concept maps, story maps, and concept diagrams can be integrated across all tier levels, grades, and content areas. Graphic organizers improve content comprehension by helping students make visual connections to concept facts and information (Smith and Okolo, 2010).

Peer tutoring is another strategy proven to be valuable to educators. Dufrene, Cirino, Wanzek, Wexler, Fletcher, Denton, and Francis (2010) conducted a study allowing elementary and middle school students to engage in peer tutoring through the facilitation and participation in Listening Passage Preview (LPP) and Repeated Reading (RR). During the peer tutoring sessions, student tutors facilitated the usage of LPP and RR to help the tutees build literacy skills. During their peer tutoring study, the researchers tracked participant improvements in oral reading fluency and comprehension. The peer tutoring strategies implemented yielded positive results of substantial increase for the students (Dufrene et al, 2010).

Likewise, the Tier III Adolescent Reading Instructional Planning Tool (T-TIP) can be used to reduce the complexity of instructional planning. Teachers can use student data to select a component to remediate and then use the T-TIP as a guide for examples of activities and planning questions (Wilson, Faggella-Luby, and Yan, 2013). According to Wilson, Faggella-Luby, and Yan (2013), effective Tier III reading instruction can be hard to accomplish because it requires the application of content different from the ones used at the Tier I and Tier II level. Teachers were encouraged to use graphic organizers, peer tutoring, and the T-TIP to assist struggling learners.

Differentiated instruction is another evidence-based strategy. Struggling learners tend to have difficulty self-regulating, often lack text structure organization, and have poor linguistic skills (Smith and Okolo, 2010). These students receive the most benefit from teachers who use direct, or explicit, instruction to scaffold and sequentially guide students through instructional steps (Smith and Okolo, 2010). Effective differentiation is not found in a particular strategy or book. It is found in the decisions teachers make as they select the best approach for each student. For example, changing the text levels, but not the content is not beneficial to some students. The focus of Tier II instruction should be on closing identified conceptual gaps (Reutzel & Clark, 2011). To effectively differentiate, teachers should use a variety of formative assessment tools, clearly defined outcomes, and monitor progress. If they decide to differentiate, they can differentiate the process, materials, environment, or product (Watts-Taffe et al., 2012). Effectively differentiated classroom literacy and math instruction can be used with the RtI model.

RtI and Math

Most research relating to RtI has been conducted with literacy development in struggling students, but now the concept of intense interventions is being applied to mathematics since students with reading deficits generally experience deficits in mathematics also (Lembke, Hampton, & Beyers, 2012). Without proficient mathematical reasoning, people are unable to be successful at many important life skills (Minskoff & Allsopp, 2003). From day to day, people engage in making purchases of goods and services, earning wages, traveling with the knowledge of time and distance, and working other calculations requiring mathematical reasoning. In addition, students must demonstrate mastery on state assessments of Algebra I skills and concepts before earning a high school diploma (Minskoff & Allsopp, 2003).

For educators, it is the overall responsibility to make sure students have basic proficiency with conceptual and abstract mathematical concepts to prepare them to be college and career ready in the 21st Century. Mathematics is vital to student learning in subject areas such as science, geography, economics, and computer literacy. Student deficits in mathematics can make learning frustrating. To prevent student retention and close achievement gaps in middle and high school, students need mathematical interventions. Early intervention and consistent monitoring is key to dropout prevention for students in the upper grades (Minskoff & Alsopp, 2003).

According to Dobbins, Gagnon, and Ulrich (2014), graduated sequence instruction and peer-mediated instruction can be used in math with Tier II students to promote conceptual understanding. Graduated sequence instruction consists of using hands-on manipulatives to teach math concepts in a concrete way before progressively moving toward more abstract methods of teaching. Peer-mediated instruction is a structured method of learning in which

students teach their peers by modeling steps, asking structured questions, and providing immediate feedback (Dobbins, Gagnon & Ulrich 2014).

Research investigations conducted by Hunt and Little (2014) concluded students' learning gaps should be the foundation of the RtI process and drive instructional decision-making and problem solving. The researchers outlined four steps to help teachers better service their students who demonstrate deficits in mathematics. Problem identification is the first step. In the onset, Hunt and Little (2014) say teachers should seek to find out what they know about the students' problems. In line with the initial steps of RtI, teachers should utilize all assessment data and look for gaps in learning and identify the standards, or areas of weakness, for each student. Analyzing the problem is the second step given by Hunt and Little (2014). In this phase, the teachers need to determine why the deficit is occurring for the particular group of students, utilize a gap analysis to assess the root of the problem, and determine the most effective interventions for the students. Step two calls for teachers to determine the misconceptions and gaps in prior knowledge and conceptual misunderstandings to better help students. After identifying the students' needs, Hunt and Little (2014) determined step three to be the solution implementation stage. During this step, the question must be answered as to what can be done to improve performance. The interventions provided to students should be individualized through identifying the specific gap in the mathematical concept and determining how the student will be remediated to master the standard. The final step is to identify if the planned interventions are working. This is the step Hunt and Little (2014) refers to as the Response to Instruction/Intervention step. The authors emphasized the importance of student assessment as being a vital component of what guides teacher instruction and impacts student achievement.

The National Council of Teachers of Mathematics (NCTM, 2000) emphasizes the importance of consistent progress monitoring and data analysis to make better data-informed decisions for students needing more mathematical support to master the necessary skills. To effectively implement the RtI strategies mentioned in the previously discussed sections, teachers should be provided professional development opportunities to build their capacity for understanding how to identify student deficits, analyze the problems, seek strategies to improve performance, and assess if the interventions are supporting students' needs.

RtI and Professional Development

Guskey's (2000) book on *Evaluating Professional Development* was generated by his desire to systematically determine the effects and effectiveness of professional development provided to teachers and how it impacts student learning. He wrote the book to provide educators with practical guidance for asking good questions and gathering valid information to document the effects of professional development and evaluate the contributors to its effectiveness. Guskey (2000) explains professional development has dynamics that makes it an ongoing, continuous process varying from the mindset of yesteryear; it was simply done as a way to motivate teachers at the beginning of the school year. Professional development should be a series of extended opportunities for teachers to expand on job-embedded learning experiences directly supporting student achievement. The opportunities should be ongoing and proven to demonstrate positive change and improvements for the educators and learners (Guskey, 2000).

For more than twenty years, Dufour (2005) has emphasized the importance of schools shifting from the traditional mindset of a one size fits all while teaching in isolation, to communicating with other educators about the purposes, priorities, and practices to best achieve the goals to meet the needs of students. In a research study conducted by Vaughn et al. (2010),

teachers received professional development on evidence-based practices for teaching vocabulary and comprehension. The purpose of these trainings was to prepare all content area teachers with appropriate Tier I interventions. During the vocabulary component of the professional development, teachers learned to select appropriate academic and content-specific vocabulary words to teach; how to pronounce words part-by-part to assist students in decoding them; how to provide understandable definitions of the words; and how to support students in generating examples and non-examples of the words (Vaughn et al., 2010). During the comprehension part of the professional development, teachers were taught strategies on identifying and asking different types of questions, guiding students through note taking, and identifying text structures (Vaughn et al., 2010). These professional development sessions proved effective in building teacher capacity and increasing student learning.

Professional learning communities (PLC) are another form of professional development and provide educators with the support and resources necessary to understand how to meet the needs of their students. In PLCs, teachers participate in goal setting, organize and manage instructional strategies, and focus on producing results for student achievement (Bellanca and Brandt, 2010). Dufour and Eaker (2005) define PLCs as a supportive culture of professional learning to develop educators' individual and collective capacities to help students acquire the necessary skills to be successful. Effective implementation of professional development and PLCs improve quality Tier I instruction by providing knowledge to successfully implement instructional best practices. The overall purpose is to increase educator effectiveness, sustain school improvement, and engage educators in ongoing and active perceptual curiosity to ensure students learn (Dufour & Eaker, 2005).

According to Guskey (2000) there are five critical levels to professional development evaluation. The first is participants' reactions; did they like it, was the time well spent, did the material make sense, and was it useful/applicable to their needs. The next level addresses the participants' learning; it should be able to confirm the participants' acquired the intended knowledge and skills. Guskey's (2000) third level addresses the impact on the organization and the effect the professional development will have on the organizational climate and procedures. His third level is about organizational support and change. The fourth level seeks to determine if the participants will effectively apply the new knowledge and skills. The final level of evaluation is the impact the professional development will have on student performance and achievement outcomes. At this level of evaluation, Guskey (2000) strives to determine the overall impact on students. Are the students more confident learners? In the literature, the research outlines how the professional development should be evaluated through the five levels to justify and provide evidence to support student achievement with thorough, purposeful, and meaningful professional development (Guskey, 2000).

Conclusion

Effective quality instruction remains at the heart of increasing performance and achievement to ensure all students learn. The RtI process begins at a school-wide level to provide students with core instruction and becomes individualized based on the needs of the students (Fuchs, 2010). Baker, Fien, and Baker (2010) believe improvements should be made to the structure and delivery design of Tier I programs in order to provide better learning outcomes for students and make instruction more effective.

This literature review explored the history and development of the RtI process. It provided research on the in-depth structure and components of RtI's multiple tiers. McDaniel,

Albritton, and Roach (2013) research conveyed the importance of progress monitoring and using data to support instruction and interventions. In addition, Powell and Stecker (2014) discuss using evidence-based strategies for increasing student knowledge and understanding. Bringing all of this together in a way to help everyone function as a community of learners is Bellanca's and Brandt's (2010) irrefutable research rationalizing the purpose and success of using PLCs to build teacher knowledge and improve instructional practices.

There was a limited quantity of evidence-based strategies at the secondary level because many researchers avoid conducting Response to Intervention research at middle and high schools (Fuchs, Fuchs & Compton, 2010). This limitation caused concerns for helping secondary students who continued to become further behind in learning and potentially drop out of school. Therefore, this research study sought to identify effective professional development for secondary teachers to support quality Tier I instruction and RtI interventions for struggling learners. This review of literature explains the history of the RtI model and its development as outlined by Zirkel and Thomas (2010). The RtI model was designed to provide all students with equity in learning. The model supported the need to provide professional development and understanding for educators to use data to drive decisions to increase student achievement (McDaniel, Albritton, & Roach, 2013). These researchers also described the details of each component of the RtI model. A thorough understanding of the RtI model provided the necessary support needed to ensure equity in student learning.

The importance of understanding the three tiers helped educators understand their roles in each tier. Research was also conducted on the effective strategies to support the RtI model (Smith & Okolo, 2010). Employing consistent progress monitoring (McDaniel, Albritton, & Roach, 2013) and evaluating the program's effectiveness (Powell & Stecker, 2014) allowed

educators to utilize data and adjust interventions based on individual student needs. The research reinforced the importance of supporting student needs by providing early interventions through data driven decisions.

In addition to the historical development and importance of the RtI model, attention was brought to the importance of involving external stakeholders in the process. Bean and Lillenstein (2012) explained the importance of obtaining parental support. The researchers also ascertained the importance of quality professional development. Effective PLC sessions provide educators with opportunities to collaborate and share instructional strategies (Bellanca and Brandt, 2010). Building teacher capacity was a necessity in helping educators learn to identify students' deficits, provide strategic supports, and assess the effectiveness of how the diverse needs of learners were being supported. The RtI model encompassed multiple phases within the three tiers. The phases became more intense when implementation moved from one tier to the next. Secondary level interventions involved increasing student engagement, motivation, and confidence to increase opportunities for student success (Fuchs, Fuchs & Compton, 2010). This review of literature contains extensive research to inform the reader about the RtI model. The commitment to the fidelity of the model was important to accomplish the goal of students' growth and achievement. This review of literature was integral to the development of the methodology and later used to understand and discuss the results of the program evaluation.

CHAPTER THREE

METHODOLOGY

Introduction

In the area of education, there are continuous discussions around improving student achievement for the benefit of the local community and society as a whole. It takes the involvement of all stakeholders to strategically plan the most effective route for providing teachers and students with resources and interventions necessary to advance students academically, and to prepare students to be educationally competitive with other nations. The purpose of this applied mixed methods program evaluation was to use the Response to Intervention model and effective professional development to improve teacher effectiveness in mathematics at Byram Middle School (BMS). Byram Middle School serves the city of Byram and surrounding areas within Hinds County School District. This school serves sixth through eighth grades. Byram Middle School educates 290 sixth graders, 300 seventh graders, and 331 eighth graders for a total enrollment of 921 students. For the purpose of this project, I focused on mathematics classes at BMS.

I surveyed 13 teachers who were responsible for mathematics instruction at BMS. The instruments utilized in this program evaluation were developed through a collaborative effort with stakeholders on the school's leadership team. The items were presented to my cohort members and professors during class assignments to be analyzed for validity and reliability. Some items were deleted, added, or modified before the final survey was administered to teachers. The surveys are designed to gauge effectiveness and garner feedback about the

implementation of RtI at BMS. All survey responses were compiled to ask direct questions as they pertain to teachers' and students' roles in the RtI model. In order to effectively research the problem, I conducted an applied mixed methods program evaluation. Two quantitative research questions guided the evaluation of the effectiveness of the program:

1. Does the 2018 end of year MAAP data illustrate improved student achievement in mathematics?
2. Does the NWEA data project an increase in student achievement for mathematics since the first 2017 baseline assessment?

Three qualitative research questions were used for the process evaluation to improve the program:

3. How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance?
4. How can BMS improve teacher effectiveness through professional learning communities?
5. Based on teachers' responses, what identified interests are most needed to better support Tier I of the RtI process?

This applied mixed methods program evaluation addressed the teaching practices and outcomes at Byram Middle School. It specifically focused on mathematics classes. This chapter describes how the researcher engaged in a collaborative process with other stakeholders at BMS to exam school data and existing research to understand the problem and collaboratively develop an action plan. It also discussed the implementation and evaluation of the action plan.

Development of the Action Plan

The development of the action plan began during preplanning in August 2017 and was implemented during the 2017-2018 school year. The school leadership team made the decision to focus on creating a plan to improve student achievement by increasing teacher effectiveness at Byram Middle School. The leadership team was composed of the principal, assistant principals, English Language Arts curriculum coordinator, and myself, the mathematics curriculum coordinator, a doctoral candidate conducting this research, and two teachers from each core content area of science, social studies, English, and mathematics along with two elective teachers. Two of the stakeholders on the team have children who attend Byram Middle School. After reviewing the end of year test data from the 2016-2017 school year, the low levels in proficiency ratings signified students were not learning to the expected 60% proficiency levels in mathematics. The leadership team acknowledged this deficit and developed a plan to improve professional learning communities (PLC) and the Response to Intervention (RtI) model at Byram Middle School. Furthermore, Northwest Education Association (NWEA) was chosen by the district's curriculum director as the benchmark data program to be used for quarterly assessments throughout the entire district. The NWEA helped monitor student progress throughout the year. In order to address the educational gaps at BMS, the team decided to improve classroom instruction by providing professional development on a variety of instructional practices based on teachers requesting ideas for more strategies to help students develop conceptual understanding of the mathematics content.

The end-of-year MAAP data for 2016-2017 revealed the need to address the quality of teaching at BMS to increase mathematics proficiency from the current 25.5% level of proficiency. After the leadership team created the plan for improving teacher effectiveness in the

classroom, the team decided the best way to assess the effectiveness of the plan would be to compare the end-of-year test results from 2017 with the next end-of-year state assessment in 2018. Therefore, state test data at the end of the 2017-2018 school year was compared with the 2016-2017 data to evaluate if the data represents an increase in student achievement. The data from NWEA for the baseline and benchmark data points were compared to identify if there was an increasing trend of improvement over the 2017-2018 school year. The 2018 end-of-year MAAP scores and 2018 NWEA MAP benchmarks served as the quantitative data to be collected in this applied mixed methods program evaluation. Observations, exit tickets, and open-ended surveys made up the qualitative data to be collected at the conclusion of the program evaluation.

The artifacts and review of literature from respected scholars Fuchs, Fuchs, and Compton (2010), Mundschenk and Fuchs (2016), and Baker, Fien, and Baker (2010) on the subject of the Response to Intervention process aligned with the action plan and experiences of the leadership team at BMS. Specifically, teachers relied on support from each other and administration for strategies to support struggling learners. Research from Fuchs, Fuchs, and Compton (2010) noted students tend to demonstrate a lack of motivation and are disengaged when lessons are not rich and relevant to them. It is imperative to ensure quality Tier I instruction is occurring for optimal student learning (Baker, Fien, & Baker, 2010).

Action Plan

The overall goal of this research was to increase student achievement in mathematics by improving teacher effectiveness. At the end of the 2017-2018 school year, student data for state test mathematics proficiency was measured against that of the 2016-2017 school year. Prior to implementation of the action plan, BMS had a 25.5% proficiency level in mathematics. By

implementing more strategic PLCs to improve teacher effectiveness, I sought to increase the mathematics proficiency of students by ten percent to 35.5% proficiency.

This action plan has two elements: professional learning communities and Response to Intervention. Improving professional learning communities to increase teacher effectiveness was an important element of the research. Students need teachers who are confident in their content and know how to deliver the learning in a variety of methods to develop or extend student learning. The research of Mundschenk and Funchs (2016) emphasize the importance of using professional learning community (PLC) meetings to build teacher capacity and ensure a sustainable RtI process is used to increase effective teaching and student learning.

The additional element of the action plan was to improve the Response to Intervention model at BMS. When implemented with fidelity, an effective RtI model should be seen as a multi-faceted, comprehensive feedback system (Baker, Fien, & Baker, 2010). During this project, observations and surveys along with NWEA and MAAP data was used to evaluate the RtI model at BMS for its efficacy in increasing teacher effectiveness.

Improving Professional Learning Community

Implementing effective PLC was one of the main elements in this research. A professional learning community should provide ongoing opportunities and demonstrate positive change for the teachers and students according to Guskey (2000). Vaughn, Cirino, Wanzek, Wexler, Fletcher, Denton, and Francis (2010) believe teachers need professional development to prepare them with appropriate Tier I and Tier II interventions. The PLC impact on teacher effectiveness was evaluated formatively using teacher feedback and summatively by the 2018 MAAP assessment for mathematics.

Part of the professional development in the PLC was improving classroom practices through instructional rounds. The superintendent and curriculum director instructed building level administration to employ the use of instructional rounds as a method to ensure a system was in place to check the fidelity of the instructional practices in the classrooms and provide feedback to teachers to improve instruction. Instructional rounds were implemented monthly with external consultants, curriculum coordinators, assistant principals, and principals. During these rounds, the team spent 30-45 minutes in scheduled teachers' classrooms to observe teacher instruction. After each observation, the team immediately debriefed about what each person documented. At the end of the day, the team met with the teachers whom they visited, and presented the overall findings from the day's rounds. The goal of this sub-element was to implement instructional rounds with fidelity on a monthly basis. The instructional rounds were evaluated formatively using participants' feedback and surveys. The outcome evaluation (Questions One and Two) were utilized on the instructional round documentation with notes from the observers.

The second sub-element under PLC was to increase district professional development opportunities. The goal was to engage teachers in active learning during all professional development activities. All classrooms were outfitted with Promethean board panels, new Envision math textbooks, and the NWEA program for benchmarking. During weekly PLC meetings, I was responsible for providing teachers with meaningful professional development to effectively use all resources afforded them. Teachers were taught various functions of their Promethean board including ClassFlow which allowed teachers to take quick, individualized formative assessments. The teachers were trained how to utilize different components of the math textbook to include the Math XL feature for assigning assessments online. Teachers also

participate in several data driven meetings for understanding the components of NWEA to use the learning continuum within the program to provide student interventions. The teachers completed exit tickets as formative assessments to document analyses for suggested improvements. The suggestions on the exit tickets were acknowledged and implemented if necessary to improve the professional development for the teachers. The summative assessment of this sub-element utilized documentation of teacher feedback.

The last sub-element under PLC was improving teachers' and students' ownership of data. The goal of this sub-element was to implement biweekly meetings to monitor data. Teachers needed to know the data outcomes for the students and used it to drive the instructional practices in the classrooms. Students needed to know how they were performing in order to better understand their strengths and work toward areas of improvement. I met with teachers one or two days after student data was ready to discuss the proficiency of the assessed standards on the biweekly assessment. Teachers completed data tracking sheets and made standards with low proficiency recursive in their instruction. The documentation of the data collaboration meetings was used as the evaluation for this sub-element.

Improving Response to Intervention

Response to Intervention was strongly supported by PLCs to improve teacher effectiveness and increase student achievement. Effective instructional practices are key to being successful in Tier I of the RtI model. Teachers, administrators, and I were responsible for ensuring quality Tier I instruction occurred in each classroom. This goal was evaluated through quarterly NWEA benchmark assessment data and summatively through 2018 MAAP assessment data.

To support the RtI process, a sub-element was to increase use of intervention strategies. The goal was to increase students' understandings of skills and concepts. Teachers were responsible for using exit tickets and observations to determine the level of student understanding.

The second sub-element was to implement quality Tier I instruction. Tier I is the base level for RtI and implementing quality Tier I instructional strategies helped accomplish the goal of ensuring high quality instruction in every classroom. Teachers and I were responsible for ensuring students understood what was to be taught and how to best instruct students with understanding grade level standards. Student data was tracked by students during mini one-on-one meetings with teachers to discuss assessment data and progress toward proficiency. This sub-element was evaluated through observation, SMART goal sheets, and teacher data walls. Existing surveys were used for evaluation. The third sub-element under RtI was to increase mathematical proficiency by increasing the current 2017-2018 school year 25.5% mathematics proficiency level by ten percent. The teacher was the driving force behind accomplishing this goal. Mathematics data was monitored through the NWEA benchmark assessments and used to evaluate question two. The response to question one utilized the 2018 MAAP mathematics assessment data.

Ensuring educators have the necessary information and strategies to employ research-based instructional practices was a theme in the research. The process improvement question, "How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance" was answered with feedback data from professional development and observed instructional strategies.

Timeline

To have multiple data points for accurate comparison, data from the 2016-2017 school year was used. The NWEA MAP baseline assessment was given during the midpoint of the first quarter (September 2017). Using the 2016-2017 school year state test scores and NWEA MAP baseline data from the 2017-2018 school year, students were placed in groups using those two data points. In addition, students ranking in the bottom 25% for mathematics and do not receive special education services, were evaluated by the RtI team to determine placement. Occurring concurrently with this process, teachers participated in a professional learning community biweekly. During the PLC meeting, teachers engaged in collaboration to better understand the RtI process and how to best implement evidence-based interventions. Teachers provided individualized interventions to the previously identified students for 30 minutes, twice per week. At the end of the five-week period, teachers met with the RtI team again to present the artifacts and evidence of interventions such as small group activities, assigned practice work, and student feedback on exit tickets. The artifacts were analyzed to determine if the students made acceptable progress or if they needed additional support. The winter progress monitoring assessment for NWEA MAP was administered in December 2017. This data point was used to determine the impact of the interventions provided to the students. As interventions and professional development continued, surveys were distributed to teachers to determine their perceptions about the RtI process and the administrative support provided. Collective data was shared and observations used to assess the fidelity of implementation during the process. At the end of the 2017-2018 school year, students took the MAAP state test for math. This data was compared to the previous year's data to assess student performance and determine the impact of the support provided to teachers and students.

Table 2

Data Collection & Analysis Timeline

Action, Data Collection & Analysis	Timeline
Facilitated Professional Learning Committee Meetings	Biweekly (August 2017 – January 2018)
Analyzed State Test Data	August 2017
Administered NWEA MAP baseline assessment	August 2017 (for 2017-2018 School Yr.)
Initiated evidence-based interventions in small groups	Weekly (October 2017 – April 2018)
Conducted fidelity checks of intervention implementation	Weekly (October 2017 – April 2018)
Organized instructional rounds & classroom observations/recordings	Monthly (September 2017 – April 2018)
Administered learning probes for standards based upon the interventions taught to adjust instruction	Weekly (October 2017 – April 2018)
Administered Winter NWEA MAP benchmark	December 2017
Administered Spring NWEA MAP benchmark	March 2018
Administered End of year state test assessment	May 2018

Responsible Parties

Multiple stakeholders were responsible for the implementation of the action plan at BMS. The math curriculum coordinator worked closely with the district curriculum coordinator to help identify deficits and establish a timeline to monitor the progress of the action plan. There was collaboration between district and building level administrators to address the professional development to be delivered on a biweekly basis. Teachers were responsible for actively participating in professional development trainings and delivering content and strategies learned to their students. Students were responsible for being active learners who were comfortable and willing to attempt multiple strategies aimed at improving academic success.

Evaluation Plan

The purpose of this applied mixed-methods action research study was to increase student achievement through improved teacher effectiveness in math instruction. Two questions guided the evaluation of the effectiveness of the program:

1. Does the 2018 end of year MAAP data illustrate improved student achievement in mathematics?
2. Does the NWEA data project an increase in student achievement for mathematics since the first baseline assessment?

Three questions were used for the process evaluation to improve the program:

3. How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance?
4. How can BMS improve teacher effectiveness through professional learning communities?
5. Based on teachers' responses, what identified interests are most needed to better support Tier I of the RtI process?

Central Goal One

One of the central goals of this action research study was to use professional learning communities to improve teacher effectiveness. The administrative team and teachers worked together to accomplish this goal. This goal was evaluated formatively using teacher feedback and summatively using the 2018 MAAP assessment data. Teacher feedback data was collected and analyzed at the end of each PLC meeting and was used to answer the process questions. The evaluator used teacher feedback as a guide for providing future trainings based upon teacher needs. The 2018 math MAAP assessment data was analyzed by the administrative team and

teachers to compare the 2017 MAAP scores with the 2018 math MAAP scores to determine if there was an increase in student achievement in mathematics.

The goal of the first sub-element under PLC was to ensure classroom practices were implemented with fidelity by implementing instructional rounds on a monthly basis. The instructional rounds involved building-level administrators, external consultants, and classroom teachers. Each team member used an instructional round log sheet to mark and make notes about observed indicators. The team used documentation on the log sheets to evaluate each teacher's use of the following instructional practices: learning targets, entry tasks, curriculum alignment, and student engagement. Typically, the observations took place over two days with five teachers being observed each day. The focus of the instructional rounds changed from month to month. The focus elements built on each other and became recursive from month to month to ensure the instructional practices were being continuously implemented with fidelity. Successful implementation of classroom practices were formatively evaluated using participants' feedback during teacher debriefing sessions. During the debriefing, observed indicators were discussed, suggestions for improvements were given, and teachers participated in discourse about any desired support. This goal was evaluated using the instructional rounds sheets. A month to month comparison was used to evaluate whether classroom practices were implemented consistently and with fidelity.

The goal of the second sub-element under PLC was to provide teacher requested professional development by actively engaging teachers in professional development activities. This sub-element was evaluated using exit tickets. The exit ticket was given at the end of professional development to gauge teachers' perceptions of topics discussed. Teachers had an opportunity to rate the objective, relevancy, and content of the professional development. The

teachers' ratings are aligned with Guskey's (2000) Level Two: Participants' Learning from his five critical levels of professional development. Teachers were also asked to indicate any additional professional development training or resources needed. The exit tickets were used to guide future professional development sessions as indicated by the teachers. The value of providing teacher requested professional development was evaluated using existing teacher survey data. Key survey questions included:

- How strongly do you agree the professional development topics in PLC held your interests?
- How strongly do you agree the professional development provided you with learning strategies for classroom implementation?
- How satisfied are you with the support provided during the PLC sessions?
- How satisfied are you with the materials covered during the PLC meeting?
- How satisfied are you that you were able to implement learned strategies to increase student achievement?

The survey results were analyzed to determine if teachers were satisfied with the professional development provided during the course of the school year.

Central Goal Two

The other central goal was to use the Response to Intervention model to improve teacher effectiveness. The administrative team and teachers worked together to accomplish this goal. This goal was evaluated using NWEA benchmark assessment data. The NWEA assessment data was used to determine whether the RtI model is having a positive impact on student achievement. Each student's math baseline data was compared to the winter results to determine deficit areas and provide interventions. Students received interventions based on the

recommendations from NWEA's Learning Continuum. In the spring, students took the final NWEA assessment. This data was compared to their baseline results. Improving teacher effectiveness with the implementation of the RtI model was assessed using the 2018 math MAAP data. The 2017 math MAAP data was compared to the 2018 math MAAP data.

The goal of the first sub-element under RtI was to increase student understanding of skills and concepts by increasing the use of intervention strategies. This goal was evaluated through the use of exit tickets. Exit tickets were given to students prior to the end of class to assess students' understanding of the day's lesson. The exit tickets consisted of one to three items aligned with the standards to assess the students' level of mastery. Based on the responses, students were homogenously grouped to work together on their areas of identified needs using various intervention strategies. Examples of intervention strategies included instructing students in small groups through teacher-led centers, using mathematical manipulatives, and increasing mathematical literacy to support understanding rigorous questions. Student data was used to determine if there was an increase in students' understanding of skills and concepts.

The goal of the second sub-element under RtI was to ensure high quality instruction was delivered in every classroom by implementing quality Tier I instructional practices. This goal was evaluated formatively throughout the year using observational notes taken during walk-throughs. The observer used the walk-through form to ensure each teacher displayed and communicated a learning target that was standards-based, actionable by students, and measurable by the teacher. Other quality Tier I instructional practices assessed during the observation included student engagement, rigorous grade-level instruction, and the development of conceptual understanding. The administrative team was responsible for using the observational

notes to evaluate this sub-element. Ensuring high quality instruction will be evaluated by comparing each math teacher's baseline data to their spring benchmark using NWEA.

The goal of the third sub-element under RtI was to increase mathematical proficiency by ten percent. This goal was supported by increasing teachers' and students' ownership of data. Teachers used data binders and tracking sheets to analyze assessments, set goals, and monitor progress. Teachers met biweekly in their PLCs to discuss this data. Additionally, each teacher met individually with their students to discuss benchmark data, grades, and SMART goal sheets. Individual student meetings took place at least once per nine weeks. The data binders, tracking sheets, and SMART goal sheets made up the formative evaluation. The goal to increase mathematical proficiency through student ownership was assessed through observations of students' SMART goals and teacher feedback. The goal of increasing mathematical proficiency was assessed using the 2018 mathematical MAAP data. The 2018 mathematical MAAP data results were compared to the 2017 mathematical MAAP data results.

The process for evaluating this action plan was based upon applied mixed methods program evaluation using quantitative and qualitative data. Quantitative data was obtained from end of year 2018 state assessments. Progress monitoring of the program was assessed based on student data from NWEA MAP. Qualitative data included existing data from open-ended surveys, exit tickets, and classroom observations. This data helped the researcher determine if the action plan was implemented as planned and answered the research questions. This existing data also helped assess teacher needs and desired trainings to support the program implementation for the development of resources to help struggling students, and improve the program moving forward.

The goal for one year of implementation of the action plan was specific in the overall impact of ten percent increase improvement from 25.5% to 35.5% proficient in mathematics. The goals of the elements were measured through collecting quantitative data and compared to previous data. The action plan had obtainable goals for increasing student achievement and academic performance of the students at the research site school. Increasing student achievement was relevant to the students and community where the research was being conducted. The low student performance and inconsistency in effective teaching were concerning to parents and other stakeholders. The below mediocre school rating and seemingly low student engagement encouraged administration and teachers to seek ways to increase accountability for all stakeholders.

Conclusion

The purpose of this chapter was to describe the methods used in this research study for the purpose of analyzing data to support effective implementation of the RtI program in the middle school setting. Ongoing formative assessments using quantitative and qualitative data were used to make adjustments throughout the course of the action plan. The action plan was formally evaluated for this research. Existing data collected by the school for the formative assessments including questionnaires, surveys, data production, data analysis, and implementation of strategies were used to make recommendations for improving the program. Quantitative data was used to determine if there was a ten percent increase among students in the study. Results are presented in chapter four and discussed in chapter five.

Teachers were taught how to create collaborative learning environments and use research-based practices to engage all students and create ownership of their learning. Teachers understood the importance of supporting students in multiple learning opportunities in order to

advance students to the next level and increase Byram Middle School's accountability rating. The professional development given to support the RtI model was evaluated for its effectiveness and impact on student achievement. The results indicated if the action plan improved teacher effectiveness and how to improve the process, thus beginning a cycle of continuous improvement.

CHAPTER FOUR

RESULTS

Introduction

This chapter discusses the results from the applied mixed methods program evaluation implemented at Byram Middle School. There were five research questions outlined in the methodology. Chapter four reports the results and responses to teacher survey items, quantitative data for baseline, benchmarks, state tests, and a summary of findings with respect to Effective Response to Intervention in Middle School.

To address the increasing problem of student proficiency in mathematics, this applied mixed methods program evaluation used the Response to Intervention model and effective professional development to improve teacher effectiveness for math teachers and curtail existing academic deficits in math at Byram Middle School (BMS). The purpose of this applied mixed-methods program evaluation was to increase student achievement and determine if teacher effectiveness was improved through professional development and strategic support given to mathematics teachers for effectively implementing a RtI plan at Byram Middle School.

The first quantitative question used to guide the evaluation of the effectiveness of the program is: Does the 2018 end of year MAAP data illustrate improved student achievement in mathematics? This question was designed to determine if it met the goal of an increase in students' mathematics proficiency from the 2017 to 2018 school-year. The second quantitative question posed is: Does the spring NWEA data project an increase in student achievement for mathematics since the first baseline assessment? The NWEA baseline and benchmark

assessments were administered to students to determine if they were increasing their academic performance in mathematics throughout the course of the school-year.

There are also three qualitative questions used for the program evaluation to help improve the program. The first qualitative question is: How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance? The leadership team recognized the need to implement the RtI model with fidelity. In order to better the implementation process of the RtI model, teachers needed to be taught intervention strategies to improve instruction. The next qualitative question is: How can BMS improve teacher effectiveness through professional learning communities? After reading research from Dufour and Eaker (2005) about the importance of providing teachers with supportive opportunities for professional growth, we needed to assess the effectiveness of implementing professional learning communities to improve instructional practices and increase student achievement. The final research question is based on teachers' responses regarding: Based on teacher responses; what identified interests are most needed to better support Tier I of the RtI process? The process for evaluating this action plan was based upon applied mixed methods program evaluation using quantitative and qualitative data.

Results

Research Question One: Does the 2018 end of year MAAP data illustrate improved student achievement in mathematics?

This question was selected to determine the percent of increase or decrease between the 2016-2017 MAAP scores and the 2017-2018 MAAP scores. To answer this summative question, the difference in percentage was calculated. There was a 12.9% increase in the MAAP scores from the 2016-2017 school year to the 2017-2018 school year (see Table 3 below). This

positive growth is an indication of Byram Middle School advancing mathematics instruction on a positive trajectory.

Table 3
Byram Middle School MAAP Score Results

Year	*MAAP score*
2017-2018	38.4%
2016-2017	25.5%
Mean difference:	+12.9%

Research Question Two: Does the spring NWEA data project an increase in student achievement for mathematics since the first baseline assessment?

To answer this summative question the proficiency percentages for the Fall 2017 NWEA mathematics baseline assessment was compared to the Spring 2018 NWEA benchmark mathematics assessment for each grade level. The proficiency percentage for the Fall 2017 NWEA sixth grade mathematics baseline assessment data was 15%. The Spring 2018 NWEA sixth grade benchmark mathematics assessment data was 25% which illustrated a 10% growth in mathematics for sixth grade students. The proficiency percentage for the Fall 2017 NWEA seventh grade mathematics baseline assessment data was 22.5%. The Spring 2018 NWEA seventh grade benchmark mathematics assessment data was 32.6% which illustrated a 10.1% growth in mathematics for seventh grade students. The proficiency percentage for the Fall 2017 NWEA eighth grade mathematics baseline assessment data was 28.6%. The Spring 2018 NWEA eighth grade benchmark mathematics assessment data was 34.2% which illustrated a 5.6% growth in mathematics for eighth grade students. The schoolwide proficiency percentage for the Fall 2017 NWEA mathematics baseline assessment data was 22.3%. The Spring 2018

NWEA schoolwide benchmark mathematics assessment data was 30.7% which illustrated an 8.4% growth in mathematics (See Table 4).

Table 4
Byram Middle School NWEA Percent Proficient by Grade

Year	6th Grade NWEA Score	7th Grade NWEA Score	8th Grade NWEA Score
Fall 2017	15%	22.5%	28.6%
Spring 2018	25%	32.6%	34.2%
Mean difference:	+10%	+10.1%	+5.6%

Research Question Three: How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance?

Before the action plan began, teachers met within their math PLC group to discuss intervention strategies used in their classrooms. Before leaving the PLC, teachers were given an exit ticket and asked what intervention strategies they currently used and how they intervened when students struggled. Several teachers mentioned pulling the struggling students into a teacher led small group or pairing them with a peer tutor. Two out of the 13 teachers reported reteaching the material to the small group of students at a less rigorous level of understanding to help them better understand the skills needed before moving into the complexity of the standard. Four out of the 13 teachers wrote they paired struggling students with a peer to help with explaining the material; however, in further discussion, teachers revealed the peer tutoring sometimes led to the struggling student copying the peer tutor's work with limited understanding of the skills or process needed for standards mastery. One teacher admitted to using her lunch

and planning block in order to remediate with students. A majority of the teachers failed to adequately provide effective examples of Tier 1 interventions.

In order to allow teachers to better employ instructional strategies in their classrooms, teachers worked together to role play through strategies to make the strategies more strategic and effective. Teachers were to implement the strategies in their classrooms and monitor student interactions and productivity. The teachers all reported the teacher led small grouping, student partners, and standards-based workstations appealed to the students when clear expectations for learning outcomes were established. The only drawback for some teachers was relinquishing autonomy to the students by allowing them to self-manage themselves to work in pairs or triads without the teacher providing whole group instruction.

Teachers and the leadership team observed their peers and provided feedback during instructional rounds. The feedback was used as a reflection tool among the group to improve the quality of instructional strategies. Professional learning committee peer observations were used to identify the effectiveness of strategies implemented. During the debriefing, committee members identified strategies they saw implemented during the instructional rounds. All classrooms had students either seated in pairs or triads. The students shared information in their groupings relevant to the lesson. During some lessons, students were instructed to turn and talk with their shoulder partner about how they solved the equation. This strategy allowed students to engage in mathematical discourse with their peers.

In the sixth-grade classroom, the committee members noted students working in small group standards-based workstations with practice items from MDE practice tests. Each item was labeled with the domain and standard being addressed. Students worked problems independently, then worked with their peers to check their answers against the key. The missed

items were then reworked together with a justification of how they came to the new answer. As students worked with peers in small groups, the teacher worked with four students on standard 6.RP.3 for using ratio and rate reasoning to solve real-world mathematical problems. Students were provided with dry erase boards and markers and worked through guided practice problems with the teacher. Afterwards, each student was given a different problem to work and then explain to the group how they got their answer. Teachers used the various strategies throughout the term and saw academic improvements from baseline data to the next benchmark. Teachers continued strategy implementation and made modifications as needed to their grouping. Over time, students engaged in more small group activities with the teachers being facilitators instead of lecturers. The leadership team did not make each teacher use the same strategy before switching to learning how to implement another strategy. We felt doing so would limit teachers' instructional autonomy to utilize best practices for the needs of their students. Teachers noted on their exit tickets they were glad to learn ways to remediate and support the needs of students through collaboration with each other in the PLCs.

Research Question Four: How can BMS improve teacher effectiveness through professional learning communities?

Based on the data from the 2016-2017 school year, the leadership team decided to revamp PLCs. There were several strategies implemented to improve teacher effectiveness. An administrator or curriculum specialist attended each meeting to monitor progress and provide talking points in an objective manner. The surveys revealed the teachers needed training on how to analyze and interpret their NWEA and MAAP data results. Small group trainings were deemed the best method to use. After the trainings, teachers were able to identify instructional

areas of strengths (glows) and areas for growth (grows) as well as individual students' areas of strengths and areas for growth.

Professional learning communities were also used to model the instructional strategies and provide teachers with knowledge of application. Teachers received training on how to effectively conduct and manage small groups, teacher-led centers, peer tutoring, and hands-on technology activities.

On the end of the year survey, teachers were asked to provide their reflections of feelings in regards to the PLC sessions. Teachers were asked to rate their agreement or disagreement with the following questions. The first survey items was: How strongly do you agree the professional development topics in PLC held your interests? Out of the 13 respondents, 92.3% reported they strongly agree, agree, or somewhat agree the professional development topics in PLC held their interest. The next question was: How strongly do you agree the professional development provided you with learning strategies for classroom implementation? For this question, 92.31% stated they strongly agree, agree, or somewhat agree the professional development provided them with learning strategies to implement in their classrooms. The 13 participates responded to the next question: How strongly do you agree the PLC area/environment was conducive to your learning? For this item, 100% of the participants stated they strongly agree, agree, or somewhat agree the PLC area was conducive for learning. In addition, 100% percent of the participants stated they strongly agree, agree, or somewhat agree they understood the expectations after PLC sessions. With regards to the support provided during the PLC sessions, 100% of the participants responded with feeling extremely, moderately, or slightly satisfied with the support. When asked how satisfied they were with the materials covered during the PLC meeting, 92.30% were extremely, moderately, or slightly satisfied with

the materials covered. However, 100% of the participants were extremely, moderately, or slightly satisfied with the PLC session in reference to helping understand how to analyze student data to guide instruction. When surveyed about their abilities to implement learning strategies to increase student achievement, 100% of the participants expressed they were extremely, moderately, or slightly satisfied with their abilities. All 100% of the participants responded they were extremely, moderately, or slightly satisfied with attending PLC meetings to gain support. The final survey question asked: How satisfied are you with quarterly tracking and monitoring of students' progress to help you address student deficits? All 100% of the participants were extremely or moderately satisfied with the progress monitoring to address student deficits.

To ensure the PLCs were conducive for teachers, we held math PLCs biweekly on Wednesdays to stay consistent. By maintaining routine meetings, we were able to avoid scheduling conflicts and protect the fidelity of our PLC schedule. Teachers received timely reminders with detailed instructions as to what data and strategies would be on the agenda prior to the meeting. The area was prepared with materials and handouts prior to the group's arrival. Meeting norms were established and reviewed at the beginning of each session to ensure adherence and promote productivity. The next steps from each PLC session were charted and posted on the wall then revisited during the PLC to monitor progress and ensure follow-through. The teachers' exit tickets were used to address teacher concerns and monitor the impact of the PLCs.

Research Question Five: Based on teachers' responses, what identified interests are most needed to better support Tier I of the RtI process?

The exit tickets from the PLC meetings provided insight as to teacher desires to build their capacity. On the exit tickets, a large number of teachers said they liked having the

administrators in their instructional rounds and would like to see the process continued next year and the years after. The leadership team agreed. Teachers also noted they learned by being able to observe other teachers in action with their students. During the debriefing after the instructional rounds, the feedback empowered teachers to continue to push forward using data to guide their instructional practices and lesson designs.

Teachers also asked for more training on how to decide if a student should be moved to tier two and what strategies they should use. We taught teachers how to build student portfolios to keep evidence of students' productivity. Each student was responsible for keeping a data tracking sheet containing their goals and progress after each assessment. A copy of the data sheet was included in each child's portfolio. Teachers learned how to print individualized student data reports from NWEA to highlight student's standards of mastery and support the areas of deficit. The student portfolios contained student work samples along with evidence of remediation such as student products during teacher led workstations and individual practice for remediated standards.

Teachers were taught how to complete paperwork on student referrals and connect data trends to their reports as supporting documentation. Before initiating paperwork to refer a student to the Teacher Support Team (TST) teachers learned to collaborate with other teachers of the identified student to exam the artifacts in the student's portfolio within the subject content classes of math, English, science, and social studies. The team then worked to identify trends in the student's data to best assess where the student can best be supported and if moving the student to Tier II is in the child's best interest to help the student be successful. After this detailed review, teachers on the team made a decision to continue Tier I support or refer to Tier

II. If a referral to Tier II was determined, the proper paperwork was completed and parents were informed and included in the next steps of the process.

In addition, teachers desired better understanding of the level of rigor for the standards to be taught. During the lesson implementations, teachers were teaching the standards; however, common assessments of students' understanding indicated low level comprehension of the standards. To help teachers better understand the depth of knowledge students needed to master the standards, teacher assessed students using sample test items to check for mastery and teachers re-engage students if necessary. Teachers were given supportive resources to challenge students' mathematical reasoning and increase mathematical discourse during collaborative activities.

Teachers desired more instructional support to increase their effectiveness in the classroom. This was accomplished through increased mathematics lesson planning meetings, coaching, and co-teaching. In conjunction with lesson planning, teachers worked together to increase instructional differentiation based on varying student needs. The various instructional strategies, small group workstations, and teacher led workstations helped teachers better individualize instruction and provide multiple experiences to master the standards. Instructional practices engaging students using technology during the lessons provided differentiation and additional learning opportunities for the students. Teachers received specific training and support on using the Promethean boards in their classrooms, instructing students through accessing resources using their iPads, and receiving and submitting assignments via the Google classroom platform.

Conclusion

This chapter discussed the results from the applied mixed methods program evaluation implemented at BMS. In determining the program's success, the leadership team recognized some areas of concerns; however, the positive results from the study indicate the program was successful and will continue to thrive as long as it is implemented with fidelity. Success was determined based on participants responses, PLCs, small group trainings, and implementation of teaching strategies and interventions. There were five research questions outlined in the methodology. The first research question results indicated an increase in math MAAP scores when the 2016-2017 data was compared with the 2017-2018 data. The second research question results revealed sixth, seventh, and eight grade mathematics increased between the baseline assessment and final spring benchmark assessment in the NWEA platform. Research question three allowed the leadership team to obtain feedback from participants on the RTI strategies used during this study and engage in professional development to further increase the effectiveness of the strategies. Research question four identified how teachers used PLCs to improve teacher effectiveness during instruction. The fifth research question used exit tickets to discuss new strategies observed and determined intervention topics teachers desired to see in upcoming professional development sessions. This concludes Chapter Four. Chapter Five discusses the implications from the action research and insight gleaned.

CHAPTER FIVE

SUMMARY, DISCUSSION, AND IMPLICATIONS

The primary goal of this mixed methods program evaluation was to improve student achievement at Byram Middle School. In order to effectively address the mathematical deficits illustrated by the data reported from students' state test scores from the Mississippi Department of Education, I referenced research on Response to Intervention programs. There was a sizable amount of publications to substantiate the benefits of having RtI in place to support student needs. Through this research, I learned RtI is not only seen as a best practice for ensuring equity in learning for all students, but public schools in Mississippi have provisions in place to support the implementation of RtI programs. As we met to address student deficits, we realized effective protocols were not in place to ensure student success for all learners. We became deliberate in identifying students in need of academic supports and diligently responding to accompanying their needs. Two quantitative questions guided the evaluation of the effectiveness of the program. As a deciding factor to evaluate our implementation efforts to increase student achievement, we formed our first quantitative research question: Does the 2018 end of year MAAP data illustrate improved student achievement in mathematics? We knew if our efforts were success, the end of year state test data should reflect an increase in mathematics.

We were pleased to obtain the end of year results to see our students grew 12.9% in proficiency based on our collaborative efforts. Not only did proficiency increase from 25.5% to 38.4%, but student growth in mathematics was a mentionable 60.5% with our students identified in the bottom 25% of students demonstrating 50.4% growth in mathematics. These results gave

our school community great satisfaction in knowing our implementation of multiple strategies such as small group instruction, peer tutoring, teacher led small group instruction, one-on-one review of student data between teacher and pupil, along with creating a learning focused environment and data driven instruction was preparing our students to attain the knowledge necessary to be mathematically competent. We believe it was these intentional and consistent endeavors that contributed to the positive outcome for our first research question.

Some of the limitations with this component of the program evaluation were the implementation of multiple strategies without any direct significance to any one source. Students were receiving numerous forms of support in the classroom and some students enrolled in afterschool tutoring. In addition, a teacher licensing issue at the onset of the school year resulted in a sixth-grade math teacher moving up to teach seventh grade math. Almost half of her current seventh grade students were her sixth-grade students the previous year. Although this is not considered strategic looping, I cannot help but wonder about the actual impact of the students having a prior relationship with the teacher. The teacher knew the students' academic potential based on experiences from the previous school year, and students knew the teacher's expectations. In hindsight, the students who were in their second consecutive year with this math teacher should have been closely monitored and tracked as a subgroup to identify any trends within the group. At this time, it is unclear if this group of students had any significant bearing on the outcomes of the data for this program evaluation.

There is no one size fits all model, but there are protocols to be followed to ensure a reliable program is in place. According to Smith and Okolo (2010), the RtI model is one of the primary identification and instructional models for school districts across the United States. The information provided by Smith and Okolo (2010) helped us to determine which instruments we

would use as our baseline assessment and progress monitoring tool throughout the school year. Our district opted to use NWEA as our baseline assessment and progress monitoring instrument. This led us to our second quantitative research question: Does the spring NWEA data project an increase in student achievement for mathematics since the first baseline assessment? Using this platform allowed us to obtain students' mathematical knowledge at the beginning of the school year, diagnose their mathematical deficits and prescribe interventions for improving mastery of the standards. The spring benchmark illustrated mathematical gains across all grade levels since the initial baseline assessment. Again, the data was pleasing for ensuring we would increase student achievement in mathematics on the 2017-2018 MAAP assessment.

We used Smith and Okolo's (2010) information to lay the framework for guaranteeing all teachers know how to interpret their students' data and share it with students to increase ownership and accountability in their learning. The data was discussed with students to encourage individual goals and ensure student accountability. Students bought into the goal setting and were accountable for monitoring their progress towards meeting individual goals. The information was communicated to parents in efforts to garner support of students' academic needs. Parents appreciated the communication and were supportive of our efforts to foster mathematical success within their children.

To better improve our program implementation, we needed feedback from teachers to better support their roles with the RtI model. We needed to know: How can BMS improve the quality of instructional strategies to support the RtI model and increase student performance? Teachers requested understanding of how to employ differentiated instructional strategies based on identified needs. This process took on the look of collaboration and sharing of information among teachers along with students. The peer support increased along with communication

across grade levels to vertically align methods to engage students with the standards. Teachers were functioning as a school-wide team instead of in silos. The teachers engaged in instructional rounds, role playing, and self-reflections on instructional practices. Most instructional strategies resulted in observed increases of student outcomes, whereas a few teachers experienced trial and error implementation until finding successful strategies for addressing student needs.

This mixed methods research program evaluation was two-fold. In addition to increasing student achievement, I sought to increase teacher effectiveness through professional development. The opportunities for professional development should be ongoing and proven to demonstrate positive change and improvements for the educators and learners (Guskey, 2000). The qualitative research question for evaluations was: How can BMS improve teacher effectiveness through professional learning communities? This research enabled me, and other stakeholders involved, to make informed decisions as were sculpted our action plan to proliferate student achievement by increasing teacher effectiveness. To keep in line with Guskey's (2000) research, we implemented biweekly professional learning community meetings. We also provided teachers with professional development to target areas for supporting differentiated learning strategies, analyzing data, implementing technology, and creating a schoolwide culture of teaching and learning. During PLC, teachers participated in goal setting, organized and managed instructional strategies, and focused on producing results for student achievement (Bellanca and Brandt, 2010).

Throughout this action plan, our PLCs focused on ensuring teachers understood standards-based curriculum alignment, data analysis, data driven instruction, progress monitoring students' performance, and providing feedback to students for shared accountability. Dufour and Eaker (2005) defined PLCs as a supportive culture of professional learning to develop educators'

individual and collective capacities to help students acquire the necessary skills to be successful. The overall purpose was to increase educator effectiveness, sustain school improvement, and engage educators in ongoing and active perceptual curiosity to ensure students learn (Dufour & Eaker, 2005). This research was used to support the strategies and evaluate the implementation during the program.

The final aspect of the program for evaluation was supporting teachers with the RtI process. We addressed the question: Based on teachers' responses, what identified interests are most needed to better support Tier I of the RtI process? The rationale for this question was the belief that teacher input would solidify buy-in to improve Tier I instruction for all students while providing learning opportunities and increasing student achievement in mathematics. It could be seen as a limitation that we took for granted, teachers did not know how to ask for what they did not know they needed. Most teachers believed they were demonstrating their best efforts providing instruction to students; however, as they began to utilize instructional rounds as learning opportunities, they learned engagement strategies and instructional practices that allowed them to collaborate with each other while providing strategic feedback. Teachers received consistent support with the referral forms and how to present a range of data to the teacher support team on student progress.

Looking back, teachers needed to understand the theoretical framework of the Multi-Tier System of Support (MTSS) prior to beginning collecting data or completing referral forms on students. There were misconceptions between teachers as to the purpose and process for MTSS. Teachers were misinformed about the process and as a result, students were not receiving necessary supports with fidelity and progress monitoring. Unfortunately, the need to improve student outcomes subjugated providing teachers with training and information prior to the

program implementation. To improve the program implementation and sustain the gains made, teachers need recursive training on MTSS, RtI referral processes, and documentation collection prior to the beginning of the school year.

It would be beneficial to include the teachers in the research process to solidify teacher buy-in prior to program implementation. Allowing teachers to gather and disseminate data to each other will provide the opportunity to understand the importance for the instructional shift. This program implementation was a second order change with various facets and time sensitivity. The school year only contains 180 days. This timeline made it crucial to move intently and swiftly towards all goals. Overall, the success of the program rendered considerable increases in mathematics proficiency and growth. The leadership team will need to continue to refine the goals and monitor the program implementation to remain on the positive trajectory set forth this school year.

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List of Appendices

Appendix A

Action Plan

Central Issue of Concern: The central issue of concern is the response to intervention plan through effective professional development at Byram Middle School.

I. **Action Category: Improve core classroom instruction to close the current achievement gap in mathematics for students at Byram Middle School.**

   a. Strategy A: Observe general education classrooms for student engagement and active learning.

      i. Goal: To ensure implementation of effective instructional strategies that engages students and encourages active participation in the learning process.

      ii. Why: Students who are actively engaged in the learning process demonstrate academic success and are less likely to fall behind their peers in mastering grade level standards.

      iii. Actor: School administrators

      iv. Cost: 30 minute observations times five classes per day 3-4 times per week

   b. Strategy B: Build teacher capacity to employ research based instructional strategies

      i. Goal: To ensure implementation of research based instructional strategies to apply best practices in the classroom.

      ii. Why: Teacher ability is an intricate component for increasing student performance.

      iii. Actor: School administrators

      iv. Cost: 75 minutes of professional development with teachers biweekly

II. **Action Category: Increase time dedicated for Response to Intervention in the classroom to positively improve student achievement.**

a. Strategy A: Increase time dedicated for Response to Intervention in the classroom to positively improve student achievement.

    i. Goal: To ensure fidelity of the RtI to support the needs of individual students.

    ii. Why: Students vary in their learning needs and require differentiated instruction to help them become successful.

    iii. Actor: School administrators

    iv. Cost: 10-20 minute walk-through observations per class per week

b. Strategy B: Observe intervention block for fidelity in RtI model

    i. Goal: To ensure implementation of effective instructional strategies that supports the needs of individual students.

    ii. Why: Students who fall behind their peers in mastering grade level standards are more likely to lose confidence, interest, and are a higher risk for dropping out of school.

    iii. Actor: School administrators

    iv. Cost: 35-45 minute observations five classes per week

c. Strategy C: Provide supportive professional development for teachers to effectively employ the RtI model

    i. Goal: To ensure teachers understand the importance of providing interventions to help all students be successful.

    ii. Why: Teachers can differentiate instruction to support struggling learners.

iii. Actor: School administrators

Cost: 75 minutes per week

Appendix B

Action Plan Logic Model

Elements	Sub-elements	Goals	Who	Evaluation	
				Formative	*Summative*
Professional Learning Community (PLC)		Improve teacher effectiveness	Researcher Administration Teachers	Teacher feedback	2018 MAAP assessment data
	Implement rounds with fidelity on a monthly basis	Improve classroom practices through instructional rounds	Researcher Administration Teachers	Participants' feedback during debriefing sessions	Instructional Round Logs with Notes
	Engage teachers in active learning in all PD activities	Provide teacher requested professional development	Researcher	Exit ticket document analyses for suggested improvement	Teacher surveys
Response to Intervention (RtI)		Improve teacher effectiveness	Researcher Administration Teachers	Quarterly NWEA benchmark assessment data	2018 MAPP assessment data
	Increase use of intervention strategies	Increase student understanding of skills and concepts	Researcher Teacher	Exit tickets	
	Implement quality Tier I instructional practices	Ensure high quality instruction in every classroom	Researcher Teacher	Observations Lesson Plans	NWEA benchmark & spring assessment data
	Increase teachers' and students' ownership of data	Increase mathematical proficiency by 10%	Researcher Teacher	Data tracking sheets documentation	2018 MAAP assessment data

Appendix C

Informal Student Observation

Research Topic: Effective Response to Intervention in Middle School

Specific Research Questions: How effective is RtI at the middle school level? What are some effective RtI interventions for middle school math? Do teachers and students believe RtI is effective at the middle school level? How do content area teachers feel about RtI? What measures are used to evaluate the effectiveness of the RtI program? Are RtI interventions/procedures discussed in PLCs? What additional support do teachers need? Is the professional development provided by teachers building their capacity?

Conceptual Framework: differentiation, intentional, targeted learning, purposeful

Student Survey Questions: (Taken before the implementation and at the end of the school year of implementation).

Discussion topics:

- How do you differentiate instruction?
- What do you do when you students do not understand?
- How do you help students fully understand (or remember) a new concept, such as two-step equations?
- What do you do as a teacher when students become frustrated or shut down?
- How do you feel about implementing learning strategies?
- Do you think there should be classes to help students who struggle?
- When working in small groups to provide extra help, how do you create your groups?
- What do you recommend teachers do to make the process easier?

Questions: (After)

- List interventions used to help students better understand mathematical concepts.

Appendix D

Teacher Observation Form: (Used during weekly walk through observations)

- What is the standard being addressed?
- What new learning should students be able to do by the end of the lesson?
- Briefly describe the lesson:

  How did the teacher engage students in learning the standard?

  How were they grouped?

  What were the students doing?
- How did the teacher assess student understanding of the learning target throughout the lesson?
- How was learning differentiated for students?
- Were the students engaged in a productive struggle?
- Why was the task challenging for students?
- How many students mastered the learning goal? How do you know?
- What did you learn from the lesson/activity?
- Can something you learned from this activity/lesson be applied to your classroom? If yes, explain.
- What new ideas or strategies did you encounter today?
- Has this lesson observation improved or reinforced your classroom practices? If yes, explain.

General:

- Various tier strategies discussed, modeled, and practiced in PLCs (especially for Tier I)
- Articles on effective strategies provided to teachers

- Lesson plans with remediation strategy to be used

Program Components:

- Actively participates and contributes to a PLC team
- Seeks the advice of other teachers/administrators/experts regarding the practice or content
- Utilizes the strategies consistently in the classrooms

Faculty Questionnaire: (Biweekly, during PLC team meetings)

General:

- What steps do you take when you notice over 70 percent of your students did not understand a concept?
- What steps do you take when you notice 25 percent of your students did not understand a concept?
- What Tier I interventions do you currently use?
- How do you check for understanding through the day (formative assessments)?
- Do you start each unit with a pretest? End with a high-level closing activity?
- How can PLCs be more effective?
- What do you do when your students are not engaged?
- How do you feel about workstations/learning centers?
- Are workstations/learning centers effective in assisting with the requirements of RtI and classroom interventions?
- Do you believe interventions are effective in middle school?
- What are some of your personal beliefs about the RtI/intervention model?
- What can the administrative team do to assist you in implementing effective RtI interventions?

Appendix E

End of Year Teacher Survey

- How strongly do you agree the professional development topics in PLC held your interests?
- How strongly do you agree the professional development provided you with learning strategies for classroom implementation?
- How satisfied are you with the support provided during the PLC sessions?
- How satisfied are you with the materials covered during the PLC meeting?
- How strongly do you agree the PLC area/environment was conducive to your learning?
- How strongly do you agree you understand the expectations after PLC sessions?
- How satisfied are you with the PLC session in reference to helping you understand how to analyze student data to guide your instruction?
- How satisfied are you that you were able to implement learning strategies to increase student achievement?
- How satisfied are you with attending PLC meetings to support you?
- How satisfied are you with quarterly tracking and monitoring of students' progress to help you address student deficits?

Appendix F

Matrix

Construct(s)	Themes	Evidence/Artifact(s)		
		Key Quotes	**Documents**	**Observations**
Response to Intervention Process & Implementation	· Strategies · Progress monitoring · Time restraints · Engagement · Motivation	"The various strategies shared in our team meetings and PLC times have been helpful." "As of the most recent assessment, some of my students are demonstrating mastery." "I don't have enough time to do interventions with all of my struggling students." "My teachers are boring." "The students don't care about their grades." "I'm not really trying my best right now."	· Student work samples · Group work samples from teacher directed interventions · Rubrics with feedback · PLC agendas · PLC meeting minutes	· Pictures · Recording during instructional rounds · Peer observations

Appendix G

Instructional Rounds Protocol

Room Number:

Number of students present:

Time visited:

- Beginning
- Middle
- End

Classroom arrangement:

- Teams (groups of 4-6 working together)
- Pairs or trios working together
- Straight rows
- Students seated in groups/pairs but completing independent work

Learning Target posted?

- Yes
- No

Entry task posted?

- Yes
- No

Entry task:

- Aligned with learning target
- Actionable by students
- Measurable by teacher

How aligned was instructional to the stated learning target/standard?

- Directly aligned: The task or assignment students were working on clearly builds understanding of major concepts and skills stated in standards.
- Partially aligned: The task or assignment addresses limited elements of the standard/learning target.
- Not aligned: Successful completion of the task or assignment would not lead to proficiency on the standard/learning target.

Describe the task students were completing during the observations:

How as the majority of students engaged during instruction? (mark all that apply)

- Passive listening/watching
- Taking notes
- Individually responding to the teacher
- Chorally responding to the teacher
- Working independently
- Working collaboratively with others
- Off task
- Other:

Who was doing the majority of the working/talking?

- Mostly students
- Mostly teachers
- Equal mix of students/teacher: about 50/50
- Mostly the teacher and a few students

Questioning strategies:

- Posing “choral” questions to the whole class

- Calling on specific students in the whole class setting
- Randomized process (i.e. popsicle sticks or cold calling cards) for questioning
- Questioning while facilitating small groups-directed to small group or individual students
- Teacher posed and answered the majority of the questions
- No questions observed

Overall rigor:

- Basic
- Proficient
- Advanced

Appendix H

Professional Development Exit Ticket

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The objectives of the training were clearly defined.	❍	❍	❍	❍	❍
2. Participation and interaction were encouraged.	❍	❍	❍	❍	❍
3. The topics covered were relevant to me.	❍	❍	❍	❍	❍
4. The content was organized and easy to follow.	❍	❍	❍	❍	❍
5. The materials distributed were helpful.	❍	❍	❍	❍	❍
6. This training experience will be useful in my work.	❍	❍	❍	❍	❍
7. The trainer was knowledgeable about the training topics.	❍	❍	❍	❍	❍
8. The trainer was well prepared.	❍	❍	❍	❍	❍
9. The training objectives were met.	❍	❍	❍	❍	❍
10. The time allotted for the training was sufficient.	❍	❍	❍	❍	❍
11. The meeting room and facilities were adequate and comfortable.	❍	❍	❍	❍	❍

Do you need training on another resource?

What is your favorite snack that you would like for the next training?

VITA

Angela MeChelle Ellison

CORE QUALIFICATIONS

- Principal Corps Cohort V (University of Mississippi)
- Millsaps Principal Institute
- Academic Achievement Award (2014)

EDUCATION

2013 – 2014 **The University of Mississippi** Oxford, MS
Education Specialist (Leadership & Administration) Summa Cum Laude GPA 4.0

- K – 12 School Leadership & Administration

2010 – 2012 **Mississippi College** Clinton, MS
Education Specialist (Elementary Ed.) Summa Cum Laude GPA 3.95
Endorsements in:

- Gifted Education

2008 – 2009 **Mississippi College** Clinton, MS
Master of Education (Elementary Ed.) Summa Cum Laude GPA 4.00

- Science

2004 – 2006 **University of Southern Mississippi** Hattiesburg, MS
Bachelor of Science (Elementary Ed.) Magna Cum Laude GPA 3.78
Endorsements in:

- English
- Math
- Reading

2002 – 2004 **Hinds Community College** Pearl, MS
Associates of Arts/May 2004 Cum Laude GPA 3.44
Associates of Arts/December 2003 Cum Laude. GPA 3.33

WORK EXPERIENCE

2016-2019 **Hinds County School District**
Byram, MS
Curriculum Coordinator (Byram Middle School)

Various administrative duties included:

- Facilitated professional learning communities to analyze various forms of school, district, state, and national data
- Provided support by being an instructional leader in the classrooms supporting the needs of teachers and students
- Ensured instructional implementations align with MDE Blueprint Interpretive Guide
- Collaborated with outside consultants and district personnel to increase teacher capacity for instruction, disseminate material resources, and provide technology support for instructional purposes

- Facilitated weekly/biweekly staff development for schools and contributed to the proposal of professional learning opportunities (PLO) for teachers to participate that promoted curriculum development, supported program implementation, and increased content knowledge
- Provided constructive feedback and relevant assistance to teachers during informal/formal observations, modeled lessons, and provided instructional coaching and Response to Intervention (RTI) support
- Collaborated with teachers and leadership team to provide teachers with classroom level support in analyzing student assessments (screening, diagnostic, formative/summative) data and assisted with implementing instructional practices based on data results to ensure intervention plans were developed and implemented with fidelity
- Supervised teacher leader teams: Grade-level Teams, Vertical Teams, Leadership Team, Subject Area Departments, and Teacher Support Teams to assist teachers in the development and implementation of research-based high-quality instructional practices that addressed educational challenges at the school site aligned to both district and school level plans

2015-2016 **North Panola School District**
Sardis, MS
Principal (Como Elementary School)

Various administrative duties included:

- Created a shared vision for the small community school with all stakeholders; COMO became an acronym for the
  the core values and character traits of our school; Courageous, Outstanding,

Mighty, Original
    - Initiated a culture in the school of being data driven and encouraged accountability between teachers and students
    - Facilitated book studies using Mendler's (2000) book *Motivating Students Who Don't Care* and Pinto, Driscoll, and Spares' (2012) book *95 Strategies for Remodeling Instruction*
- Established a shared vision and school motto to positively increase the morale of the school and community
- Created a data room and data wall to track data and encourage teachers and students as they strived to achieve personal, classroom, and school goals and mentored and supported faculty and staff as we focused on strengths for optimal performance
- Implemented a K-5 music program to support and enrich students' experiences within the arts and support social and emotional needs
- Supervised, and developed the building's human resource so the educational goals and programs of the building could be effectively implemented
- Effectively communicated with all stakeholders and developed positive relationships with parents and community groups by hosting various events including Pancakes with the Principal, Hats off to Reading, Cocoa in the Community, and Grits with Grandparents and Secured donations and funding through DonorsChoose, Kohl's Cares, Angel Tree, and D.A.R.E programs to assist my low socioeconomic students and families

2007-2014 **Rankin County School District**
Brandon, MS
Mathematics Teacher (Northwest Rankin Middle School)

- Rankin County School District Outstanding Beginning Teacher of the Year award
- Attained significant QDI growth each year while teaching middle school mathematics
- Mentored and conducted professional development training for new teachers in the district
- Mentored and motivated students to excel in their academic endeavors and augmented content in the form of remediation, modification, and enrichment to successfully increase student achievement