

## ABSTRACT

A Case Study of Four Teachers' Experiences While Implementing the Latest Version of the Eureka Math Curriculum in the State of Louisiana

Melissa M. Lein Authement, Ed.D.

Mentor: Sarah Smitherman Pratt, Ph.D.

The Louisiana Department of Education (LDOE) develops all mathematics standards and curricula in Louisiana. Once approved, these items become the officially mandated curricula that each school must teach. LDOE is also responsible for the flow down of the official curricula to each school system, plus providing the appropriate amount of training to the math teachers to effectively implement the new curricula. For example, in 2017, a statewide assessment provided information on student mathematical proficiency. Based on the poor results, and improved mandated set of standards and curricula, LDOE launched a rubric of approved research-based curricula required for low performing schools. One of the curriculum options was Eureka Math Curriculum.

In response to the LDOE Curriculum mandates St. Tammany Parish Public Schools (STPPS) decided in 2020 to implement the same required LDOE curriculum to all schools in the district no matter their performance. This change in curriculum culminated in the third curriculum between 2017–2020 change for most math teachers in the district. This study focused on the experiences of selected math teachers charged with

implementing the Eureka Math curriculum into the STPPS. The data collected consisted of structured questionnaires and semi-structured interviews with four fourth and fifth-grade teachers school system.

Hargreaves (1998) *Changing Teachers, Changing Times* framed this study. Using Hargreaves's (1998) framework for the study, the researcher identified four obstacles teachers faced implementing a mandated curriculum. Finally, the researcher concludes with recommendations for best practices when implementing any mandated math curriculum.

The researcher identified Eureka Math as the teachers' primary change element to implement curricula changes. Using Hargreaves's (1998) outline, the researcher identified four obstacles to overcome and offered three solutions towards the successful implementation of Eureka Math. The obstacles included: pacing and planning, lack of resources, need for increased support, and teacher autonomy. This study identifies three best practices for successfully implementing the challenging Eureka Math: increased support, leniency on the scope and sequence of curricula implementation, and a new requirement for focused and tailored instruction sessions for each level of math teachers.

Copyright © 2022 by Melissa M. Lein Authement

All rights reserved

A Case Study of Four Teachers' Experiences While Implementing the Latest Version of  
the Eureka Math Curriculum in the State of Louisiana

by

Melissa M. Lein Authement

A Dissertation

Approved by the Department of Curriculum and Instruction

---

Brooke Blevins, Ph.D., Chairperson

Submitted to the Graduate Faculty of  
Baylor University in Partial Fulfillment of the  
Requirements for the Degree  
of  
Doctor of Education

Approved by the Dissertation Committee

---

Sarah Smitherman Pratt, Ph.D., Chairperson

---

Brooke Blevins, Ph.D.

---

Jess Smith, Ph.D.

Accepted by the Graduate School

May 2022

---

J. Larry Lyon, Ph.D., Dean

## TABLE OF CONTENTS

LIST OF TABLES .....	viii
LIST OF ABBREVIATIONS .....	ix
ACKNOWLEDGMENTS .....	x
DEDICATION .....	xi
CHAPTER ONE .....	1
Background and Needs Assessment .....	1
Introduction .....	1
Statement of the Problem .....	2
Literature Review .....	5
Changing Tides of Curriculum .....	6
Eureka Math .....	12
Curriculum Changes Within Louisiana .....	17
Teacher Response to Reform-Based Curricula .....	20
Synthesis of Literature .....	25
Theoretical Framework .....	26
Conclusion: Purpose of the Study .....	27
CHAPTER TWO .....	30
Methodology .....	30
Introduction: Research Questions .....	30
Researcher Perspective and Positionality .....	31
Theoretical Framework Application .....	36
Research Design and Rationale .....	37
Site Selection and Participant Sampling .....	40
Site Selection .....	41
Participants .....	42
Data Collection Procedures .....	43
Data Analysis Procedures .....	46
Trustworthiness and Authenticity .....	49
Ethical Considerations .....	51
Limitations and Delimitations .....	53

Conclusion .....	54
CHAPTER THREE .....	56
Results and Implications .....	56
Introduction .....	56
The Participants .....	57
Framework Analysis .....	57
Interview 1—Mary .....	58
Interview 2—Beth .....	64
Interview 3—Etta .....	70
Interview 4—Grace .....	75
Thematic Analysis .....	77
Thematic Statements .....	77
Pacing and Planning .....	78
Lack of Resources .....	79
Increased Support .....	81
Teacher Autonomy .....	82
Discussion .....	83
Implications and Recommendations .....	84
District-Level Recommendations .....	85
School-Level Recommendations .....	87
Recommendations for Future Research .....	88
Expanding the Current Study .....	89
Summary and Conclusion .....	90
CHAPTER FOUR .....	91
Distribution of Findings .....	91
Executive Summary .....	91
Overview of Data Collection and Analysis Procedures .....	92
Summary of Key Findings .....	92
Implications and Informed Recommendations .....	93
Findings Distribution Proposal .....	95
Target Audience .....	95
Distribution Materials .....	96
Conclusion .....	97
APPENDIX A .....	99

Consent Form for Research .....	99
APPENDIX B .....	102
Superintendent Approval .....	102
APPENDIX C .....	103
Questionnaire .....	103
APPENDIX D .....	105
Participant Interview Protocol .....	105
BIBLIOGRAPHY .....	106

## LIST OF TABLES

Table 2.1 <i>Participant Education and Teaching Experiences</i> .....	43
Table 2.2 <i>Theoretical Framework Analysis Codes</i> .....	48
Table 3.1 <i>Category of Participants</i> .....	57



## LIST OF ABBREVIATIONS

CCSS: Common Core State Standards

CCSS-M: Common Core State Standards for Mathematics

NAEP: National Assessment of Educational Progress

NCLB: No Child Left Behind Act

LDOE: Louisiana Department of Education

LEAP: Louisiana Educational Assessment Program

PLC: Professional Learning Communities

RTTT: Race to the Top

STPPS: St. Tammany Parish Public Schools

UIN: Urgent Intervention Needed

UIR: Urgent Intervention Required

## ACKNOWLEDGMENTS

First and foremost, I want to acknowledge my family. Without the support of my husband, parents, and siblings, this would all still be a dream. Second, I want to thank my Baylor family for their support throughout the last three years. I specifically want to acknowledge both Dr. Sandra Talbert and Dr. Sarah Pratt; I could never have made it this far without them.

## DEDICATION

To my mom, who I promised I would never give up chasing my dreams. To my daughter,  
to serve as a reminder that she can accomplish anything.

## CHAPTER ONE

### Background and Needs Assessment

#### *Introduction*

Teachers are essential to the success or failure of curriculum implementation (Hargreaves, 1998). Despite this fact, teachers are frequently excluded from the decision making process, and their contributions are minimized during the curriculum development and selection process. Since the 1900s, continual changes to the mathematics curricula at national and state levels have occurred. Most recently, the National Governors Association Center for Best Practices and Council of Chief State School Officers (NGA & CCSO, 2010) facilitated a national response to the continued need for improving math skills around the country by developing the *Common Core State Standards for Mathematics* (CCSS-M). The collaborative efforts of NGA and CCSO (2010) led to the adoption of the CCSS-M by most of the United States and the District of Columbia. However, before this national standards-based reform movement and the adoption of higher mathematical standards, school districts, and individual states held primary responsibility for the creation and implementation of the standards and curricula decisions in their local context.

The Tenth Amendment of the U.S. Constitution allows each state to control a curriculum's implementation and assess its effectiveness (Tampio, 2017). Subsequently, curricula changes produce challenges for states, districts, and individual schools. To address this challenge, individual state education departments annually assess their students to see where their districts and schools rank academically (U.S. Commission on

Civil Rights, 2004). In addition, the states provide yearly tests to measure student growth. In addition, schools with traditionally low-test scores are prescribed reform-based curricula to remedy the lack of student growth (U.S. Commissions on Civil Rights, 2004). To demonstrate implementation of the reform-based curricula, states require schools with low-performance scores to update their academic plans by including changes to show targeted student growth action steps and specific standards that are addressed using the prescribed curricula.

This descriptive case study's intention included identifying obstacles teachers faced and determining the best practices for implementing a mandated curriculum. Eureka Math served as the mandated curriculum for this study. The implementation of Eureka Math amid a global pandemic provided an excellent opportunity to learn about how changes in content resources and changes in the delivery of instruction impacted K–5 teachers.

### *Statement of the Problem*

Change creates stress and anxiety (Marris, 1975, McCormick et al., 2006). Teachers must endure frequent changes due to continual improvement in the mathematics curriculum. For example, in 2010, the *Common Core State Standards in Mathematics* (CCSS-M, 2010) launched a restructured curriculum reform across the United States. Core shifts in mathematics curriculum reform include students' use of prior mathematical concept knowledge and student discourse to facilitate understanding of new concepts (NCTM, 1991, Williams & Baxter, 1996). Procedural fluency and skill, conceptual understanding, and real-world application define rigor in an educational context (NGA & CCO, 2010). Current reform-based curricula operate under the theory that teachers are

the facilitators of knowledge (NCTM, 1991, Williams & Baxter, 1996). The demands of the reform-based curriculum rely heavily on the classroom teacher.

In response to CCSS-M in 2010, the Louisiana Department of Education (LDOE) created a structure to implement a specific reform-based curriculum. LDOE used detailed criteria to assign a grade for each school and relied on school performance scores as indicators of schools requiring intervention plans. The intervention plans include a Tier 1 curriculum approved by LDOE to contain CCSS-M. LDOE school performance scores include A, B, C, D, F. Like grades given to students, receiving an A indicates a school is performing at the top. At the same time, LDOE considers a school receiving an F as a low-performing school. Several factors comprise school performance scores, including the number of students who pass the required end-of-year standardized exams for various subjects and graduation rates.

In Louisiana, an annual assessment, the Louisiana Educational Assessment Program (LEAP), measures all students in grades three through eight for their knowledge in math, English language arts, social studies, and science as aligned with the state standards (LDOE, 2021). School performance scores include the pass rates for regular education students (traditional education includes students without any indicated exceptionalities) on the LEAP. Prescribed intervention plans include data for specific high-risk student groups (isolated demographic within the student population). The requirements for schools to implement the state's intervention plan include having failing scores on the LEAP assessments, high-risk students failing two or more core subjects on the LEAP assessments, and high suspension rates. A school that meets one or more of the

criteria listed is placed on a Tier level intervention plan with prescribed remediation guidelines.

As a result of LDOE low letter grades and intervention plans, St. Tammany Parish Public Schools (STPPS) in Southeast Louisiana experienced many curricula changes between 2017 and 2020. In 2017, only schools placed on a Tier 1 intervention plan within STPPS were required to implement a mandated curriculum. Therefore, multiple schools within STPPS were implementing different Curricula. Although the schools were placed on the Tier 1 intervention plan, the STPPS district selected the curriculum implemented based off of the LDOE approved Tier 1 curriculum list. By 2019 due to the inconsistency of curricula throughout the STPPS district school teachers and administrators raised concerned of student gaps in content achievement.

To remediate the curriculum inconsistencies throughout the district, in the Spring of 2020, the STPPS school board voted to implement the same grade-level curriculum throughout the entire district (STPPS, YouTube, 2020). This curriculum adoption ensured that all schools, Tier 1 or not, were implementing the same Tier 1 material. The school district selected three different Tier 1 curriculum approved by LDOE. Grade levels K–5<sup>th</sup> implemented Eureka Math, 6<sup>th</sup>–8<sup>th</sup> implemented Ready Mathematics, and 9<sup>th</sup>–12<sup>th</sup> implemented Springboard. STPPS selected three different programs to span throughout K–12<sup>th</sup>, despite many programs offering kindergarten to 12th-grade complete curriculum. Because having various programs in different grade-level groups creates gaps and other issues, the district set a goal to select a single Tier 1 curriculum to implement from K–12<sup>th</sup> grades by 2023 (STPPS, YouTube, 2021). Should this occur, it would be the fourth curriculum change for teachers to appear since 2017. While research shows teachers face

many challenges when implementing a new curriculum, little research exists surrounding the obstacles teachers encounter when implementing a mandated curriculum.

### *Literature Review*

Changes in education create situations for teachers to navigate. This chapter presents the literature that supports the need to learn from teacher experiences implementing mandated math curricula. The following literature highlights historically significant changes in the mathematics curriculum through a history of curriculum changes, teachers' response to change, and the implementation and facilitation of change. First, the researcher addresses the history of mathematics curriculum changes throughout the 20<sup>th</sup> century. Second, the researcher addresses the background of Eureka Math as a reform-based curriculum. Third, the researcher discusses the impact of mathematics curriculum change within Louisiana. Fourth, the researcher discusses the impacts on the teacher as the change agent for educational change.

The conversation to analyze curriculum and teaching practices in the classroom began to transform in the early 1990s. Many researchers were instrumental in providing context for a change in how teachers delivered the material (Hiebert et al., 1996). Changes in mathematics curriculum throughout the 20<sup>th</sup> century led to several reform-based educational practices and movements. Reform-based education in mathematics refers to the notion that all students have the ability to learn and understand mathematics through multiple styles teaching (Stiff, 2001). One of the reform-based changes resulted in standards-based reform educational practices. Standards-based reform practices require teachers to be knowledgeable in multiple teaching delivery practices. Most reform-based curriculum, including standards-based curriculum, allowed teachers to engage student



learning through problem-solving and utilizing students' prior knowledge of previous ideas or concepts rather than rote memorization (Hiebert et al., 1996). Reform-based education centered around student-driven lessons that made the teacher a facilitator rather than the primary source for knowledge (Baxter et al., 2001). The reform-based teaching style differed from direct instruction by transitioning the ownership of the content and learning from the teacher's hand into the student's hands (Baxter et al., 2001; Hiebert et al., 1996). The response to the changes varied by state, district, and individual school. Some, but not all, schools offered professional development for reform-based teaching. Therefore, teachers' lack of professional development on reform-based education implementation led to classroom struggles (Darragh & Valoyes-Chávez, 2019). Subsequently, teachers developed their teaching materials and trained themselves to implement the new changes. The result of educator collaboration resulted in the formation of Eureka Math curriculum, which was adapted and implemented nationwide.

### *Changing Tides of Curriculum*

Historically, the mathematics curriculum has been a point of debate. Changes in the mathematics curriculum trace back to 1894 (Reys & Reys, 2011). In 1894, the conversation about mathematics content included standardizing curriculum to be adaptable to all students. At the start of the 20<sup>th</sup> century in the United States, mathematics education became recognized as a professional field of study (Stanic & Kilpatrick, 2004). Between 1918 and the turn of the 21<sup>st</sup> century, mathematics curriculum became segmented and implemented as sequences such as algebra and geometry (Reys & Reys, 2011). At the beginning of the 1990s, mathematics reform consisted of unifying the

application of mathematics (Stanic & Kilpatrick 2004). While reform changes continued, noteworthy events resulted in multiple reform implementations.

In 1918, the focus shifted away from the importance of mathematics in primary schools. In response, a publication in 1923 by the National Committee on Mathematical Requirements reassessed the need for mathematics curriculum and started the conversation of math curriculum in schools. The discussion for mathematics curriculum continued to increase as more students attended secondary schools (Reys & Reys, 2011). The increase in promotion for students to attend secondary schools heightened discussion on mathematical curriculum.

Mathematical reform shifted once again between 1950 and 1960. Several scholars indicated the shift in mathematical reform occurred as math became a stand-alone subject as opposed to previous teaching of math and science together (Stanic & Kilpatrick, 2004). Stanic and Kilpatrick (2004) noted that between 1950–the 1960s, “modern mathematics was the core of reform efforts” (p. 12). This modern reform was termed the “new math” era (Reys & Reys, 2011). Students lacked mathematical knowledge as they exited high school and entered colleges and universities (Kilpatrick, 1997). The mathematics concepts and knowledge gap appeared most prominently on College Entrance Examinations (Reys & Reys, 2011). As a result, in 1963, the Cambridge Conference released a report, *Goals for School Mathematics*, which outlined curricular goals for K–12 students to increase the depth of knowledge of mathematical content (Reys & Reys, 2011). The curriculum reform presented by the Cambridge Conference report recognized the push back it would receive, as the presented reform suggested, “not only that most teachers will be completely incapable of teaching much of the

mathematics outlined in the curricula proposed here; most teachers would be hard put to comprehend it” (Educational services Inc., 1963, p. viii). By 1980 mathematics curriculum underwent another reform.

In 1980, the National Council of Teachers of Mathematics (NCTM) proposed another reform to mathematics. The NCTM proposed reform released as *An Agenda for Action* that addressed increased focus on “problem-solving” and recommended requiring mathematics courses in high school for a minimum of three years (Reys & Reys, 2011, p. 10). Furthermore, the release of *A Nation at Risk: The Imperative for Educational Reform* (1983) perpetuated the movement to national standards even further. The proposition from NCTM aligned with similar recommendations from the National Commission on Excellence in Education (1983) and the National Research Council (1989) was in response to the indicated national crises in American education, which was significant in moving forward mathematical reform (Reys & Reys, 2011). This step launched the NCTM to develop national mathematical standards.

In 1989, NCTM released the *Curriculum and Evaluation Standards for School Mathematics*. The proposed curricula included strengthening the goals for each K–12 grade level with standards that reflected building on skills learned during each previous grade level. This specific report is noteworthy in the history of educational reform because it took a compilation of preliminary information, programs, and suggestions to create a single, well-organized proposal instead of simply issuing a statement consisting of several individual new recommendations all bound together (Owens, 1988).

Reform in educational practices continued to evolve throughout 1990–2000. In 1997 NCTM, along with the National Research Council (NRC), issued a report,

*Improving Student Learning in Mathematics and Science: The Role of National Standards in State Policy*, in response to a request from the National Education Goals Panel (NEGP). NEGP wanted guidance on implementing NCTM standards (Burrill & Kennedy, 1997). The significance of this report led to new collaborations between NCTM and NRC and outlined plans to implement the previous standards recommendations (Burrill & Kennedy, 1997). In addition, the report identified five main recommendations aligned with strategic implementation of the national standards: state infrastructure, textbooks and other instructional materials, curriculum, teaching, and assessment (Burrill & Kennedy, 1997). More importantly, the recommendations provided an outline for the necessary implementation of national standards at the state level.

In 2000, NCTM released *Principles and Standards for School Mathematics* which served as the next installment in the reform process for mathematics standards. The government's push to reduce student achievement inequality resulted in The No Child Left Behind Act (NCLB) (Pendell, 2008). Historically the principal, district, or the state enact curriculum changes; the only group unable to sanction change is at the federal level (Elmore & Burney, 2011; Pendell, 2008). Even though the Tenth Amendment restricted the federal government from making curriculum decisions at the state and local level, criticism from policymakers-initiated efforts to bypass local administrators to promote change (Elmore & Burney, 2011; Elmore et al., 1996). The NCLB act in 2000 announced these efforts and created new standards, and focused on common aligned standards in all states. The standard aligned focus included discussion of the pedagogy of teaching, and the result was the creation of "reform-based" knowledge (Hamilton et al., 2007). Reform-based education produced CCSS and CCSS-M (Baxter et al., 2001). State adoption of

CCSS and CCSS-M continued to increase in adoption and implementation as the years went on.

In 2001, the NCLB act transformed the relationship between the state, districts, teachers, and curriculum (Hamilton et al., 2007). In 2010–2011, the “Race to the Top” movement implemented by the government created more demand for resources aligned to CCSS and CCSS-M. The Common Core movement stunted the textbook community, and solutions were far from easy as they scrambled to produce any material aligned to the CCSS or CCSS-M (Petrilli, 2017). Federal grant money was accessible as an incentive to create material aligned to the CCSS and CCSS-M as part of the “Race to the Top” initiative.

The decision to adopt the CCSS-M standards at the state level was met with resistance by teachers and slow implementation (Hamilton et al., 2007; Snyder, 2017). Historically, teachers implement the state materials through a teaching method they believe will produce the greatest success from their students (Tampio, 2017). The standards-based curriculum took away the teachers’ power to make these decisions by implementing scripted and rigid delivery methods but allowed for consistency in implementation (Petrilli, 2017). Teachers experienced animosity toward the new curriculum due to their lack of autonomy in the classroom (Hargreaves & Goodson, 2006; Tampio, 2017). Educational reform continued despite teacher resistance.

In 2005, many states adopted the CCSS-M. This implementation allowed teachers to systematically align standards throughout each grade level. The CCSS-M provided fewer but more in-depth standards than the *Principles and Standards for School Mathematics* (2000). The initiation to implement CCSS-M reduced the number of

standards and comprehensively explored them. However, the textbooks in 2005 did not align with these standards. Teachers could not utilize the textbooks since they did not align to the CCSS-M (Sood & Jitendra, 2007). Therefore, teachers created their materials using the new CCSS-M and CCSS (Hirsch & Reys, 2009). In response to the lack of content aligned to the CCSS-M, teachers all over the United States collaborated to design a curriculum to meet their needs.

Before the educational reform, specifically standards-based reform, classroom teachers were responsible for planning lessons, managing student grades test scores, and closing student achievement gaps. Despite any academic gaps students have the teacher is still accountable for their test scores (Charalambous & Philippou, 2010). Teachers' responsibility overwhelmingly increased throughout the educational change of standards-based curriculum, adding additional work and minimizing free time (Hargreaves & Goodson, 2006). Although the changes continued adding stress and anxiety, educational reform practices have yet to be halted.

The Obama Administration launched the Race to the Top (RTTT) to circumvent failures of NCLB (McGinn, 2012). RTTT grants were explicitly designed for those devoted to reform initiatives (McGinn, 2012). RTTT differed from NCLB by creating rewards instead of sanctions for states and schools systems implementing standards-based curriculum (McGinn, 2012). Despite federal funding, in 2015 the standards-based curriculum's approval rate decreased from 83% to 50% (Tampio, 2017). Even with the decrease in approval, most states kept the CCSS-M and continued implementing them in the schools (Tampio, 2017). Even with a decline in popularity, teachers continued to implement the required CCSS-M.

Though CCSS-M sought to meet all student needs and fill gaps for districts and students, the intent of CCSS-M appears more complex than described. Additionally, it was thought that the accessibility of CCSS-M would allow schools implemented and efficiently to improve student achievement. Tampo (2017) suggested that the CCSS seemed to generate a marketable profit for those who created the standards. The same individuals formed the CCSS and CCSS-M designed and marketed new state standardized testing assessments. Furthermore, Great Minds generated and monopolized profit from the standards before other curriculum sources such as Pearson or Curriculum Associates (Petrilli, 2017). CCSS-M provided a guideline for coherent implementation, but politics negated the design's success.

Before CCSS-M adoption, various curricula gave teachers flexibility in implementing the required material. For example, Petrilli (2017) reported that in 2016, “less than one in five teachers said their materials were well aligned to the Common Core” (p. 83). In 2015, a reported 44 % of elementary math teachers teaching at a Common Core public school were using one program in particular, Eureka Math, in their classrooms at least once a week (Petrilli, 2017). Eureka Math quickly became a popular choice for teachers as it was one of the few successful curriculums that paralleled the Common Core State Standards.

### *Eureka Math*

In 2010, a new and respected group of educators from all over the country collaborated and developed an Engage New York curriculum. Engage New York launched a free curriculum for teachers to access online (Petrilli, 2017). As Engage New York grew in popularity, Great Minds' publisher bought and developed the material for a

nationwide curriculum called Eureka Math (Petrilli, 2017). Many teachers utilized Eureka Math in the classroom even before it was an official curriculum or recognized at the district and even state level as a research-based curriculum (Petrilli, 2017). Petrilli (2017) reported that Louisiana State officials, “speculated” rising test scores were attributed to Eureka Math (p. 84). In 2010 Louisiana adopted CCSS and CCSSM in response to a federal aid program offered through the “Race to the Top” federal act (Tampio, 2017). The implementation of Eureka Math gave districts and states more distinct, coherent, and aligned material to choose from to increase students college preparedness.

Engage New York, what eventually became Eureka Math, was a product of federal grant money awarded to teachers who wanted to develop their curriculum (Great Minds, 2021). The developers and collaborators working on Engage New York included teachers and administrators from every background. Developers came from multiple different locations of educational experience. The backgrounds of those developing the curriculum including working private schools, inner-city schools, rural schools, urban schools, and low-income schools. Engage New York was a free online curriculum (Great Minds, 2021). Engage New York gained popularity with CCSS-M schools who required to teach the standards directly, but that had no budget to purchase aligned CCSS-M curriculum (Petrilli, 2017). This popularity also resulted in free online exposure giving Engage New York national recognition.

Great Minds became the formal publisher for Engage New York and rebranded the curriculum as Eureka Math (Great Minds, 2021). Great Minds strategically created parent guides, implementation guides, more lessons, and even more practice for purchase in addition to the primary free curriculum. While Great Minds offered the basic



curriculum for free, teachers inevitably wanted to purchase the actual student workbooks and teacher manuals for each module rather than print out all the materials. As a result, many administrators and districts paid for teachers to attend training put on by Great Minds all over the country. Therefore, while Eureka Math offered free content, it ultimately became just as costly as the previously purchased textbooks because of the supplemental materials used with the curriculum. However, unlike textbooks purchased by districts every five years, Eureka Math released their latest purchasable material to schools annually (Great Minds, 2021).

Eureka Math is a curriculum that aligns with CCSS-M and provides a reform-based solution. Eureka Math also promotes a curriculum adaptable for all students (Rubenstein et al., 2015). However, adaptability is a substantial concern for teachers required to teach the reform-based curriculum because the adaptability of the lessons still requires students to be on grade level for reading and comprehension. Studies show that a robust reform-based curriculum allows students to retain information and build upon prior concepts (Bottge et al., 2007). Eureka Math's design encourages students to build upon prior knowledge and engage in problem-solving activities (Great Minds, 2021). Finally, Eureka Math developers strove to close the student achievement gap by using a combination of modeling, fluency, specific vocabulary, and intentional rigor throughout all grade levels.

Lesson designers successfully aligned the lessons to CCSS-M, limiting teachers' need to search for materials outside of Eureka Math. A strength of Eureka Math is that its lessons differentiate based on students' needs without the teacher having to create additional differentiated lessons (Rubenstein et al., 2015). Each lesson provides teachers

with the scaffolding of previous knowledge into current lessons and new concepts, including examples, exercises, an exit ticket, and a problem set. Each Eureka Math lesson consists of a unique design in one of the following four areas: lead instruction, Socratic seminar model, student lead teaching, and exploratory experiences. Eureka Math's various teaching models create differentiated learning for teachers and ultimately students.

Eureka Math consists of a K–12 curriculum broken down into stories. K–5 is the story of units, 6–8 the story of ratios, and 9–12 the story of functions. The curriculum provides a strategic implementation plan so that students can make connections from one year to the next and build upon the foundational blocks of the year's past. For example, in third grade, students learned to multiply using area models. Finally, students learned that repeated digit multiplication is raised to a power as a procedural rule for exponents in eighth grade. Lastly, in Algebra, both concepts came together when students multiplied binomials and polynomials (Great Minds, 2021).

Teachers utilize backward design planning to implement Eureka Math effectively. Backward design starts with teachers completing the exit ticket. An exit ticket is a summative assessment of the knowledge students have gained after receiving the lesson in its entirety. After completing the exit ticket, the teacher works through the aligned lesson (Great Minds, 2021). The design allows the teacher to differentiate based on their student population and prepare lessons to address some students' math knowledge gaps. This system enables teachers to know where a student, who has mastered the material, can have an enrichment opportunity and where a student, who struggled, may need more attention. Everything the teacher needs is in the student book, the teacher manual, or the various online guides. The online guides consist of remediation outlines, a statement of

scope, the recommended sequence of when and what to teach, and an implementation guide (Great Minds, 2021).

Eureka Math training encourages teachers to collaborate with other teachers and work through the curriculum together. The idea behind the collaboration is to gain access to possible student outcomes by sharing strategies. Therefore, teachers who complete the exit tickets and lessons collaboratively create multiple answer possibilities and anticipate areas students may struggle to comprehend. Since designers script the curriculum to be implemented consistently by all teachers, collaboration is instrumental to implementing Eureka Math with fidelity and planning for all possible student outcomes. Correct implementation of Eureka Math aligns the standards vertically between grade levels. The vertical alignment allows the student to foster a deep understanding of the material. Eureka Math contains many strengths as a reform-based curriculum and challenges implementation.

Eureka Math presents teachers with significant limitations to grading formative and summative assessments because Eureka Math does not recommend utilizing many of their materials for grading (Great Minds, 2021). Most districts require teachers to give students feedback on formative and summative assessments. Formative assessments are given to students soon after learning new material (Formative vs. Summative: Learning and Teaching, n.d.). Students receive summative assessments at the end of a unit major curriculum milestone (Formative vs. Summative: Learning and Teaching, n.d.). Both types of assessments provide the teacher and the student with guidance on student comprehension of the material. An exit ticket is a formative assessment at the end of each lesson in Eureka Math. Eureka Math presents a summative assessment as a mid-unit or

unit assessment (Great Minds, 2021). Eureka Math discourages grading exit tickets and promotes using them as tools for remediation of topics that the students did not understand from the lesson (Great Minds, 2021). Lack of materials to grade is a limitation because many schools require several formative and summative assessment grades. Without this formative assessment, grade teachers must create more material to test students and find extra time to give the graded assessment. Due to the lack of assessments for grading, teachers spend more time collaborating and planning to create assessments aligned to standards, state tests, and Eureka Math.

In 2019 Great Minds collaborated with outside partners such as EMBARC to provide assessments and homework items in response to teacher frustrations to the lack of supplemental material provided to teachers (EMBARC, 2022). Districts had to purchase these resources separately from other Eureka Math material. The additional programs cost approximately three to five dollars per student. The added cost had a significant impact on school budgets.

### *Curriculum Changes Within Louisiana*

Reform-based education was a nationwide initiative (Bottge et al., 2007). Student achievement gaps varied across the United States. Low-income and rural areas ranked statistically lower in student achievement (Hamilton et al., 2007). Louisiana stood out compared to the other states with low achieving student scores in mathematics (Petrilli, 2017). Amidst NCLB, Louisiana became a target state to implement reform-based education to increase student scores and decrease the student achievement gap. The LDOE developed intervention plans to address low student scores and low-performing

school districts (LDOE, 2019). Their interventions included the use of reform-based mathematics curriculums.

In 2010 Louisiana decided to adapt and implement CCSS and CCSS-M (Petrilli, 2017). The National Assessment of Educational Progress (NAEP) reported in 2009, Louisiana ranked 48<sup>th</sup> in student achievement of 4<sup>th</sup> grade math out of 52 jurisdictions, including Puerto Rico and the District of Colombia. These alarming statistics reinforced the state's need to make various changes and mandates to increase math skills. By 2015 Louisiana increased its rank to 45<sup>th</sup> (NAEP, 2022). The improvement in academic performance was primarily attributed to CCSS and CCSS-M adoption, specifically to implementing the Eureka Math curriculum (Petrilli, 2017). In 2017 Louisiana created a specific criterion used to assess student achievement. This criterion required low-performing schools to implement a mandated curriculum. However, despite mandated curriculum implementation to low-performing schools, Louisiana dropped back down to 49<sup>th</sup> by 2019, according to NAEP (2022).

The initial implementation of Eureka Math in Louisiana schools gained momentum because the materials were free and accessible to teachers (Petrilli, 2017). Eureka Math appeared to correlate to growth in math scores (Petrilli, 2017). During the 2018–2019 school year, Louisiana carefully monitored 864 out of 1274 schools. Of the 864 schools, 277 were in Urgent Intervention Needed or Required (UIR or UIN) (LDOE, 2019), and the state had direct control over 277 schools and the curriculum in the classrooms. This intervention with curriculum also came with state check-ins to verify that teachers implemented the curriculum with fidelity.

St. Tammany Parish Public Schools (STPPS), located in Southeast Louisiana, was impacted by curriculum reform. The immediate 2018–2019 mid-year implementation of Eureka Math exposed gaps in students’ content knowledge and understanding of the curriculum. In the middle of the 2018–2019 school year, all K–12 STPPS schools identified as UIR or UIN schools began implementing the mandated Tier 1 math curriculum. During 2019–2020, all UIR or UIN STPPS K–12 schools continued implementing a Tier 1 math curriculum. For example, students who were already behind their grade level and those in the third grade and above who did not have Eureka Math in their prior years were also further behind in the math curriculum. The remediation needed for students included addressing gaps in knowledge from previous school years and a lack of prior knowledge about Eureka Math. Remediation extended the time required to teach Eureka Math with fidelity. Teachers plan for intentionally scaffolding materials to meet students’ remediation needs behind grade level and equated to more to plan and prepare for student misconceptions.

In 2017, only one-third of STPPS implemented the same curriculum due to placement on a UIR state plan. However, in 2020 STPPS selected Eureka Math as the mandated math curriculum for all schools, which contained kindergarten through fifth-grade levels in their school. As this occurred, the Eureka Math implementation exposed gaps in student achievement throughout the entire district since many feeder schools did not utilize the same curriculum as the schools to which they assimilated. This increased teacher frustration with the implementation of Eureka Math.

### *Teacher Response to Reform-Based Curricula*

Change does not occur without a teachers aspiration to enact change (Goodson, 2001). All teachers respond differently to shifts in educational change (Hargreaves, 2005). A deeper examination into educational change require an understanding of Goodson's (2001) Theory of Educational Change. Goodson (2001) initially described educational shifts in reform through two phases, internal and external. Internal change forces included education professionals and teachers alike. The timeline of Goodson's (2001) internal changes occurred between the 1960s–1970s. Goodson (2001) described this era of evolution as a time for educators and teachers to explore new concepts and ideas while maintaining autonomy over their classrooms. The external era occurred during the 1980s–1990s and directly impacted the independence of internal change agents (Goodson, 2001). During the external change era, Goodson (2001) stated internal change groups lost their visions for changes because of the interest from external groups. External change groups occur at the local district level, the state level, and the federal level. External change groups challenge the autonomy of teachers. Goodson (2001) stated, “externally mandated change forces are all very well as a triumphalist symbolic action pronouncing the world order, but unless they develop sensitivity to school context and to teachers’ personal missions, the triumph may be short-lived and unsustainable” (pp. 52–53). However, according to Goodson (2001), “personal missions and purposes underpin commitment to change process” (p. 45). Therefore, the collision of internal and external change agents created Goodson's (2001) newest and recent addition to change, personal change.

Goodson (2001) describes personal change as “the personal beliefs and missions that individuals bring to the change process” (p. 45). Personal change agents are in charge

of implementing the change (Goodson, 2001). These change agents include teachers. Teachers are left out of the change process and are unmotivated, leaving reform changes unsuccessful (Goodson, 2001). Determining ways to motivate and encourage teachers to implement change successfully requires looking into Hargreaves' (1998) process of teacher change.

Teachers in the new millennia are charged with curricula reform and student successful state test scores. According to Goodson (2001), his research in Goodson and Foote (2001) uncovered “a massive body of teachers preparing students for the state exams, who are being charged with delivering reforms concerning which they felt uncommitted, disvalued, and demotivated” (pp. 53–54). Goodson (2001) states that successful change occurs when personal change comes before institutional change. Reform change is successful when teachers change their personal beliefs first.

Reform changes are often superficial and lack the critical element of focusing on the teacher (Hargreaves, 1998). Educational change cannot occur without direct teacher input (Hargreaves, 1998). Hargreaves (1998) and his colleague David Hopkins called these significant changes “branch changes: significant, yet specific changes of practice, which teachers can adopt, adapt, resist or circumvent, as they arise” (p. 6). The lack of information from teachers while expecting teachers to enact many reform changes creates resistance and challenges. Teachers who feel successful have developed strong self-efficacy from their prior mastery experiences (McCormick et al., 2006). Teachers implementing a new curriculum need to establish success through these same mastery experiences. McCormick et al. (2006) suggest that “peer-to-peer interactions and modeling by external curriculum experts” allow for teachers to create opportunities to



feel successful and build strong self-efficacy (p. 55). Therefore, developing and supporting peer-to-peer collaborative opportunities for teachers promote positive reform experiences.

*Resistance.* Resistance to change occurs across multiple disciplines and fields (Dent & Powley, 2003). Implementing a new curriculum creates resistance from teachers (Valoyes-Chávez, 2019). Teacher resistance to change causes the slow implementation of reform-based curricula (Snyder, 2017). Lack of teacher-created lessons and mandated professional development taught by those who had never been in their classrooms create teacher resistance (Snyder, 2017). Teachers are protective over their classrooms and resist implementing material that they believe does not benefit the students in their classroom (Myers, 2019). Many teachers are resistant to curricula changes due to the lack of voice in their classrooms as professionals.

Lack of resources and up-to-date data regarding the research behind new standards and curriculum also cause teacher resistance to change (Valoyes-Chávez, 2019). The effective curriculum must be translated into materials that guide the day-to-day decisions of teachers and help them focus on the essential mathematical learning goals in significant ways” (Hirsch & Reys, 2009, p. 753). Successful implementation of the reform-based curriculum requires these materials. In addition, the new CCSS and CCSS-M left teachers with a gap of materials needed to implement the new standards.

Valoyes-Chávez (2019) speculated that resistance was not the main barrier to implementing reform-based education but that lack of professional development and teacher autonomy impede reform. A reform-based curriculum lacks sensitivity to a teacher’s culture and prior experiences in the classroom (Valoyes-Chávez, 2019).

Therefore, administration should make efforts to provide educators with sufficient professional development regarding a topic such as teacher autonomy while implementing a regimented curriculum.

*Professional development.* Implementing a new curriculum requires a structured process. This process commands dedication from all teachers, whether they are new to teaching or veteran teachers. Adequate time to prepare and learn about the curriculum is crucial to making the implementation a success. Reform-based education lacked proper professional development (Darragh & Valoyes-Chávez, 2019). Teacher motivation for professional development occurs when teachers find professional development relatable (Smith & Gillespie, 2007). Motivated teachers enact change (Cerda et al., 2017). Cerda et al. (201) found that teacher self-efficacy increased after professional development when teachers felt they could effectively implement the material presented in the professional development. Professional development centered around the new curriculum promotes teacher self-efficacy.

Professional development is used as a tool to help teachers transition into their new roles within a reform-based curriculum. The goal of professional development is to meet the needs of the audience of teachers who engage with students in their classrooms. Darragh and Valoyes-Chávez (2019) suggested that PD programs “must provide learning experiences for teachers to unlearn prejudiced and stereotypical representations of students” to meet the needs of teachers and their classrooms (p. 437). Therefore, a key component of implementing a new curriculum is professional development that considers students’ culture and classroom backgrounds.

*Self-Efficacy and collaboration.* Change is initiated through a teacher's self-efficacy and motivation to participate in change (Smith & Gillespie, 2007). Teachers see change as a positive experience when they have a buy-in to the change. Teachers must believe in the change and experience some success implementing changes (Fullan, 2007). Motivation drives self-efficacy (Bandura, 1997). To sustain the changes, teachers need collaboration (Fullan 2007). Increasing motivation for teachers, may also increase a teachers motivation to help enact change.

Teachers' self-efficacy plays a role in professional development. Cerda et al. (2017) found that teacher self-efficacy increased after professional development when they felt they could effectively implement the material presented in the professional development. Professional development centered around the new curriculum promotes teacher self-efficacy which, prepares teachers to act as change agents and facilitates the successful implementation of the new curriculum. However, teachers who lack professional development must find support from other peers to feel the same level of success (McCormick et al., 2005).

*Student-Centered.* Teachers struggle to ensure reform-based education meets the needs of all their students (Hargreaves & Goodson, 2006). Reform-based changes continually excluded students with significant gaps of knowledge or students requiring special education services (Baxter et al., 2001). Instead of changing the curriculum to meet the needs of the students, students' course requirements and grades were altered to allow them to pass (Hargreaves & Goodson, 2006). Lack of equity in reform lessons for all students led to continued student gaps and frustrations for teachers (Baxter et al., 2001).

The reform-based curriculum requires strategic and intentional planning and prepping on the teacher's part. Utilizing a practical curriculum with a cohesive alignment across schools in the same district leads to more student success. A reform-based curriculum requires engagement and critical thinking in the student's interest. Students come with prior knowledge and experiences (Goldman & Pelligrino, 2015). Student achievement is obtainable with reform-based education if teachers are given resources to overcome obstacles.

### *Synthesis of Literature*

This section of the research study examined the history of educational change. Teachers are the primary agents needed to enact reform efforts (Hargreaves, 1998). This section outlined educational change throughout history, described specific curriculum reform, examined Louisiana implementation of Eureka Math, and discussed teachers' perceptions to change. Educational change continues.

The historical background for educational change, specifically in mathematics, dates to the early 1900s. Despite differences in initiatives and multiple implementations of reforms, the outcome remains the same. Additionally, educational reform coincides with political shifts in government, where policymakers rather than educators push for reformational change (Hargreaves, 1998). Lack of continued teacher input to reform initiatives creates problems for implementation (Hargreaves, 1998).

One issue caused by lack of teacher input is teacher self-efficacy. Teacher self-efficacy decreases when there is a lack of support, resources, and professional development (Baxter et al., 2001). Reform curriculum lacked materials and procedures conducive to equitable learning (Baxter et al., 2001). Without strong teacher self-

efficacy, educational reform struggles with solid implementation. Much of the literature discussed the effects of reform on teachers but offered few results of successfully implementing curriculum change. This descriptive single case study seeks to identify obstacles teachers faced and determining the best practices for implementing a mandated curriculum. The following section reviews the theoretical framework used to conduct this research study and describes the purpose.

### *Theoretical Framework*

The personal change process for teachers is critical. In this study, Hargreaves' (1998) domains of teacher change are utilized as the framework for this study. Hargreaves' (1998) concept of teachers as change agents includes three domains: change, time and work, and culture. Change in education is continual. The role of a teacher is evolutionary and continues to change and increase in demands. Increases in technology and education are simultaneous. The changing cultural ideals of the world challenge the foundation teaching is built upon (Hargreaves, 1998). Teachers in the modern age are constantly criticized for the resistance to the changing of the foundation of traditional teaching (Hargreaves, 1998). Teachers impacted by changing in educational practice struggle with the increase in time and work demands.

Implementation of educational reform takes time and work. Hargreaves (1998) states, "Time is the enemy of freedom" (p. 95). Teachers value time. Time for teachers is a part of their identity and perception of themselves (Hargreaves, 1998). As new educational reform changes are implemented, the previous roles a teacher held are rarely disappated (Hargreaves, 1998). The new changes combined with the previous expectations creates more work and less time for teachers. Therefore, implementing

changing reform puts a strain on teachers. Teachers struggle to implement change with fidelity due to the constraints they feel from a lack of time.

Navigating changes takes time and work. These changes often impact the culture of classrooms, schools, and districts. Changes are often a result of changing cultures, policies, and mandates. For example, a teacher must overcome these challenges and create an accommodating culture for all students. Teachers take pride and joy in the culture of their classrooms (Hargreaves, 1998). Changes in routine and curriculum can diminish teachers' culture in their rooms. From interviews in their research, Hargreaves (1998) determined that while many teachers prefer solitude, they also enjoy grade-level collaboration. Implementing new educational reforms limits the time teachers plan together. Lack of time to prepare for mandated changes alters a teacher's classroom.

Hargreave's (1998) research consisted of teacher's preceptions based on their personal experiences. Through this research Hargreave's (1998) made the case that this missing link in curriculum change is the teacher's input. Hargreaves's (1998) concluded, "In much of the writing on teaching and teachers' work, teachers' voices have either been curiously absent or been used as mere echoes for preferred and presumed theories of educational researchers" (p. 4). This conclusion solidified the need for a study on teacher experiences where teacher's are able to utilize their voice and be heard.

#### *Conclusion: Purpose of the Study*

Teachers are responsible for student academic growth and achievement. The LDOE, among others, expects to see yearly growth from students regardless of students' gaps in content knowledge and inconsistent curriculum; the expectation is that students will grow from one achievement level to another. In addition, the LDOE proposed a

reform-based mathematics curriculum to solve the issue of low school performance scores and urgent intervention plan requirements.

This case study aimed to understand teachers' experiences while implementing a mandated mathematics curriculum. In Louisiana, the chosen curriculum followed the reform-based CCSS-M. The LDOE required fourth and fifth-grade teachers in St. Tammany Parish Public Schools (STPPS) who worked at UIR schools to implement Eureka Math. In 2020, STPPS mandated Eureka Math in all fourth and fifth-grade classrooms. The mandated curriculum created many obstacles for teachers. This descriptive single case study's intention included identifying obstacles teachers faced and determining the best practices for implementing a mandated curriculum. The case study sought to address the following central research question: What are the obstacles teachers experience while implementing a mandated curriculum, Eureka Math? Eureka math is a rigorous standards-based curriculum that allows the teacher to facilitate the knowledge rather than simply presenting the information through direct instruction. While, in theory, this reform-based curriculum and style of teaching was an advancement from traditional teaching techniques, it had negative effects as well. Obstacles to implementing a mandated curriculum included lack of professional development, inadequate administration support, and unrealistic deadlines for proper implementation.

The findings of this study may inform teachers, administrators, and districts of best practices for implementing mandated curriculum. The researcher's intent for conducting this case study was to identify teacher-faced obstacles and explore solutions for successfully implementing the required curriculum in the future to STPPS UIR schools. In February of 2021, the Superintendent of STPPS stated that STPPS would

undergo a review of the math curricula throughout the district. The Superintendent's goal for the 2022–2023 school is to adopt one cohesive curriculum for grades first through twelfth. Therefore, teachers in STPPS will once again face the implementation of a new mandated curriculum during the 2022–2023 school year. Identifying successful tools for implementing the new mandated curriculum will allow the school system to see positive student score outcomes from a new curriculum.



## CHAPTER TWO

### Methodology

#### *Introduction: Research Questions*

Teachers implement curriculum changes. Between 2017–2020 St. Tammany Parish Public Schools (STPPS) experienced three math curriculum changes. Curriculum changes overwhelm teachers already inundated with multiple responsibilities (Hargreaves & Goodson, 2006). In 2023, the district plans to implement a unified new curriculum throughout all K–12<sup>th</sup> grades, creating another change for teachers. Research presented in Chapter One describes limited solutions to successful implementation of reform-based curriculum, specifically, Eureka Math. This descriptive single case study explored teacher experiences while implementing a mandated curriculum.

This chapter introduces the methodology that framed the case study. Case studies respond to participant experiences and answer the how or the what (Creswell & Poth, 2018). The central research question addressed in this study is: what are the obstacles teachers experience while implementing a mandated curriculum? This research question offered a specific focus, guided the direction of the study, and provided research recommendations for the future.

The previous chapter outlined the history of mathematics reform, the implemented curriculum, and teachers' response to educational change. The problems identified in the literature include continuous changes in the mathematics curriculum, unsuccessful adoption of reform efforts, and increased time and workload for teachers. This case study focuses on the insights and perspectives of current math teachers

implementing a mandated curriculum. A descriptive case study design proved to be the most appropriate design for this problem of practice. A case study is the preferred method of qualitative design when focusing on interviews that directly relate to participants' experiences (Yin, 2018). Case studies utilize multiple information outlets, including interviews, to identify a holistic description and emerging themes of the researched problem (Creswell & Poth, 2018). This chapter outlines the theoretical research framework, method, and design.

This case study utilized multiple sources of information. The first data source came from information collected through questionnaires from various participants. By using a questionnaire first, I narrowed the focus for the interview phase and finalized the interview questions. The second source of data included participant perspectives and experiences gathered through interviews. The research provided a comprehensive description of teachers' obstacles when implementing mandated curriculum resources.

#### *Researcher Perspective and Positionality*

As the researcher in this study, I have had seven years of secondary teaching experience in Louisiana. I spent two years teaching in a private school and five years as a public-school teacher. Of those seven years, four of them I spent as a math teacher. During the four years I taught math I implemented three different curriculums. The curriculums were Eureka Math, Ready Math, and Springboard. This case study was essential because I implemented a new mandated curriculum three times during my teaching years. Of the four years I spent teaching Math, I spent three implementing Eureka Math between two different school sites. My experiences with Eureka Math shaped my initial perspective of this study. Eureka Math dives deep into the standards

and embeds multiple areas for all three components of rigor; conceptual understanding, procedural skill and fluency, and application. Unfortunately, this curriculum is not formatted like the traditional textbook curriculum I experienced growing up. The obstacles I encountered while implementing the new curriculum were lack of time to plan and collaborate, lack of professional development that aligned with the needs of my students, and lack of administrator knowledge of Eureka Math. Unfortunately, the lack of administrator knowledge made it particularly difficult to convey the struggles that the math teachers in my department were facing while trying to implement a new and challenging curriculum.

In 2020, St. Tammany Parish Public Schools (STPPS) decided to vote on one curriculum for the entire district of kindergarten through twelfth-grade math teachers to use. The district voted to keep Eureka Math for K–5<sup>th</sup> grades but change from Eureka Math to Ready Math for sixth through eighth grades and implement Springboard for 9<sup>th</sup>–12<sup>th</sup> grades. In a school board meeting in February of 2021, the Superintendent of STPPS announced that he would focus on adopting a new cohesive and unison curriculum for the 2022–2023 school year (STPPS, YouTube, n.d.). As a teacher ultimately affected by this curriculum decision, I was aware of my positionality during the data collection process. I navigated these challenges by focusing on things I did have control of, such as collaborating with colleagues, attending various training, and spending extra time outside of contract hours planning and practicing implementation. My personal experience led me to wonder how to enact district change for teachers in my school and district. Finally, I wondered how to give a voice to the teachers to help facilitate change of curriculum in the future without encountering so many obstacles.

I approached the study from a constructivist worldview. Creswell and Creswell (2018) stated, “social constructivists believe that individuals seek understanding of the world in which they live and work” (p.8). The constructivist worldview shaped my approach to research by seeking to understand the participants’ views in my study (Creswell & Creswell, 2018). As a constructivist, my background in curriculum implementation shapes the way I interpret the experience of others in similar situations. This research seeks to identify best practices for teachers to engage with others enact curriculum change.

During my years of teaching math and the changing of curriculums, I noticed significant resistance from my co-teachers to changing the curriculum. This change created a culture of negativity among the teachers. Before the research began, I identified several obstacles teachers encountered when implementing a new mandated curriculum. My assumptions included preconceived notions of veteran teachers’ disdain for change, lack of administrative support, and poor guidance from the central office while implementing the new curriculum.

Those assumptions informed several lenses through which I developed my research. Creswell and Poth (2018) identified two of these lenses as axiological, a set of ideals, and ontological, a noted reality to the researcher. My axiological perspective includes the standards I value as an educator. My ontological perspective, or my reality, is that I have worked in low-income public schools five out of the seven years I have been a teacher. The low-income schools I worked for saw constant curriculum changes. Only one of the schools I worked for aligned my ideal and values as an educator. Therefore, these two lenses framed how I conducted and analyzed this study.

My educator ideals include teacher collaboration, transparency among administration and faculty, and student understanding. The school I taught for during this research study matched all those ideals. It was common practice at my school for the teachers to collaborate, the administrators to be transparent, and all to consider student understanding an essential focus. During the 2019–2021 school years, our math department attended mandatory weekly professional learning communities (PLC). During the PLC meetings, the teachers and I discussed our current struggles and achievements. I grew professionally and personally because of the weekly meetings. The weekly collaboration with other teachers in the math department allowed me to become vulnerable and ask for help and share my expertise areas. In addition, I have seen improvement in my students' performance in my class and progress in students' performance in other courses.

Additionally, I value transparency. Over the last two years, my administration has been transparent and supportive. Administration support was lacking in my previous schools and often made me feel isolated and fail as a teacher. The last educator ideal is student understanding of the material. The pacing of the curriculum is usually a primary concern for most teachers and administrators. I value student understanding rather than pushing through the material to meet a timeline based on the curriculum.

Students from low-income schools are often the test subjects for the new curriculum. I attribute this to the districts' belief that the students will perform better on state tests if they adopt and implement a new curriculum. I believe that the constant changing in curriculum sets students up for failure. This perspective posed a risk for creating a bias that I needed to keep separate from my questionnaire and interview

questions. Instead, I focused my research on grade levels I had not been taught to address my bias. I have taught and implemented the Eureka Mathematics curriculum in the seventh, eighth, and ninth grades. Therefore, I focused my research on fourth and fifth-grade level teachers. Fourth and fifth-grade teachers in STPPS were mandated to use Eureka Math as their math curriculum. My knowledge of the curriculum helped me construct interview questions that focused on the curriculum's implementation instead of the curriculum's structure. My curriculum knowledge also helped me facilitate the interview with the teachers since I understood the basics of the curriculum as they discussed their struggles and successes in implementing the curriculum.

At the beginning of the 2021–2022 school year, I collected my data. At that time, I worked at an Urgent Intervention school required to implement Ready Math as our primary curriculum resource. I taught seventh, eighth grade, and algebra one mathematics curriculum during that school year. I followed the procedures outlined by the district, which included staying on the scope and sequence as much as possible. Admittedly, I had a positive experience with my administration and received tremendous support regarding scope and sequence. Since we were a UIR school, we had had a mathematics instructional coach for the 2018–2019 school year. I valued and respected the instructional coach. I found the instructional coach program beneficial and helpful—our instructional coach-led weekly Professional Learning Communities (PLC). About 50 % of the time, I found the PLCs valuable. I admittedly have a growth mindset and seek to follow the rules at all costs. Despite this positive experience, I still found there was never enough time to implement the Ready Math curriculum with fidelity. I struggle to understand the purpose for a scope and sequence that does not offer teachers flexibility.

Teachers and students are not all the same. Therefore, it is naive to expect every teacher to be on the same lesson on the same day. These experiences impacted my research and my understanding of the experiences of other teachers.

### *Theoretical Framework Application*

Hargreaves (1998) describes teachers as essential change agents. Hargreaves (1998) states these works presents “an understanding of teachers themselves, and of how they experience their work and the ways it is changing” (p. xiv). Hargreaves’ (1998) work offered the structure and framework needed to support this study on teacher experiences implementing mandated curriculum changes.

The framework informed the research question in several ways. The central research question investigated the obstacles teachers encountered during their experience while implementing a mandated curriculum. Mathematics curriculum continues to evolve through educational reform initiatives. This change is facilitated and implemented by teachers. Teachers experience many stages of change while implementing a mandated curriculum. Hargreaves (1998) separated change into three domains, change, time and work, and culture. Hargreaves (1998) informs the stages of change teachers move through as personal change agents. Goodson (2001) addresses the importance of teachers as personal agents of change. Therefore, the two models inform the research question: What are the obstacles teachers experience while implementing a mandated curriculum?

Hargreaves’s (1998) work that guided this study. Hargreaves’ (1998) change, time and work, and culture are crucial components of teachers’ implementation of change. This created a structure to allow teachers to share their experiences implementing a

mandated curriculum. This structure also provided the organization of the data collected into three domains, change, time and work, and culture.

Hargreaves (1998) relied on teacher experience as the central focus for implementation of educational change. This theory influenced the method for collecting data. To understand teacher experience implementing curriculum change and capture a holistic picture of implementation practices and obstacles, questionnaires, and interviews seemed the most appropriate method for data collection. The questionnaires collected data that led to participant selection and informed semi-structured interview questions. The semi-structured interview questions allowed participants to maintain autonomy in their responses and speak in detail about their experiences.

The collection of questionnaires and interviews led to the analysis phase. Hargreaves (1998) provided the codes necessary for the interviews. The three areas identified for coding were change, time and work, and culture. These specific codes allowed the researcher to sort out data effectively.

The knowledge acquired by the researcher from the experiences of teachers implementing curriculum changes describes both obstacles and suggestions for future implementation. In addition, the researcher made recommendations for future implementation plans to allow school districts to plan for more success and fluidity in the process. Hargreaves (1998) provided the framework to guide the research process.

### *Research Design and Rationale*

Qualitative research gives a voice to a population or group (Creswell & Poth, 2018). Constantly changing the mathematics curriculum creates chaos for teachers. My approach offered a voice back to the teachers and allowed a complex problem to be



explored. Creswell and Poth (2018) state qualitative research will enable participants to “tell their stories unencumbered by what we expect to find or what we have read in literature” (p. 45). These stories allowed me to see the obstacles through the lens of the participants. This created implementation strategies that were meaningful for the district and could be used in the future.

A descriptive case study design was appropriate for this research to understand real-world experiences recounted through the teachers’ lived experiences affected by the mandated curriculum. Case studies can include a person, a small group of people, or many people, such as an organization (Creswell & Poth, 2018). This design focused on individual teachers who could communicate their experienced implementation of a mandated curriculum. This was the best design for my study because the primary focus was to interview teachers to gain their experiences as math teachers implementing a mandated curriculum. Case studies look to analyze themes through real-life inquiry and have a central focus on data collection (Creswell & Poth, 2018). This case study allowed teachers to express their obstacles in implementing a new curriculum. This study also gave teachers the ability to share their success stories.

Descriptive case studies include a natural setting, use the researcher as a primary instrument, engage multiple methods, and seek out numerous participant perspectives (Creswell & Poth, 2018). To capture teacher experiences, I utilized a descriptive case study. In addition, St. Tammany Parish Public Schools (STPPS) served as the primary setting for this research. During the data collection phase of this work, I first utilized a questionnaire and then conducted one-on-one Zoom interviews. During the analysis phase, I focused on narrowing the participants’ perspective on implementing the

curriculum to identify best practices for implementation.

Data collection and data analysis require strategic planning. Creswell and Poth (2018) state that data is analyzed by the researcher and described as “lessons learned from studying the case” (p. 98). Case studies follow a methodical path when beginning analysis (Yin, 2014). That path starts with a lot of planning and leads to the other necessary stages moving from design, preparation, collecting, analyzing, and sharing. Data analysis depends on the data collection process and the collected data.

This descriptive case study included multiple sources of information for data analysis including questionnaires and interviews. Covid-19 forced restrictions during research collection. STPPS’s pandemic-related limitations included a ban on visitors to campus sites and in-person meetings of people from different school sites as well as strict implementation of mask-wearing and maintaining six feet apart. Due to the restrictions placed on STPPS, I conducted all research through online platforms. In addition, I sent participants questionnaires through email using Google forms to collect the responses. In addition, I conducted semi-structured interviews through Zoom. Finally, I determined teachers’ obstacles through the questionnaires when implementing a mandated curriculum. The questionnaires allowed me to narrow the focus and select the participants for the interviews. Finally, the interviews detailed the participants’ real-life personal experiences when teaching the mandated curriculum. Finally, I captured rich, thick descriptive data to answer my central research questions through these data collection steps.

### *Site Selection and Participant Sampling*

The research study took place at STPPS in Southeast Louisiana. This district is typically one of the top districts in Louisiana. Several factors were included in the selection of STPPS as the site for the study. The first factor is the district's proximity to me as the researcher. I had more accessible access to teachers since I taught in the district at the study time. The district is extensive and provides a larger population to sample.

Additionally, STPPS decided to implement the same curricula throughout all K–12 schools in the district. This decision was made because, in 2014, the Louisiana Department of Education (LDOE) changed its school scoring system. Due to this change, STPPS saw a decrease in individual school scores, leading to a drop in the district score. The decline in scores put many schools on urgent intervention needed (UIN) or urgent intervention required (UIR) plans. Intervention plans included a prescribed mandated curriculum. Teacher resistance increased due to the constant changing of curriculum, lack of administrative support, and minimal professional development.

St. Tammany Parish Public Schools (STPPS) is comprised of 55 schools. The district spans a large area that includes several towns and cities, including Abita, Bush, Covington, Folsom, Lacombe, Lee Road, Madisonville, Mandeville, Pearl River, Slidell, etc. Sun. The city of Covington houses the central office. At the time of this study, the district served over 39,000 students. The student population included 31% minority students, 45% students on free or reduced lunch, and three percent limited English proficiency. In 2014 LDOE changed the school performance scoring parameters. Between 2014 and 2018, 30 STPPS schools qualified for a UIN or UIR. Placement on a UIR or UIN plan also labeled schools as Tier 1 schools. All fourth and fifth-grade St. Tammany Parish Public Schools (STPPS) teachers implemented mandated Eureka Math

during the 2020–2021 school year. The constant changes in curriculum and looming future curriculum change made STPPS a robust data collection site. This descriptive single case study’s intention included identifying obstacles teachers faced and determining the best practices for implementing a mandated curriculum.

### *Site Selection*

The site parameter for my study included STPPS schools required to implement a mandated math curriculum during the 2021–2022 school year. I reached out to the Superintendent’s office and received approval (Appendix B) to conduct my research. I then clarified the guidelines for collecting data to ensure all data was collected above board with the Union President. I selected STPPS specifically because, in February 2020, STPPS required all grades kindergarten through fifth grade to implement Eureka Math. Therefore, the site parameter for my study included any STPPS school needed to implement a mandated math curriculum during the 2021–2022 school. To gain a better perspective of implementation for both UIR and non-UIR schools, I opened the parameters to all schools and, therefore, all teachers within the district who met the bounded system parameters.

The descriptive single case study research design implemented a bounded system. A bounded system is “a process, an activity, an event, a program, or multiple individuals” (Creswell & Poth, 2018, p. 150). This study’s bounded system included multiple individuals from the same school district who taught the same subject and implemented the same mandated curriculum to fourth and fifth-grade students during the 2021–2022 school year. I posted my dissertation request for participants and the questionnaire on a private teacher site. The questionnaire allowed participants to select if they would like to

participate in the interview process or not. I chose four participants for the interviews that fit the participant criteria. Stress and anxiety among teachers, along with a lack of autonomy, I decided to conduct all research outside of STPPS operational school hours, in a location chosen by the participant where they felt safe and comfortable discussing their personal experiences and conducted all email exchanges through personal and preferred email addresses.

I conducted the questionnaire through Google forms and received immediate feedback responses. The Google forms also asked participants to participate in a follow-up interview. I limited my interviews to four teachers and only those who taught fourth and fifth-grade math. I conducted the interviews outside of school hours and through Zoom. Participants selected the time for the Zoom meeting. The virtual application of Zoom allowed participants to choose their interview location. Allowing the participant's autonomy for the time and place of the interview increased the participants' comfort level.

### *Participants*

Purposive criterion based sampling drove the selection of participants. Criterion purposive sampling includes participants that meet specific criteria to allow for "quality assurance" in sample selection (Creswell & Poth, 2018, p. 159). The purposive criterion sampling included fourth and fifth-grade teachers who taught Eureka math as the primary mandated curriculum. The criteria for participants included: possession of an up-to-date and valid teaching certification for fourth through eighth-grade mathematics, employed by STPPS, aged 23–65 years, taught fourth or fifth grade math, and implemented the mandated Eureka Math curriculum. The participants included various backgrounds such

as race, socio-economic groups, previous teaching experiences, and years of teaching experience. The questionnaire required participants to report demographic and background information. The questionnaire also collected the number of years of experience teaching any subject, the number of years teaching math, and the number of years implementing Eureka Math (see Table 2.1). The questionnaire yielded five respondents. The limited responses are attributed to the lack of time teachers have due to increasing work demands because of Covid-19 expectations adding to an already overpacked schedule for teachers. From the five questionnaire responses, four respondents fit the specific criteria of this study. Criterion sampling allowed me to narrow the focus of my study. A narrow focus with specified boundaries allowed me to limit my research study to one case study. According to Creswell and Poth (2018), a limited number of cases allows for a better description of themes.

Table 2.1

*Participant Education and Teaching Experiences*

Pseudonym	Years of Teaching Experience	Years of Math Teaching Experience	Years of Teaching Eureka Math	Current Grade Level Taught
Mary	2 years	2 years	1 year	4 <sup>th</sup> Grade
Beth	23 years	11 years	4 years	5 <sup>th</sup> Grade
Etta	7 years	20 years	10 years	4 <sup>th</sup> Grade
Grace	22 years	7 years	3 years	5 <sup>th</sup> Grade

*Data Collection Procedures*

Creswell and Poth (2018) divide data collection into four broad categories: “interviews, observations, documents, and audiovisual materials” (p. 160). The current study used several types of data collection, such as questionnaires and multiple

interviews. Creswell and Poth (2018) state that “we visualize data collection as a series of interrelated activities aimed at gathering good information to answer emerging research questions” the activities in this study include questionnaires and interviews of multiple participants (p. 148). The qualitative data collected included questionnaires and interview responses. Before data could be collected, I submitted this research to the Office of Research Compliance for review and received a non-human subjects research determination. Each participant completed and returned an informed consent document. After I received the required documents, I began a detailed data collection.

The data collection process began with retrieving archival records, questionnaires, and semi-structured interviews. Archival records provided non-statistically essential data. This data was not manipulated or used in the final analysis. Instead, the archival data provided the information necessary to determine site selection within STPPS. Archival records allowed me to gather the generic data needed to determine the best sites and participants for sampling. I obtained all archival records and data from Louisiana Believes website, which contained all testing, demographics, and individual school scores for public viewing. Yin (2014) cautions on the use of archival records for any purpose outside the intended development of the records. The archival records I used were initially meant to report all Louisiana schools’ testing and performance scores publicly. These scores were used to determine whether schools would be placed on a UIN or UIR intervention plan.

The qualitative data collection began with a questionnaire (Appendix C) and semi-structured interviews (Appendix D). Creswell and Clark (2018) note the distinction between qualitative and quantitative data questionnaires, including open-ended questions

for qualitative data. The questionnaire included basic identifying information such as name, years of teaching experience, years of teaching experience with Eureka Math, and grade level currently taught. The questionnaires were sent to participants through Google forms. Participants filled out the questionnaire and returned it electronically back to me. I allowed questionnaires to be submitted for two weeks after the initial post. After the two weeks, I selected the participants that fit the parameters and requested a follow-up interview. The interviews occurred within the next month. Initially, this time frame was set for two weeks; however, Hurricane IDA prolonged data collection. The final questionnaire submission and the first interview afforded me time to review the questionnaire. The questionnaires allowed me to narrow the questioning in the discussions. Finally, I created the questionnaire to gain insight into teachers' experiences implementing the Eureka Math curriculum to fourth and fifth-grade students.

Creswell and Poth (2018) note interviews are a conversation within social interaction. An interviewer's goal is to understand the participant's "worldview" and experience (Creswell & Poth, 2018, p. 164). This study followed the interview procedures detailed by Yin (2014). From the questionnaire, I selected four participants to complete the interview questions the participant scheduled the interview time. Each participant was emailed a copy of the consent form (Appendix A) ahead of time and submitted the form back to me before their interview. The interviews occurred through the web-based Zoom application at the agreed-upon time. The interviews lasted approximately 60 minutes each. The interviews started to record when both participant and myself logged into the Zoom room. Appendix C lists the prepared semi-structured interview questions.



The interviews were conducted through Zoom. This process allowed the interviews to be recorded and transcribed efficiently. I recorded the interviews using the online Zoom application, which allowed me to take detailed notes and follow-up questions during the interviews. In addition, I utilized Otter.ai's online platform to aid in transcription. Creswell and Poth (2018) note that "web-based platforms have the advantages of cost and time efficiency in terms of reduced costs for travel and data transcription" (p. 160). Zoom also allowed me and the participants to participate in the interview in a comfortable setting. Finally, I conducted the Zoom interviews in my home office. The interviews produced all the data analyzed using the three a priori codes, change, time and work, and culture. Finally, all the data collected became important in my final analysis. Finally, the data analyzed produced strategies for successfully implementing the mandated curriculum through participant interviews.

#### *Data Analysis Procedures*

Creswell and Plano Clark (2018) detailed a six-step data collection process to aid in analyzing qualitative data. I conducted my data analysis using Creswell and Plano Clark's (2018) data collection guide in coherence with Hargreaves's (1998) three codes of teacher change, change, time and work, and culture. Step one was to prepare the data for analysis, and step two was to explore the data. Step three was to analyze the data, and step four was to represent the data analysis, step five was to interpret the results, and step six was to validate the data and results (Creswell & Plano Clark, 2018).

Before I conducted the interviews, I reviewed the results of the questionnaires. A few key ideas resonated throughout the questionnaire responses. These ideas included lack of time, lack of administrative support, and struggling with the scope and sequence

of the district's implementation of Eureka Math. These responses helped to formulate the interview questions. Finally, after I conducted the interviews, I analyzed the responses.

After each Zoom interview, I transcribed the audio verbatim within 24 hours of recording. To transcribe the interview, I uploaded the recording to Otter.ai. Once transcribed, I read over the transcription to ensure accuracy. Quick transcription allowed me to reach out for immediate follow-up with questions or inconsistencies. For example, the participant could receive a copy of the recorded Zoom interview link and the typed transcript within a week of the interview. I secured the audio and video for the interviews and the transcription document in the password-protected Google Drive (Creswell & Plano Clark, 2018).

Second, I read through the transcriptions several times. Reading through the transcript provided preliminary coding notes for change, time and work, and culture. Along with the interview transcripts, I reviewed notes taken during the interviews. This ensured that I found all the necessary information. I noted any other ideas, questions, or inconsistencies during my review. I documented each interview's environment, time, and additional setting comments. As I read through the materials, I took additional notes and highlighted areas that presented significant meaning. I continued to develop a deeper understanding of the data I collected after each review. Next, I uploaded the transcripts to NVivo. NVivo helped me organize each piece of data to make sense of the responses. Smaller amounts of data made identifying the significant thematic statements easier. Finally, the coded data sets created a holistic account of the multiple perspectives of the participants. The codes allowed me to organize the data into the first initial codes (Creswell & Plano Clark, 2018).

Third, I analyzed the data. Linneberg and Steffan (2019) provide strategies to analyze data. Linneberg and Steffan (2019) state, “findings and results do not emerge from your transcripts and documents by themselves but require deliberate work to identify the most important elements” (p. 259). I implemented the technique of data coding to compress large amounts of data collected into manageable and accessible findings (Linneberg & Steffan, 2019). Creswell and Poth (2018) noted that “coding involves aggregating the text or visual data into small categories of information, seeking evidence for the code from different databases being used in a study, and then assigning a label to the code” (p. 190). I read through the printed versions of each transcript highlighting specific instances of the three codes—change, time and work, and culture (See Table 2.2). I then opened the NVivo application and digitally coded each transcript using the same three codes. Next, I grouped the data and organized each interview into three principles. Grouping gave me additional help to identify significant themes (Creswell & Plano Clark, 2018).

Table 2.2

*Theoretical Framework Analysis Codes*

Code	Theoretical Framework Definition	Example Quote From the Interview	Color for Coding
Change	“Place of teachers in the change process” (Hargreaves, 1998, p. 10).	“They said you have no choice; you have to teach it.”	Green
Time and Work	“Time compounds the problem of innovation and confounds the implementation of change. It is central to the formation of teachers’ work” (Hargreaves, 1998, p. 95).	“We all just can’t pick a time to do that every week.”	Pink
Culture	“But if missions develop loyalty among the faithful and confidence among the committed, they also create heresy among those who question, differ and doubt” (Hargreaves, 1998, p. 63).	“Some of them get real far behind because they feel like the kids have to perfect everything.”	Blue

Fourth, I represented the finding into four thematic statements. These thematic statements included time, resources, support, and autonomy. Chapter Three describes the results in a thorough discussion, including quotes, multiple participant perspectives, and detailed descriptions. I also use data tables to present visual representations of my findings (Creswell & Plano Clark, 2018).

Fifth, I summarized the significant findings and interpreted the data to answer the central research question. The themes that emerged throughout the data—time, resources, support, and autonomy—indicate teachers' obstacles when implementing a mandated curriculum. In addition, the detailed description and multiple perspectives allowed for recommendations for future successful implementation of a new mandated curriculum in the future.

#### *Trustworthiness and Authenticity*

A study confirms trustworthiness and authenticity through credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Multiple components were used to ensure the trustworthiness and authenticity of this study. Therefore, the study was verified through the contribution of the researcher's, participant's, and reader's lens.

The researcher's lens is corroborated through the triangulation of the data collected. Researchers establish credibility through triangulation (Creswell & Poth, 2018). Triangulation includes multiple coding sources; this consists of the initial coding of the interview questions and the interview transcripts. Whittmore et al. (2001) explained authenticity and credibility are confirmed through multiple perspectives and accurate interpretation of the data collected. The a priori frameworks of Goodson's

(2001) Theory of Educational Change and Hargreaves's (1998) components to teacher change supported this study through multiple sources establishing the same themes. The triangulation added a thick, rich, and descriptive account of data. Finally, the researcher lens is complete by selecting my role and involvement in this study. As detailed in the researcher perspective section of this study, I had experience implementing a new mandated curriculum, specifically Eureka Math. I intentionally picked grade levels I had never previously taught to adjust for this potential bias. I will be directly affected by future curriculum changes; therefore, establishing successful protocols was instrumental to me.

The participant lens was validated through my prolonged appointment as the researcher within the field of the research study. Prolonged time in the area and triangulation helped me confirm the trustworthiness and authenticity of this study. Participants and researchers build a better foundation of trust through mutual field experience (Creswell & Poth, 2018). Before writing began, all participants had access to the interview recording and transcription. As an extra measure to ensure validity through the participant lens, I sent my final rough draft to my participants. This allowed me to establish any last-minute changes before publication. Allowing participants access to their interviews, transcripts, and findings ensure that participants felt a part of the study (Creswell & Poth, 2018).

The reader lens is validated through several avenues. The first avenue that ensured the readers' lens was validated included having multiple professionals read my study. I enlisted two Baylor doctoral graduates to read over my work throughout the research study. Additionally, I solicited an editor to read over my material for

cohesiveness and logic. The next avenue included in the reader's lens provided a thick, rich, and descriptive account of the data collected. Finally, describing the interviews and interweaving details to define emerging themes allows the reader to make the study transferable (Creswell & Poth, 2018).

The researchers, participants, and readers' lens validation strategies make the research study trustworthy and authentic. Case studies depend on confirming the credibility, transferability, dependability, and confirmability within a research study (Lincoln & Guba, 1985). Confirming validity provides validity and credibility to this research study.

### *Ethical Considerations*

A qualitative study's credibility relies on accurately depicting the participant's experience related to the phenomena studied (Creswell & Poth, 2018). I made sure to address ethical considerations while collecting and analyzing the data. I implemented appropriate professional conduct and adhered to organizational requirements. The organizational requirements consisted of Baylor University requirements, IRB requirements, and my positionality to the research study. The essential requirements for this study included the consent forms from my participants and approval from Baylor University's IRB. Confidentiality was maintained through pseudonyms of participants and a password-protected Google Drive. Furthermore, I allowed the participants access to the recorded Zoom interview video and access to the interview transcription.

I met all organizational requirements for Baylor University. I submitted the IRB F-15 exempt form and received approval through Baylor University before conducting any research. I was transparent with my participants about all aspects of the study.

Therefore, I gained the trust of my participants. I followed Edwards' (1998) six assumptions to approach case-based research when conducting my interviews. I treated each participant with respect. I actively understood the lived experience and story each participant shared with me. Anonymity was maintained and communicated to all participants. Assured anonymity helped to build trust during the interview process.

To eliminate any privacy concerns and to account for all ethical considerations, I did not conduct interviews at home in the presence of others (Creswell & Poth, 2018). In preparation for any disturbances, I wore headphones during the interview to ensure the participant's anonymity. I went back and watched each interview taking detailed notes and documenting any questions that remained unanswered

I worked in the same school system, taught the same subject, and implemented a mandated curriculum just like my participants. Therefore, I ensured confirmability by reviewing the findings with a fellow Baylor colleague to limit my bias. I implemented a protocol to check the study results three times in the NVivo database to ensure that the data was accurate. I followed these protocols to ensure adherence to high ethical standards.

I displayed professional conduct during the entire research process. The participants and I communicated through my Baylor University email and Baylor University Zoom account. During my primary employment work hours, no correspondence, interviews, or data collection occurred. However, I did not participate in interviews on any school system campus or during work hours.

### *Limitations and Delimitations*

No study is without limitations or delimitations. I established and implemented a sound research study, however, I also considered the limitations. The study relied on a small sample of participants to interview. While the sampling was narrowed, all participants have unique perspectives based on their individual experiences. The conclusions in this study are from a limited perspective. Teachers who implement mandated curriculum in other subjects, specifically ELA, which is also high stakes, were not considered. Additionally, only one district was examined, therefore, the perspectives may be limited to that that district. During the interviews teachers may have left out information despite every effort made to establish a professional rapport with them. Finally, I have my own personal experiences as a math teacher implementing a mandated curriculum, therefore, I must acknowledge my own bias.

Both myself and my participants were employees of the school system; this created the second limitation—this created hesitance from the participants regarding information shared in the interview. Therefore, I reassured my participants of their anonymity in this process; I started each interview by reviewing my data collection procedure. Next, I outlined the data analysis procedure and the goals for the outcomes. Finally, I informed the participants that pseudonyms replaced real names to increase anonymity. Finally, I transcribed the interview verbatim. Participants had the option to review the recorded Zoom interview and a written transcript. All participants were sent the final rough draft of the research study, and I requested feedback. Two of the four participants responded with positive feedback and no further suggestions or edits. The other two did not respond to the emailed rough draft. While there were a few limitations, there were also delimitations.



Delimitations in the study allowed me to maintain focus on the research problem. First, the study used a small sample size of participants selected in the study. The study used purposive sampling to identify potential participants. In the sampling I did not include participants' years of experience because teacher turnover in STPPS was a concern to finding enough participants. First-year teachers have filled many positions. I feared a lack of participants if I included experience in the sample criteria. Finally, I focused my participant selection from only one district. This limited the data analysis of the interviews from having to consider other districts experiences.

### *Conclusion*

This chapter outlined the methods and procedures used to collect and analyze data to answer the central research question: what are the obstacles teachers experience while implementing a mandated curriculum? The six-step process was implemented to ensure the quality of data collection and analysis (Creswell & Plano Clark, 2018). The research collection and analysis utilized Goodson's (2001) theory of educational change and Hargreaves's (2018) components of teacher change to organize, code, and find themes from the data. This chapter discussed validation processes for the research study to ensure its authenticity and trustworthiness. Finally, the chapter discussed ethical considerations as well as limitations and delimitations. This research design provided insight into obstacles teachers face when implementing a mandated curriculum and understanding into successful implementation of the mandated curriculum.

The following two chapters present the results and implications of the data and a plan for the distribution of the findings. The results from the data collection are presented through Hargreaves (1998) domains of teacher change, change, time and work, and

culture. In addition, this model led to several emerging themes within the data. This data will be distributed to the STPPS school board to consider teachers when mandated a new curriculum change.

## CHAPTER THREE

### Results and Implications

#### *Introduction*

The purpose of this descriptive single case study was to identify obstacles teachers face and determine best practices for implementing a mandated curriculum. Multiple interviews, questionnaires, and data analysis assisted me in answering the case study's research question: what are the obstacles teachers experience while implementing a mandated curriculum?

This chapter presents the findings consistent with a single descriptive case study methodology. The chapter begins with an overview of the participants' backgrounds, experiences, and selection for this study. The remainder of the chapter unfolds in four steps. The first step, I present the findings of each interview through a framework analysis. Using Hargreaves's (1998) model of teachers as change agents in three domains, change, time and work, and culture. Second, I present emerging themes found within the data. Third, I discuss the implications of the study. Finally, I summarize the results discussed in the chapter. Based on four participant experiences, the findings in this chapter identified that increased planning time, strategic collaboration among colleagues, administrator support, and teacher voice in decision making are crucial components to teachers functioning through mandated curriculum implementation.

### *The Participants*

Chapter Two provides a detailed overview of participant selection and data collection procedures. This descriptive single case study focused on four fourth and fifth grade teachers who were mandated to implement Eureka Math as their Tier 1 curriculum resource. In addition, the study applied a criterion-based purposive sampling protocol that included: at least two years of teaching experience, a valid teaching license, employment in St. Tammany Parish Public Schools, a math content teacher, and Eureka Math as the primary mandated curriculum. Table 3.1 provides an overview of the participants.

Table 3.1

#### *Category of Participants*

Participant Pseudonym	Years of Teaching Experience	Years of Experience Implementing Eureka Math
Mary	2	1–2
Beth	23	4
Etta	7	2
Grace	22	3

#### *Framework Analysis*

The three phases of Goodson’s (2001) theory of educational change guided the theoretical framework that shaped this descriptive single case study. The three phases are internal, external, and personal (Goodson, 2001). Hargreaves (1998) expands on teachers as personal change agents; Hargreaves (1998) identifies three domains of change; change, time and work, and culture. The coding of each interview is presented using the three domains from Hargreaves (1998).

*Interview 1—Mary*

Mary has taught middle school mathematics for two years as a primary teacher and one additional year as a student-teacher. Mary gained all her teaching experience within the same school district. Mary has taught both fourth and sixth grades. She has taught using two different mathematics curricula during her time as a teacher. Her experience with other curricula gave her insight into the various pedagogical teachings and implementations of mathematics. Both curricula were aligned to the Common Core State Standards and Louisiana Student Standards of Mathematics. The results of Mary's interview and how they relate to Hargreaves teacher change are discussed below.

*Change.* The initial relationship between Mary and her school began during Mary's student teaching. Mary was placed at a middle school that met the needs of fourth through sixth graders. Mary was invited to stay on as a permanent team member. Mary was excited to become a part of the school system where she had student taught. Mary's student teaching placement was fourth grade where she initially utilized Eureka Math curriculum. As a student-teacher, Mary identified using Eureka Math in a 50/50 model. This allowed for more instructional resources while teaching and let the students see the same content twice a day. Mary noted that at the time of her student teaching, implementing Eureka Math as the primary curriculum was only a requirement for schools that were in Urgent Intervention (UIR or UIN). Mary was hired for her first-year teaching as a sixth-grade math teacher at the same school. During that time, Mary recounted her sixth-grade math curriculum Ready Math implementation. Mary discussed her students' success using that curriculum and the immediate feedback and interventions it afforded her students. However, for Mary's second year of teaching, she was moved to fourth

grade. Unlike her time as a student teacher, this time, the expectation of implementing Eureka Math was heightened.

*Time and work.* Mary recounted many instances where time played a negative factor in implementing Eureka Math. According to Mary, the pressure to maintain the scope and sequence pacing created time constraints for implementing the Eureka Math curriculum. Mary indicated that due to Covid-19 and Hurricane Ida that impacted her students in August 2021, many low performers students had educational gaps that “100 percent” grew more significant. When asked about time to remediate those gaps, Mary replied, “No, not following the scope and sequence.” Mary noted specific to the scope and sequence, “So, I always stay with the scope and sequence, which I don’t like [sic that] because I just feel like I’m shoving it down your throat, but we got to keep going on.” Mary continued noting Eureka Math’s structure of time in relationship to her students in class,

And I feel like those lessons are just too long. And even that if the time says, oh, this will take 12 minutes, really, with me and the kids, it’s not going to take 12 minutes. It will take them like 20 minutes or something.

The difference in instructional time is significant and leads to teachers getting off pace. Mary explained the pressure of sticking to the time led her and colleagues to revisit ways to eliminate parts of the Eureka Math lesson to prioritize staying on pace. Elimination of portions of Eureka Math lessons also factors into time and work. Mary stressed the importance of working the lessons, planning for student misconceptions, and utilizing the required material effectively to promote student understanding. Mary commented on the time it takes to prepare by outlining her planning strategy effectively, “I always work everything out on my own first.” Mary noted that this involves working out the lessons,

looking forward to the modules, working all the exit tickets, annotating lesson plans, and seeking out various resources demonstrating how to teach the Eureka Math curriculum. Finally, she concluded her comments about planning with, “Really just work out the exit ticket, or just look over everything really, like you really have to plan because you have to be prepared for student questions.” Mary’s last thing about planning included time collaborating with her colleagues in grade-level planning and content planning through weekly professional learning communities (PLC).

Mary described two different experiences with PLCs. The first experience was regarding PLC during the 2020–2021 school. She relived the experience of her former PLCs by stating, “And it [PLC] was actually teacher-led. And that was very good because we were able to plan and look at our data. And it was just really good.” However, the instructional coaches are back in the schools and leading PLCs this year. Mary described the environment of PLC this year,

This year, they’re back in there. They’re part of the PLC team. But you know, they were the teachers, and we’re all in it together. And it’s so data-driven, which I love looking at data, not a problem with that my instructional coach just doesn’t ask the right questions, I think over analyzes a question that doesn’t really matter, treats us like kids, like track me, like right now on an anchor chart. And like, I’m not a kid, I don’t want to be treated like a kid. Um, so yeah, they want (PLC) more to be data-driven this year.

The lack of input makes decreases teachers feelings of being considered a professional.

While not opposed to data-driven instruction and PLC meetings, Mary noted that while PLC’s focus has shifted from planning to data, there is the same expectation that teachers are still planning collaboratively together. Mary stated that

they want us to plan like a team outside of it (PLC)? Well, that’s just not realistic. There’s, I think, six of us that teach math in fourth grade; people have families, kids, you know, we all just can’t pick a time to do that every week.

The added stress of additional time to fit in planning puts a lot on the teachers at Mary's school.

*Culture.* Mary described many factors that contributed to the culture present at her school. First, Mary mentioned several times the impact Covid-19 played in the unusual experiences she has encountered in her few years of teaching. However, these experiences have shaped her view of the culture at her school in several ways. For example, during the 2020–2021 school year, Mary and her students had little time outside their classroom. As noted previously, this also impacted their PLC planning time. While it affected it beneficially last year, instructional coaches' implementation into the environment has shifted the culture and focus. Which ultimately puts more on teachers' plates to focus on outside of their planning time.

Mary noted that implementing Eureka Math in her classroom has been a smoother transition for her students during her second year of teaching Eureka Math. She pointed out that her students had seen the same curriculum for several years before her classroom. Therefore, they understand the process of the Eureka Math lessons and the Eureka Math-specific vocabulary. Mary discussed that while the students work well with the curriculum, facilitating more profound math talk was difficult. In her honest account of a recent discussion, she had this to say,

I don't know if it's, I don't know the age. Or I just I feel like we're not having good math talk. I don't know if it's the age, if it's me, if it's them. If it's the content. We got to the standard algorithm yesterday, and that was good. But the few lessons before, it was just rounding on a vertical number line, and I don't know, multiplying on the place value chart. We were having good conversation, but I just felt like it wasn't in-depth because I don't know. Maybe this is just me not liking fourth grade. I love making connections to the real world because why are we going to do it if we're not making these connections. And I just feel like, yes, rounding is good. You know we talked about how we can round outside the



classroom, but I'm not going to be like, oh, let me draw my vertical number line plate. You know, really quick, let me figure this out. Like, that's just not realistic. Or let me multiply by ten really quick or 100. I'm not going to draw my place value chart like, so I feel like, you know, maybe that is me just not able to make that connection. Because, to me, that's not realistic, but I get they need to have that understanding of why it works. And that foundation.

Mary's transparency with her feelings about unrealistic expectations towards the content and her current teaching position is essential to gain a complete picture of Mary's interview. Mary demonstrated that despite the challenges she strives to implement the curriculum with fidelity.

There are many types of relationships that a teacher encounters that impact the culture of a teacher. Another relationship discussed was the relationship between Mary and her administration. Mary noted that Covid -19 impacted these relationships her first year teaching and carried over into her second year. When it came to her principal, Mary stated that she did not know her principal's stance on Eureka Math but discussed the discrepancy between what the district mandates and what her principal requires. Mary describes this situation,

She [Mary's principal] would just want to change the order. She wants, like all the new teaching to be done in this first 10 minutes, all the new learning. And I feel like with the fluency and the application, you kind of lose them after that, like, you get those kid's attention, you got to keep going with it. So, if we're focusing all that, you know, their attention on the application and the fluency, which I think is important, but they're not getting that new learning, because then you know, 20 minutes in, and they kind of zoned out. Like, right, like, my principal is not a fan of like bell work because she wants all that new learning, right? Those, like 10 minutes once you have them, okay, and then my instructional coach, she's like, you need to follow the order of the lesson. But my principal is like, no, let's start with like, concept development, or just like new, new learning first.

When asked to summarize what her principal's expectations are given this discrepancy, Mary noted, "I know like she wants us all to be teaching the lesson, all on the same page, like every day, same thing." Despite the conflicting information and the requirement for

all teachers to stay on the same page, Mary states she stays on pace with the scope and sequence.

Another important relationship for Mary is one with her colleagues. While all are required to be “teaching the lesson, all on the same page,” Mary says conflicting feelings in her school about the Eureka Math curriculum. Mary notes that all teachers teach using Eureka Math as mandated, but the content knowledge and the delivery of the material vary. Mary describes the different types of teachers as

They’re just the teacher, I guess, like knowledge and understanding, isn’t there? Because they’re not putting in the work to say, oh, like, how would this student look at it, let me look at it as a student, you know, let me learn all these different ways and get familiar with all of them so that I can teach them, so they’re just kind of like have teaching just the teacher content knowledge isn’t there. They can kind of go in that direction. But it can go in another direction, where the teachers just pulling all this stuff from teacher pay teacher and like all these other math sites. And yes, the same standard-ish, but like, not taught in the same way. So that’s not really aligning with, like, what the test is going to look like. Like they’re cute, fun worksheets, and your centers look nice. But that’s not really how they’re being tested, I guess.

To follow up on the discrepancies in teaching Eureka Math, Mary noted that the professional development they received did not demonstrate how to implement Eureka Math with fidelity.

*Conclusion.* Mary gave a holistic insight into her experiences with Eureka Math. She described the good, the bad, and the ugly surrounding her experiences with a mandated curriculum. Throughout Mary’s interview, I noted frustration and defeat even as she talked about positive experiences. The lack of training, administration knowledge, and administration support presented significant obstacles for Mary. Mary’s case describes a negative experience with implementing a mandated curriculum.

*Interview 2—Beth*

Beth teaches fifth-grade gifted math, science, and English Language Arts (ELA). Beth has been teaching for 23 years and 17 years in a junior high setting. Beth is certified and has led the four core subject areas, math, science, social studies, and ELA. Beth has experience teaching in Washington and Louisiana. This experience gives her insight into the practices and standards required in other states besides Louisiana.

The interview with Beth was insightful. Her experiences in education and experiences teaching multiple disciplines gave her a unique perspective on implementing new material. Before the district mandated the implementation of Eureka Math, Beth, and her co-teacher were already using Eureka Math resources. Beth described the decision to implement Eureka Math on her own “so when I, when I started doing it, it was the fourth, the fourth grade teacher and myself who said, Okay, this is coming down the pike. Okay, let's do this.” Beth then described how a year later both her and her co teacher decided to implement Eureka Math with “due diligence.” This decision gave Beth a better insight into the correlation between the standards and the curriculum.

*Change.* Beth gave an overview of the events leading up to the mandated curriculum. She noted the shift in nationwide math standards to common core state standards in math (CCSS-M) and the subsequent adoption of the CCSS-M in Louisiana to create Louisiana Student Standards in Mathematics (LSSM) as fundamental shifts to curriculum change her district. Beth did not work at an Urgent Intervention school when the shifts occurred, and she had autonomy when it came to choosing her curriculum resources. She described the change as ultimately “coming down from the pike,” which led Beth and her co-teacher to look for help to allow them to teach the LSSM with

fidelity. Beth and her co-teacher started on their own to implement the free online resources of Eureka Math. Beth said that they found this curriculum the most aligned help to the CCSS-M and LSS-M.

Beth described the evolution of her implementation of Eureka Math. She said, “So my first year here (in at her present school location), I was just experimenting with it.” Beth said the second year, she and her co-teacher decided to implement Eureka Math with “due diligence.” Beth and her co-teacher communicated with their administration, who were very supportive of their efforts. The district could not provide any training and purchase official Eureka Math workbooks. Beth noted that this is where she received additional support from her administration. Beth’s administration provided copies of the free online Eureka Math workbook for all her students and any manipulatives needed to teach the lessons. While Beth and her co-teacher decided to implement Eureka Math, it was not the decision of the other teachers. Again, teachers at her school had some autonomy in the curriculum they chose to use. Two years after Beth implemented Eureka Math on her own, it became mandated by the district for all K–5th-grade teachers to implement Eureka Math.

Beth described the problem with the mandated curriculum in her school. Beth said, “Many of the math teachers felt, you know, their scores were good.” Beth noted that many feeder schools were required to implement Eureka Math already. She described the problem as a lack of consistency for the students. They would have Eureka Math in one school setting but not in another. Beth said, “and then this year is the first year where they’ve said you have no choice because last year, we still had teachers who were not doing it. They said you have no choice; you have to teach it.” Beth said she is interested

in seeing how this year goes if teachers implement it with “due diligence” and student scores and growth.

The change in the mandated curriculum did not affect Beth how it affected other teachers. The more significant difference for Beth occurred when the standards for math, and consequently, the tested material changed. While Beth was not mandated to implement Eureka Math at first, she did note the struggles faced with the change were significant at first. She said it was “a lot of work and a headache,” but that as she “got more comfortable with it, had a little bit of training, and I like it, I do.” Beth recounted the amount of time she spent implementing the material and the culture shift in her class as essential processes needed for this change.

*Time and work.* Beth was told that she would be teaching Math when she first accepted her position at her current school. Beth said, “I thought on, I’d taught junior high math and thought, oh, this is easy.” However, the newest shift in the standards was a significant shift in how math was taught compared to her previous experience. According to Beth, math changed from standard algorithms to models and in-depth explanations. Beth said that she had taught Eureka Math for six years, but she used Eureka Math primarily to introduce the models in the first two years. Beth taught herself before she received any formal training. Therefore, Beth spent a lot of time outside the classroom working, learning, and prepping.

Beth ultimately received professional development but said the training was limited and often focused on a third-grade level rather than a fifth. The models undergo the “hardest shift” between third and fifth grade. Unfortunately, there has not been a time in the training to practice the Eureka Math, which was “frustrating” because you have to

“actually see somebody teach multiple lessons.” Therefore, the time spent in the training is not beneficial to those who do not teach the grade presented in the exercises.

Beth described the discrepancy between the layout of the lessons and district expectations on the scope and sequence. Once again, Beth noted how supportive her administration was of teaching the material with “due diligence” while also being cognoscente that she would be behind on the scope and sequence. To this point, Beth said the following about her administration,

they’re not like over our shoulder because there’s no way we can follow the scope and sequence at the right, I mean, I’m gifted, and I’m a week behind on scope and sequence. It’s really difficult for regular ed, too, you know, because I’ll touch base with my peers, you know, and see where they are, and what they’re doing and those kinds of things and depending on the makeup of their regular ed class, some of them are, you know, two, three weeks behind. And then you have the storm, those kinds of situations. So, the administration is very supportive of the fact that you can’t walk into everybody’s classroom and find them doing the same exact thing on the same exact day. You know, the same exact lesson. Yeah. It’s not realistic.

Beth was very appreciative of the support she gets from her administration because she has heard from other teachers that deviating from the scope and sequences meant being reprimanded from their administration.

The scope and sequence for the district do not align with the scope and sequence for Eureka Math. Eureka Math goes more in-depth into the standards and, subsequently, the lessons. Previous textbooks allowed you to “teach a quick lesson, have them (students) take notes, have them do all the practice problems, check the answers, move on.” Eureka lessons “build on one another,” so it is necessary to go onto the next lesson even if a teacher has not mastered all the current lessons because otherwise, you will not get through it. Before, this has been a challenge for teachers planning and preparing to move on without complete mastery. However, this year Beth said they had instructional

coaches and intervention time planned within their day designed to make sure students master more of the current lesson. In the past, without the intervention time, teachers did not have enough time in the day to ensure total mastery of the lesson before needing to move on. Beth discussed a lack of time for planning, reteaching, and implementing.

*Culture.* Beth had many obstacles to overcome when teaching implementing Eureka Math. First, Beth had not taught math, so learning new methods and standards was challenging. Second, Beth did not initially receive training for the new standards or Eureka Math. Third, Beth did not have proper materials for her or her students. However, that did not stop Beth from making the best of the situation. Beth discussed ways that her administration, co-teachers, and even students helped her to overcome these obstacles.

As noted before, Beth received significant support from her administration. This support came from resources they could control—for example, making copies for Beth of the materials and purchasing manipulatives needed to teach the Eureka Math models. Beth’s administration also supported the pacing of implementation. This allowed Beth to feel supported. Beth noted that most of the staff was supportive and helpful and helped the performance of Eureka Math.

When Beth first started at her current school, her co-teacher slowly started implementing Eureka Math. That is what led Beth also to implement the Eureka Math resources. Beth used her co-teacher as a resource to talk about what worked and what did not work. The math teachers at Beth’s school have had to shift their way of thinking and teaching math standards. Beth explained, “there’s a struggle of the mindset that math teachers get so used to, you take notes, you do practice problems, you know, and some of them get real far behind because they feel like the kids have to perfect everything.” As

Beth mentioned before, this is “unrealistic.” Beth and her current co-teacher discussed ways to remediate this way of thinking. They decided to implement a “spiral” of material that students have seen before but are not currently reviewing in the standards. This spiral creates additional opportunities for students to see material later in the year after they have moved on to new units. She noted that several other teachers have also started this trend. Collaboration and joint planning create consistency throughout the school for the students. Beth talked several times about creating or utilizing additional resources strategically with Eureka Math and mentioned that often these resources come from other teachers in her school.

The culture of a school does not only apply to the adults but also the students. Student “buy-in” becomes equally as important as the teacher’s “buy-in.” Beth described her transparency with her students when first introducing the Eureka Math material. Beth talked to her students about how she had taught math before in other grades, but fifth-grade math was new and different. She told the students, “I’m new to this model thing; I don’t know how to do all this math.” She said after that, the student “buy-in” was better. Six years in, and better consistency throughout the district curriculum, students no longer question the “why” behind Eureka Math.

Beth acknowledged that not all students learn the same. She explained the importance of understanding how students think, learn, process, and demonstrate the material. Beth said Eureka Math provides students with a different way to understand mathematical concepts. She said that students are better at learning the models first and then understanding the mathematical algorithms. But, she said, not all students learn this way. Beth tackles this by allowing students to first answer problems by showing their



models and then the algorithm, or rather the algorithm and then the models. This process ensures that all students learn, understand, and present the material in the same way. Beth's mindset and perseverance through the obstacles have allowed her students to change their mindsets and persevere.

*Conclusion.* Beth provided insight into the successful implementation of Eureka Math. Beth demonstrated a thorough knowledge of the math standards, the curriculum, of her students, and her administration's expectations. Beth detailed many obstacles, but also solutions to those obstacles as well. Beth gave a positive account of her experience with Eureka Math and her administration's support of her implementation. While filled with difficulties, Beth's expertise sheds light on the positive experience of implementing a mandated curriculum.

### *Interview 3—Etta*

Etta is a seven-year veteran teacher. Etta has taught math, science, social studies, and ELA. Etta has taught in both Florida and Louisiana, respectively. Etta taught fourth-grade math, social studies, ELA, and social studies at the study time. Etta's input in this study was concise and professional. Etta revealed significant insight into the challenges to implementing a mandated curriculum.

*Change.* Etta noted that the change in the curriculum was not an easy adjustment for her or her students. Etta's Eureka Math journey started in conjunction with the 2020 Covid-19 pandemic. The pandemic created additional stress for Etta. Etta described Eureka Math implementation as "a long process." Etta stated that she received one

professional development (PD) training during this change process combined with another educational resource. To this, she said, “I don’t get much from the PD.”

*Time and work.* Etta noted that she understands the Eureka Math curriculum more and more over time. However, Etta says she still “struggles with it even with time.” Etta mentioned that all teachers must focus on the “end goal.” She described the end goal as both daily and long-term. She noted that she must understand the daily “exit ticket” to teach the lesson effectively. She told her process with the exit tickets as taking time to work them out, “pull them apart,” and plan in depth for student understanding. This process takes a lot of time and planning.

When asked about professional development, Etta noted that over time and following the curriculum teacher manual gave her more training than a PD. She pointed out that the few PDs she’s attended always seemed to cover what she figured out two months before. A key component of Etta’s interview was self-discovery of solutions, but this discovery takes time.

Etta mentioned several times the impact of teaching fifth grade the prior year and now fourth grade. She noted that this allowed her to see the progression of the standards. It also allowed her to focus on the future. She commented that knowing she will loop with them, “I feel has helped a lot.” Understanding the progression has decreased some of Etta’s planning time. Understanding what comes next allows her to implement the material better, plan for future misunderstandings, and know material she may need to remediate in the future. Saving time is essential for Etta. Etta noted that there was no time to remediate homework that students got wrong or did not understand. When asked to expand upon her response about time, Etta had a lot to share. Etta described the structure

of Eureka's Math lessons. Each lesson comes with a set amount of time for each lesson component. So, for example, Etta tells an application problem;

this application problem should take three minutes. But it's a three-step problem that they have to try and figure out how to do the steps. They have to work it out; they have to write a sentence. So, it's like, that's really like a 10-minute problem, right? And then, for us to accurately go over it and me reteach it and model it. That's like another five minutes. So, you're looking at about 15 minutes for what they say takes three minutes, right?

The urgency was apparent in Etta's voice as she discussed this procedure. However, it was evident this situation was a frequent occurrence in her classroom. Etta said they implemented intervention time for math this year. However, intervention time was strictly used to reteach the material. However, due to Hurricane Ida, this intervention time has been used to catch up on missed material rather than the planned intervention time. However, Etta and her colleagues are still behind the scope and sequence, even extra time.

When asked to elaborate further about the scope and sequence, Etta noted that the instructional coach for math at her school would disapprove of being off the scope and sequence. However, the ELA instructional coach disagrees. This coach has cited research that they have read and Etta summarized her and the coaches conversation, "if you took like half the year and only taught them to half a year worth of curriculum, but you taught it really well, and they really got it, they're gonna do better on testing" indicating that there are better outcomes when there is a deeper focus on less material rather than a brief guide on more material. Etta feels the information they all receive contradicts itself, and stated that if she went deeper on a topic instead of staying on pace it would not be supported by the math instructional coach.

Etta described her take on the scope and sequence. She noted if given the opportunity, she would stay on pace with the scope and sequence as much as possible. However, she would remediate as the year progresses before standards and materials. This would allow students to see old material again later in the year. It would also present opportunities for teachers to reteach the material. When questioned if she could offer these ideas, Etta was hesitant. She replied, “I would go to my admin, and I think I would be supported,” but followed with, “I also just feel like I do what I’m supposed to do.”

*Culture.* Etta mentioned that she understands the “why” behind the curriculum as time goes on. Etta has taught both fifth and fourth-grade math, respectively. This provided Etta with a unique lens to see the progression of the curriculum. This perspective allowed her to focus on the “why.” Explaining the “why” to herself also allowed Etta to explain to her students. She noted that this explanation had created a better culture in the classroom because her students can see the progression of the current standards into the future ones.

Collaboration with other math teachers allowed Etta to have more learning opportunities. She discussed talking to other teachers who have implemented Eureka Math before as a great help. While this year’s Professional Learning Communities (PLCs) focus on data, she noted that they focused on overcoming struggles last year. For example, Etta described the grading procedure for Eureka Math. Etta described the grading process as defeating for her students. The grading builds upon the answer at the beginning; therefore, if a student gets one part wrong, they get the whole thing wrong even if they do the remainder of the work correctly. Last year Etta indicated that this is a

problem they would have solved during PLC. However, Etta also confided that she was leading her school's next PLC, a topic of conversation.

Etta noted that her school is on board with what the "parish (district) wants." She also mentioned that her school is not to use any materials outside of what is provided by the district. Instead, her principal is strict about adhering to the scope and sequence. However, within this conversation, Etta described a unique situation during her faculty meetings where her administration proposed a research-based approach to teaching a lesson. The focus is to get the student involvement at the beginning and teach the "crucial" material within the first "20 minutes." However, Etta reports, "it doesn't follow Eureka at all regarding this proposed outline." Instead, Etta says she feels confused because her principal is suggesting it is "great and wonderful" also, her principal "wants us to follow the curriculum." This leaves Etta and her colleagues in a problem.

Etta proposed a solution to this puzzle. She described a situation in which her principal would teach a lesson demonstrating the principal's research-based approach and the implementation guidelines of Eureka Math. Etta indicated a desire to see what the principal envisions for a class lesson that would benefit her. In her interview, Etta is trying to build a culture that follows district and campus administration guidelines. However, the difficulty comes when they do not align.

When asked about the curriculum and her colleagues, Etta noted that many veteran teachers are still unsure, "hate it," and "think it is too hard for the kids." Etta said that new teachers seem to like it but are also "still thinking about it" and also "think they need it." Etta noted that she and her colleagues try to remain neutral and discuss topics they can control. To summarize her experiences with Eureka Math and her colleagues,

Etta said, “like at the end of the day, like we have to do it. So, there’s no one complaining about it.”

*Conclusion.* Etta was concise in her interview. She was eager to talk about her experience while noting that it meant sacrificing time she did not readily have. Etta mentioned several times throughout the interview that while she had complaints, she also did not feel she had a place to voice them. She also expressed that if she did have a place to say them, she was unsure of the efficacy of her voice.

#### *Interview 4—Grace*

Grace is a veteran teacher who has been a teacher for 22 years. Throughout her 22 years, Grace has taught both math and science. Currently, Grace is teaching a self-contained, looping fifth-grade classroom. Grace was eager to participate in the study and give her experience of implementing Eureka Math. Grace’s interview was filled with urgency and frustration. Grace gave short answers, and overall, the experience she described as harmful.

*Change.* Grace started the interview by describing her experiences as a teacher. She noted that since she worked at an urgent intervention school (UIR/UIN), her school was required to implement Eureka during the 2019–2020 school year. In the spring semester of 2020, Grace mentioned that the school district asked for teacher input on textbook adoption. Grace said, “they let us have input on the textbook adoption, but they choose what they wanted.” Grace followed this sentiment with, “It was more of a dog and pony show to make teachers feel like they had input.” Throughout the interview, you could sense Grace’s frustration.

Grace talked about the frustrations her students felt as well. She noted that the students struggled with the material, making it hard to implement with fidelity. Grace pointed out that the student data across the district showed the scores were not improving with Eureka Math. This left Grace questioning why this was the curriculum ultimately chosen by the district.

*Time and work.* Grace noted that preparing the material given the students misconceptions was immense. She said she did not remediate the students' gaps while she had intervention time. Instead, Grace talked about looping with her students. She noted that this seemed to benefit them somewhat, as they knew her expectations and knew in advance the shortcomings they brought to her classroom. Grace said it was still too much despite the positive feeling towards looping.

Grace liked that Eureka Math prepares teachers with resources to aid in implementation. She noted that Eureka Math planned and "lays it out" for teachers. She said you do not have to "individual plan much or recreate the wheel." While she likes the plan, she does not like the scope and sequence. Grace notes that the overall structure of Eureka Math does not allow for remediation in student gaps of knowledge.

*Culture.* More than anything, Grace felt her culture was affected by the mandated curriculum. Regarding Eureka, Math Grace had this to say, "It's complicated and difficult. Math is not this hard and doesn't need to be." She noted that she has not personally seen it help with student growth, but often the opposite.

When asked about remediating the gaps, Grace noted that there is "no time." She elaborated and said, "It's all about packing and sticking to the pace created. Not about

individual student’s needs.” Grace expressed defeat in her statement. She continued that pushing through the material and not addressing gaps left her students feeling defeated. According to Grace, even students who had seen Eureka Math before do not like it and find it time-consuming. All of this comes to Grace has not seen growth from her students.

While Grace has not seen the growth in her students, she pushes through the material. They were sticking to the scope and sequence as best as she could. Grace did not mention whether she felt she could talk to her administration about her concerns but continued to say they focused on staying on pace and track with the scope and sequence. Grace noted that staying on pace was pertinent “regardless of if students understand.”

*Conclusion.* Grace’s interview was quick and to the point. Grace commented several times that her schedule did not allow much else outside of work. She expressed she felt overwhelmed with the expectations she had placed on her. Grace’s experience overall reflected a negative experience implementing a mandated curriculum.

### *Thematic Analysis*

As part of the case analysis, I analyzed all four participant interviews. The analysis yielded thematic statements. Finally, I identified four thematic statements in this study. Table 3.2 provides an overview of the thematic statements.

Table 3.2

### *Thematic Statements*

Participant	Pacing and Planning	Lack of Resources	Increased Support	Teacher Autonomy
Mary	X	X	X	X
Beth	X	X	X	
Etta	X	X	X	X
Grace	X		X	X



### *Pacing and Planning*

All four participants described time as a significant factor in their interviews. Three specific time areas were described and culminated into a thematic statement of pacing, planning, and lack of time. Hargreaves (1998) included time as one of his three main factors of educational change for teachers, and it was, therefore, one of my initial codes. Time emerged as a theme in two specific ways: the curriculum's pacing versus the district requirements and lack of time to plan. All four participants noted each of these subthemes of time.

Each participant specifically mentioned the scope and sequence in their interviews. Each participant noted that the district expectations of the scope and sequence did not align with the scope and sequence of the curriculum. For example, one of the participants indicated that their administration focused on implementing the curriculum first over the district's scope and sequence demands. The other three participants discussed their administration's push to stay on the district scope and sequence before the curriculum scope and sequence. Finally, all four noted that a stronger focus on curriculum scope and sequence would impact their teaching positively.

Time to plan was the next sub-theme to emerge. All four participants mentioned planning time in one way or another. However, they were not all in sync. Mary and Etta discussed planning for the upcoming lessons, units, and student misconceptions. Mary and Etta discussed using Professional Learning Communities (PLCs) as an important time to accomplish this. However, both discussed that instead, the focus was on data. This left a lack of time for colleagues to collaborate and plan together. Beth discussed planning with her co-teacher, who stayed on pace with her. She talked about how they prepared for spiraling work into the lessons but noted that the other teachers did not plan

as they felt overwhelmed with the curriculum. Beth does not focus on understanding Eureka Math since she has taught Eureka Math for six years. However, when she initially started implementing Eureka's math, it took a lot of time to plan and understand the curriculum and its implementation. Grace repeatedly discussed how she did not have enough time to prepare for the lessons, students' misconceptions, and find time to reteach the material. Finally, all four participants noted that there was simply not enough time.

Everyone in education is up against a deadline. Teachers are on school administration, district administration, and state administration deadlines. School administration receives deadlines from the district administration and state administration. The idea of issuing a universal scope and sequence for curriculum implementation big picture is holistic. However, by the time the teachers disseminate the curriculum following the scope and sequence placed by the state, district, or even school administration, the gaps are exposed, and teachers are left to navigate how to remediate the misconceptions and continue to stay on pace.

### *Lack of Resources*

Three of the four participants discussed the need for supplemental resources. All three mentioned at least two other programs that they used that, while aligned with Eureka Math, were, in fact, additional resources. Each of these three participants also discussed their desire to have more input in the help. In regards to additional resources Beth commented, "The only problem with the district is the district I feel gets this mindset, like, Oh, no, this is what we decided on, this is all you need." While two of the three felt they could approach their school administrations with their suggestions, all three agreed they did not have an avenue to voice their thoughts to anyone higher within

the district. For example, one of the three admitted to using a resource approved for a different subject in her school but was afraid to speak about it for fear it would be blocked. All three noted that supplemental resources allowed students to see the material again and have additional practice problems.

Each of the four participants discussed professional development at some point during their interview. However, it never received the amount of attention anticipated. Beth for example mentioned, “And the training is extremely limited. When you do go to the training, they usually hit third grade stuff.” And while the third grade material is good, Beth described the fifth grade modeling as “hardest shift to modeling,” therefore, the third grade material does not help. All four of the participants indicated on their questionnaire that they had attended professional development at some point. All four did not have to pay, and all four went as requirements for the district. None of the participants felt the material they learned applied to them specifically and did not leave feeling that the professional development was beneficial. Etta called the training, “basic.” Three participants received professional development in the summer of 2020 during the Covid-19 pandemic and one in the summer of 2021. All acknowledged that external factors such as Covid-19, feelings of being overwhelmed, and lack of direct application to their grade level could have impacted their thoughts on professional development.

Resources impact the ability of teachers to teach with fidelity. Three participants noted that allowing teachers access resources to help remediate and reteach was beneficial. Two of the participants agreed that professional development geared towards specific grade levels and allowed practice of the implementation would be helpful.

Resources are needed, but teacher input should be considered when implementing resources.

### *Increased Support*

The most significant focus from the participants throughout the interviews was support. All four candidates discussed permission from their administration and district. Three of the candidates, Mary, Etta, and Grace, discussed that their administration expected that they stay on the district scope and sequence. They all noted that deviating from the scope and sequence is not allowed and fear retribution from administration if they did. One participant indicated that they would be reprimanded, but the other two did not indicate the exact reason they could not differ, except that they could not deviate.

Mary, Etta, and Grace discussed receiving some administration support outside of pacing. Mary differed that her administration was talking about classroom pedagogy techniques. However, these techniques are not aligned with Eureka Math and often become confusing. Etta noted a similar experience. Both Mary and Etta discussed that their administration did not fully understand the Eureka Math curriculum. Grace said her administration was supportive, but she could not deviate from the scope and sequence.

Beth received strong support from her administration. Specifically, Beth said, “I have a an extremely supportive administration.” Additionally, Beth mentioned that between her administration and the teachers she was closest to she has “there is plenty, plenty of support for the Eureka math.” Beth was the most positive about Eureka Math.

Beth described that her administration focused on implementing the curriculum with due diligence and understood the unrealistic expectations of staying on the district’s scope and sequence. Beth’s experience with the administration was positive. She noted

that she also felt like she could talk to her administration about her needs and concerns. Beth did say she felt there was no avenue to discuss her requirements and concerns regarding the district. She also thought that it would not matter if she did.

All four participants noted a need for increased support. Three indicated that help was needed from both administration and district, while Beth only registered district support. Consent cannot be noted without addressing understanding. Both Mary and Etta discussed a lack of knowledge of the demands from the Eureka Math Curriculum and the district scope and sequencing. Mary described the disconnect between the curriculum and administration, “my principal is not a fan of like bell work, because she wants all that new learning, in those, like [first] 10 minutes” however, this does not align with the Eureka Math lesson sequence, and Mary’s instructional coach states the opposite of her principal, “my instructional coach, she's like, you need to follow the order of the lesson” so, Mary receives conflicting guidance. Both Mary and Etta felt that if their administration understood the curriculum more in depth they would receive different and better support. The experiences of the participants highlighted the need for administration and district support.

### *Teacher Autonomy*

All four participants relayed a sense of defeat throughout some portion of their interview. Beth felt that defeat early on when implementing Eureka Math without necessary materials. Throughout the interview, Mary, Etta, and Grace had an overwhelming sense of failure. One significant thematic statement emerged from this defeat, teacher autonomy. Mary, Etta, and Grace all discussed a lack of teacher input. Finally, they discussed the lack of information, starting with the initial decision.

Etta and Grace both noted that they did not vote for this curriculum. However, Grace said that she did not believe the input was considered. Mary, Etta, and Grace all felt they lacked teacher input into the lesson. Mary and Etta talked about a lack of information about future lessons' planning process. All three participants felt a lack of input into the scope and sequence. All three participants noted they did not have any information.

### *Discussion*

The study revealed a need for change in teachers' experiences implementing a mandated curriculum. The overall findings of this study revealed a need for teacher voice and administrator knowledge of the curriculum. I identified change, time and work, and culture as aligned with Hargreaves (1998) and I determined a strong need for teacher input, which supports Hargreaves (1998) findings. I discovered that increased time to plan and implement, resources, administrator support, and autonomy would be vital to making improvements and supporting teacher voice. There is enough evidence in these stories through the thematic statements to suggest that the district is not listening to their teachers and does not emphasize the teacher's input regarding what is being taught in the classroom. This evidence is not overwhelmingly surprising. The study also identified the need for administrator knowledge of the content. Administrator knowledge would help support the teachers in their implementation of the curriculum and allow them to understand the obstacles teachers face while implementing the curriculum.

Hargreaves (1998) and McCormick et al. (2005) state the importance of teacher motivation and successful experiences as critical factors in implementing the new curriculum. Time continues to be monopolized by reform changes. All four participants

recognized decreased time both inside and outside of work because of new curriculum implementation. Hargreaves and Goodson (2006) discovered that free time for teachers continued to deplete as their responsibilities grew in response to the reform changes. As a result, teachers will continue to run out of time and eventually have no time to plan with fidelity to implement curriculum changes if their voices are not heard.

Fullan (2007) expressed the need for collaboration for teachers to be adequately successful. McCormick et al. (2005) similarly found that teachers lacking professional development or opportunities to experience training can supplement this shortcoming with increased collaboration among peers. In addition, participants made precise increased time to collaborate would support successful implementation.

The results of this study supported much of the research. However, participants seemingly felt that professional development did not impact successful implementation to the level that is found in the study. However, given the covid-19 pandemic and the constant changes to in-person and virtual learning, it is not surprising that teachers did not find professional development entirely helpful. Overall, the research supports the literature. Teachers need to have a good sense of self-efficacy. There is never enough time. Collaboration with peers is essential. A continued improvement upon these factors will help increase teacher success in implementing a new curriculum.

### *Implications and Recommendations*

Evidence from this study provided several implications to support teachers implementing the mandated curriculum. The impacts from the research are broken down into district and school level implications. The repercussions include creating teacher cohort and administrator training in relevant implemented curricula at the district level.

Finally, additional uninterrupted time for teachers to collaborate at the school level, administrators to communicate expectations for the scope and sequence, and create opportunities for teacher input and autonomy. These implications provide a connection between the results of this study and build a foundation for the successful implementation of new curricula.

#### *District-Level Recommendations*

All four participants discussed the lack of support and communication from the district. All four noted that their concerns would not be heard and feared sharing concerns would cause reprimand. While Beth had great permission from her school administration, she felt she did not have access to that same support at the district. Overwhelmingly, this descriptive single case study showed that teachers do not think they are supported by their community. Therefore, creating strategic outlets for teachers to provide feedback and input would allow teachers to have positive experiences implementing a mandated curriculum.

One recommendation from the researcher is to create teacher cohorts. These cohorts would be grade and subject-level specific. The cohorts would include teachers from the highest, lowest, and average performing schools. They would meet once a month and the goal would be to provide teachers a stipend for their time. The meetings would allow teachers from all over the district to collaborate and voice concerns and successes. Additionally, the meetings would give teachers the teacher's voice noted in the interviews as missing. A teacher cohort would allow teachers to voice concerns without fear of backlash. At the very minimum, it would give teachers input and increase buy-in to the occurring changes.



These teacher cohorts create a safe space for teachers to collaborate on the scope and sequence and insight into the cultural aspect impacting the scope and sequence. Allowing teachers to buy into the scope and sequence will help teachers find autonomy in the class. Three of the four participants described a need for additional resources. Creating teacher cohorts would allow teachers to present these ideas. For example, the cohorts could establish different schools to test the resources for effectiveness and report back using data gathered. This would ensure that the resources used were practical and being used correctly. The cohorts would also be responsible for reaching out to teachers for support and relaying suggestions and concern to the district administration. This cohort could help bridge the gap between teachers and district administrators. Finally, this cohort would allow teachers to discuss additional resources that supplement the teaching of the mandated curriculum.

Another recommendation from the researcher is to mandate that at least one administrator from each campus attends the curriculum training and meetings. This would allow the administration to understand the implementation procedures of the curriculum. Mary and Etta both described discrepancies in guidelines for implementing the curriculum. However, they explicitly stated that their administration did not understand how Eureka Math was implemented. However, if their administrators knew how to implement Eureka Math, they would understand the scope, sequence, and pacing concerns. This would also create that natural support from administrators at the school level.

### *School-Level Recommendations*

The disconnect between the teachers and the district was felt overwhelmingly in these interviews. This disconnect was also evident at the school administration level. While Beth had a positive experience with her administration, she noted she has peers throughout the district who do not feel this same sense of support. For Beth, her expertise in implementing a mandated curriculum was overly optimistic, and there were significant factors that she mentioned that were different from the other four participants. Beth initially chose Eureka Math as the curriculum to implement based on its alignment with the Louisiana Student Math Standards. Beth also described significant support from her administration.

*Grade-Level planning* The first school-level recommendation from the researcher is for the administration to create time for teachers to grade-level plan. The researcher is cautious of these recommendations for the following reasons: teachers are overworked already, there is a lack of time to grade-level plan, adding one more thing to a teacher's plate is not going to help, and PLCs are already in place. Despite the researcher's caution, it is apparent that there needs to be uniformity among the grade level to implement a mandated curriculum successfully. Administrations can, and should, still utilize PLC but place a stronger focus on allowing teachers to plan for the PLC and use that time to plan according to the student needs. The participants indicated PLC was mandatory, but the PLC schedule at each school and even within the schools differed. Therefore, strategically designed grade level and subject planning time is the recommendation. Thus, utilizing planning time eliminates additional expectations and stress on teachers.

*Scope and sequence* The second recommendation from the researcher is to create specific expectations of the scope and sequence. Three of the four participants noted that they were not allowed to deviate from the scope and sequence but could not articulate why or what the consequence would be. Beth, who overwhelmingly had a positive experience, noted that her administration was more concerned with students' content knowledge of the material rather than the scope and sequence. Therefore, the researcher recommends that the administration clearly articulate their expectations and explain the reasoning behind those expectations.

*Opportunities for Teacher Input* The final recommendation from the researcher is for administrations to create more opportunities for teacher input and autonomy. All four of the participants noted that they did not feel their administration understood the expectations from the curriculum. However, only Beth discussed how that allowed her input to be heard and subsequently valued by her administration. Teachers are resources. Teachers are knowledgeable. Teachers are professionals. Any of the participants did not describe this understanding except for Beth. When she asked for help, Beth noted that her administrations would listen and provide as best as possible. Therefore, school administrators should give teachers input and voice consideration in decision-making. This would increase the positive experiences felt by the teachers.

#### *Recommendations for Future Research*

Future research studies on the experience of administrators experiences implementing a mandated curriculum would give a different perspective on the expectations placed on administrators. The researcher also recommends expanding on participant 2 regarding the positive outcomes of implementing a mandated curriculum.

Scope and sequence came up often in the interviews. Therefore, the researcher also recommends additional research on implementing a scope and sequence. For example, several participants noted looping with students from fourth to fifth grade. This would be a relevant area for additional research. Finally, the researcher recommends further research on the implications of lack of time teachers described and how this affects their success as a teacher.

### *Expanding the Current Study*

An overwhelming theme in this study was the lack of support from the administration. However, the intentionality of the lack of reliance on the administrator's side is unclear. A case study conducted similarly to this case study would provide valuable results in understanding the experiences and perspectives of administration. For example, this study could clarify the administration's expectations when supporting teachers responsible for implementing a mandated curriculum.

Beth's narrative expressed a positive experience with implementing a mandated curriculum. Beth described the individual decision to implement eureka math and administration support as critical factors in her success. Beth did not allude to staying on the scope and sequence as her reasons for success. Instead, based on the implications described in the previous section, a narrative case study of Beth, her co-teachers, and her administration would be beneficial. The narrative research should be comprised of interviews, observations, and artifacts. The discussions should be conducted between Beth, her co-teachers, and administrators. The narrative study should include Beth's classes, interactions with administration, PLCs, and planning periods. Artifacts of Beth's students, PLC agendas, and test scores should be utilized. Finally, a narrative case study

would give a supporting lens to the entire culture of Beth's school and provide possible solutions to the successful implementation of mandated curriculums.

Time is limited, but it was apparent in the interviews that a lack of time was a barrier to implementing a mandated curriculum. The concern for scope and sequence was discussed multiple times in each interview. Therefore, an additional study on the scope and sequence, and time should be conducted. This research could be done in a mixed-methods case study. The quantitative portion should be completed first. This portion should utilize a survey on teacher expectations and time. Finally, the qualitative part should be conducted using interviews. Finally, the interview would use a semi-structured procedure to implement the results from the quantitative study. Finally, this study could report significant findings of teacher time and the efficacy of the scope and sequence.

### *Summary and Conclusion*

In this chapter, the researcher introduced and reported findings from the data analysis. The researcher analyzed each participant interview as individual cases as part of a descriptive single case study analysis framework. The researcher completed a cross-case analysis to compare the four participants and discover emerging themes from the research—then the researcher detailed implications and recommendations for leaders at the district and school levels. Next, the researcher explored the question, what are teachers' experiences implementing a mandated mathematics curriculum? Finally, in Chapter Four, the researcher summarizes the descriptive single case study and discusses the findings distribution proposal.

## CHAPTER FOUR

### Distribution of Findings

#### *Executive Summary*

Teachers are resilient. Teachers are at the forefront of implementing mandated curriculum changes. However, many teachers face challenges when implementing a mandated curriculum. St. Tammany Parish Public Schools (STPPS) experienced multiple changes in curriculum between 2017 and 2020. With an additional curriculum change decision expected to be made in 2023 this study sought to identify obstacles to implementing a mandated curriculum. Hargreaves (1998) explains that change in education often occurs without teacher voice and teacher input. Therefore, this study answered the research question: what are the obstacles teachers experience while implementing a mandated curriculum? By answering this research question, future curriculum implementation in STPPS has a greater chance of leading to successful outcomes in student achievement.

This descriptive single case study aimed to understand teachers' experiences implementing mandated curriculum changes in the classroom. The demands of a math teacher include remediating gaps of knowledge, teaching new content, and focusing on improving overall school performance scores. In addition, investigating the lived experiences of these teachers allowed the teachers to have a voice that is often overlooked. There is greater chance for successful implementation when teachers are given a voice in the decision making process (Hargreaves, 1998, 2005). Improvement in teacher voice and administrator knowledge, creates better relationships within schools

campuses and increased chances for successful implementation of a mandated curriculum (Fullan, 2016). The findings of this study indicated the need for increased teacher voice and administrator content knowledge.

### *Overview of Data Collection and Analysis Procedures*

The researcher utilized Hargreaves' (1998) domains of teacher change as the theoretical framework. This framework was chosen because it identified the teachers as instrumental change agents while presenting an outline for collecting data. The researcher determined that the descriptive single case study allowed the participants to share insight into their personal lived experiences. Five teachers across the district participated in the questionnaire, and all agreed to an interview. Four of the five teachers met the specific sampling parameters for the individual interviews. The researcher collected data, transcribed, coded, evaluated, compared, and noted emerging themes throughout the data. After the data analysis, the researcher compiled the results and organized the teachers' experiences. Finally, using Hargreaves's (1998) levels of teacher change as the theoretical framework, the researcher analyzed the information to offer recommendations to stakeholders.

### *Summary of Key Findings*

This study revealed several key findings. Teacher input through teacher voice is the first key finding. The second key finding is administration knowledge of the curriculum. Changing the culture of school through establishment of stronger relationships leads to better outcomes for change (Fullan, 2016). Teacher voice in decisions regarding curriculum and implementation, paired with increased administrator

knowledge of the curriculum, provides the framework for a better relationship to implement change.

All four participants discussed time and support as significant factors in implementing a mandated curriculum. Second, teachers are resilient and change agents. However, the lack of time needed to implement the required curriculum and lack of administrator support successfully affects the teachers' implementation process. Third, the push to stay on the scope and sequence negatively affects the students' learning and, as noted by three of the participants, creates more gaps in learning for their students. Third, the literature discussed in Chapter One indicated that curricula reform continues to cycle through changes. Teachers implement the difference regardless of the level of support or training received.

The study revealed that even with these obstacles, teachers remain resilient. While each participant indicated challenges of implementing a mandated curriculum, not one of the participants noted that they felt like giving up or quitting. Therefore, while teachers are battling a lot, and these implications will help them be more resilient, teachers will ultimately continue to do what they are told to do. However, it remains to be seen how sustainable relying on teacher resiliency will be in the future. Therefore, this study is beneficial for school campuses and districts to implement change now, before it is too late.

#### *Implications and Informed Recommendations*

An implication of this study found that access to resources would enhance teacher effectiveness when implementing a mandated curriculum. The additional resources allow for teachers to remediate student gaps in knowledge. The other resources enable the



students to see material multiple times. However, there is a lack of additional resources, and the fear of discussing additional resources will be met with a reprimand.

Another implication of this study is teacher autonomy. Teachers feel there is a lack of teacher input and voice regarding decision-making. They also think there is no autonomy given when it comes to an understanding the needs of their students. Self-efficacy is enhanced through personal motivation (Bandura, 1997). When teachers are motivated, they are successful, and therefore implementation is more successful (McCormick et al., 2005).

Evidence from this study provided several implications for district and campus leaders to support the need for improving teacher experiences in implementing a mandated curriculum. After processing these implications, the researcher determined recommendations as well. The researcher determined two requests for district-level support and three proposals for school-level support.

District-level support includes developing teacher cohorts and requiring the administration to attend curriculum training. The campus cohorts should consist of a diverse group of teachers from all over the parish. These cohorts should be grade and subject-specific. The goal for these cohorts is to create a safe space for teacher input into the decision-making process. This should give the teachers some autonomy to the curriculum changes. The second recommendation is to require campus administration to attend curriculum training. This will allow administrators to understand the implementation process required of mandated curriculums and enable them to experience the struggles and roadblocks encountered by their teachers. Implementing both recommendations will enable the teachers to feel supported on their campuses.

School-level support includes creating grade and subject-specific planning time, stating clear expectations of teachers and the scope and sequence, and creating space for teacher input and autonomy. As noted before in Chapter Three, making time for planning should not add to teachers' expectations but should be thought through carefully to create an environment for teachers to come together and plan. There were multiple discrepancies in anticipation of implementing Eureka Math and the scope and sequence; therefore, clear and logical expectations for the scope and sequence should be made. Finally, teachers should give their input and use their professional knowledge as the plan and implement the curriculum based on their students. Ultimately, campus administrators should facilitate and encourage all three of these changes to ensure the successful implementation of a mandated curriculum.

#### *Findings Distribution Proposal*

The results of this study are complete. Therefore, it is important to disseminate this information strategically. To maximize the impact of this study, the right target audience must be identified. The researcher took careful consideration when deciding how to present these results. The target audience focuses on those within the STPPS system while disseminating the study to journals and conferences to reach different audiences.

#### *Target Audience*

The study explored teachers' experiences in STPPS and uncovered that the target audience for this study is the district and school-level administrators within STPPS. This study will allow administrators to understand the experiences of their teachers implementing the curriculum changes. Teachers cannot create the change needed without

district and campus support. It is not unfathomable that administrators do not know the needs of their teachers. Therefore, this study will allow them to understand the needs of their teachers. The goal is that this study will give administrators the tools they need to put into place effective procedures, plans, and protocols that will allow their teachers to feel supported and heard. Implementing these recommendations will allow for the successful implementation of any mandated curriculum.

### *Distribution Materials*

The researcher will create a professional presentation for the target audience to distribute these findings appropriately. This presentation will consist of the need for the study, literature review, results, implications, and recommendations. In addition, the researcher will create a Google slide presentation that they will share with the target audience. The specific targeted audience includes the contact person for the STPPS schools district, the Assistant Superintendent, and the contact person for school-level administrators, including principals and assistant principals. While not specified in the targeted audience, the researcher will send the information to the curriculum specialists throughout the district.

The researcher plans to distribute these findings to professional journals, *Journal of Educational Change*, and submit the research to various conferences, specifically the National Council of Teachers of Mathematics Conference 2023. Therefore, the findings will be reformatted to meet the requirements of any journal or conference this study is submitted to. The dissemination of this study to journals and conferences allows this study to reach a larger audience. These opportunities provide collaboration and expansion for additional research.

### *Conclusion*

This descriptive single case study's intention included identifying obstacles teachers faced and determining the best practices for implementing a mandated curriculum. This study began with the premise that there are problems implementing a mandated curriculum. The case revealed that external factors could not be controlled throughout this study. These factors are time, resources, support, and autonomy. Teachers lack the time needed to prepare to implement the curriculum with fidelity. Teachers lack time to plan and collaborate. Teachers are limited on approved resources and lack substantial professional development. Teachers who do not receive administrative support describe negative experiences with curriculum change. Finally, teachers lack autonomy inside and outside their classrooms. Suppose administrators and educational leaders consider all of these factors and plan accordingly. In that case, the implementation of the new curriculum will be a joyous time of celebration because students will grow academically and excel exponentially.

## APPENDICES

## APPENDIX A

### Consent Form for Research

PROTOCOL TITLE: Participant  
PRINCIPAL INVESTIGATOR: Melissa M. Lein

#### **Invitation to be part of a Research Study**

You are invited to be part of a research study. This consent form will help you choose whether or not to participate in the study. Feel free to ask if anything is not clear in this consent form.

#### **Important Information about this Research Study**

Things you should know:

- The purpose of this study is to identify obstacles teachers face when implementing a mandated math curriculum.
- To take part in this study, you must be a fourth or fifth-grade math teacher implementing the Eureka Math curriculum mandated by the state.
- If you choose to participate, you will be asked to complete a questionnaire. If you are selected to be interviewed for this study, you must provide your current and valid teaching license.
- Risks or discomforts from this research include emotional response to interview questions; however, the risks involved in this study are not expected to be greater than everyday life.
- There is no direct benefit to participating in this study.
- Taking part in this research study is voluntary. You do not have to participate, and you can stop at any time.

More detailed information may be described later in this form. Please take time to read this entire form and ask questions before deciding whether to take part in this research study.

#### **Why is this study being done?**

The purpose of this study is to determine best practices for implementing a mandated curriculum.

#### **What will happen if I take part in this research study?**

If you agree to take part in this study, you will be asked to:

- complete a questionnaire (15–30 minutes)

If selected as a participant, you must:

- Participate in a Zoom recorded interview (60 minutes)

**How long will I be in this study, and how many people will be in the study?**

Participation in this study will last a maximum of two hours. About six subjects will take part in this research study.

**What are the risks of taking part in this research study?**

While we do not anticipate any risks from participating in this research, there is a chance of an emotional response to interview question.

**Are there any benefits from being in this research study?**

Although you will not directly benefit from being in this study, educators might benefit because they will have additional information on best practices to implement mandated curriculum.

**How Will You Protect my Information?**

A risk of taking part in this study is the possibility of a loss of confidentiality. Loss of confidentiality includes having your personal information shared with someone who is not on the study team and was not supposed to see or know about your information. The researcher plans to protect your confidentiality.

We will keep this study's records confidential by storing all documents and digital files in a private, secure, password-protected external hard drive. We will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

The following people or groups may review your study records for purposes such as quality control or safety:

- Representatives of Baylor University and the BU Institutional Review Board
- Federal and state agencies that oversee or review research (such as the HHS Office of Human Research Protection or the Food and Drug Administration)

The results of this study may also be used for teaching, publications, or presentations at professional meetings. If your individual results are discussed, your identity will be protected by using a code number or pseudonym rather than your name or other identifying information.

**Will I be compensated for being part of the study?**

There are no compensations for participating in this study.

**Your Participation in this Study is Voluntary**

Taking part in this study is your choice. You are free not to take part or to withdraw at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. You cannot withdraw information collected prior to your withdrawal.

If you are a Baylor student or faculty/staff member, you may choose not to be in the study or to stop being in the study before it is over at any time. This will not affect your grades or job status at Baylor University. You will not be offered or receive any special consideration if you take part in this research study.

**Contact Information for the Study Team and Questions about the Research**

If you have any questions about this research, you may contact:

Melissa Lein

Phone: [REDACTED]

Email: [REDACTED]

Or

Dr. Sandra Talbert

Email: [REDACTED]

**Contact Information for Questions about Your Rights as a Research Participant**

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the following:

Baylor University Institutional Review Board

Office of the Vice Provost for Research

Phone: [REDACTED]

Email: [REDACTED]

**Your Consent**

**Signature of Subject:**

By signing this document, you are agreeing to be in this study. We will give you a copy of this document for your records. We will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

*I understand what the study is about, and my questions so far have been answered. I agree to take part in this study.*

\_\_\_\_\_  
Signature of Subject

\_\_\_\_\_  
Date

**Signature of Person Obtaining Consent:**

I have explained the research to the subject and answered all his/her questions. I will give a copy of the signed consent form to the subject.

\_\_\_\_\_  
Signature of Person Obtaining Consent

\_\_\_\_\_  
Date



## APPENDIX B

### Superintendent Approval

Good afternoon, Mrs. Lein,

Superintendent, [REDACTED] has approved your request to conduct dissertation research. The staff/employees of STPPS can participate if they so choose. Please complete page two of the attached letter of introduction application and send it back to me. I will send an official approval letter. Please share the letter with the staff. Also, we would like to receive the data from your research.

Let me know if you have any questions.

Thanks,

[REDACTED]

Supervisor of Administration

St. Tammany Parish Public School System

Phone: [REDACTED] | Fax: [REDACTED]

[www.stpsb.org](http://www.stpsb.org) | [Facebook](#) | [Twitter](#) | [Instagram](#)

## APPENDIX C

### Questionnaire

My name is Melissa Lein, and I am a doctoral candidate at Baylor University. I am conducting research of fourth and fifth grade math teachers mandated to implement Eureka Math as their primary math curriculum. You have already provided your consent form this questionnaire will be used to facilitate the interview portion of this research study. If you would like to volunteer to be one of the selected interviewees, please indicate by selecting yes at the end of the document. If you are selected as an interviewee your questionnaire responses may be used during your interview. Please complete this form electronically through the Google form link. When you are finished it will submit automatically to me. You will receive a response notification when I have received your answers.

1. Name
2. Age
3. Gender
4. Race
5. Did you graduate with a teaching degree?
  - a. If yes, did you have a primary focus?
  - b. If no, how did you receive your certification?
6. How many years have you been teaching?
7. Describe all of your teaching experiences including grade level and subject(s).
8. How many years have you taught using Eureka Math?
9. Were you part of the decision-making process to use Eureka Math as your primary curriculum?
  - a. If yes, how were you involved?
  - b. If no,
    - i. Was this a personal decision to not be involved?
    - ii. Was the option to be involved made available to you?
10. Do you receive administrator support when it comes to classroom decisions about the curriculum?
11. How do parents react to Eureka Math?
12. How many Eureka Math Trainings have you been able to attend?
  - a. Were you required to attend these meetings?
  - b. Did you have to pay out of pocket to attend these meetings?
13. What are the strengths of Eureka Math as a curriculum?
14. What are the weaknesses of Eureka Math as a curriculum?
15. How do students respond to Eureka Math?
16. Have you seen student growth in your classroom while using Eureka Math?
  - a. Please include examples

17. Would you select Eureka Math as the curriculum you would choose to implement if given a choice?
18. May I contact you for a follow-up interview?
  - a. If yes, please submit your personal email your address

## APPENDIX D

### Participant Interview Protocol

As you know, my name is Melissa Lein, and I am a doctoral candidate at Baylor University. I am conducting research of fourth and fifth grade math teachers mandated to implement Eureka Math as their primary math curriculum. You have already provided your consent form, questionnaire responses and your current and valid teaching license. I just want to make sure that you are still comfortable participating in this interview.

1. Describe your experiences implementing Eureka Math.
2. Describe your experiences with administration and Eureka Math.
3. Describe your experiences with parents and Eureka Math.
4. Describe your experiences with students and Eureka Math.
5. Describe your experiences with colleagues and Eureka Math.
6. What strategies do you use to address student gaps of knowledge?
7. What strategies do you use to address students without prior knowledge of Eureka Math?
8. What experiences have helped you implement Eureka Math?
9. What experiences have hindered your implementation of Eureka Math?
10. Do you have any final thoughts you would like to add?

## BIBLIOGRAPHY

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Prentice-Hall.
- Baxter, J. A., Woodward, J., & Olson, D. (2001). Effects of reform-based mathematics instruction on low achievers in five third-grade classrooms. *Elementary School Journal, 101*(5), 529–547.
- Bottge, B. A., Rueda, E., Serlin, R. C., Hung, Y. H., & Kwon, J. M. (2007). Shrinking achievement differences with anchored math problems: Challenges and possibilities. *The Journal of Special Education, 41*(1), 31–49.
- Burrill, & Kennedy, D. (1997). *Improving student learning in mathematics and science the role of national standards in state policy*. National Academy Press.
- Cambridge Conference on School Mathematics. (1963). *Goals for school mathematics: The report of the Cambridge Conference on School Mathematics*. Educational Services. [https://www.maa.org/sites/default/files/pdf/CUPM/first\\_40years/1963CambConf.pdf](https://www.maa.org/sites/default/files/pdf/CUPM/first_40years/1963CambConf.pdf)
- Cerda, G., Perez, C., Giaconi, V., Perdomo-Diaz, J., Reyes, C., & Felmer, P. (2017). The effect of a professional development program workshop about problem solving on mathematics teachers' ideas about the nature of mathematics, achievements in mathematics, and learning in mathematics. *Psychology, Society & Education, 9*(1), 11–26.
- Chapman, O., & Heater, B. (2010). Understanding change through a high school mathematics teacher's journey to inquiry-based teaching. *Journal of Mathematics Teacher Education, 13*(6), 445–458.
- Charalambous, C. Y., & Philippou, G. N. (2010). Teachers' concerns and efficacy beliefs about implementing a mathematics curriculum reform: Integrating two lines of inquiry. *Educational Studies in Mathematics, 75*(1), 1–21.
- Clements, D. H., Fuson, K. C., & Sarama, J. (2017). The research-based balance in early childhood mathematics: A response to Common Core criticisms. *Early Childhood Research Quarterly, 40*, 150–162.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research*. Sage.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE.

- Datnow, A. (2020). The role of teachers in educational reform: A 20-year perspective. *Journal of Educational Change*, 21(3), 431–441.
- Darragh, L., & Valoyes-Chávez, L. (2019). Blurred lines: Producing the mathematics student through discourses of special educational needs in the context of reform mathematics in Chile. *Educational Studies in Mathematics*, 101(3), 425–439.
- Dent, E., & Powley, E. (2002). Employees actually embrace change: The chimera of resistance. *Journal of Applied Management and Entrepreneurship*, 7(2), 40–56. <https://papers.ssrn.com/abstract=2343419>
- DuFour, R. (2004). What is a “professional learning community”? *Educational Leadership*, 61(8), 6–11.
- Dulude, E., Spillane, J. P., & Dumay, X. (2017). High stakes policy and mandated curriculum: A rhetorical argumentation analysis to explore the social processes that shape school leaders’ and teachers’ strategic responses. *Educational Policy*, 31(3), 364–403.
- Edwards, D. (1998). Types of case study work: A conceptual framework for case-based research. *Journal of Humanistic Psychology*, 38(3), 36–70.
- Elmore, R. (1996). Getting to scale with good educational practice. *Harvard Educational Review*, 66(1), 1–26.
- Elmore, R., Burney, D. (1997). Investing in teacher learning: staff development and instructional improvement in community school district #2. *National Commission on Teaching and America’s Future and Consortium for Policy Research in Education*.
- EMBARC. Online. (n.d.). *EMBARC. Online*. Retrieved January 4, 2022, from <https://embarc.online>
- Fullan, M. (2007). *The new meaning of educational change* (4th ed.). Teachers College Press.
- Fullan, M. (2016). The elusive nature of whole system improvement in education. *Journal of Educational Change*, 17(4), 539–544.
- Goldman, S., & Pellegrino, J. (2015). Research on learning and instruction: Implications for curriculum, instruction, and assessment. *Policy Insights from the Behavioral and Brain Sciences*, 2(1), 33–41.
- Goodson. (2001). Social histories of educational change. *Journal of Educational Change*, 2(1), 45–63.

- Goodson. (2003). *Professional knowledge, professional lives: studies in education and change*. Open University Press.
- Great Minds. (2021). *Eureka Math*. <https://greatminds.org/eurekamath>
- Hamilton, L. S., Stecher, B. M., Marsh, J. A., McCombs, J. S., Robyn, A., Russell, J. L., Naftel, S., & Barney, H. (2007). *Standards-based accountability under No Child Left Behind: Experiences of teachers and administrators in three states*. RAND Corporation.
- Hargreaves, A. (2005). Educational change takes ages: Life, career and generational factors in teachers' emotional responses to educational change. *Teaching and Teacher Education*, 21(8), 967–983.
- Hargreaves, & Goodson, I. (2006). Educational change over time? The sustainability and nonsustainability of three decades of secondary school change and continuity. *Educational Administration Quarterly*, 42(1), 3–41.
- Hiebert, J., Carpenter, T. P., Fennema, E., Fuson, K., Human, P., Murray, H., Olivier, A., & Wearne, D. (1996). Problem solving as a basis for reform in curriculum and instruction: The case of mathematics. *Educational Researcher*, 25(4), 12–21.
- Hirsch, C. R., & Reys, B. J. (2009). Mathematics curriculum: A vehicle for school improvement. *ZDM*, 41(6), 749–761.
- Karten, N. (2009). *Changing how you manage and communicate change*. IT Governance Publishing.
- Kilpatrick, J. (1997). Confronting reform. *The American Mathematical Monthly*, 104(10), 955–962.
- Kilpatrick, J., & Stanic, G. (2004). Mathematics curriculum reform in the United States: A historical perspective. *Educação Matemática Pesquisa*, 6(2), 11–27.
- Lincoln, & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Linneberg, M. S., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative Research Journal*, 19(3), 259–270.
- Louisiana Department of Education (LDOE). (2019). *Louisiana school and center finder*. Louisiana Believes. Retrieved December 2, 2019, from <https://www.louisianabelieves.com/>
- LDOE. (2021). *Grades 3-8 assessments*. Louisiana Believes. <https://www.louisianabelieves.com/measuringresults/grades-3-8-assessments>

- LDOE. (2021). *Academic performance: Breakdown by student group*. Louisiana Believes. Retrieved November 2, 2021, from <https://www.louisianaschools.com>
- LDOE. (2022). *Louisiana Student Standards Mathematics*. Louisiana Believes. Retrieved January 28, 2022, from <https://www.louisianabelieves.com/docs/default-source/year-long-planning/grade-7-lssm-alignment-to-rigor.pdf?sfvrsn=8>
- Owens, J. E. (1988, August 9). *Curriculum and Evaluation Standards for School Mathematics: Report of the National Council of Teachers of Mathematics' Comisionon Standards for School Mathematics*. Summer Workshop of the Association of Teacher Educators, Starkville, MS.
- McCarthy, S. J., & Woodard, R. (2018). Faithfully following, adapting, or rejecting mandated curriculum: Teachers' curricular enactments in elementary writing instruction. *Pedagogies: An International Journal*, 13(1), 56–80.
- McCormick, J., Ayres, P. L., & Beechey, B. (2006). Teaching self-efficacy, stress and coping in a major curriculum reform: Applying theory to context. *Journal of Educational Administration*, 44(1), 53–70.
- Myers, A. (2019). Confronting mandated curriculum: Being a transgressive teacher and meeting the needs of our urban learners. *Perspectives on Urban Education*, 16(1), 1–13.
- National Commission on Excellence in Education, *A nation at risk: The imperative for educational reform*, U.S. Government Printing Office, Washington, DC, 1983.
- National Council of Teachers of Mathematics (NCTM). (2000). *Principles and standards for school mathematics*. Author.
- National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Key shifts in mathematics: Common Core State Standards Initiative*. <http://www.corestandards.org/other-resources/key-shifts-in-mathematics/>
- NAEP Report Cards—Data\_tools. (n.d.) Retrieved January 5, 2022, from [https://www.nationsreportcard.gov/data\\_tools.aspx](https://www.nationsreportcard.gov/data_tools.aspx)
- Papandrea, R. V. (2020). *Implementing reform: A case study of secondary social studies teachers' perceptions of mandated curriculum changes*. ProQuest Dissertations & Theses Global.
- Pendell, M. J. (2008). How far is too far?: The spending clause, the tenth amendment, and the education state's battle against unfunded mandates. *Albany Law Review*, 71(2), 519–543.



- Petrilli, M. J. (2017a). A Common Core curriculum quandary: For Eureka Math, open-source leads to a revenue stream. *Education Next*, 17(3), 83-84. Gale Academic OneFile.
- Rhodes. (2012). *An education in politics: The origins and evolution of No Child Left Behind*. Cornell University Press.
- Rubenstein, L. D., Gilson, C. M., Bruce-Davis, M. N., & Gubbins, E. J. (2015). Teachers' reactions to pre-differentiated and enriched mathematics curricula. *Journal for the Education of the Gifted*, 38(2), 141-168.
- Sentell, W. (2018, April 4). Louisiana math, reading scores suffer “statistically significant drop”; See how we compare to other states. *The Advocate*.  
[https://www.theadvocate.com/baton\\_rouge/news/education/article\\_f71979fe-3c00-11e8-abf6-23f67f370da2.html](https://www.theadvocate.com/baton_rouge/news/education/article_f71979fe-3c00-11e8-abf6-23f67f370da2.html)
- Smith, C., & Gillespie, M. (2007). Research on professional development and teacher change: Implications for adult basic education. *National Center for the Study of Adult Learning and Literacy*.  
[http://www.ncsall.net/fileadmin/resources/ann\\_rev/smith-gillespie-07.pdf](http://www.ncsall.net/fileadmin/resources/ann_rev/smith-gillespie-07.pdf)
- Snyder, R. R. (2017). Resistance to change among veteran teachers: Providing voice for more effective engagement. *NCPEA International Journal of Educational Leadership Preparayopm*, 12(1).
- Sood, S., & Jitendra, A. K. (2007). A comparative analysis of number sense instruction in reform-based and traditional mathematics textbooks. *The Journal of Special Education*, 41(3), 145-157.
- Stiff, L. (2001). *Status and the Status Quo-The Politics of Education-National Council of Teachers of Mathemantics*. NCTM.org.
- STPPS - YouTube. (2021, February). Retrieved January 5, 2022, from  
<https://www.youtube.com/watch?v=Safn2uDo-xY>
- STPPS - YouTube. (2020, February). Retrieved March 1, 2022, from  
<https://www.youtube.com/watch?v=oC5SZNenjDw>
- Tampio, N. (2017). Who won the math wars? *Perspectives on Politics*, 15(4), 1087-1091.
- U.S. Commission on Civil Rights. (2004). *Closing the achievement gap the impact of standards-based education reform on student performance: Draft report for commissioners' review*.  
<https://permanent.access.gpo.gov/www.usccr.gov/pubs/educ/educ0704.pdf>

- Valoyes-Chávez, L. (2019). On the making of a new mathematics teacher: Professional development, subjectivation, and resistance to change. *Educational Studies in Mathematics*, 100(2), 177–191.
- Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Validity in qualitative research. *Qualitative Health Research*, 11(4), 522–537.
- Yin, R. K. (2014). *Case study research: Design and method* (5<sup>th</sup> ed.). SAGE.
- Yin, R. (2016). *Qualitative research from start to finish* (2nd ed.). Guilford Press.
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6<sup>th</sup> ed.). SAGE.