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EMERGENT THEMES SURROUNDING THE IMPLEMENTATION OF THE COMMON CORE STATE STANDARDS FOR MATHEMATICS FOR STUDENTS WITH LEARNING DISABILITIES IN MATHEMATICS

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EMERGENT THEMES SURROUNDING THE IMPLEMENTATION OF THE
COMMON CORE STATE STANDARDS FOR MATHEMATICS FOR STUDENTS
WITH LEARNING DISABILITIES IN MATHEMATICS

By:

Andrew R. Mills

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EMERGENT THEMES SURROUNDING THE IMPLEMENTATION OF THE
COMMON CORE STATE STANDARDS FOR MATHEMATICS FOR STUDENTS
WITH LEARNING DISABILITIES IN MATHEMATICS

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ABSTRACT

EMERGENT THEMES SURROUNDING THE IMPLEMENTATION OF THE COMMON CORE STATE STANDARDS FOR MATHEMATICS FOR STUDENTS WITH LEARNING DISABILITIES IN MATHEMATICS

By

Andrew R. Mills

As the nation transitions into a new national curriculum, the Common Core State Standards for Mathematics (CCSSM), educators face the challenge of meeting the needs of a diverse student population coupled with a change in standards. The purpose of this phenomenological study was to understand educators' perceptions surrounding the implementation of these standards specific to students with learning disabilities in mathematics. Five rural, middle school educators were interviewed using a series of questions that investigated their experiences related to implementation of the CCSSM. Interviews were recorded and transcribed. Coding was used to identify emergent themes surrounding the phenomenon. Six emergent themes were identified: 1) disconnect between the focus on depth of knowledge and the unique learning characteristics of students with learning disabilities in math, 2) uncertainty surrounding teaching multiple strategies for problem-solving, 3) benefits from a streamlined set of standards 4) teacher and student challenges in transitioning to the CCSSM, 5) lack of professional development, and 6) acknowledgement of the cyclical nature of standards in education. The implication of this study suggests teachers acknowledge the benefits and limitations for implementing the CCSSM with students with learning disabilities in mathematics.

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CHAPTER 1: INTRODUCTION

Educators face the challenge of meeting the needs of a diverse student population. As the nation transitions into a new national curriculum, the Common Core State Standards for Mathematics (CCSSM), it is important to understand the emergent themes surrounding the implementation of these standards to the general student population, specifically the students with learning disabilities in mathematics. This study explored these themes and investigated how they are connected to the needs of today's unique student population.

Background of the Problem

Currently, forty-four of the U.S. states have adopted the Common Core State Standards for Mathematics (CCSSM). These standards aim to promote problem-solving and application abilities of the students so they are better prepared for a post-secondary education (National Governors, 2010). IDEA (Individuals with Disabilities Education Act, 2004) guarantees that all students have the right to a free and appropriate education. As schools begin to transition into the new CCSSM and implement the goals of this program, it is important to consider the needs our students have in the educational environment. Disabilities, such as a learning disability, can present significant academic challenges for both students and their teachers. These students often require additional support in order to achieve educational success (Lerner & Johns, 2009).

There are critics of the CCSSM who believe these standards do not address the needs of students with learning disabilities (Powell, Fuchs, & Fuchs, 2013; Haager & Vaughn, 2013). Learning disabilities often present students with significant challenges in

trying to process and store information. With these challenges, many students with learning disabilities in mathematics need more focus on the basics of math before they can move on to the higher-order levels of mathematics like problem-solving and application, which are the basis of the new standards (Lerner & Johns, 2009). It is important to explore the implementation of these standards to this population of students in order to identify how to most-effectively meet their needs.

Purpose of the Study

This qualitative, phenomenological study investigates the themes surrounding the implementation of the CCSSM for students with learning disabilities in mathematics. Qualitative research seeks to explore and understand the meaning individuals attribute to a problem, whether it is social or human (Creswell, 2013). The purpose of a phenomenological study is to examine the experiences of several individuals with a concept or phenomenon (Creswell, 2012). In this study, five educators were interviewed about the phenomenon of CCSSM implementation for students with learning disabilities in mathematics. The five participants were chosen using a convenience sampling. Two of the participants were general education teachers, two of the participants were special educators, and one participant was a principal. The interviews were conducted in the teacher's classroom and recorded using an audio-recording device. Four interviews were completed face-to-face and one interview was completed over the phone.

Significance of Study

This study explored the emergent themes associated with implementation of the Common Core State Standards for Mathematics (CCSSM) for students with learning disabilities in mathematic. Currently, there is no timeline in place guiding schools

towards full implementation of the standards, so schools across the country are at different points in their implementation process. This study identified various benefits and challenges to the CCSSM implementation for students with learning disabilities in mathematics at a rural middle school. Educators can use these results to better address the needs of their student population with learning disabilities in mathematics.

Research Question

As a future teacher in both mathematics and special education, the researcher was interested in learning more about the implementation of the CCSSM in schools. The following research question was developed to explore a targeted phenomenon: What emergent themes exist surrounding the implementation of the Common Core State Standards for Mathematics for students with learning disabilities in mathematics?

Definitions of Important Terms

Common Core State Standards – a set of high quality academic expectations in English-language arts (ELA) and mathematics that define the knowledge and skills all students should master by the end of each grade level in order to be on track for success in college and career (National Governors, 2010).

Disability Inquiry- the meanings behind inclusion in schools are considered and administrators, teachers, and parents who have children with disabilities are encompassed

Learning Disability – (i) General. Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and

developmental aphasia. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage (IDEA, 2004).

(ii) A disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of cognitive impairment, of emotional impairment, of autism spectrum disorder, or of environmental, cultural, or economic disadvantage (MARSE, 2013).

Co-teaching – the process of two professionals working together to seek a joint solution. Often refers to the joint efforts of the special education teacher and the general education teacher (Lerner & Johns, 2008).

Resource Program – (1) A district that provides a special education elementary level resource program shall be provided by a special education teacher. (2) The elementary resource teacher shall serve not more than 10 students at any 1 time and not more than 18 different students and shall do either or both of the following: (a) Provide direct instruction to students on the resource teacher's caseload and may assign grades or other evaluative measures for this instruction. (b) Provide support to the general education classroom teachers to whom special

education students on the resource teacher's caseload have been assigned. Time shall be allocated to the resource teacher to carry out this responsibility.

(3) The elementary resource program teacher may provide supplemental instruction to students on his or her caseload. (4) The elementary resource teacher may evaluate general education students within the same building who are suspected of having a disability and, therefore, may serve on the initial multidisciplinary evaluation team. The resource teacher shall be responsible for the evaluation of not more than 2 students at 1 time. Time shall be allocated to the resource teacher to carry out this responsibility. (5) If the special education teacher to whom the student is assigned does not have an endorsement in the area which matches the student's disability, the individualized educational program team shall determine if a teacher consultant with such credentials is needed to provide consultation, resources, and support services to the resource teacher (MARSE, 2013).

Response-to-Intervention – The Individuals with Disabilities Education

Improvement Act of 2004 advocates the procedure of teaching all students with evidence-based instructional materials in general education in order to evaluate the student's response to this intervention. RtI is also identified as a procedure for assessing children with learning disabilities. The primary focus of this program is to use various levels of intervention to identify and address the needs of individual students (Lerner & Johns, 2008).

Phenomenological Research: a qualitative strategy in which the research identifies the essence of human experiences about a phenomenon as described by participants in a study (Creswell, 2013)

Professional Development: a wide variety of specialized training, formal education, or advanced professional learning intended to help administrators, teachers, and other educators improve their professional knowledge, competence, skill, and effectiveness (The Glossary of Educational Reform, 2013)

Theoretical Framework

Theories of research serve as a broad explanation for the chosen processes used in a study. It is important to understand the theory of disability inquiry (Mertens, 1998) in relation to this qualitative study. In disability inquiry, the meanings behind inclusion in schools are considered and administrators, teachers, and parents who have children with disabilities are encompassed (Creswell, 2013). Although a specific population has been examined in this study, there are numerous other aspects for considering whether the needs of students with learning disabilities in math are met within their classroom. Researchers who use a disability interpretive lens focus on disability being a type of human difference instead of a defect. It is reflected in the types of questions asked, the research process, and the reporting of the data. Guided by this theory, the researcher looked for the benefits that the collected data can bring to the community (Creswell, 2012).

Assumptions and Limitations

It is assumed in this study the participants answered truthfully and gave their own opinion in the interviews. Their answers reflect their own experiences. It is also assumed they answered the questions to the best of their ability.

The study employed a convenience selection. The sampling procedures used in this study were used due to time constraints for the fulfillment of this project and present limitations to the results and generalizability of the study. The risk of utilizing a convenience sample is obtaining data that is not reflective of the larger population (Jones & Knotter, 2006).

The bias of the author should be identified. As an educator, the researcher feels the CCSSM presents significant challenges to the population of students with learning disabilities because of the students' need for lower-order skill development before they can achieve the goals set forth by the CCSSM.

Summary

Although educators will have their own unique experiences surrounding the implementation of mathematics curriculums for students with learning disabilities, it is important to be aware of the successes and challenges of other educators. Learning disabilities represent a significant challenge to both the students with them and the educators who teach them. By continuing to examine the emergent themes surrounding the education of students with learning disabilities in mathematics, educators can continue to improve their ability to address the needs of this population. This study, in which five educators were interviewed about their role in the implementation of the

Common Core State Standards for Mathematics for students with learning disabilities, provides insight into some of the emergent themes involved with this phenomenon.

This paper is broken into five chapters. Chapter II will discuss the background of this study in more detail and is divided into three sections: the Common Core State Standards, learning disabilities, and supporting instruction for students with learning disabilities in mathematics. Chapter III addresses the methods used in this study. Chapter IV presents the results of the study. Finally, Chapter V provides a discussion of the results and recommendations for further research.

CHAPTER II: Literature Review

The Common Core Standards

The Common Core State Standards for Mathematics (CCSSM) currently lie at the forefront of curriculum development in American public schools. Research over the past decade on mathematics education in developed countries has led to the conclusion the standards previously used in the United States are “a mile-wide, but only an inch deep” (National Governors, 2010, p. 3). The CCSSM aims to be “fewer, higher, and deeper” (Darling-Hammond et. al., 2013, p.3).

There are two main goals behind the CCSSM. First, is to shift school curricula to be more focused and coherent. Second, is to prepare students for college and careers by developing a deeper knowledge of content and transferrable skills, such as calculating and communicating mathematically (National Governors, 2010). Currently, 44 states within the U.S. are implementing or beginning to implement these standards. The CCSSM is not a curriculum and does not dictate teaching methods. It also does not define intervention methods or necessary materials for student support. It simply defines what students should understand and be able to do. It is in the hands of the individual educational institutions to define the curriculum.

The CCSSM is comprised of two parts: the Standards for Mathematical Content and the Standards for Mathematical Practice. The Standards for Mathematical Content are divided by grade level and represent a balance of procedure and understanding. The Standards for Mathematical Practice are skills educators at all levels should focus on developing in their students. There are eight Standards for Mathematical Practice authors

of the CCSSM feel align with the important processes and proficiencies in mathematics education. These eight practices are as follows:

1. Make sense of problems and persevere in solving them;
2. Reason abstractly and quantitatively;
3. Construct viable arguments and critique the reasoning of others;
4. Model with mathematics;
5. Use appropriate tools strategically;
6. Attend to precision;
7. Look for and make use of structure;
8. Look for and express regularity in repeated reasoning;

These practices align with over-arching goals of the National Council for Teaching Mathematics and the mathematical proficiencies spelled out by the National Research Council (National Governors, 2010).

The purpose of these focused standards is to prepare students for what lies ahead after high school. 1815 post-secondary instructors were surveyed in a study about the applicability and importance of the CCSS standards to their post-secondary course (Conley, Drummond, Gonzalez, Rooseboom, & Stout, 2011). The majority of instructors rated the Mathematical Practices as beneficial skills for post-secondary education. The instructors also reported the Common Core Standards related to their content-area were useful for their courses. These findings support the over-arching aim of the CCSSM to develop the knowledge and skills necessary for students to graduate from high school, ready to succeed in entry-level, credit-bearing academic college courses or in workforce training programs (Conley et al., 2011).

The CCSSM also represent a large change to the way students are asked to learn. The CCSSM contain a significant shift in focus from surface-level content learning to deeper-understanding application learning, where students are expected to be able to apply content into problem-solving situations (Powell, Fuchs, & Fuchs, 2013). Aligning with research done by Bloom (1956), the CCSSM aims to provide standards concentrate more on higher-order thinking skills. The educational focus is on students being able to understand the reasoning of mathematics

There are critics who believe the standards set forth by the CCSS do not fit the needs of the entire student population (Powell, Fuchs, & Fuchs, 2013; Haager & Vaughn, 2013). These standards represent a considerable change for schools in terms of the educational practices, professional development, and curriculum development (Powell, Fuchs, & Fuchs, 2013). Schools are not only responsible for these changes, but also for deciding how to accommodate the unique needs within their student population. As previously stated, intervention strategies are not defined within the standards, but do address the point that the standards should be “read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participation of students with special education needs” (National Governors, 2010, p. 4).

Students with Learning Disabilities

Students with learning disabilities (LD) represent a significant portion of the student population who may be left behind by being required to meet the same standards as students without learning disabilities. A learning disability is “a disorder in one or more of the basic psychological processes involved in understanding or in using

language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage” (IDEA, 2004). There are approximately 2.4 million public school students in the U.S identified as having a learning disability. This number represents around 5% of the overall student population and 42% of the special education student population (Cortiella & Horowitz, 2014). This study specifically investigated students with mathematics learning disabilities (MLD).

It is important to distinguish the difference between (1) a student with mathematical difficulty and (2) a student with a mathematics learning disability. Students with mathematical difficulty perform poorly on mathematical achievement tests. Having a disability in mathematics refers to a biologically based disorder that is related to problems with cognitive processing and brain functioning (Lerner & Johns, 2012). It is estimated approximately 7% of children and adolescents will be diagnosable as having a learning disability in at least one area before graduating from high school (Geary, 2011). Mathematical difficulties and disabilities often persist from elementary school into secondary school as well. “95% of students identified with a mathematics learning disability before 5th grade continue to struggle with mathematics through high school” (Powell, Fuchs, & Fuchs, 2013, p.40).

Students with learning disabilities (LD) are often challenged by or lack many of the necessary primary skills needed for the higher levels of learning, such as application or synthesis of content. One of the critical elements of a learning disability is a disorder in one or more of the basic psychological processes that are needed for learning. These processes determine how the student is able to cognitively process information. Students with learning disability require special teaching or differentiated instruction in order to overcome these processing challenges (Lerner & Johns, 2012).

As defined by IDEA (2004), students with learning disabilities can be identified in two problem areas of mathematics: mathematics calculation and mathematics reasoning. Although these separate areas address different aspects of the processes associated with the math curriculum, both areas of difficulty can interfere with the mathematics achievement in school and in life (Lerner & Johns, 2012). One of the most consistent research findings in students with learning disabilities in mathematics is they have persistent difficulty in storing basic arithmetic facts to their long-term memory and retrieving them once they are committed (Geary, 2011). These difficulties create a delay in the development of procedural skills in the area of mathematics. Students with learning disabilities in mathematics have also been found to have various other information processing challenges. Comorbidity is common in students with learning disabilities. Many students with learning disabilities in mathematics have other disorders such as a reading disability or attention-deficit hyperactivity disorder (ADHD) (Geary, 2004). These comorbid disorders along with the MLD create other significant information-processing challenges for students in the learning environment. Some students have attention deficits causing difficulty in maintaining attention or remaining engaged in

classwork. Some students have visual-spatial deficits affecting their ability to work independently or auditory-processing deficits creating problems with oral tasks (Miller & Mercer, 1997).

Students with learning disabilities in mathematics also have cognitive and metacognitive characteristics affecting their ability to learn. These students are often described as having some level of difficulty with “(a) assessing their ability to solve problems, (b) identifying and selecting appropriate strategies, (c) organizing information, and (d) monitoring problem-solving processes” (Mercer & Miller, 1997). All of these are processes tied very closely to the goals and objectives of the CCSSM. In a study investigating the error analysis of mathematical word problem-solving across students with and without learning disability, Kingsdorf and Krawec (2014) found students with learning disabilities in mathematics made significantly more errors in the categories of number selection, operation selection, inclusion of all relevant information, and random slips in relation to a lack of self-monitoring. These skills represent many of the foundational skills needed prior to being able to use higher order skills such as application or synthesis. In order for students with learning disabilities in mathematics to be proficient in problem-solving, there is a need for effective instruction in these foundation areas.

For students with learning disabilities in mathematics, there is usually a significant history of academic failure, whether specifically in the area of mathematics or other content areas as well. This continued failure can often lead to the development of learned helplessness. This is a result of students repeatedly trying to solve problems where they have little to no understanding of the content needed. This development has

helped to create what some would call “passive learners” or students who do not actively take part in or self-regulate their learning (Mercer & Miller, 1997).

Supporting Instruction for Students with Learning Disabilities in Mathematics

The majority of students with learning disabilities in mathematics are educated in the general education classroom. Educators are often faced with significant challenges in addressing the needs of these students in the general education environment because of the additional support required by these students. In order to meet these challenges, a variety of strategies are applied to the educational environment to differentiate instruction, accommodating student needs, and provide the necessary support for success..

One popular strategy for providing services to students with learning disabilities in the general education classroom is a co-teaching model. This method uses two teachers in a classroom. One teacher is a general education teacher, who is often responsible for instructional content, while the second teacher is a special education teacher who typically helps with differentiation, remediation, and intervention design. This model has been introduced following the promotion of inclusive instruction, in which students with disabilities are not taken out of a general education classroom to learn specific content.

Scruggs, Mastropieri, and McDuffie (2007) completed a metasynthesis of the co-teaching model by looking at 32 qualitative investigations of co-teaching in inclusive classrooms to analyze the benefits and limitations of the specific model. They found benefits existed for both teachers and students with and without disabilities. Teachers reported they felt the co-teaching model supported their professional development. General education teachers reported learning more about accommodating and

differentiating the needs of students, while the special education teachers reported learning how to improve their instructional delivery. Teachers saw increased cooperation among students in the inclusive classroom. Also reported was, improved student interaction and behavior based on social modeling students observed between the cooperating teachers. For student with disabilities, co-teaching demonstrated the ability to provide additional attention to addressing additional needs.

While benefits existed in the qualitative studies, significant limitations for effective co-teaching implementation existed. Scrugg, Mastropieri, and McDuffie (2007) stressed a need for proper administrative support. Teachers needed to feel their administrators support in making arrangements and developing an effective delivery model for instruction. Teachers also stressed the importance of co-teaching being a volunteer model. Participants reported that co-teaching partners needed to have a good working relationship in which the teachers were compatible and could spend time planning and training together. Without these supports in place, several co-teaching teams reported they felt the experience was negative and did not benefit their own professional development or the progress of their students (Scruggs, Mastropieri, & McDuffie, 2007)

There has been controversy over whether the co-teaching model is the most effective delivery device for students with learning disabilities in mathematics. Another common system is the use of a special education resource program where students are removed from the general education classroom to receive instruction in their content area as needed. The goal of a resource program is to provide “high-quality instruction focused on [the] particular needs [of students], which helps them catch up with peers in basic skill

areas” (McLeskey & Waldron, 2011, p. 51). The resource program setting can also provide challenges for students. McLeskey and Waldon (2011) found resource programs often have: (1) lower-quality instruction which tended to be less intensive and included less active instruction; (2) a lack of coordination with general education which lagged the students further behind the general curriculum; (3) less instructional time; and (4) unclear accountability for the student’s educational development.

Both approaches can provide effective instruction and numerous benefits to the students, but studies have found student achievement is more about the instructional variables than the instructional setting. It is important to note a major contributing factor to the resource program model not having significant benefit is the heavy caseload of special education teachers. In many schools, special education teachers are overwhelmed with the amount of students they are responsible for. It is not their choice for resource programs to have a lack of differentiation, instructional time, or instructional quality, but more so a challenge for them to fit everything into their day (McLeskey & Waldon, 2011).

One program that has been able to supplement both of these approaches is the Response-to-Intervention program (RtI). This program is effective in the early identification and intervention of students with learning disabilities in mathematics. RtI is a practice used with all students, including students who are considered at-risk for school failure. The goal of this program is to prevent academic failure for all students. RtI is typically based on a three-tier model with each tier representing a different application for intervention. Tier 1 focuses on providing high-quality instruction in the general education environment and monitoring student progress. If a student does not respond to

the normal accommodations and changes made in the general education room in Tier 1, they move on to Tier 2. At this level, students receive a more intensive evidenced based instruction while progress is monitored. These are done on an individual or group basis based on need and are usually implemented by support teachers, like a reading specialist or mathematics specialist. If a student doesn't respond to Tier 2 intervention, they move on to Tier 3 in which they receive highly intensive, evidenced based interventions that are taught in small groups or individually while progress is monitored (Lerner & Johns, 2012).

RtI focuses primarily on student outcomes and increases accountability for all educators involved. It is not only the responsibility of the special education teacher to provide effective instruction, but also the general education teacher to implement the correct strategies. The focus on early identification and prevention of disabilities of the RtI program is important to addressing the needs of a student with learning disabilities in mathematics. There are some concerns with utilizing an RtI program to the full extent. The RtI program comes with unknown costs for full implementation and a lack of implementation exists at the secondary level. It also might be a way to delay the recognition of a student's problem (Lerner & Johns, 2012).

Teachers are faced with the challenging task of supporting the needs of *all* students. This goal becomes even more challenging when a new set of standards and a limited amount of instruction time to teach those standards is added. Then the challenges of the various instructional approaches are considered. It becomes even harder when co-teachers do not have sufficient time to plan together or do not work together effectively or when pullout resource programs are overcrowded with students who need individual

assistance. With all of these roadblocks present, it is important to explore the process of teaching to today's expected standards. The purpose of this phenomenological study was to understand the emergent themes involved with implementing the Common Core State Mathematics Standards for students with learning disabilities in mathematics at rural middle school.

CHAPTER III: METHODS

This research study was focused around the following research question: What emergent themes exist surrounding the implementation of the Common Core State Standards for Mathematics for students with learning disabilities in mathematics? Chapter III explains the methods used to collect data surrounding the designated phenomenon. It is broken into six separate sections. Section one will outline the research design employed in the research. Section two describes the participants used in the data collection and the setting in which the data collection took place. Section three describes the methods used for collecting the data used in this study. Section four provides the procedure for data analysis. Section five provides the reliability and validity measure employed to back up the research. Section six provides a summary of the methods used in the completion of this research.

Research Design

Qualitative research serves as a means for exploring and understanding the meaning of some sort of social problem. In qualitative research, the process of research involves data that builds from particular to general themes that the researcher is responsible for interpreting (Creswell, 2013).

Qualitative research encompasses a variety of more specific research designs. This specific study follows a phenomenological research design. The purpose of phenomenological research is to examine the experiences of several individuals with a concept or phenomenon. The inquirer in a phenomenological study collects data from persons who have experienced the phenomenon and then develops a collective

description of the overall experience of all the individuals (Creswell, 2012). This study explores the phenomenon of implementation of the Common Core State Standards for Mathematics for students with learning disabilities in mathematics.

Participants and Setting

Polkinghorne (as cited in Creswell, 2012) recommends a researcher interview between 5 and 25 participants who have all experienced the phenomenon. This study contained 5 participants. Participants 1 and 2 are general education teachers. Participant 1 is male and participant 2 is female. Both general education participants teach three levels of math classes: an advanced class, a grade-level class, and a co-taught class in conjunction with a special education teacher. Participants 3 and 4 are special education teachers. Participant 3 is male and participant 4 is female. These two teachers work in both a co-taught classroom with a general education teacher and in a special education classroom in which they teach mathematics to students who need individualized mathematics support. Participant 5 is a middle school principal and is male.

The participants represent a wide range of educational experience. Participant 1 has three years of experience, two years in a social studies classroom and one year in a mathematics classroom. Participant 2 has nineteen years of teaching experience, all as a general education math teacher. Participant 3 has sixteen years teaching experience, all as a special education teacher. Participant 4 has eighteen years of experience. The first sixteen years were spent as a middle school mathematics teacher and the last two years have been as a special education teacher. Participant 5 is in his fifteenth year of teaching. The first thirteen years were spent as a first grade elementary school teacher. The next

year was spent as a sixth, seventh, and eight grade English teacher. His sixteenth year has been spent as a principal. All five participants have earned their Master's degrees.

Participants were chosen through convenience selection. In convenience selection, participants are chosen for the research because they provide a convenient, easily accessible group. This sampling procedure does have a higher risk the sample does not reflect the target population (Jones & Knotter, 2006).

The setting of this study was based at a small, rural middle school in northern Michigan. All five participants work at the same school. There are currently 423 students enrolled in fifth through eight-grade at this middle school. Twenty-nine percent of the school population receives free or reduced lunch. This statistic is significantly lower than the state average of forty-eight percent. Ninety-three percent of the students are white, compared to the state average of sixty-nine percent. Four percent of the school is American Indian. Less than one percent of the school identifies as Hispanic, African-American, or Asian. Currently, there are 19 students in the school receiving special education services for a learning disability. This represents approximately five percent of the student population (K. Boase, personal communication, March 20, 2015)

The school in which this study took place applies two approaches for addressing the needs of students with learning disabilities. A co-teaching model and a resource program are applied to the educational setting to help accommodate students. In the co-teaching system, the teachers deliver the general math lesson together and then two groups, which are arranged by ability level, are separated into different classrooms and each teacher provides additional support based on needs. The specific resource program

at this school is designed to have a small number of students in the classroom where they are provided with intensive support based on individual needs.

Data Collection

Data was collected by individually interviewing each of the participants. Moustakas (as cited in Creswell, 2012) suggests the use of two broad, general questions to base the interview questions on: What experiences have you had surrounding the phenomenon? What has influenced your experiences with the phenomenon? These two questions focus attention on gathering data that will provide an understanding of the common experiences of the Participants (Creswell, 2012). Using these two questions as a starting point, an interview protocol (Appendix A) was created to explore the designated phenomenon. The questions used were constructed in a way to promote open-ended answers. Chosen by the researcher, and edited by the thesis committee, the questions explore aspects of the selected phenomena. Participants were asked about their experiences involving the Common Core State Standards, working with students with learning disabilities in mathematics, perceived benefits and limitations of the CCSSM, professional development received in preparation for CCSSM implementation, and perceived opinions of the CCSSM. Follow-up questions were used as necessary to clarify responses. Only the responses of the participants were considered in the data collection and analysis.

The interviews ranged from 15 to 20 minutes in length and were recorded using a recording device. Four of the interviews were completed face-to-face in the participants' classroom or office and they were asked the interview questions, while their answers were recorded using a laptop. Due to time conflicts with the participant, one interview

was completed over the phone. The phone call was recorded using the same recording device used to record the face-to-face interviews.

Data Analysis

The first step in the data analysis of this study was transcribing the audio recording of each interview into an electronic document. This organized the data to make analysis and comparison easier. Following transcription, all five interviews were read together to allow the researcher to obtain a general sense of the responses and to explore themes that occur across numerous interviews. Following this initial read-through, each interview transcript was analyzed individually. During each individual reading, notes were made in the margins and significant statements made by the participants were highlighted. After each interview was individually analyzed, a list of all topics was compiled and any similar topics were clustered into groups. These “clusters of meaning” were then developed into themes within the data (Creswell, 2012, p. 61). The most descriptive wording for the themes was selected to be the category headings. Each heading was then given a code. These codes were then applied to related data points within the transcripts. Emergent themes were determined by codes that existed in at least four of the five interview transcripts. These emergent theme are presented in chapter IV.

Summary

This qualitative, phenomenological study was designed to collectively explore the experiences of five separate educators who currently implement the Common Core State Standards for Mathematics for students with learning disabilities in mathematics to some degree. The five participants, selected using a convenience sampling, represent a wide range of educational experience. All five work at the same rural middle school that

contains 423 students. The participants were interviewed individually in their natural setting using a protocol of questions that were designed to explore the selected phenomenon. Interviews were recorded and transcribed for analysis. The data from these interviews were then analyzed first collectively and then individually to identify emergent common themes that occur in the responses of the participants. These themes were then coded and applied to the individual transcriptions.

CHAPTER IV: RESULTS

Currently, a lack of research exists surrounding the implementation of the Common Core State Standards for Mathematics for students with learning disabilities in mathematics. The intention of this research is to bring to light some of the themes surrounding this phenomenon. Presented in this section, are the results from the interviews and the emergent themes contained in those responses. This information seeks to fill this gap in the available research. Themes for this study were identified by coded data that existing in four of the five interviews with the participants. Each section of this chapter presents the results of one emergent theme from the data.

Theme 1 – Depth of Knowledge

All five educators discussed the concept of depth of knowledge, or the promotion of higher-order thinking skills, when talking about the Common Core and saw benefits and challenges surrounding the theme. Participant 3 expressed the Common Core “promotes the higher order thinking skills, getting into that depth of knowledge where you are going beyond learning math facts.” Participant 5 stated, “You’re creating thinkers. Teachers will become more of the facilitator, instead of the lecturer or the one up there doing all the directing.” Participant 2 identified “the Common Core does encourage you to be creative and talk about real-life application which I think is huge for kids with learning disabilities.”

Although all five educators saw positives to the depth, they also expressed concerns for students with learning disabilities. “The expectations are going to be quite a bit higher and if you get a student who already has a gap because of some deficiency, it

becomes harder to fill that gap,” reported participant 5. The emphasis on deeper knowledge was also associated with an increase in reading. “With the Common Core, there’s a lot of reading. So even if you don’t have a learning disability, and you have it in reading, I’m finding that’s affecting some of the math results,” responded participant 4. Participant 5 noted the “Common Core is asking you to take math concepts and put depth into them, which creates difficulty for kids with learning disabilities...because they’re forced to think at a different level than they’re probably used to.” Participant 4 added saying students with learning disabilities “need more rote learning, and I know that we’re trying to get a deeper understanding, but some students just aren’t capable of that.” Participant 4 felt rote learning, such as drill work, better addressed the foundational needs of students with learning disabilities in mathematics.

Theme 2 – Problem-Solving through Multiple Strategies

There is an emphasis within the Common Core to provide students with various strategies to solve problems. This was another common theme among the five participants. Participant 5 responded saying,

The Common Core really promotes learning things in different ways. As we grew up, we were always taught one way. One way to multiply. One way to divide. 90% of the kids got it. There’s 10% however, that didn’t and that was okay. Now they’re offering three different ways with the hope of ‘90% will still get it the original way, but maybe 8% or 9% of the rest will get one of those other methods’ and I like that outcome.

Participant 1 noted the implementation of these strategies at the elementary level, “I know at the elementary level, they have students using multiple ways to multiply and divide. So I’m curious at how that will trickle into the middle school level.”

With this theme as well, some interviewees were unsure whether this benefited students with learning disabilities in mathematics. “I think it’s a good idea to teach multiple strategies, but I don’t believe it always benefits them,” added participant 2. Participant 4 responded saying students with learning disabilities “have a hard time learning one, much less four different ways. And so once they learn the way that works, they’re very resistant to trying any other way.” Participant 1 responded in a similar way saying, “I think forcing the multiple strategies unnecessarily complicates things and I’m worried that it will make kids resent math.”

Theme 3 – Streamlined Standards

The third emergent theme from the data involved the idea of Common Core State Standards for Mathematics (CCSSM) being a streamlined set of standards designed to use the same objectives that get more and more complex by grade level. “The organization is all there for a teacher,” reported participant 3, “when they have a standard, they build off of that standard from kindergarten all the way up through, say 5th grade.” Participants felt this sequential design allowed for students with learning disabilities to learn content at “their” level. “You can back up and work at say a level 3 with a student who needs to be at that level,” said the same educator.

Three of interviewed educators also identified they liked the idea of a consistent set of standards being used across the country. “We are teaching the same thing at the same level in different parts of the country,” reported participant 1. “When we have kids

who move from one district to another district, as they move from one teacher to another teacher, we are all speaking a ‘common language,’” reported participant 4. Participants felt this aspect of the Common Core supported students with learning disabilities especially, preventing achievement gaps from widening due to different curriculum.

Theme 4 – The CCSSM are a Transition

The fourth emergent theme from the data was the idea of the CCSSM being a transition. The change from the previous state standards to the new CCSSM has presented some substantial gaps in the skills and content-mastery required to meet the goals established by the Common Core. “It’s almost like you can’t jump two feet into the Common Core because then there are gaps in the learning that will occur,” said participant 4. Three participants identified the needed to supplement the materials they use to fill these curriculum gaps. Although all of the participants reported they have been provided with curriculum materials aligning with the Common Core standards, they modified these as needed and supplemented materials to address the needs the students have.

Participants also identified a lack of time and resources available to accomplish the goals set by the Common Core. “I think back to the fact that there is only so much that a teacher can accomplish in the course of a seven hour day. We are asking for more than read this chapter and answer these study questions,” noted participant 5.

All five participants felt students are only beginning to see the new strategies and practices associated with the CCSSM. For many of the students, they are just starting to learn these strategies but have spent the majority of their education following the previously used state standards. “In the middle grades, we’re feeling like we’re still

having to plug the holes of the GLCEs until we get these elementary students here,” answered participant 2. “For students, it’s all new so a kid that starts in fifth grade, and this is the first year starting the Common Core, didn’t get those building blocks,” noted another. Participant 1 answered, “We’re going to start getting those kids from elementary who have been taught using the Common Core standards. So I’m very interested to see how this is going to work out.”

Theme 5 – Lack of Professional Development

Participants were asked about the professional development (PD) received in preparation for implementation of the CCSSM. Of the five participants, only one responded they had spent significant time learning how to implement the new standards. “We did a lot with crosswalks, which is the bridge between the old and new standards” and “Preparation has been adequate,” responded participant 5. Others felt frustrated by the lack of professional development associated with the Common Core. “Your generation (speaking to graduate student researcher) is probably going to know a lot more about it coming in because colleges are teaching to it. Us, they’re kind of just handing it out and going here it is. Figure it out,” said participant 3. Participant 4 commented saying, “Any PD has been on my own. There really haven’t been the workshops. There hasn’t been a hard hit on PD.” That same teacher added later she “thinks [the PD given] is inadequate.”

The four other participants in the study all commented the only PD they have had has been initiated individually and not provided by the government. “What I know about the Common Core is the little bit of research that I have done,” responded participant 1. It is not to say they have had no support. Several teachers acknowledged the support of

their co-workers. “We talk about it as a staff. We ask questions,” stated participant 3. Participants did comment on the minimal professional development relating back to the notion of a lack of time and resources. “We collaborate among each other, but as far as us going and taking a week to go learn any of this, no we can’t really afford anything like that,” added participant 3.

It is important to acknowledge all five participants expressed a desire to learn more about the CCSSM and how it can best be utilized in their classroom. Participant 3 voiced this desire by saying, “Starting this summer, I want to look into opportunities that are available to attend.” Participant 1 acknowledged he is in his first year in the district, “but next year, [he’ll] be more aggressive about looking for PD opportunities.”

Theme 6 –Will the CCSSM last?

The last emergent theme from the data collected was an uncertainty towards how long the Common Core would be around. Four of the five participants have been working in education for over fifteen years. All four of them commented during their interview that throughout their career, they have transitioned through at least three sets of standards during their time in the classroom. “I think [the Common Core] will be ultimately a pretty good step in the right direction, but again, I’m guardedly optimistic that it will stick and in four years we don’t have to relearn something else,” responded participant 5. Participant 3 commented saying, “...In five years, it might be irrelevant. That’s just education though. Like I said, 16 years of this and I’ve probably seen five different programs go through in reading or math.” Participant 1, who is in their third year of teaching, commented on this uncertainty as well, saying,

I've talked with veteran teachers and they say that it will all cycle through. It will be the Common Core now and it will resurface in fifteen years called something else, but to me as a teacher starting out, it's kind of disheartening and frustrating.

The participants added these feelings of uncertainty have partially resulted from the inconsistency of the associated standardized tests, which accompany the Common Core. The CCSSM was going to be accompanied by the Smarter Balanced assessment this school year, but because this test was not ready to be implemented, the State of Michigan has assembled a test to fill the void until the Smarter Balanced assessment is ready. This test is called the M-Step. Participant 2 commented saying,

I get concerned when we say we are going to take one kind of test, which has happened this year, we were supposed to take the Smarter Balanced test, and we were supposed to as teachers, become familiar with it and help our student become familiar with it, but then it wasn't quite ready to roll, and they switched and now Michigan's rolling with their own, the M-Step.

Participant 4 also commented on this inconsistency voicing, "When they're in limbo, it puts us in limbo, like we have to teach everything, and we just can't. What are we going to be tested on? And now we see the tests changing."

Summary

These six themes represent the emergent themes that appeared in the data collected from the interviews. Participants felt the depth of knowledge being taught benefits students, but can provide challenges for students with learning disabilities in

mathematics. They also felt utilizing multiple problem-solving strategies can benefit some students, while being a hindrance to others. Streamline standards also help children as they advance through the grades or move from school to school. Participants felt the CCSSM was a transition and over time they will begin to see the effects of the new system more and more. There was an expressed lack of professional development from the participants, but an eagerness to learn more. Participants also noted uncertainty surrounding the longevity of this current set of standards based on their educational experience.

CHAPTER V: DISCUSSION AND RECOMMENDATIONS

Summary of Purpose and Findings

In this study, five current educators were interviewed about their experiences with implementing the new Common Core State Standards for Mathematics (CCSSM) for students with learning disabilities in mathematics. They were asked various questions about the topic, such as how students were currently being accommodated in their education environment, what perceived benefits came from the CCSSM, what perceived limitations come with the CCSSM, what professional development they have received in preparation for implementing the CCSSM, and their feelings on that preparation. These interviews were recorded, transcribed, and analyzed to identify emergent themes that were common throughout the responses of the participants. Six emergent common themes were identified. These themes are as follows:

- The CCSSM present a new set of standards focused on a deeper understanding and higher-order thinking skills. Although these develop critical thinkers and problem-solvers, they present challenges to some students, such as students with learning disabilities in mathematics.
- There was an emphasis within the CCSSM to provide students with multiple strategies to solve the same problem. Providing these multiple strategies helps support the students to find the way to solve a problem best. Students with learning disabilities are resistant to learning different strategies once they have mastered one way, regardless of whether it benefits them or not.

- The Common Core presents a streamlined set of standards that build upon each other as you increase by grade level. The standards maintain consistency around the country/state/region for students who move from district to district, or state to state.
- The CCSSM are a transition. Due to the fact students have not had prior experience with the CCSSM and the related goals and practices, they are only beginning to see the new strategies and approaches to mathematics. They are used to the previous standards, so educators are working to fill the knowledge gaps as necessary to support student learning.
- There was a perceived lack of professional development received by educators for implementing the CCSSM. Four participants felt as though the new standards were given to them and they were stuck with trying to figure it out on their own. The teachers did acknowledge the support they received from their co-workers in sharing effective literature and strategies surrounding the CCSSM.
- Participants were unsure on the stability of the CCSSM and how long it would continue to be around. In their time as educators, four of the five have seen multiple sets of standards come through the school system. All five expressed concern the CCSSM might just be a trend that will be used until the next educational reform is identified. This is partially a result of the variation of testing protocols associated with the Common Core during the 2014-2015 school year.

Contextual Background of Participants

Following the completion of the interviews, the researcher observed several differences between the participants. Although all participants were asked the same

interview questions, their answers varied based on the current role as either a general education teachers, special education teachers, or principal. All five participants communicated misconceptions about the Common Core State Standards for Mathematics, such as discussing the CCSSM as a curriculum instead of a set of standards. All five also demonstrated different stages of understanding surrounding the CCSSM. Depending on their amount of interaction with materials aligning to the CCSSM and professional development, all five educators expressed different viewpoints. Participant 2 has participated in several professional development opportunities surrounding the Common Core Mathematical Practices and how it can be implemented into her curriculum. Her responses reflected this development. Participant 1, in his first year of teaching math, has not had as many opportunities to attend professional development, limiting his knowledge of the CCSSM.

The participants also expressed different understandings surrounding learning disabilities and the needs of the children associated with this disability. The special education teachers were much more engaged in the challenges that are presented by learning disabilities and how they relate to the CCSSM. Focused more on accommodations and modifications for these students, the special education participants discussed the benefits and limitations to the new goals of the CCSSM and how these goals affected these accommodations and modifications. The general education teachers focused on the learning style of these students and addressed concerns surrounding the need for rote learning, prior to problem solving. These differences were expected based on the diverse areas of certification that the participants hold and the educational placements that they work in. Although participants 1 and 2 teach classes with general

education students and students with learning disabilities, the special education teachers likely fulfill the majority of supporting these students with learning disabilities due to the use of a co-teaching model.

Relationship with Previous Research

The idea of *Depth of Knowledge* directly relates back to the research on the CCSSM and educational reform provided in the literature review. As stated by Lerner and Johns (2012), students with learning disabilities are often challenged by or lack many of the necessary primary skills needed for the higher levels of learning such as application or synthesis of content. The CCSSM aim to provide standards with greater focus on higher-order thinking skills, such as students being able to understand the *why* of mathematics and being able to analyze and evaluate the rules of the content (Powell, Fuchs, & Fuchs, 2013). Of the eight CCSSM mathematical processes, six are explicitly linked to math problem-solving (Kingsdorf & Krawec, 2014). The two concepts of a learning disability and the over-arching goal of the CCSSM are in contradiction to one another and present apparent challenges for both the students and the educators involved. Participant 5 responded during the interviews saying, “Time and resources are the biggest limitation of the common core.” This comes as no surprise when we consider “some students will require more time to learn, and so the school must develop strategies to provide students with that time during the school day” (Larson, 2012, p. 112). This presents a significant challenge for teachers in a seven-hour school day. As the researcher, it was expected that the teachers would express concerns for the emphasis placed on depth of knowledge and the expansion of teaching multiple strategies for students who often struggle to master one way of problem-solving.

It is important to acknowledge the importance of consistency in schools across the country. The concept of the CCSSM being a *streamlined set of standards* relates back to the previous discussion in the literature review. One of the primary goals of the Common Core is to shift school curricula so they are more focused and coherent (National Governors, 2010). Haager and Vaughn (2013) also explain that the intent of the Common Core is for “schools to implement uniform standards so teachers and educational leaders will hold the same expectations from state to state” (p. 1). As reported by the educators interviewed, this benefits the students who move from district to district or state-to-state, so they are learning the same content as their grade-level peers regardless of location.

It is also important to acknowledge the challenges that come with any significant educational reform. The idea of the CCSSM being a transition was not anticipated prior to this study. Adjustments need to be made, and as one of the interviewed teachers said, “Gaps need to be filled as needed.” Any time we are adjusting the objectives of our curriculum, it will come with problem areas. In this case, the participants felt their students, who have spent their educational career up until middle school learning in the style of the previous state standards, needed time to adjust to the new style of the CCSSM. They were confident, though, that as the students started to trickle in who have had years of experience with the Common Core style, it would become easier for the students.

A lack of professional development (PD) is also a side effect of educational reform. The only participant to feel as though they had received adequate preparation was the principal. Principals, by role, have different daily roles than teachers. A principal is under the expectation that they need to be prepared for any type of educational reform so

that they can support their staff throughout the process. In accordance with this expectation, principals are afforded the time to attend professional development opportunities. It still leaves a deficit for the teachers who have a full schedule of teaching and preparation. Participant 2 voiced their frustration with Common Core being utilized in pieces rather than as a whole, saying:

I see the benefits when it's supported all the way up, funding to support the teachers, funding to make sure the technology is there. I think of it as such a package deal and I think sometimes it doesn't roll out as a complete package, it rolls out in individual stages. I think it can be done in a better way.

Any time schools are working to switch over to a new set of standards, it will take time for educators to adapt their curriculum and pedagogy while adjusting to the new expectations, objectives, and assessments. There is also a lag in the availability of resources, materials, and professional development. Add to this, the fact schools do not have the finances to send teachers away to extensive professional development opportunities, and it is not surprising there has not yet been significant PD offered.

The high level of uncertainty surrounding the Common Core and its longevity was also an unexpected result. Although research prior to the study discussed the trends in educational reform, it was not anticipated to be a point of significance in the responses of the participants. Educational reform trends can be traced all the way back to 1900. Mercer & Miller (1997) identified reform has taken the form of a pendulum swinging back and forth between problem-solving methods and basic-operation methods. Larson (2012) also acknowledges this pendulum and adds that the notion of national standards is

not new to this country, as a national math curriculum was released in 2000 in hopes of guiding the mathematics curriculums across the country. These trends support many of the concerns expressed by the participants in the study. Again four of the five participants, who have worked fifteen plus years in education say they have already used at least three sets of standards in their classrooms. It comes as no surprise several of them take educational reform as a means to “keep them on their toes.”

Limitations of Research

It is important to acknowledge that this study is presented with a limited scope. Although it presents factors that can be considered for any educator working with the Common Core, only five participants were used in the completion of this study. These participants were chosen using a convenience selection process that is associated with a high-risk the sample does not represent the actual target population of education implementing the CCSSM for students with learning disabilities in mathematics. The study was also completed at a rural fifth through eighth grade middle school with a population of four hundred and twenty three students. The diversity of this school does not reflect the average diversity statistics and free-and-reduced-lunch statistics for the state of Michigan.

A limitation of this study was the completion of one interview over the phone. The original research design of completing all five interviews face-to-face with the participants was adapted due to a lack of time and availability. Although the interview was completed over the phone, it was the interview in which the researcher felt the participant was most open to discussion and reflection. In reflection, it is possible the face-to-face interviews created an environment in which the participants felt as though

they could not be completely honest and open about their experiences surrounding the selected phenomenon.

The co-teaching model and resource program used by the school in this study present another limitation. As stated previously, the math program structure at this middle school creates a large variance in the experiences of the participants. Although all five participants interact with students with learning disabilities in mathematics, some are more limited than others. The co-teaching model specifically, can provide challenges to obtaining accurate results from interviewing general education teachers. In a co-teaching classroom, the special education teacher is likely responsible for the majority of the instruction and support provided to students with learning disabilities in mathematics. Therefore, the general education teachers are only able to discuss what they have observed from the special education teachers or have learned from their shared lesson planning. This creates a risk that the results obtained from the general education teachers are not representative of general education teachers that teach in an inclusive classroom without a collaborative partner.

Problems during Research

There were time challenges that occurred during the data collection period. The fact that all participants were currently teaching or working in a school created challenges for finding available time to meet and complete the interviews. Ideally, the data collection would take place in a quiet environment with minimal distractions and unlimited available time, but several of the participants had a small window of time available to meet and complete their interview. One interview was completed over the

phone due to time constraints and availability. Although I do not believe the change affected the results of the study, it was an adaptation to the original research design.

Implications of Findings

There is currently a lack of research existing surrounding the implementation of the Common Core State Standards for Mathematics for students with learning disabilities in mathematics. The results of this study offer suggestive evidence of issues for educators to be aware of as they adapt their curriculum and teaching practices to align to the new CCSSM. Although the CCSSM present gaps for teachers in supporting students with learning disabilities in mathematics, it is important to note that no set of educational standards will address all the issues that exist in education. Every student will still have unique needs that must be considered and supported by their teachers in order for them to achieve a high level of educational success. Again, the CCSSM is not a curriculum, but a set of standards to guide the development of individual school's curriculums. It is the goal of the Common Core to prepare students for college and beyond. Although students with learning disabilities in mathematics may not achieve same leveled-tasks as their general education peers, they are entitled to the same quality education.

Recommendations

One avenue for further study would be research into the transitions of education reform and professional development. The school in which this study took place has not fully begun to implement the Common Core. Although the CCSSM provide standards for kindergarten through twelfth grade, the district in this study has only applied a portion. During the 2013-2014 school year, the CCSSM were being utilized in their kindergarten through sixth grade classrooms. Currently, during their 2014-2015 school year, they have

added the seventh grade CCSSM to their curriculum. Part of the reasoning behind this process is due to the financial challenges that come from updating the teaching materials to support the new standards. Future research should investigate how schools, such as the one in this study, can ease the transition of a new set of standards for teachers and accommodate students more easily and provide effective professional development for their staff. Additionally, research should be completed on state and national trends in professional development, so educators can be better informed about opportunities and programs available to benefit their knowledge and application of the CCSSM.

The educators also indicated frustration surrounding the standardized assessments associated with the CCSSM. Standardized assessment guides a large portion of the content and curriculum being taught by educators in the field today. This results from a portion of teacher-effectiveness being based on the performance of their students on the mandated standardized tests. Educators are under a significant amount of pressure for their students to perform well on these tests. Inconsistency in testing materials and policies creates stress for these educators. More research should be done on the trends in standardized testing associated with the CCSSM. Information on the SmarterBalanced assessment was found in some literature, but the M-Step assessment was not discussed prior to the data collection phase of this study. More needs to be learned about associated standardized assessments based around the CCSSM.

Additional research needs to be completed on the perceptions and beliefs surrounding the Common Core. All five participants discussed the Common Core as if it was the curriculum they were teaching to, when in actuality the curriculum being used was from the supplied resources and materials claiming to align to the Common Core

Standards. More data should be collected on how educators view and apply the Common Core, so strategies and supports can be created to address these misconceptions and misunderstandings.

In this study, all five interviews were collectively looked at and emergent themes were identified by similarly coded data that appears in four of the five interview transcripts. Further research and analysis should be done on the emergent themes that exist between the special education teachers and the general education teachers in this study to identify more population specific areas of concern. More can be learned on the perceptions and beliefs surrounding educators from different fields of expertise. As discussed in contextual background section of this chapter, there were various differences in the responses of the general education and special education teachers. Although some of these differences are explained, additional research should be completed to analyze these differences more in depth.

Finally, more research is required on the effects of the learning environment in association with the CCSSM. In the literature review, both the co-teaching model and resource program approaches were addressed and discussed. The participants did not differentiate between these approaches during their interviews. The responses of the participants were specific to their overall teaching experiences. Participant 3 did address the difference in his interview:

Having four students versus thirty students is entirely different. A larger class wouldn't be able to do it that way because of time. You could practice a skill and they could work at their level for bell work, but you couldn't run a full period doing that, where I can.

The analysis methods of this study were structured to look for common themes among the interviews and this theme only came up in participant 3's interview. More should be researched on the themes surrounding different teaching approaches associated with implementation of the CCSSM.

Autobiographical Reflection

Completing this educational research has been an invaluable learning experience. As a researcher, I have grown immensely in my knowledge of how to develop and complete research. I have gained a deeper understanding of qualitative research and associated research designs. I have also learned how to better understand the theoretical framework of research and how it guides the work researchers do. It has also developed a significant interest within to continue research throughout my life.

As an educator, I have learned more about the incoming set of standards that will be used as I enter the classroom. I have learned about some of the perceived benefits and challenges lying ahead as I try to meet the needs of my diverse student population. With this knowledge, I am better prepared to adapt my curriculum and design my instruction so my students can be successful.

REFERENCES

- Bloom, B. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York, NY: David McKay Co Inc
- Conley, D. T., Drummond, K. V., de Gonzalez, A., Rooseboom, J., & Stout, O. (2011). *Reaching the Goal: The Applicability and Importance of the Common Core State Standards to College and Career Readiness*. *Educational Policy Improvement Center (NJ1)*.
- Cortiella, C., & Horowitz, S. H. (2014). *The State of Learning Disabilities: Facts, Trends and Emerging Issues*. *New York: National Center for Learning Disabilities*.
- Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications. Thousand Oaks, CA.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications. Thousand Oaks, CA.
- Darling-Hammond, L., Herman, J., Pellegrino, J., Abedi, J., Aber, J. L., Baker, E., & Steele, C. M. (2013). *Criteria for High-Quality Assessment*. *Stanford, CA: Stanford Center for Opportunity*. Retrieved March, 21, 2014.
- Geary, D. C. (2004). Mathematics and learning disabilities. *Journal of learning disabilities, 37*(1), 4-15.
- Geary, D. C. (2011). Consequences, characteristics, and causes of mathematical learning disabilities and persistent low achievement in mathematics. *Journal of developmental and behavioral pediatrics: JDBP, 32*(3), 250.
- Haager, D., & Vaughn, S. (2013). Common core state standards and students with learning disabilities: Introduction to the special issue. *Learning Disabilities Research & Practice, 28*(1), 1-4.
- Individuals With Disabilities Education Act, 20 U.S.C. § 1400 (2004).
- Jones, W. P., & Kottler, J. A. (2006). *Understanding research: Becoming a competent and critical consumer*. Pearson Merrill Prentice Hall.
- Kingsdorf, S., & Krawec, J. (2014). Error Analysis of Mathematical Word Problem Solving Across Students with and without Learning Disabilities. *Learning Disabilities Research & Practice, 29*(2), 66-74.

- Larson, M. R. (2012). Will CCSSM Matter in Ten Years? Reflect and Discuss. *Teaching Children's Mathematics*, 19(2), 108-115.
- Lerner, J. W., & Johns, B. (2008). *Learning disabilities and related mild disabilities: Characteristics, teaching strategies, and new directions*. Cengage Learning.
- Mertens, D. M. (1998). Research methods in education and psychology: Integrating diversity with quantitative & qualitative approaches.
- McLeskey, J., & Waldron, N. L. (2011). Educational programs for elementary students with learning disabilities: Can they be both effective and inclusive? *Learning Disabilities Research & Practice*, 26(1), 48-57.
- Michigan Department of Education; Office of Special Education. (2013) *Michigan Administrative Rules for Special Education*. Retrieved from: https://www.michigan.gov/documents/mde/MARSE_Supplemented_with_IDEA_Regs_379598_7.pdf
- Miller, S. P., & Mercer, C. D. (1997). Educational aspects of mathematics disabilities. *Journal of learning disabilities*, 30(1), 47-56.
- National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Common Core State Standards*. Washington, D.C.: National Governors Association Center for Best Practices, Council of Chief State School Officers.
- Powell, S. R., Fuchs, L. S., & Fuchs, D. (2013). Reaching the mountaintop: Addressing the common core standards in mathematics for students with mathematics difficulties. *Learning Disabilities Research & Practice*, 28(1), 38-48.
- The Glossary of Education Reform. (2013, May 15). *Great Schools Partnership*, Retrieved March 22, 2015, from <http://edglossary.org/professional-development/>
- Scruggs, T. E., Mastropieri, M. A., & McDuffie, K. A. (2007). Co-teaching in inclusive classrooms: A metasynthesis of qualitative research. *Exceptional Children*, 73(4), 392-416.

APPENDIX A

Interview Protocol

1. How many years have you been working in education (general education, special education, administration)? Where did you get your certification? What graduate level work have you had?
2. How do you currently serve students with learning disabilities in Mathematics? If using co-teaching, can you describe the model you are using?
3. How would you describe your experiences implementing the Common Core State Mathematics Standards (CCSMS) to students with learning disabilities in mathematics? To student without learning disabilities in mathematics?
4. In what ways are students accommodated under the CCSMS? What types of instructional differentiation, curriculum differentiation, etc. are applied?
5. What benefits do you see to using the CCSMS for general education students? For students with learning disabilities? For teachers?
6. What limitations do you feel exist in using the CCSMS for general education students? For students with learning disabilities? For teachers?
7. What professional development have you received in preparation for implementing the CCSMS? What about to students with learning disabilities in mathematics? What are your feelings on the preparation given?
8. Is there anything else you would like to share regarding implementation of the CCSMS to students with learning disabilities?