Shared Responsibility of Highly Effective Co-teachers in Middle School Mathematics Classrooms

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SHARED RESPONSIBILITY OF HIGHLY EFFECTIVE CO-TEACHERS IN MIDDLE SCHOOL MATHEMATICS CLASSROOMS

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in the Department of Learning Sciences and Educational Research in the College of Community Innovation and Education at the University of Central Florida Orlando, Florida

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ABSTRACT

Currently, most students with disabilities (SWDs) receive a majority of their education in the general education classroom (U.S. Department of Education, 2019). This inclusive practice reflects educational and accountability requirements described in the Individuals with Disabilities Education Improvement Act (2004) and the Every Student Succeeds Act (2015). To address these requirements, schools seek service delivery models that support SWDs and close achievement gaps (Murawski & Goodwin, 2014). In this study, the researcher investigated the lived experiences of highly effective middle school teachers using co-teaching as a service delivery model to support SWDs in the general education classroom. The researcher used a phenomenological qualitative approach for this study. The research was conducted in a large urban district in the western United States. The researcher conducted face-to-face interviews with individual teachers with three pairs of co-teachers assigned to a co-teach model in a middle school mathematics classroom. The researcher was also able to observe one planning session between one pair of co-teachers. Using a spiral analysis procedure, three themes emerged from the interview and observation data as well as six subthemes. The three themes were (a) collaboration of lesson development, (b) student learning, and (c) parity. The researcher described the themes using thick, rich descriptions, provides a connection between research and the findings, and suggests recommendations for future research.
I dedicate this dissertation to my incredible family who never doubted my abilities. Thank you to my wonderful husband, Steve Hembrook, and my children Jessica and Cole, who never wavered in their support of me or my dreams. I appreciate all the sacrifices you made so I could study.

The three of you are a huge part of why I am successful today.
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CHAPTER 1: INTRODUCTION

Statement of the Problem

Current educational data indicate students with disabilities (SWDs) are receiving most of their special education and related services in the general education classroom. According to the 41st Annual Report to Congress (U.S. Department of Education, 2019), over 6,000,000 children ages 6 to 21 are served under Part B of the Individuals with Disabilities Education Improvement Act (IDEIA; 2004). Of these students, 63.5% spend 80% or more of their school day in the general education classroom (U.S. Department of Education, 2019).

Federal statutes such as IDEIA and the Every Student Succeeds Act (ESSA; 2015) were designed to improve education for SWDs while increasing school accountability for this population. Public Law 94-142, the Education for All Handicapped Children Act (EAHCA; 1975) was reauthorized in 2004 as IDEIA. The IDEIA continued to provide SWDs a free and appropriate public education (FAPE) in the least restrictive environment (LRE) with access to general education curricula while simultaneously mandating that students receive instruction on specific goals identified in their individualized education program (IEP). The evolution of Public Law 94-142 resulted in programs for SWDs in which the students were removed from the general education classroom for special intensive instruction, but these programs were not successful (Will, 1986). Will (1986) wrote that greater levels of educational support would be necessary to realize the intent of the legislation and suggested that reform at the building level was critical to this change and that building-level administrators should be afforded the freedom to implement service delivery models that best fit the structures of individual schools.
The Elementary and Secondary Education Act of 1965 (ESEA) was enacted during the administration of President Lyndon B. Johnson as part of his work on the Great Society. The intent of the law was to reduce poverty through equal access to quality education. The law provided funds for professional development, instructional materials, and support for quality education programs. The ESEA has been reauthorized many times, including reauthorization as No Child Left Behind (NCLB) in 2002, which increased requirements in school accountability by requiring yearly testing of students, including SWDs, and required states to define annual yearly progress (AYP) of all student groups. States’ definitions of AYP were required to include measurable annual objectives for the continuous improvement of student groups. The latest reauthorization of ESEA was ESSA, which mandated states to report progress of all students at school and district levels. With ESSA, states were required to report on measures such as state assessment performances and graduation rates. Although these laws cannot guarantee that achievement gaps will narrow and close, they serve as building blocks to create more equitable school systems (The Education Trust, 2016).

During the time when laws intended to provide appropriate education for SWDs were being enacted, other changes in education for all children were happening, particularly in the area of mathematics instruction. The Principles and Standards for School Mathematics, published by the National Council for Teachers of Mathematics (NCTM) in 2000, encouraged a classroom where students make conjectures based on evidence while using reasoning skills to prove their conjectures. Additionally, changes to mathematics standards occurred. Comparisons between mathematics performance of American students and international students indicated that American students were lagging behind and were not college and career ready, leading to the initiative to change mathematics standards (National Governors Association Center for Best
Practices, Council of Chief State School Officers, & Achieve, Inc., 2008). According to the National Governors Association Center for Best Practices, Council of Chief State School Officers (NGA; 2010), The Common Core State Standards (CCSS) initiative increased the rigor of mathematical tasks students were expected to learn. The CCSS were created and implemented with the intent to increase students’ readiness skills for college and career pathways (NGA, 2010). Conceptual understanding of mathematics is a focus that has stemmed from the CCSS (NGA, 2010). Conceptual understanding of mathematics is often assessed by asking students to justify or explain their mathematical understanding of a process or concept (NGA, 2010). The common thread among these changes indicates that schools must provide more rigorous academics (National Association of Secondary School Principals, 2013).

The CCSS and the *Principles and Standards for School Mathematics* led to assessment changes. The National Assessment for Educational Progress (NAEP; 2017c) assesses samples of students nationwide to identify U.S. academic trends in certain subjects. The NAEP frameworks changed in 2005 and 2009 for the eighth-grade assessment (NAEP, 2016). Although the framework objectives remained the same, the 2009 framework used to develop the assessment added mathematical reasoning to the eighth-grade assessment (NAEP, 2016). Because the changes to the framework were minimal, NAEP could continue reporting and analyzing results (NAEP, 2016).

Given that ESSA requires evidence of progress for SWDs, reviewing current progress of SWDs as a whole is vital. The results from the NAEP are used to identify trends on proficiency and achievement gaps of student groups. In 2003, one year after NCLB was passed, 31% of eighth grade students without disabilities (SWODs) scored “proficient” or “above proficient” on the NAEP mathematics assessment compared with 7% of eighth grade SWDs (NAEP, 2017a).
Proficiency data from the NAEP 2017 mathematics assessment indicated 38% of eighth grade SWODs scored in the “proficient” range, but only 9% of eighth grade SWDs scored “proficient” (NAEP, 2017a). There was a 7% increase in SWODs who scored “proficient” after states were required to show increased accountability, but only an increase of 2% for SWDs. A similar trend was evident when evaluating the achievement gap of eighth graders with disabilities and their non-disabled peers. Considering the NAEP mathematics assessment in 2003, eighth grade SWODs had an average score of 282 on the mathematics assessment, whereas SWDs had an average score of 242, resulting in an achievement gap of 40 points (NAEP, 2017b). In 2017, NAEP mathematics assessment results indicated an average score of 288 for eighth grade SWODs and an average score of 247 for SWDs resulting in an achievement gap of 41 points (NAEP, 2017b). The passage of NCLB was carried out to increase accountability in an effort for states and schools to close the achievement gaps of student groups; however, based on the comparison of NAEP 2003 and 2017 mathematics scores for eighth graders, this closing of the gap is not being realized.

High school graduation rates present an additional area where data indicate little movement toward closing the achievement gap. The 2013 high school graduation rate gap between SWDs and all students was 19%; in 2017 this gap was 18%, showing a minimal reduction in the graduation rate gap over a period of 4 years (U.S. Department of Education, 2013a; 2017). Thus, the closing of achievement gaps for SWDs is not occurring, which poses a problem that must be addressed to ensure that SWDs receive the education that IDEIA and ESSA guarantee them.

As states and school districts work to close the achievement gap as part of the increased accountability set forth in NCLB and to meet IDEIA inclusion requirements, they seek inclusive
service delivery models. Co-teaching is one such model to which schools turn to meet these requirements (National Center for Educational Restructuring and Inclusion [NCERI], 1994). Instruction provided by a special education teacher (SET) is different from instruction provided by general education teacher (GET), and the SET and GET must come to mutual agreements as to how to modify instruction based on the needs of SWDs (Sileo, 2011; Scruggs & Mastropieri, 2017). As states and schools explore co-teaching as a service delivery model, they also seek best practices to improve mathematics instruction by addressing the rigorous standards and to close the achievement gap between SWDs and SWODs. Schools realize that student outcomes are largely attributable to how a teacher plans for instruction (Wexler, Reed, Pyle, Mitchell, & Barton, 2015). Expanding the information available regarding co-teaching and planning for mathematics instruction will lead to increased knowledge and understanding of how to help teachers successfully implement this practice. Therefore, further exploration into the potential of co-teaching being a service delivery model that improves achievement scores and improves outcomes for SWDs in the area of mathematics is vital.

**Purpose of the Study**

As a result of laws designed to improve education for SWDs and increase school district accountability, school systems are seeking inclusive practices that may assist in reducing the achievement gap between SWDs and SWODs. Co-teaching is one service delivery model upon which schools are relying to close achievement gaps for SWDs while meeting the requirements of IDEIA and ESSA. The co-teaching model began as a cooperative team approach to instruction where the GET and SET had shared responsibility for instruction (Bauwens, Hourcade, & Friend, 1989). This service delivery model evolved with Friend, Cook, Hurley-Chamberlain, and Shamberger (2010) defining six models of co-teaching. Murawski and Lochner (2011)
contributed to the evolution of co-teaching by specifically describing the requirements of the shared responsibility expressed by Bauwens, Hourcade, and Friend (1989) and Friend and colleagues (2010). These requirements involve collaboration by teachers in co-planning, co-instructing, and co-assessing (Murawski & Lochner, 2011). The intent of co-teaching is to provide access to general education curricula and meet the individualized instructional needs of SWDs (Hamilton-Jones & Vail, 2014; Scruggs & Mastropieri, 2017; Sileo, 2011). Co-teaching differs from a traditional one-teacher classroom. With varying configurations of co-teaching, providing individualized instruction while maintaining access to general education curricula is one desired outcome for SWDs (Conderman & Hedin, 2013; Dieker & Murawski, 2003; Murawski, 2009; Rodgers & Weiss, 2019). Additional research on co-teaching as an inclusive program is necessary to ensure that SWDs gain access to the general education curricula while protecting their rights to individualized instruction as required by IDEIA (McLeskey, 2007; McLeskey & Waldron, 2011; Murawski & Goodwin, 2014).

Given that an emphasis of co-teaching is the shared responsibility between the SET and GET, it is important to explore how co-teachers experience this responsibility (Bryant-Davis, Dieker, Pearl, & Kirkpatrick, 2012). Additionally, as mathematics instruction is a progression of skills (Rodgers & Weiss, 2019) and the rigor has increased as students are required to demonstrate conceptual understanding of the standards (NGA, 2010), research on how teachers plan for this type of instruction for SWDs is imperative. The purpose of this study was to explore the experiences of highly effective co-teachers who have shared responsibility for instructional planning for co-teaching for the mathematics classroom. This study’s findings added to the research base on co-planning for mathematics instruction.
Research Question

The research questions posed in this study were the following:

RQ1: What are the lived experiences of highly effective middle school mathematics co-teachers who have shared responsibility for instructional co-planning?

RQ2: What meaning do highly effective co-teachers make of their experiences of shared responsibility for co-planning for instruction in a middle school mathematics classroom?

Research Design

This researcher in this qualitative phenomenological study explored the experiences of people in relation to a particular phenomenon (Plano Clark & Creswell, 2015). The phenomenon explored in this study was the shared responsibility of co-teaching. The researcher explored how co-teachers experienced the shared responsibility of providing instructional best practices to SWDs and what contexts affected this shared responsibility. In a qualitative study the variable studied is not a numerical data point but rather “a description of the universal essence” (p. 75) of the phenomenon (Creswell & Poth, 2018). The setting for the research was middle schools in a large urban school district. The participants in the study were pairs of co-teachers who were implementing the co-teach model. Participants for this study were recruited from a pool of eligible middle school co-teaching teams in a large urban district in the western United States. The recruitment pool of eligible middle school co-teaching pairs comprised co-teaching pairs whose SWDs scored above the average proficiency score for SWDs in the entire district based on the state mathematics assessment or whose SWDs met projected growth on the district interim assessment thus defining these co-teachers as highly effective. Purposive sampling was used to ensure inclusion of effective special and general educators who were assigned to a co-teach classroom. To be considered for this research, co-teachers had to hold (a) state certification in
special education, (b) state certification in mathematics appropriate for the middle school classroom, or (c) both types of certifications. The sample included three co-teaching pairs. The research methodology included semi-structured interviews, occurring until saturation was reached, as well as an observation of the co-planning process for one co-teach classroom. The interview protocol used was a validated instrument called “The Semi-Structured Interview: Perceptions of Co-Teaching” authored by Dr. Vance Austin (2001; Appendix A). The instrument was adapted for this research with the author’s permission (Appendices B and C). An observation protocol tool was used to capture the conversation of teachers, including the activities in which they participated for co-planning (Appendix D). The tool included an area for the researcher to sketch the layout of the room where co-planning occurred, a section to record field notes, and a section to record the co-teachers’ conversations, collaborations, and interactions.

Operational Definitions

Alternate teaching: One of the six co-teach models in which one teacher works with the majority of students while the second teacher pulls small groups of students for instruction based on their needs (Friend, Cook, Huely-Chamberlain, & Shamberger, 2010).

Co-teaching: “the partnering of a general education teacher and a special education teacher or another specialist for the purpose of jointly delivering instruction to a diverse group of students, including those with disabilities or other special need, in a general education setting and in a way that flexibly and deliberately meets their learning needs” (Friend et al., 2010, p. 11).

FAPE: Free and appropriate public education (FAPE) is guaranteed by IDEIA for SWDs.
Inclusion: “a term which expresses commitment to educate each child, to the maximum extent appropriate, in the school and classroom he or she would otherwise attend” (Schultz, 2001, Inclusion section, para. 1).

Inclusive programs: “places where students with disabilities are valued and active participants and where they are provided supports needed to succeed in the academic, social, and extra-curricular activities of the school” (McLeskey, Waldron, Spooner, & Algozzine, 2014).

One teach, one assist model: One of the six co-teach models in which one teacher instructs the classroom while the other teacher circulates and assists students as needed (Cook & Friend, 1995).

One teach, one observe model: One of the six co-teach models in which one teacher instructs the entire class while the other teacher conducts data collection of students assigned to the class (Friend et al., 2010).

Parallel teaching: One of the six co-teach models in which each teacher instructs one half of the class on the same concepts (Cook & Friend, 1995).

Shared responsibility: Active engagement and decision making with equal participation by all participants (Friend & Cook, 2017).

Station teaching: One of the six co-teach models in which teachers create three different stations, two where one teacher instructs a group of students and the third for independent student work (Cook & Friend, 1995).

Teaming: One of the six co-teach models in which both instructors teach the whole group simultaneously, taking turns instructing or taking different perspectives (Cook & Friend, 1995).
Limitations

The researcher initially identified two specific limitations in this study. A third limitation emerged as the study was conducted.

1. Possible researcher bias resulting from her experience with co-teaching implemented in a middle school she led.
2. Perceptions and behaviors from the participants may be affected because the researcher is employed as a district leader in a supervisory role.
3. Observation of the instructional planning process was limited because of the coronavirus pandemic which led to school closures.

Summary

As federal statutes have been enacted to provide equal educational opportunities for SWDs and increase school accountability for the achievement of SWDs, additional research was needed to study a service delivery model, co-teaching. The purpose of this research was to study the lived experiences of co-teachers who share responsibility for SWDs in teaching mathematics. The researcher used interviews and observation to build an understanding of this phenomenon.
CHAPTER 2: LITERATURE REVIEW

Introduction

Based on the U.S. Department of Education, Office of Special Education Programs’ 41st Annual Report to Congress (2019), 63.5% of students served under the Individuals with Disabilities Education Improvement Act (IDEIA), Part B, had an educational placement where 80% or more of their school day was spent in the general education classroom with non-disabled peers. An additional 18.1% of students served under IDEIA, Part B, were in the general education classroom between 40% and 79% of the school day, and another 13.3% of students served under IDEIA, Part B, were in the general education classroom 40% of the day or less (U.S. Department of Education, 2019). These data demonstrate that most students with disabilities (SWDs) are receiving some, most, or all of their instruction from a general education teacher (GET) in the general education classroom (McLeskey, Landers, Hoppey, & Williamson, 2011; U.S. Department of Education, 2019). The U.S. Department of Education (2019) reported that 5.1% of students ages 6 to 21 served under Part B of IDEIA received services outside of the general education classroom in other environments. In 2007, 57.2% of students ages 6 to 21 served under IDEIA, Part B were educated inside the general education classroom (U.S. Department of Education, 2019). Nine years later, 63.1% of students ages 6 to 21 served under IDEIA, Part B, were educated inside the general education classroom (U.S. Department of Education, 2019), which resulted in an almost 6% increase.

As SWDs receive more instruction in the general education classroom, educators at all levels, along with educational organizations and families, are increasingly focusing on inclusive programs. Lawrence (2016), working with SWIFT, a technical assistance organization focused
on creating learning environments that fully encompass inclusion, reported that most equity-based models of inclusion are individual classrooms but that some whole-school inclusive models are rising. Within inclusive classrooms, co-teaching is an instructional practice that supports equity-based models of inclusion (Sailor, 2017). Collaborative teaming to discuss how to support and assess students with disabilities based on learning goals is vital to inclusive settings (Jorgensen, 2018). Jorgensen, a consultant for Time Instructional Engagement Support (TIES) a national technical assistance center on inclusive practices and policies, provided an instructional planning meeting agenda for GETs and special education teachers (SETs) to follow to ensure that the critical components of educating students with disabilities are discussed prior to instruction. Although a SET may support SWDs and the GET in the general education classroom, it is important to further explore co-teaching as an instructional model for SWDs (McLeskey, 2007; McLeskey & Waldron, 2011; Zigmond, 2003).

The complexity of co-teaching requires educators to constantly evaluate their inclusive model to ensure academic outcomes for SWDs. Co-teaching is complex, requiring two teachers to collaborate to develop an instructional plan to meet the needs of all students in the classroom, which involves the inclusion of general education standards as well as individual goals articulated in a student’s individualized education program (IEP; Cook & Friend, 1995). Adding to the complexity of the co-teach model, are the changes to general education standards, specifically mathematics. In 2010, many states initiated more rigorous mathematics standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, & Achieve, Inc, 2008). The revised mathematical standards require rigorous conceptual understanding and reasoning of mathematical practices (National Governors Association, 2010).
Federal statutes require SWDs to demonstrate gains in academic outcomes adding additional importance to the evaluation of co-teaching as an inclusive model.

In addition to the changes to mathematical standards, state policy changes required definitive mathematics course completion for graduation as well as exit exams (U.S. Department of Education, 2013b). Specifically, the U.S. Department of Education (2013b) reported that 43 states, as well as the District of Columbia, required students seeking a high school diploma to take at least three mathematics courses. Additionally, out of the 24 states requiring exit exams for successful completion of a high school diploma, all required a mathematics exam (U.S. Department of Education, 2013b). Daun-Barnett and St. John (2012) studied the influence of exit exam requirements and reported that mathematics exit exams, as a high school requirement, had a positive influence on college attendance. Watson, Tucker, Ye, Lee, National Center for Education Evaluation and Regional Assistance and Southwest Educational Development Laboratory (2017) compared two high school graduation cohorts, one of whom did not take Algebra II in high school and one that did. Watson and colleagues (2017) reported the cohort required to take Algebra II had a higher graduation rate than the other cohort. As the rigor of mathematics instruction and requirements has increased, exploring how co-teachers assigned to co-teaching in mathematics plan for instruction to meet the rigor of the standard as well as the individual learning needs of SWDs is critical. To fully explore how co-teachers plan for instruction when assigned to a co-teach mathematics classroom, an understanding of both the evolution of co-teaching and special education legislation is important.
History of Special Education Legislation

Public Law 94-142

Several federal statutes influenced the design and development of inclusive service delivery models such as co-teaching. *Public Law 94-142, The Education for All Handicapped Children Act of 1975* (EAHCA), signed into law by President Gerald Ford on November 29, 1975, was a landmark law in special education. Public Law 94-142 was passed to protect and ensure the rights of SWDs and their families by providing a free appropriate public education (FAPE) in the least restrictive environment (LRE). As articulated in this legislation, SWDs were to receive an IEP designed specifically for each child. Special education and related services designated in the IEP were to align with the state’s educational standards. Furthermore, the EAHCA ensured financial support to states providing special education and related services as long as states passed laws that demonstrated how their efforts aligned to the principles in EAHCA.

While *Public Law 94-142* made substantive changes to the service delivery of education for SWDs, the 18th Annual Report to Congress (U.S. Department of Education, 1996) indicated limited progress regarding outcomes for SWDs. Soon after, Congress reauthorized *Public Law 94-142* as the *Individuals with Disabilities Education Act of 1997* (IDEA) to provide services that would increase positive student outcomes. One change made in the reauthorization was the inclusion of the term *measurable* in the requirement for annual goals in a student’s IEP. Yell, Katsiyannis, and Bradley (2017) explained measurable annual goals required regular progress monitoring and reporting of IEP goals and mandatory revisions if a failure of progress was evident. Members of Congress believed that the 1997 reauthorization of IDEA increased access to educational services for SWDs; however, additional changes to IDEA were required (Yell,
Katsiyannis, & Bradley, 2017). As a result, IDEA was reauthorized in 2004 as IDEIA and included greater accountability of schools regarding the achievement of SWDs by aligning IDEIA requirements to No Child Left Behind (NCLB; 2002), formerly known as The Elementary and Secondary Education Act of 1965 (ESEA). This alignment focused on the requirement that special education services identified in an IEP stem from research-based practices to help educators facilitate stronger outcomes for SWDs.

Teacher licensure requirements were significant in improving outcomes for SWDs and thus considered in the development of federal statutes. The Education of the Handicapped Act (1970) provided grant funds to states for the development of teacher programs in higher education to train teachers in best practices in educating SWDs. IDEA (2004) increased teacher licensure requirements which aligned to licensure requirements in NCLB (2002). These two laws required teachers to be highly qualified (HQ) meaning they held at least a bachelor’s degree in the subject they were teaching, met state certification requirements, and demonstrated competence in student achievement outcomes (IDEA, 2004; NCLB, 2002). Local Education Agencies (LEAs) who did not have HQ teachers were not eligible for Title I funds. Teacher licensure requirements changed again when NCLB was reauthorized as the Every Student Succeeds Act (2015). This statute deleted the highly qualified requirement, but maintained that teachers must meet state certification requirements (ESSA, 2015).

Every Student Succeeds Act

The evolution of Public Law 94-142 led to increased access for SWDs while requiring local education agencies (LEAs) to consider best practices of inclusion (Will, 1986). Many LEAs considered cooperative teaching (Bauwens et al., 1989), an educational approach where two teachers shared their expertise. Cooperative teaching was further defined as co-teaching in which
a SET and a GET shared responsibility for instruction (Cook & Friend, 1995). Whereas *Public Law 94-142* set the foundation for co-teaching as an inclusive model, however, NCLB, the 2002 reauthorization of ESEA, established accountability requirements for achievement outcomes for SWDs. A law that has influenced accountability for the performance of SWDs is ESSA (2015), the most recent reauthorization of ESEA which required states to develop accountability plans and included public reporting of achievement outcomes for all students and student groups (ESSA, 2015). The law required accountability plans to contain specific goals in an attempt to close the achievement gaps between student group scores and non-student group scores. As reported by the Education Trust, “They must require improvement for all groups and faster improvement for the groups that have been behind…” (2016, Accountability section, para. 2). Federal statutes such as IDEIA and ESSA have mandated opportunities for SWDs to access general education curricula while receiving specialized individual instruction derived from research-based practices in the LRE. These laws hold schools accountable for students’ progress.

**Co-Teaching**

**Historical Background**

To fulfill the requirements of IDEIA and ESSA, schools sought to provide inclusive service delivery models (Scruggs & Mastropieri, 2017). One example of an inclusive instructional model is cooperative teaching (Bauwens et al., 1989). Bauwens and colleagues (1989), some of the earliest researchers in this field, defined cooperative teaching as the integration of two teachers with special skill sets, one in special education and the other in general education, to collaboratively target instruction for a classroom of students that included both students without disabilities (SWODs) and SWDs. The cooperative teaching model was influenced by collaborative consultation, a process-oriented approach that included a team of
educators who helped, directed, and supported the GET during the development of an instructional lesson plan before its delivery (Bauwens et al., 1989). In this model, the primary responsibility for instruction remained with the GET. Bauwens et al. (1989) posited that cooperative teaching maintained a team approach in lesson development, as seen in collaborative consultation, while including a shared responsibility of the instructional planning and its delivery, where teachers used their specialized skills to better meet the needs of students (Will, 1986). Bauwens et al. (1989) reported three components to cooperative teaching: (a) team teaching, (b) complimentary instruction, and (c) supportive learning activities. Team teaching involved the GET and SET teaching content simultaneously to all students. In complimentary instruction, the SET provided additional instruction to support acquisition of the content that was provided through the instruction by the GET. The final component, supportive learning activities, was explained as additional activities created by the SET that were used to support the understanding of the concepts presented during instruction by the GET (Bauwens et al., 1989).

This concept was further defined by Cook and Friend (1995), who coined the shortened term co-teaching. Cook and Friend (1995) specified that co-teaching involved two or more educators who specialized in different areas jointly delivering instruction to a diverse group of students. Cook and Friend (1995) articulated that co-teaching included substantive instruction by both teachers rather than one teacher assisting or supervising a group of students. Cook and Friend (1995) reported that co-teaching occurs in the same physical space, although at times small groups may be formed for the purpose of providing even more differentiated instruction (Cook & Friend, 1995). The authors described five models of co-teaching:
• One teach, one assist is a model where one teacher is the primary instructor delivering the content while the second teacher is assisting students in the classroom.

• Station teaching involves the development of different instructional stations in which each teacher provides direct instruction at one of the stations and small groups of students rotate through the stations.

• Team teaching is a model in which two teachers deliver instruction simultaneously.

• Parallel teaching involves each teacher instructing one half of the class.

• Alternative teaching is a model in which one teacher facilitates instruction for a small group of students while the other teacher delivers content to the remaining students. (Cook & Friend, 1995)

Friend et al. (2010) described a sixth model, one teach, one observe, which involves collection of student data by one teacher while the second teacher delivers instruction. These models, according to Cook and Friend (1995), are approaches to co-teaching used by teachers based on the content and the needs of the students.

Specific skills are necessary for two teachers assigned to co-teaching; Cook and Friend (1995) stressed the importance of collaboration as one of these skills. Interpersonal collaboration is defined as “a style for direct interaction between at least two coequal parties voluntarily engaged in shared decision making as they work toward a common goal” (Friend & Cook, 2017, p. 5). Collaboration is essential in co-teaching because of the required shared decision-making.

Throughout the literature regarding co-teaching, terms to describe the activity are used interchangeably, including team teaching, cooperative teaching, and co-teaching. The essential
concept of co-teaching is that two teachers collaboratively develop and deliver instruction so SWDs can access the general education while receiving individualized instruction (Bauwens et al., 1989; Dieker, 2001; Friend, 2016). Thus, a shared responsibility between the GET and SET exists because the co-teaching-inclusive model requires co-planning for instruction for all students in the general education classroom.

Co-Teaching and Shared Responsibility

Special education legislation such as IDEA and NCLB has led schools to establish inclusive models involving shared responsibility for SETs and GETs (Hamilton-Jones & Vail, 2014). Will (1986) emphasized that shared responsibility includes the “assembling of appropriate professional and other resources for delivering effective, coordinated, comprehensive services for all students based on individual educational needs” (p. 413). Hamilton-Jones and Vail (2014) reported that the co-teaching service delivery model, which requires shared responsibility, promotes access to curricula standards in the LRE with highly qualified teachers. Shared responsibility involves collaboration on planning, instruction, and assessing (Cook & Friend, 2010; Murawski & Lochner, 2011). More specifically, shared responsibility includes having mutual agreement on teacher roles and responsibilities regarding grading, assessment practices, instruction in the classroom, discipline, and communication with parents (Sileo, 2011; Tannock, 2009). The SET and GET possess specific expertise in skills for the education of students, meaning that they should have equal roles and responsibilities in the education of SWDs (Pratt, Imbody, Wolf, & Patterson, 2017). The SET is skilled in evidence-based practices that should be included in instruction for SWDs assigned to a co-teach classroom (Conderman & Hedin, 2013; Sileo & van Garderen, 2010; Sweigart & Landrum, 2015). Solis, Vaughn, Swanson, and McCulley (2012) found that when shared responsibility occurred, specifically when the SET
participated in curriculum adaptations for SWDs, significant changes for students were also more likely to occur.

Murawski and Lochner (2011) conducted extensive research on co-teaching, concluding that co-teaching should include three components: co-planning, co-instructing, and co-assessing. According to Murawski and Lochner (2011), co-planning should include more than mutual decision making regarding who will teach what and instead involve active participation by both teachers on the differentiation required for students. Co-planning involves the consideration of each student and his or her educational needs to access the curriculum and address gaps in skills (Murawski & Lochner, 2011). Evidence of this level of co-planning might include lesson plans that show input from both teachers, modified materials for use during instruction, and communication records to families signed by both teachers (Murawski, 2012; Murawski & Dieker, 2004; Murawski & Lochner, 2011).

Co-Teach Structures

Friend et al. (2010) defined co-teaching as a service delivery model combining the skill sets of teachers to deliver instruction to meet the unique learning needs of students. Of the six identified co-teach models, one should be selected based on the lesson content and the learning needs of students (Friend & Cook, 2017). Current research shows that the one-teach, one-assist model of co-teaching is the most common model observed in the classroom (Bryant-Davis, et al., 2012; King-Sears, Jenkins, & Brawand, 2018; Scruggs, Mastropieri, & McDuffie, 2007; Solis, Vaughn, Swanson, & McCulley, 2012).

Fuchs and Fuchs (1995) opined that instruction provided to SWDs in inclusive settings should differ from the instruction provided to SWODs in the same setting because SWDs require additional supports and strategies to access general education curricula. Additionally, IDEIA and
ESSA require the use of research-based practices, evidence-based interventions, specially designed instruction, differentiation, and IEP goals. However, researchers found that instruction for SWDs in general education settings was not much different from instruction for SWODs (Pearl & Miller, 2007; Zigmond & Baker, 1995). Murawski (2006) observed three different classroom settings, two with SWDs and one without SWDs, and found no significant difference in the delivery of instruction. Moin, Magiera, and Zigmond (2009) conducted 53 observations in secondary co-teach science classrooms and similarly found no curricular adaptations. Bryant-Davis, Dieker, Pearl, and Kirkpatrick (2012) reviewed 155 lesson plans for specific accommodations and found that less than 8% addressed behavior needs of students. Furthermore, the accommodation most often represented in these plans was an auditory accommodation, included in 24% of the lesson plans (Bryant-Davis, et al., 2012). When considering IEP goals and the co-teach model, Dieker (2001) reported that an evaluation of student grades did not include a connection to students’ IEPs. King-Sears and Bowman-Kruhm (2011) reported that 52% of SETs in a co-teach model were concerned that SWDs were not receiving their accommodations and modifications as outlined in their IEP. Additionally, King-Sears and Bowman-Kruhm (2011) reported that almost half of SET co-teachers reported that SWDs did not receive specialized instruction in their co-taught classrooms.

Co-Teaching and Co-Planning

One area of limitations in co-teaching research is related to instructional co-planning, especially the content portion of lesson planning (Bryant-Davis et al., 2012; Scruggs & Mastropieri, 2017). Carter, Prater, Jackson, and Marchant (2009) studied six pairs of elementary school teachers using the curriculum, roles, instruction, materials, and environment (CRIME) model to guide collaborative planning. In follow-up interviews with participants regarding their

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experiences of using the CRIME model, Carter et al. (2009) found that four of the six co-teaching pairs identified a problem regarding philosophical differences during the planning process and successfully collaborated to solve it. Carter and colleagues’ findings showed co-teachers are able to use collaboration skills to resolve conflicts regarding philosophical differences that arise during co-teaching but not on the actual process of co-planning between co-teachers.

The limited co-planning studies show best practices of co-planning do exist. Dieker and Rodriguez (2013) reported co-planning leads to a strong co-teaching model with differentiation for student learning evident when co-teachers plan together. An intended outcome of co-teaching is for two teachers to share their expertise; Pratt, Imbody, Wolf, and Patterson (2017) stated that this sharing comes during co-planning from sharing the responsibility. Pratt and colleagues (2017) further described this process as the opportunity for mutual agreement on the lesson content, which teacher will take the lead in instruction on which part of the content, and how instruction will occur. Additionally, Pratt and colleagues (2017) reported co-planning is the time to discuss and agree upon students’ needs for accommodations and modifications.

To help co-teachers properly co-plan, researchers have provided co-planning resources and frameworks (Brown, Howeter, & Morgan, 2013). Frameworks for co-planning include an area to address the academic standards, strategies to support SWDs, student grouping strategies, and which co-teach model will be implemented (Brown et al., 2013). A shared calendar is an additional resource for co-teachers to help ensure allocated time for co-planning (Pratt et al., 2017). Tannock (2009) reported regularly scheduled planning meetings as essential to a successful co-teaching experience. Whereas researchers have provided suggested frameworks
and resources for co-planning, Pratt and colleagues (2017) argue a clear description of a framework for co-planning is lacking.

Co-Teaching and Mathematics

A benefit of co-teaching for SWDs is the inclusion of specially designed instruction (SDI; Friend et al., 2010). Rodgers and Weiss (2019) reported SDI in co-planning goes beyond consideration of accommodations for SWDs and includes incorporation of IEP goals and individual students’ needs. Incorporating SDI into the co-teach classroom is especially beneficial for SWDs in mathematics classrooms because of the progression of mathematics concepts (Rodgers & Weiss, 2019). In mathematics, SWDs commonly face barriers to basic mathematics skills and acquisition and transferal of mathematical strategies, as well as procedural errors and reduced load for working memory (Rodgers & Weiss, 2019). Rodgers and Weiss (2019) reported SDI can be especially helpful in co-teaching to address the skills that SWDs lack while providing them access to the general curriculum. Rodgers and Weiss (2019) include examples of SDI incorporating small group instruction, additional time to grasp grade level content, and inclusion of cognitive processing strategies during mathematics instruction. The researchers included a description of how a pair of co-teachers successfully provided SDI to SWDs while teaching grade-level content (Rodgers & Weiss, 2019). Dieker, Stephan, and Smith (2012) also reported on a successful co-teaching pair who overcame typical obstacles in teaching mathematics in a co-taught classroom. Dieker and Rodriguez (2013) reported these successful teachers had a common planning period where they discussed the lesson content and expected student responses during instruction.

Whereas various instructional approaches benefit SWDs in the mathematics classroom (Bottge et al., 2015; Kroeger & Krouche, 2006; Wilson, Kim, & Michaels, 2013), a few key
research studies focused on the concepts of co-teaching in mathematics. A literature review by Rexroat-Frazier and Chamberlin (2019) found that best practices for co-teaching and mathematics must be generalized from other co-teaching research because research specific to these combined areas is lacking. Rexroat-Frazier and Chamberlin (2019) reviewed research on co-teaching and mathematics and reported the literature emphasizes that co-teaching must include co-planning, with a specific focus on incorporating effective mathematics strategies and accommodations for SWDs. Hughes, Witzel, Riccomini, Fries, and Kanyongo (2014) conducted a meta-analysis of algebra interventions for SWDs that included 12 publications. Hughes and colleagues (2014) conducted three studies at elementary schools with the other nine at the secondary level. These researchers found 11 of the studies reported positive effect sizes for their intervention. The study that used a co-teaching model as its intervention reported an effect size of .35, considered a small to medium effect size (Hughes et al., 2014). As explained by Murawski and Goodwin (2014), results should be interpreted with caution because co-teaching is not an intervention but a service delivery model. Four of the 12 studies used the Cognitive/Model as their intervention which provided explicit systematic instruction on problem-solving strategies (Hughes et al., 2014). The authors reported effect sizes ranging from .37, a small to medium effect size, to .70, a large effect size. The studies that included the concrete representational abstract (CRA) approach as an intervention reported medium-to-large effect sizes (Hughes et al., 2014). Hughes and colleagues (2014) found targeted instruction to improve algebra outcomes yielded positive results in achievement for SWDs.

Ansari Ricci, Persiani, and Williams (2019) studied co-teacher co-planning in mathematics, science, and special education classrooms. These researchers found behaviors attributed to effective co-teachers included sharing resources, adapting the lesson as needed, and
identifying student needs. Ansari Ricci et al. (2019) reported that while challenges in co-teaching exist, this service delivery model can provide benefits to students and teachers. Carty and Farrell (2018) conducted a study of two pairs of co-teachers to explore their perceptions and the use of co-teach models. This study occurred in a secondary mathematics classroom, and the researchers reported positive teacher perceptions and an increase in differentiation and use of instructional strategies (Carty & Farrell, 2018). Carty and Farrell (2018) reported that the use of the station teaching co-teach model provided the opportunity for students to ask more questions of one another, which resulted in an increase in peer assistance. The team teaching co-teach model afforded students the ability to learn a variety of problem-solving strategies that aligned well with assessment (Carty & Farrell, 2018). Bottge et al. (2015) studied the use of enhanced anchor instruction (EAI) in 25 inclusive mathematics classrooms in 24 middle schools. The EAI intervention is a computer-based module for reducing working memory overload (Bottge et al., 2015). This intervention was used in 12 of the 24 middle schools, and SWDs in the classrooms implementing EAI were found to have higher post-test scores than SWDs in classrooms not using EAI (Bottge et al., 2015). Bottge et al. (2015) specifically considered the use of EAI in co-teach classrooms, reporting that the effect size for the post-test was larger in co-teach classrooms that had higher involvement of both teachers. In 2018, Bottge, Cohan, and Choi took this study one step further and compared the EAI intervention with inclusive and self-contained classes. Bottge et al. (2018) reported that students in the inclusive classroom had a higher mean score on the post-test with a relatively small effect size of .16. The researchers contributed the small effect size to the use of EAI which reduced more errors for SWDs in self-contained classrooms compared to inclusive classroom. Additionally, SWDs in a co-teach classroom with high involvement of both teachers, defined as actively teaching rather than observing, scored
significantly higher than SWDs in co-teach classrooms with low support (Bottge, Cohan, & Choi, 2018). Peltier and Vannest (2018) studied two pairs of co-teachers who implemented the CRA intervention in elementary classrooms. The CRA is a framework to help students move from concrete to abstract mathematical understanding. The co-teachers collaborated using formative assessment data, reviewed the CRA framework, and planned subsequent lessons together. The results indicated student achievement increased in both co-teach classrooms (Peltier & Vannest, 2018).

Co-Teaching and Participants

In addition to understanding co-teaching for mathematics and co-planning, it is important to consider the students and teachers because they are major participants in co-teaching. Specifically, understanding research findings for SET and GET regarding their roles and perceptions in co-teaching provides information to the context of current co-teaching. Furthermore, understanding the student and teacher perceptions in a co-teaching classroom adds to one’s comprehension of co-teaching conditions.

Teacher Roles

Instructional parity, defined as having equal instructional roles and responsibilities (King-Sears, Eichorn Brawand, Jenkins, & Preston-Smith, 2014), is a key characteristic of co-teaching. Current researcher show that the GET was the predominant teacher in the co-teach classroom (King-Sears et al., 2014; Moin, Magiera, & Zigmond, 2009; Murawski, 2006; Wexler et al., 2018). Findings from a meta-synthesis by Scruggs, Mastropieri, and McDuffie (2007) support this research: they found that the SET mostly completed teacher-assistant types of activities and managed behavior. Wexler et al. (2018) and King-Sears, Eichorn Brawand, Jenkins, and Preston-
Smith (2014) both reported that the GET was the predominant teacher 66% of the time in the observations conducted. Interestingly, students reported differences in their perceptions of the dominant teaching in the research study by King-Sears, Jenkins, and Brawand (2018) who reported that 83.4% of SWDs indicated teacher parity, but only 64.7% of SWODs agreed teacher parity was evident. When asked which teacher predominantly planned the instruction and prepared the materials, 66% of SWDs selected the GET (King-Sears et al., 2018).

Perceptions

King-Sears et al. (2018) used questionnaires to ascertain student and teacher perceptions. These questionnaires provide important insights when studying co-teaching. Student perceptions of co-teaching were positive; students reported a benefit of receiving instruction from two teachers (Dieker, 2001; King-Sears et al., 2018). These positive student perceptions are supported by other research indicating that SWDs benefit socially through peer relationships and teacher attention while increasing their self-confidence (Scruggs et al., 2007). Teacher perception data indicate that teachers believe their professional practice improves as a result of co-teaching (Scruggs et al., 2007; Walther-Thomas, 1997); however, they also believe school structures do not provide adequate time to collaborate for instructional planning (Dieker, 2001; Moin et al., 2009; Scruggs et al., 2007; Scruggs and Mastropieri, 2017; Walther-Thomas, 1997). Teachers also report a lack of training on co-teaching (Dieker & Murawski, 2003; Scruggs et al., 2007).

Recommendations for Co-Planning

The literature is replete with recommendations of what co-teaching should include; one such recommendation is common purposeful planning (Bryant-Davis et al., 2012; Dieker, 2001; Dieker & Murawski, 2003; Murawski, 2012; Murawski & Goodwin, 2014; Murawski & Lochner, 2011). Fuchs and Fuchs (1995) described how a SET approaches instruction by
emphasizing research-based practices shown to increase student outcomes based on student data. As the GET is a content expert, Dieker and Murawski (2003) reported that the GET and SET must learn how to incorporate the expertise of both teachers during instructional planning. Murawski and Lochner (2011) emphasized regularly scheduled co-planning incorporating input from both teachers. Murawski (2012) further reported the need to protect instructional planning time by preventing interruptions and/or distractions. Ultimately, co-teaching begins with co-planning where the expertise of the SET and GET are incorporated into the planning process, resulting in standards-based appropriate grade level instruction with specific supports, adaptations, and or accommodations for specially designed instruction for SWDs (Dieker & Murawski, 2003; Murawski & Goodwin, 2014).

**Summary**

Based on IDEIA, SWDs have the right to FAPE in the LRE with specially designed instruction based on research-based practices articulated in the IEP. Increased accountability, a result of ESSA, requires states to develop plans with specific goals to close the achievement gap between student groups such as SWDs and SWODs. Co-teaching, an inclusive service delivery model, is being used by many LEAs to meet the requirements of IDEIA. A SET and GET assigned to a co-teach classroom have a shared responsibility to actively engage in co-planning, co-instructing, and co-assessing (Murawski & Lochner, 2011). Limited research exists on how co-teachers use their unique expertise and skills to deliver collaborative instruction, especially at the secondary level. More information on secondary co-teaching is important to the field because the structure of secondary schools makes it more difficult to implement co-teaching (Friend & Cook, 2017). Bryant-Davis et al. (2012) noted a need for more research on co-teaching, and research in content-specific secondary classrooms was critical to extending the current research.
As the rigor of mathematical standards has increased, equally important to studying secondary co-teaching is an understanding of how this practice is nested in the rigorous content of mathematics. Murawski and Goodwin (2014) reported that planning time is one component of co-teaching where “more research needs to be conducted in which these elements are systematically studied in order to determine their level of influence on co-teaching success” (p. 296–297). Therefore, this study examined the shared responsibility of a highly effective SET and GET in a middle school mathematics classroom.
CHAPTER 3: METHODOLOGY

Introduction

The purpose of this research study was to describe the lived experience of co-teaching for highly effective middle school mathematics teachers and special education teachers (SETs) in a large urban school district in the western United States. For the purpose of this research, co-teaching was defined as

The partnering of a general education teacher and a special education teacher or another specialist for the purpose of jointly delivering instruction to a diverse group of students, including those with disabilities or other special need, in a general education setting and in a way that flexibly and deliberately meets their learning needs. (Friend et al., 2010, p. 11)

Schools and school districts are increasing inclusive programing to meet requirements of federal statutes, and co-teaching is a popular service delivery model to support students with disabilities (SWDs) in inclusive classrooms (Friend, 2016; Murawski & Goodwin, 2014). Current data indicate that proficiency rates and achievement gaps for eighth grade students on the National Assessment for Educational Progress (NAEP, 2017a) for mathematics are not improving for SWDs even after the passage of NCLB and statutes designed to improve the education of SWDs. Thus, a need exists to investigate co-teaching as a service delivery model (King-Sears & Bowman-Kruhm, 2011). In this chapter, the researcher presents the research design and research questions and explains the procedures, population, sampling technique, data collection, and analysis. The chapter includes a discussion of the reliability, validity, and limitations of this research study.
Research Methodology

The most effective method for conducting this study was transcendental phenomenology. Phenomenology is a qualitative research design methodology used to investigate how individuals experience a particular phenomenon and help the researcher make meaning of and further understand the phenomenon being studied (Ary, Chese Jacobs, Sorensen, & Walker, 2019; Creswell & Poth, 2018). Descriptions of lived experiences of participants are used to capture the essence of the identified concept (Creswell & Poth, 2018; Moustakas, 1994). Key questions posed in phenomenological research explore the characteristics of the phenomenon and how it has been experienced (Ary et al., 2019). A concentrated focus on a subject’s experience sets phenomenology apart from other types of qualitative research (Ary et al., 2019). Further, phenomenology focuses on what has been experienced and the contexts of those experiences that have affected or influenced the meaning participants make of the phenomenon (Ary et al., 2019). Creswell and Poth (2018) reported that phenomenology does not focus on explanations or analysis of the phenomenon but rather on the description of the meaning of individual experiences. The results of phenomenological research studies are used to better understand a phenomenon, which could be used to improve practices or develop policy (Ary et al., 2019).

Phenomenological research “has a strong philosophical component” (Creswell & Poth, 2018, p. 75) and stems from work by a German mathematician named Edmund Husserl (1859–1938; Creswell & Poth, 2018) who perceived there was a clear distinction between meanings of experiences and facts (Moustakas, 1994) and as such was keenly interested in finding the meanings or essences. The phenomenological method provides a description and classification of the phenomena under study (Moustakas, 1994). Thus, phenomenological research is experiential and qualitative in nature rather than experimental (Moustakas, 1994). Phenomenological research
is often used in social and health sciences, psychology, and education (Creswell & Poth, 2018). These fields involve humans and their perspectives, development, and experiences, which made phenomenological research an appropriate method of study (Creswell & Poth, 2018).

Transcendental phenomenology and hermeneutic phenomenology are two types of phenomenological research methodologies (Moustakas, 1994). To carry out transcendental phenomenology a researcher focuses on the description of a phenomenon (Moustakas, 1994). This type of phenomenological research differs from hermeneutic phenomenology, which involves the use of description to interpret the phenomenon under study (Moustakas, 1994). Hermeneutic phenomenology involves a reflective-interpretative process that involves the analysis of a description (Moustakas, 1994). The researcher used a transcendental phenomenology approach with the intent of describing the shared responsibility of co-teaching, rather than analyzing or interpreting this phenomenon.

Research Design Rationale

Phenomenological research is designed to identify what people experience and what contexts affect that experience (Ary et al., 2019). In this study, the researcher explored the shared responsibility of co-teaching using phenomenology. This research study followed the components of transcendental phenomenology because the researcher’s intent was to focus on understanding and describing the shared responsibility of co-teaching.

The research design included interviews that allowed the researcher to build an understanding of how co-teachers experience the shared responsibility of co-teaching on a daily basis and describe what they experienced. The researcher interviewed individual teachers from the identified three pairs of co-teachers. Observation of co-teachers in planning sessions further
enabled the researcher to describe contexts that affected their co-teaching. The researcher observed one pair of co-teachers as they planned for instruction.

**Research Questions**

To use a phenomenological approach, research questions must be designed to explore “what has been experienced in terms of the phenomenon and what contexts affected or influenced those experiences” (Ary, Cheser Jacobs, Sorensen, & Walker., 2010, p. 502). To explore the phenomenon of co-teaching, the researcher used the following research questions to guide this study:

RQ1: What are the lived experiences of highly effective middle school mathematics co-teachers who have shared responsibility for instructional co-planning?

RQ2: What meaning do highly effective co-teachers make of their experiences of shared responsibility for co-planning for instruction in a middle school mathematics classroom?

**Participants**

Phenomenological research usually involves five to 25 participants (Creswell & Poth, 2018). The participants in this study comprised a heterogeneous sample: all were co-teachers working in co-teach classrooms. The population from which the sample was obtained included pairs of co-teachers teaching in a middle school mathematics classroom in a large urban school district in the western United States. The researcher was particularly interested in studying highly effective pairs of co-teachers: that is, pairs of middle school mathematics teachers and SETs who teach SWDs who met academic proficiency or met projected growth.

To define academic proficiency, the researcher first identified the district percentage of middle school SWDs who received a passing score on the middle school mathematics state assessment. The researcher focused on the scores of SWDs only because the purpose of this
research was to study effective co-teachers who served SWDs in a co-teach classroom. Second, the researcher identified mathematics general education middle school teachers whose percentage rate of SWDs who passed the middle school mathematics state assessment surpassed the district percentage of SWDs who passed the same assessment. In schools, students are assigned to only one teacher of record per content area, the general education teacher (GET). The results of state assessment data are tied to the teacher of record. For this reason, the researcher initially only identified the GET: in this study, the mathematics teacher. Third, the researcher obtained from the district a list of current SETs and GET, assigned to participating in a co-teach model in the middle school mathematics classroom. Next, the researcher cross-referenced the list of current co-teachers provided by the district with the identified teachers who had a higher percentage of SWDs pass the mathematics state assessment than the district percentage. The general education middle school mathematics teachers who were on both lists and their respective special education teacher partners were included in the initial pool of participants. The total pool of participants was over 200.

To define projected growth, the researcher was guided by very similar steps used to find the initial list of teachers based on proficiency percentage of SWDs on the mathematics state assessment. First, the researcher identified the district percentage of SWDs who met the projected growth from the Fall 2019 district assessment to the Winter 2020 district assessment. Second, the researcher identified general education middle school mathematics teachers whose percentage rate of SWDs who met projected growth surpassed the district percentage. Next, the researcher compared the list of identified mathematics general education middle school teachers to the list of current middle school mathematics co-teachers. Teachers who were on both lists were added to the initial pool of participants. Thus, teachers participating in the co-teaching
model who had a higher percentage of SWDs pass the middle school mathematics state assessment or a higher percentage of SWDs who met projected growth from the Fall 2019 to the Winter 2020 district assessment compared with district percentages comprised the initial pool of potential participants for the study.

The initial pool of potential participants totaled 178 and included teachers who had a higher percentage rate than the district percentage of SWDs who had passed the state assessment. Additionally, the initial pool of participants included teachers who had a higher percentage rate than the district percentage of SWDs who met projected growth on the district assessment. Out of these 178, 75 teachers were not eligible for this study for various reasons, such as that they no longer taught in a co-teach model, they had resigned from the district, they no longer taught at the middle school level, or they had changed teaching assignments. This reduced the eligible participant pool to 103 potential participants.

The teachers from the initial pool were ranked based on the academic proficiency and projected growth data for SWDs assigned to their co-teach classroom. Thus out of the 103 potential participants, the researcher identified the top six to 10 pairs of co-teachers to begin the recruitment phase. A total of 32 potential participants were invited to participate over the course of a month and half. Out of the 32 potential participants, only six participants—three pairs of co-teachers,—agreed to participate. The other 26 either declined or did not respond to any of the three email recruitment requests. In addition to the specific criteria of effectiveness as described, the participants (a) were currently teaching in a co-teach classroom, (b) held a special education teacher certification or a general education teacher certification appropriate for the middle school mathematics classroom, and (c) had been teaching in a co-teach classroom for at least three years. The use of these specific criteria constitutes purposive sampling was an appropriate
sampling technique for this phenomenological research because the researcher was studying how people are experiencing the same phenomenon (Ary et al., 2019).

Recruitment

Institutional Review Board approvals were obtained from both the University of Central Florida’s Institutional Review Board (IRB) and the school district’s IRB. The IRB deemed this study exempt from human research (Appendix E). The researcher used email as the primary method of recruitment. Before the researcher was permitted to invite teachers, principal approval was required based on school district protocol. To obtain approval, the researcher contacted principals via email (Appendix F). A total of 13 principals were contacted; 11 granted approval. Of the two remaining principals, one never responded and the other did not grant approval. Principals who approved were required to complete and sign a facility letter of acknowledgement (Appendix G). The researcher collected the signed facility letters of acknowledgement and provided them to the district IRB office. After approval from the principals, an initial email message (Appendix H) was sent to teachers in the initial pool of participants. In the message the researcher explained the purpose of the study and emphasized the intent to recruit participants who are currently assigned to a co-teach mathematics classroom. The researcher emphasized the need to be currently in a co-teaching model to control for the possibility of changes to teaching assignments or buildings having occurred during the school year. The researcher invited the recipients to consider participating in the study, included a brief description of the procedures and the expectations for potential participants, including time constraints, reasons they were selected to be invited to participate, and ethical considerations. The email message included the researcher’s contact information for recipients to respond to the researcher if they were interested in participating in the study or to seek clarification on the research expectations and
commitment. Several follow up email messages (Appendices I and J) were sent because had teachers either transferred, were not interested in participating, or the principal had changed the co-teach model mid-year. The researcher intended to recruit six to 10 pairs of co-teaching participants; however, only three pairs of co-teachers were able to participate in the study.

Consent

After potential participants had been identified, the researcher obtained informed consent from all participants using the IRB-approved Explanation of Research form (Appendix K). Completed consent documents and other items with identifying information related to this study were scanned electronically and will be kept in an encrypted file on the researcher’s personal computer for five years. After the consent documents were scanned, the hard copies were destroyed. All data were deidentified for the purpose of data analysis. The researcher collected demographic data including the teacher certification held by each participant and the number of years of experience in teaching and co-teaching. The researcher ensured participants understood that all information shared during the research remained confidential with the researcher and that no information was transmitted to the district.

Setting

The research study was conducted in a large urban district in the western United States with over 350 schools serving over 300,000 students, 78,800 of whom were in middle school. The district demographic data indicated student ethnicity as approximately 46% Hispanic/Latino, 25% white, 14% black, 7% multi-racial, 7% Asian, 1% Hawaiian/Pacific Islander, and less than 1% Native American. Approximately 15% of enrolled students have an individualized education program (IEP). The school district employees over 42,000 people with almost 19,000 of these licensed teachers.
The researcher identified three pairs of co-teachers from three different middle schools. Table 1 describes the demographic data for each school by percentages. Schools were named School A, B, and C as part of the deidentification process.

*Table 1*

*Percentage of Students in each Demographic Area by School*

<table>
<thead>
<tr>
<th>School</th>
<th>Asian</th>
<th>Black</th>
<th>White</th>
<th>Hispanic</th>
<th>Multiracial</th>
<th>Native American</th>
<th>Hawaiian or Pacific Islander</th>
<th>Students with Disabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>School A</td>
<td>1.5</td>
<td>8.7</td>
<td>5.3</td>
<td>81.1</td>
<td>2.1</td>
<td>&lt;1.0</td>
<td>1.1</td>
<td>12.8</td>
</tr>
<tr>
<td>School B</td>
<td>1.8</td>
<td>12.7</td>
<td>7.5</td>
<td>74.3</td>
<td>2.9</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>15.8</td>
</tr>
<tr>
<td>School C</td>
<td>3.4</td>
<td>23.9</td>
<td>15.7</td>
<td>47.5</td>
<td>7.1</td>
<td>&lt;1.0</td>
<td>1.8</td>
<td>12.8</td>
</tr>
</tbody>
</table>

*Note.* All data points are in percentages.

**Interviews**

One-on-one, semi-structured interviews were conducted with each participant from each co-teaching pair. The participant selected the location and time for the interview. All participants elected to have the interviews in their classrooms but selected different times for the interview to occur. Two interviews were conducted in the morning before school started, three interviews were held after school hours, and one participant asked for the interview to be held during his prep time, which was around 9:30 a.m.

While the researcher was conducting initial interviews, continued recruitment of potential participants occurred. However after the sixth one-on-one interview, saturation was reached so recruitment concluded. Saturation occurred when the researcher was no longer obtaining new information during the interview process (Creswell & Poth, 2018). The interviews were conducted in a neutral location of the participants’ choice. The researcher conducted interviews...
before or after school hours so as not to interrupt instructional or scheduled planning time of participants. A semi-structured interview protocol with probing questions was used to solicit elaboration of answers or clarify what the participants were conveying (Plano Clark & Creswell, 2015).

The interview protocol used for this study was an adaptation of “The Semi-Structured Interview: Perceptions of Co-teaching,” authored by Dr. Vance Austin (2001; Appendix A). Austin’s (2001) interview protocol is a validated instrument. Written permission to use and modify this validated instrument was obtained (Appendix B). The adapted interview protocol used in this research study is included in Appendix C. The adaptations included the addition of phrases, such as planning for instruction, the deletion of four questions, and the addition of a question asking the participant to describe the process of instructional planning. These adaptations were made in alignment with the focus of the current study: shared responsibility of co-teachers during the co-planning process.

Interviews were audio-recorded using an application on the researcher’s mobile phone. The audio recordings were stored on the encrypted mobile phone until transcription was complete. Interview transcription was facilitated through the use of the service Rev.com. The transcripts were then stored in an encrypted file on the researcher’s computer.

The researcher employed verbatim transcription, meaning that all words and sounds were conveyed in the written description (Plano Clark & Creswell, 2015). Verbatim transcription is integral to the implementation of member checking, a technique the researcher used to support the validity of the study.
Observations

Observations in qualitative studies are beneficial because they allow the researcher to collect firsthand information (Plano Clark & Creswell, 2015). The researcher observes in a naturally occurring setting and is able to collect data on actual behavior (Plano Clark & Creswell, 2015). Observations were used in this study so that the researcher could study the interaction of co-teachers and the process involved in co-planning for instruction. The researcher conducted one observation of co-planning for one co-teaching pair and maintained the role of nonparticipant observer, meaning that she did not interact with the participants (Plano Clark & Creswell, 2015). Observations of the planning time occurred on the school campus in a location specified by the participants. The participants elected to have the observation occur in the classroom where they co-teach. The classroom selected was technically assigned to the GET, but both participants shared that they viewed the classroom as belonging to both of them. The setting had four areas in the room where desks were placed together with a large empty area in the middle of the classroom. White boards, hung on three out of four walls of the classroom, displayed various mathematics problem sheets. Some white boards had written math problems either completely solved or in the process of being solved. The participants had an area ready for the observation which included three student desks. On top of two desks were six resources. One resource was a thin spiral bound mathematics standards resource. The other five resources were various student tasks and worksheets with student practice problems. The resources appeared to be leveled based on conceptual understanding of the mathematics concept for solving mathematical problems as outlined in the standard. During the observation, the participants referred to all six of these resources during the co-planning. The researcher audio-recorded the co-planning process using an application on her mobile phone. As with the interviews, Rev.com
was used to provide a written verbatim transcription of the audio recording of the co-teacher planning meeting. These transcriptions were stored on the researcher’s personal computer in an encrypted file. Verbatim transcriptions were shared with the participants for member checking to ensure accurate capture of the participants’ intended meaning (Plano Clark & Creswell, 2015).

Observations can be qualitative and quantitative in nature (Ary et al., 2019). Direct observation during which the researcher collects notes and narratives is typical in qualitative research (Ary et al., 2019). However, direct observation during which the researcher collects data on specific behaviors, used to identify, categorize, and record are quantitative in nature (Ary et al., 2019). Merriam (1998) suggested a focus on general elements during the observation that include the physical space, participants, activities and interactions, and conversations. The researcher used these elements as a framework for collecting notes and narratives during the observation process. In addition to these elements, the researcher collected data on specific concepts related to co-planning for instruction as described by researchers in co-teaching. Murawski and Lochner (2011) reported that co-planning should include differentiation and accommodation. They also reported, as did Murawski and Dieker (2004) and Dieker and Murawski (2003), that input from both teachers should be evident in co-planning. Further, Murawski and Dieker (2004) reported that shared responsibility of how to incorporate standards-based mathematical instruction for students with disabilities should be evident in co-planning. The incorporation of IEP goals is another factor that should be evident in co-planning (Dieker & Murawski, 2003; Murawski & Dieker, 2004). Rodgers and Weiss (2019) reported that specially designed instruction should be included in instructional planning to meet the individual needs of students with disabilities and to address IEP goals. Based on this research, the observation protocol included one area focused on the following noted activities:
• teacher input from both teachers
• modification of materials
• differentiation for students with disabilities
• academic accommodations
• behavioral accommodations
• shared decision making from both teachers
• incorporation of IEP goals
• discussion of IEP goals
• standards-based mathematics instruction
• specially designed instruction.

The researcher used member-checking as a validity measure of the observation process. The transcription of the observation was sent to each of the teachers in the co-teaching pair to ensure that the message of co-planning was accurate. The observation protocol (Appendix D) was developed based on guidelines for qualitative research and research on co-teaching. The protocol included an area for the researcher to sketch and describe the location where the observation took place. The researcher recorded words and images as field notes (Plano Clark & Creswell, 2015). The recorded information was used to help the researcher describe events, activities, setting, and participants during co-planning for instruction. The focus of this observation was not to collect data on specific behaviors but rather to collect narrative information to be used to make a connection across the interview data (Merriam, 1998). Peer debriefing was used to ensure the validity of the connections and themes identified (Ary et al., 2019; Creswell & Poth, 2018).
Procedures

Before carrying out any procedures described in the methodology, the researcher obtained approval from the university IRB, then from the school district committee responsible for approving research activities within the district in which the study was to be conducted.

After proper approvals were obtained, the researcher identified participants following the steps outlined in the participant section. Once the initial pool of participants was identified, recruitment of specific participants occurred through email messages (Appendices H, I, and J). The researcher executed the following procedures:

- obtained a list from the district of teachers, both general education teachers and special education teachers, who were currently assigned to a middle school mathematics co-teach classroom;
- identified the district percentage rate for middle school students with disabilities who received a passing score on the state mathematics assessment;
- identified teachers who had a higher percentage rate for middle school students with disabilities who received a passing score on the state mathematics assessment compared with the district percentage;
- identified which of the teachers whose percentage rate for students who passed the mathematics state assessment was higher than the district’s were teaching in a co-teach model in a middle school mathematics classroom;
- identified the district percentage rate for middle school students with disabilities who met projected growth on the Winter 2020 district assessment;
- identified teachers who had a higher percentage rate for middle school students with disabilities who met projected growth on the Winter 2020 district assessment;
• identified which of the teachers whose percentage rate for students who met projected growth on the Winter 2020 district assessment was higher than the district’s were teaching in a co-teach model in a middle school mathematics classroom;
• recruited the participants, including the mathematics teacher and special education teacher;
• obtained proper consent;
• scheduled face-to-face individual interviews;
• scheduled three observations for each pair of co-teachers of the instructional planning process between the GET and SET;
• conducted the interviews and;
• conducted one observation before school closure due to the coronavirus pandemic.

Data Collection

Data for transcendental phenomenology is typically collected through interviews but can also be obtained through observations (Ary et al, 2019; Creswell & Poth, 2018). The researcher employed both methods, as described above, in an attempt to gain a broad perspective on the lived experience of co-teachers. Data collection continued until saturation of information was reached (Ary et al., 2019). Saturation occurs when the researcher is not finding any new information during the data collection process (Ary et al., 2019). Saturation was reached during the one-on-one semi-structured interviews. However, saturation was not reached in the data collection of the observations because the coronavirus pandemic led to school closures resulting in early termination of data collection.
Data Analysis

The researcher used a spiral data analysis procedure as described by Creswell and Poth (2018) and incorporated components from Moustakas’ (1994) data analysis method. The researcher gained familiarity with the data by organizing it into a cohesive file management system that was used to efficiently identify and search for data (Ary et al., 2019; Creswell & Poth, 2018). The researcher read and reread the data files in an effort to gain a broad understanding of the data (Ary et al., 2019; Creswell & Poth, 2018). Horizonalization includes the “listing of every expression relevant to the experience” (p. 120); to carry out this process, the researcher identified each relevant expression and then tested each expression to determine if it was an invariant constituent, an expression which is unwavering and part of the experience (Moustakas, 1994). Moustakas (1994) provided guiding questions to determine if an expression qualifies as an invariant constituent. These guiding questions are designed to help the researcher identify specific expressions that are part of the experience, are essential for understanding the experience, and can be labeled. This step is similar to coding, which is a reduction of the data into significant statements and assigned codes in the spiral data analysis process (Creswell & Poth, 2018). Thus, the researcher assigned codes to these significant statements, as this coding is essential for peer debriefing. Statements and the codes assigned to them were combined into themes or categories to further analyze for meaning (Creswell & Poth, 2018; Moustakas, 1994). Each of the themes was checked against the verbatim transcriptions to verify that the theme was expressed explicitly in the transcription; if it was not explicitly stated, the researcher determined if the themes were compatible (Moustakas, 1994). The themes became validated invariant constituents and were used to develop a textural and structural description using excerpts from the verbatim transcription for each participant (Moustakas, 1994). The data were reported using
thick rich descriptions from individuals who had experienced the phenomenon (Creswell & Poth, 2018). Thick rich descriptions allow the reader to comprehend the essence of the phenomenon (Creswell & Poth, 2018).

Validity and Reliability Process

The researcher employed several measures to increase the validity of the research and of the research study itself. One technique used to increase validity was member checking after each interview. To complete the member checking process, the researcher presented the transcribed files of the interviews to respective participants and asked them to read and agree or disagree that the transcript was accurate to ensure that a complete and accurate meaning of each participant’s perspective was captured (Plano Clark & Creswell, 2015). This step of member checking gave participants the opportunity to correct or clarify something they had said during the interview.

During the writing and reporting phase of the study findings, the researcher included a thick rich description in the final research report to place “readers vividly in the research setting” (Ary et al., 2019, 474). This allowed readers to determine the transferability of the researcher’s findings across settings, increasing level of validity (Creswell & Poth, 2018).

To ensure reliability of the data, the researcher used peer debriefing (Ary et al., 2019; Creswell & Poth, 2018). Ary, Cheser Jacobs, Sorensen, and Walker (2019) explained that during peer debriefing, also called peer review, the researcher provides one or more colleagues or peers with the raw data along with the researcher’s interpretation. The peer reviewer was asked to determine if the findings identified were reasonable given the evidence (Ary et al., 2019). The researcher provided specific directions for the peer debriefer to follow for this process (Appendix L). Creswell and Poth (2018) posited that peer reviewers should be familiar with the research or
at least the phenomenon being studied. The role of peer reviewers, according to Ary et al. (2019), is to determine if the researcher’s findings are reasonable based on the evidence. During the peer debriefing, the researcher provided the raw data from interviews and observations as well as the researcher’s findings.

Data analysis included triangulation of participant interview, observation data, and the researcher’s knowledge about co-teaching based on her experience and the literature base on the topic. The researcher sought to connect information from the interviews, observations, literature and her knowledge in co-teaching. This process of triangulation corroborates the data collected, increasing validity (Ary et al., 2019; Creswell & Poth, 2018; Plano Clark & Creswell, 2015).

The research used bracketing as an additional reliability measure. This is a process in which the researcher acknowledges his or her own beliefs regarding a phenomenon with which he or she is already familiar and how these beliefs will be addressed. Bracketing is essential to minimize researcher bias so the researcher is able to investigate the phenomenon through an unbiased perspective (Ary et al., 2019). The researcher acknowledged her beliefs about co-teaching through a detailed positionality statement.

Positionality Statement

My professional career began at a charter school in a suburban district in the southeast where I taught fourth grade for three years. During those three years, only one student in my class was a SWD, who was pulled out for educational and related services. The SET maintained responsibility for the student’s individual education program (IEP) and goals written within the IEP. Thus, at the time, I had limited experiences serving students with disabilities. My next teaching position was at a public school in the same district where I taught fourth grade again for three years. In each of my classes for each of the three years, there were at least three SWDs.
These students were still pulled out for services, but I had more responsibility for their educational success in class than in my previous experience. This was when I began to explore, and better understand, how to develop instruction to meet the educational needs of SWDs.

After teaching for seven years, I moved into administration, where I served at several schools with self-contained special education classrooms that also promoted inclusion. I was always intrigued as to why some students were in placed in a self-contained setting while others received instruction in the general education classroom. While serving as a principal at a middle school, I began my doctoral studies which focused on special education. It was during this time I learned about the idea of co-teaching.

Co-teaching was a very interesting concept for me, and I read everything I could about co-teaching. I firmly believed in the idea of two teachers sharing their specialized skills to help students with disabilities succeed in the general education classroom. Additionally, co-teaching could lead to more students learning in the general education classroom as opposed to a resource or self-contained classroom.

For co-teaching to be successful, I believe that four key factors must be present. First, the co-teachers must believe in co-teaching and have a good partnership. Thus, it is best to have teachers volunteer for co-teaching and have input into their co-teaching partner. This is important because if the co-teachers agree, and have the partners they choose, their dedication towards co-teaching will be higher, leading to greater success in a co-teach classroom. The second key factor is common planning time. Time is difficult to obtain in the education profession, and co-teaching requires a greater amount of time to collaborate and partner on the design of instructional lessons. Thus, for a successful co-teaching model common planning time should be allotted in a school’s master schedule. Another key factor necessary for a successful co-teaching model is
professional learning: co-teachers need to know and understand what co-teaching is and their responsibilities as co-teachers. The final key factor required for successful co-teaching is administrative support. The school leader’s support is a critical component of co-teaching because co-teaching is a complex service delivery model. Support for co-teaching is crucial for the success of the teachers and the learning of students.

As a former middle school principal, I began implementing co-teaching as a service delivery model. I allotted one SET for each grade level who then served in a co-teach model with two other teachers, one in mathematics and the second in English Language Arts. These teachers had common planning time, and professional learning was provided. The professional learning included the definition and purpose of co-teaching, the various models of co-teaching, and the teacher responsibilities in co-teaching. Professional learning was provided once a month from the beginning of the school year. Unfortunately, I left this position seven months later, so I was not able to assess fully the effectiveness of the co-teach model at this school. However, while I was the principal, and during classroom observations of co-teaching, I witnessed a partnership between teachers as well as the use of at least three different co-teach models.

The development and execution of this research study was my responsibility which included the research questions, justification for the study, literature review, participant selection process and criteria, interview and observation protocol, and data collection and analysis. The existing literature for co-teaching showed increase in inclusive models, especially co-teaching, and as a result I felt this needed study.

Limitations

The researcher has experience co-teaching in middle school English Language Arts and mathematics middle school classrooms. These experiences may lead to a potential for bias and
preconceived notions. Additionally, the researcher is an educational leader in the school district where the research will be conducted. This role identity could lead to potential bias and could influence participants. A third limitation of this study was the early termination of data collection due to the Coronavirus pandemic.
CHAPTER 4: DATA ANALYSIS

Introduction

In this chapter, the researcher will discuss the results of the data analysis conducted during this qualitative phenomenological study, which investigated the phenomenon of shared responsibility of co-teaching. The two research questions addressed through this study were as follows:

RQ1: What are the lived experiences of highly effective middle school mathematics co-teachers who have shared responsibility for instructional co-planning?

RQ2: What meaning do highly effective co-teachers make of their experiences of shared responsibility for co-planning for instruction in a middle school mathematics classroom?

The researcher used transcendental phenomenology as the study’s primary. After data analysis three major themes emerged: (a) collaboration of lesson plan development, (b) student learning, and (c) parity. Additionally, six subthemes were uncovered from the three major themes.

This chapter includes three distinct sections, with the first being biographical sketches of the participants and the second the teaming of these participants. The third section provides a textual and structural description of the phenomenon of shared responsibility of co-teaching to answer each research question. The research questions were answered by describing the themes using thick rich descriptions and verbatim transcription statements from the participants.
Participant Biographical Sketches

Dan

Dan is a white male who is in his 18th year of teaching, which is his second career. Before teaching, he worked in the medical field where he trained various personnel on the use of medical equipment and procedures. Dan holds a K-8 teacher certification and has mostly taught sixth grade mathematics. He has worked in a variety of middle schools but most have been Title I schools. This year is Dan’s second year in a co-teach classroom with the same co-teacher. Dan and his co-teach partner, Heather, co-teach 6th grade mathematics during the 2nd period of the school day. Dan teaches 6th grade mathematics for five other periods which are not co-teach classrooms.

Tyler

Tyler is a white male who has been a special education teacher for the past 10 years. He holds a K–12 special education teaching certificate. He has been co-teaching for three years but has taught in a combination of co-teach classrooms as well as resource classes. Currently, Tyler teaches two periods of 6th grade mathematics co-teaching with the same general education mathematics teacher but also has three resource classes. Tyler and his co-teaching partner, James, co-teach during second and third period of the school day. Tyler has served in a variety of middle schools almost all of which being Title I schools.

Josie

Josie is a white female, and teaching is her second career. Her previous career was working with adults with disabilities. Josie decided she wanted to work with younger people
with disabilities, so she sought her special education teaching certificate. Josie obtained this certificate in a different state from the one in which she currently teaches. Josie is now in her second year as a special education teacher. She mostly teaches in co-teach classrooms but also has her own resource class where she teaches English language arts. She works with multiple general education teachers in her co-teach classrooms. Josie and Elizabeth, her co-teach partner, are the participants identified as highly effective for this study and thus only these two were invited to participate. Josie and Elizabeth teach 7th grade mathematics during fifth period of the school day.

**James**

James is black male who is a Teach for America general education mathematics teacher. He has been in the program for two years. He has been co-teaching mathematics for two years. He currently teaches two periods of a co-teach mathematics classroom with the same special educator for both periods. The co-teach classes are held during 2nd and 3rd period of the school day and they teach 6th grade mathematics. James teaches 6th grade mathematics in the other four periods of the school day. James holds a K–8 teaching certification.

**Heather**

Heather is a white female who has been teaching for 18 years. Her career began at the elementary school level, which is where she first experienced co-teaching. Heather holds a K–8 elementary and a K–12 special education certification. She has earned a master’s degree in special education. Heather currently co-teaches one period of middle school mathematics in a co-teach classroom. She and her co-teach partner, Dan, teach 6th grade mathematics during 2nd period of the school day.
Elizabeth

Elizabeth is a black female who began her teaching career at the elementary level. Her first experiences in co-teaching were in elementary classes. Elizabeth taught at the elementary level for five years before moving to middle school where she has now been teaching for three years. Thus, she has a total of 8 years of teaching. Elizabeth holds a K–8 elementary certification as well as a 7–9 middle school mathematics teaching certification. She is currently teaching for the second year in a co-teach middle school mathematics classroom. She and Josie teach 7th grade mathematics during 5th period. Elizabeth also teaches 7th grade mathematics for five other periods of the day but these are not co-teach models.

Participant Teaming

The participants in this study came from three pairs of co-teachers. They were certified mathematics and special education teachers. Each pair of co-teachers came from a different middle school which were all Title I schools. The description of teaming of the participants if found in Table 2.

Table 2 Participant Teaming

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Team (T)</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josie</td>
<td>SET</td>
<td>T1</td>
<td>A</td>
</tr>
<tr>
<td>Elizabeth</td>
<td>GET</td>
<td>T1</td>
<td>A</td>
</tr>
<tr>
<td>James</td>
<td>GET</td>
<td>T2</td>
<td>B</td>
</tr>
<tr>
<td>Tyler</td>
<td>SET</td>
<td>T2</td>
<td>B</td>
</tr>
<tr>
<td>Dan</td>
<td>GET</td>
<td>T3</td>
<td>C</td>
</tr>
<tr>
<td>Heather</td>
<td>SET</td>
<td>T3</td>
<td>C</td>
</tr>
</tbody>
</table>
Data Analysis Results

Individual semi-structured interviews were conducted with six teachers who comprised three co-teaching pairs. The length of time of the interviews ranged from approximately 14 minutes to 35 minutes with the average interview lasting approximately 23 minutes. One direct observation of the co-planning process was conducted with co-teaching Team 3, lasting 15 minutes and 31 seconds. Additional observations of the co-planning process had been scheduled but were then cancelled when schools were closed as a result of the pandemic. All interviews and the observation were recorded, transcribed, and analyzed resulting in the emergence of three themes and six subthemes.

Research Question 1

The first research question was “What are the lived experiences of highly effective middle school mathematics co-teachers who have shared responsibility for instructional co-planning?” Participants from this study shared that, overall, co-teaching was a positive experience because it provided expertise from two teachers to help all students assigned to a co-teach classroom. They shared this was especially important for students with disabilities (SWDS) as well as students who may be unidentified yet need extra support to be successful. Participants explained that time for co-planning was allocated. All co-teach teams were provided planning time equal to one class period which was allocated either at the beginning or the end of the school day. However, participants shared the responsibilities placed on teachers were so great that there never seemed to be enough time to plan. While time to plan was a challenge shared by all participants, all co-teachers found time to plan. Co-teaching Team 2 structured their co-planning at the beginning of a unit of instruction; co-teaching Team 1 co-planned mostly through
Theme 1: Collaboration of Lesson Plan Development

The first theme to emerge from the data analysis was collaboration of lesson plan development. All participants shared that co-planning begins with the mathematics teacher providing the framework for the unit or lesson which then results in a collaborative discussion about the lesson plan. James shared that this planning time is “when we really talk about the methodology of the lesson” and “share our different perspectives”. He elaborated:

I hear what he [my co-teacher] has to say, and I make the note on the lesson plan. We have to look into it [together] because you don’t know when something else could lead to something else. You have to plan together so you know when to increase wait time.

When asked about the methodology of the lesson, James responded:

So, if I have a warmup, we may decide not to give the students the exact answers. We may just want to get them generally thinking, and maybe letting them get it wrong and letting that sit there because later throughout the lesson, this is going to be the crest of it and they’re going to understand it once you get there.

Dan reported in his interview that the collaborative discussion during co-planning occurs when “we’re just discussing different things about methods and we were trying to discuss what’s going to be the point of the day. We also discuss the high-yield instructional strategies that are part of the teacher evaluation process”. Heather added that the collaborative discussion about the lesson plan happened “When I go meet with him, that’s when the feedback happens usually. We talk a lot”. She went on to say, “We talk all the time. We talk in the hallway, through email, [and] we have the same prep time so we meet there and talk, too.”
All participants expressed the importance of theme one. Tyler shared that the collaborative discussion of the lesson plan was a time to clarify expectations:

So for modifying they would ask what exactly are you looking for? Am I looking to see if they can set up the problem? Am I looking for if they can calculate it at this point or checking their work?

James expressed the importance of collaboration of lesson plan development: “We learned early on when you don’t plan you can kind of step on each other’s toes accidentally.” Dan also emphasized this importance: “So usually now we are able to communicate beforehand, then the lesson runs smoothly because you know exactly what you want to have each other do”.

During the observation of the co-planning process with Team 3, collaboration of the lesson plan occurred when Dan said to Heather:

So this is my game plan. This is one of the big math standards and so they [students] need to know all this. This is one of the types of questions they might see to assess mastery.

So, these [points to resources] are what I found to get them [students] here [points to standard]. What do you [Heather] think about this?

Heather responded with the following input:

This one [points to resource] maybe for this particular group of students and this one [points to a different resource] may go a lot quicker. Once they [students] determine the rule, some are going to get it faster. This one [points to first resource again] is probably going to be 10 to 15 minutes at the most, but I think they need to see this stuff to start off with. That’s a good beginning for them.
Theme 1, Subtheme 1: Two-way Communication

All participants in this study shared that two-way communication occurs during co-planning. When asked about the co-planning experience, Heather shared:

He comes to me and says, “Hey these are the things we have to teach this week: A, B, and C.” He lists them out for me and says, “All right, how does this work?” He has his official master lesson plan and he’s like “What can you add?”

She also shared about an experience during co-planning where when her co-teacher asked if she thought the lesson activity was too difficult, she responded:

I don’t think this is too tough for them, because we talked about this previously. We talked about how we were taking that number and substituting it in and that should not be too much trouble for them. Most of them know that their trouble is going to be to remember that they have to multiply here.

Heather also gave this example of input:

I think they need this first. Some of your ones that are going to struggle in the beginning, they need to see that. They are going to need the basis to build off of. They have to see this because if they do not, they’re going to be struggling halfway through.

Dan reported on an instance of two-way communication during co-planning:

I’ll just type these (lesson plans) on my own. She walks in and I will show her and say, “How does this look?” “Is it too easy? Too tough?” She will say it might be a bit much.
She might say “maybe modify that down”. So, I will say, “This is my vision” and she’s like “that is too much for them to have.”

Dan elaborated on why the input from the special education teacher (SET) during co-planning was necessary:

I need her to help me so much. This kid has an IEP [individual education program], but this kid doesn’t, but how can they both meet the same goal? Can this kid do 10 problems when his IEP only says five? How much do we modify for this student when this student doesn’t need to be modified? Can I modify the IEP once the student has demonstrated success of the goal?

Dan gave an example of two-way communication: “One time I wanted to make more steps and she said let’s make sure they first get the steps and not the heavy-duty challenge yet.”

When Josie was asked about how co-planning occurred, she said, “[We] share the lesson and give feedback electronically. Again when we see each other, we bounce things off of each other: ‘Hey, can you help with this?’ or, ‘I think I need to pull this person aside.’

James shared his experience of two-way communication: “As we’re talking about the plans for the day, if I come to his room, if I have an idea and I want to ask him something. I’m trying to get his opinion and feedback on it.”

Elizabeth shared a two-way communication experience that occurred during co-planning:
I would bring it [lesson plan] to her. And from there, she would interject as well and say, “Okay well last year I remember Mr. Smith did this.” I responded, “Okay then that sounds good.” Then we could do that together.

Theme 1, Subtheme 2: Shared Decision Making

Participants in this study shared experiences that demonstrated shared decision making was evident during co-planning. When asked about shared responsibility, Elizabeth said:

For my common assessments, I will probably be the one to group them [students] and then ask my co-teacher what interventions we can use. She would then come up with the idea of what to do for them or even she might ask “Can we do that?” So, we might decide to use a Kagan strategy or since I have white boards up in my classroom, we might do a 360-math activity.

Dan shared specific instances where shared decision making occurred:

But I know Math 6, all they have to know is positive and negative like absolute value. One day Ms. Heather was showing them negative five minus a negative. I said, “No, no, no. This will not be on the state assessment. This is Math 7 standards. She really wanted them [students] to see the connection to the next grade level. We agreed to show a video on what the next steps would be but not actually make them do it.

Another experience Dan shared was, “She does things like ‘I want to do this’ or ‘Okay, let us do this instead’. I’ll constantly modify this [lesson plan] to do what she wants to do.”

Heather shared her experience of co-planning, included shared decision making, when she said:

And we will say yes or no, or maybe we need two days on this. We kind of go back and forth based on what he has his listing of criteria to cover for this week, like all of his
objectives. I would do this [mathematics activity] on Wednesday, I would do this on Tuesday, and then let us come up with some type of computerized assignment.

Shared-decision making was observed in the observation of the co-planning process between Heather and Dan (Team 3). Dan discussed the resources selected and said, “I am not sure about this [resource]. I think maybe it is too much for them.” Heather shared, “I do not think you are going to throw them. I do not think so at all. Here [points to resource], your two step one is going to be a challenge, which some of them need, but most of them should not have any problem doing something like this where it says, ‘x + 5’, they should be able to do that.” Dan replied, “Ok then, we should keep it in”.

Tyler reported that shared decision making evolves during co-planning: “The lessons we start with are for those without disabilities, and then we take that and I put my twist on it to help them [students with disabilities].”

Theme 2: Student Learning

The second theme that emerged from the data analysis was student learning. Participants shared an intense focus on what students needed to know based on the mathematical standards, what supports SWDs would receive during instruction, and how teachers would know students had learned the concepts. These foci further developed as subthemes during the data analysis.

Theme 2, Subtheme 1: Instructional Focus

The experiences participants described during co-planning pointed toward a strong instructional focus which was evident in the experiences when multiple participants described the mathematical standards students need to learn. James shared, “We’re trying to hit these standards. We’re trying to hit these objectives and that we’re trying to then backward plan. We have to decide what [standards] should we spend the most time on. What is most important?”
Elizabeth demonstrated an instructional focus when she shared, “I come from my grade level meetings where we discuss math standards. This is one of the big math trends and so this is what they [students] have to know on this aspect.” Heather believed having students understand the mathematical standard and its alignment to next grade level standards was important:

They almost need to be able at some point to write this function themselves. But technically, they do not have to do this until higher up. In seventh grade they fill these in and in eighth grade is when they are actually inputting them and then graphing them. So essentially what I can do is on that intro day, what I will do is kind of show them how this becomes a graph, which is ultimately what they are going to have to do when they get into 8th grade. So I can introduce that to kind of show them where they are headed in the next couple of years.

Dan discussed mathematical standards as a focus: “So, this is our end goal. What does function mean? So, this is on the state assessment.” Dan further expressed instructional focus during the observation of the co-planning process: “This [points to resource] one book has been amazing. It has really saved us. It shows the standard and includes high- and low-level types of problems and questions. It is aligned to the state assessment and shows which standards are more important”.

Also evident in the instructional focus subtheme were the teachers’ expectations of students. Participants believed all students had to learn the standards and at the correct level of the standard. This belief was evident when Dan said, “All kids get the same stuff [mathematical standard]”. He elaborated:

Both kids get the same skills, same standard, but maybe leveled differently at first. Each kid needs to see success. It gives kids confidence. We are not saying all IEP kids come
with me. This way the IEP kids see that they are same as their peers so they focus. The students in the co-teach class focus better than my non co-teach classes.

Tyler shared his thoughts on student expectations: “We don’t say pull these nine IEP kids out. No. They need the same level of math instruction.” High expectations for all students were evident when Heather shared, “But I want to see that they need to see that higher thinking without having their hand being held.”

Theme 2, Subtheme 2: Student Needs

Participants reported experiences where student needs were prioritized and discussed during co-planning. A discussion of students’ needs for accommodations occurred during co-planning. Josie said, “I do formative assessments in small groups in the classrooms and then I do summative assessments in small groups outside of the classroom based on the accommodations listed in their IEP.” Josie elaborated on student needs: “I write notes for my SWDs and I make copies for them. They are given a packet of notes and a homework packet.” Dan responded that for accommodations, “Some students get more time to do their assignments. I am also increasing my wait time.” James also spoke about accommodations: “I use timers for some of my students. Like if they have attention problems. They have to work for five minutes. I set the timer. After five minutes, they get a break.” Heather discussed accommodations as well and said, “Or if it [IEP accommodations] says limited amount or narrowing the amount of problems to do, I’ll reveal [to my co-teacher]. “We’re supposed to do this for this kid, he’s got to have this.”

Co-teachers also reported students needed scaffolding during instruction. Dan shared: Curriculum adaptations can be variable. I’ve learned that you don’t have to give the students with accommodations the exact same work as long as it’s the same concept. It [the work] could be broken down a little bit more so that they can understand.
Heather shared her thoughts on differentiation to meet the needs of all students:

You have to make sure you have differentiation, not just for the kids who need the scaffolding but for the kids who are going to be done with this in a small amount of time.

Everybody needs help in general. So you have to plan for that, making sure to have some type of differentiated material for them to do that.

Tyler shared scaffolding was essential for students because “we build those skills and those positive feelings of success by breaking it down and then we can build on the metacognition.”

Participants shared students’ needs included planning for specific instructional strategies to ensure learning of the mathematical concepts occurred. Tyler shared his thoughts on instructional strategies: “We do a lot of reading. We’ll read that over before we do everything so that we can get that piece of it – the reading comprehension. We go over the words we don’t understand and we define key words.” Josie highlighted visuals as helpful instructional strategies and shared her experience:

Some teachers are more verbal and I could see where writing something down would be really helpful for specialized students. That’s where I can jump in and write something on the board. Let’s put it on the board so we can see it. Just seeing something more than hearing it is helpful for students.

She further described another experience: “In one co-teach class we did a hands-on project, and it was a great tool for SWDs, but any student would benefit from having a visual.” Heather expressed similar thoughts when she said, “Kids need to see it. So let’s find some videos. Let’s check out some videos to show them during class.” James agreed that visuals were important: “I like to bring in more pictures for kids to see.” Participants also discussed the use of worked examples. Dan said, “For some of our kids we do worked examples on things. We define
keywords.” Another instructional strategy Heather shared is that students need material presented in manageable pieces. She said, “Sometimes I have to remind him to reign it in a bit. I tell him you’re not going to get all this in on one day. Chop it in half. Chunk it a little bit.”

Theme 2, Subtheme 3: Monitoring and Responding to Learning

The subtheme of monitoring and responding to learning emerged when teachers discussed what students have learned, what they still need to learn, and how they will help them learn it. Participants in this study shared that they track student learning to find out what students still need to learn and what gaps exist. Dan said, “I use exit tickets to see where students are and then I share the exit tickets with my co-teacher.” Elizabeth shared how she uses data: “We look at the data day by day based on the student work. But we also look at school-wide data twice a month.” Josie stated, “After class, I think about how it went and what could be better for them [students]. So, the next time I try to add that, like a graphic organizer so it can help them [students].” Heather shared that during co-planning she and her co-teacher discussed ways to assess student learning:

You could do one of these almost every day to see where they are going or then you can walk them through this so that they kind of know this is what you are going to be expected to do. Like a ticket out the door. Sometimes they are just impromptu. I am like, “Throw this out to them and give them these three problems.” This lets you see who has got it or not. So they do them and then we break them up for the next day.

Participants then discussed how they respond to learning by using the data to form groups of students for small group instruction or rotations. Heather shared that after the data is reviewed, We split them off based on what we think at this point. We create groups or stations it just depends on what we are doing. Sometimes it is skill based on who needs more. We
look at this group and see that they know how to divide for example. They do not need to sit through a step by step instruction. So he is going to take those kids and move them on to the next step where I have these guys and we are going step by step.  

Tyler shared that he and his co-teacher do something very similar to Heather’s experience. Tyler reported, “We look at identifying and forming groups of students who are struggling. I will sit with them and assist them, special ed or not. Then I’ll just go around the classroom assisting other kids as well.” James shared that he and his co-teacher “pull them so we can give them individual attention in smaller groups. Then we each take a group rather than one of us trying to get to all groups.”

**Research Question 2**

The second research question of this study was “What meaning do highly effective co-teachers make of their experiences of shared responsibility for co-planning for instruction in a middle school mathematics classroom?”

**Theme 3: Parity**

Five out of the six participants shared that parity existed within the co-teach classroom. The one participant who disagreed and felt parity was missing was Josie from Team 1, who was in her second year of teaching. Josie was prepared as a special education teacher in a different state that, she related, had a completely different model of inclusion from the school district where she was currently employed. While she expressed her experience this year did not show parity, she stated she has experienced parity in the past. Josie said:

I would change it and make it more of an equal playing field, I guess. I taught with one teacher last year and it really did feel like a true 50/50 co-teach. I felt I could voice my
thoughts and ideas in there and verbalize what I wanted to say without stepping on his toes.

Elizabeth shared her experience of parity: “When we were co-planning and I didn’t see it the way she saw it. And so, she brought that to light. I said to her, ‘Okay well that’s a good way so can you teach it that way.’” Elizabeth had a second experience of parity: “Even for my other kids, can you [co-teacher] teach that part of the lesson because I liked the way that you said it. I’ve never seen it shared that way.” James also demonstrated parity when he discussed how he and his co-teacher teach: “So you have parallel teaching where you’re split. He is back there teaching. I am teaching up here and we’re teaching the same lesson. We have the same level of everything in the classroom.” Heather shared she felt complete parity as the special educator in the co-teach classroom: “They know me as a second teacher. We lay that out the first week of school. We are both licensed teachers. So we have mutual respect from all the kids.” Additionally, Heather reported that her co-teacher also treated her as an equal in the classroom. Heather said, “Sometimes, he [co-teacher] will say, ‘Well, do you want to explain this part or we could go back and forth.’ So, we just kind of talk through which parts he will do and what I would do.” She added:

He does not mind if I jump in and say wait a second and can we talk about this. Or when someone is acting out, I will take care of it. We even each other out. It is almost like, a work marriage in a way.

Dan shared his experience that both teachers were equal and involved when he reported, “Once they [the students] walk in, I’ll have them work on typing for practice for the state assessment. Then, the co-teacher will go into Vimeo [a video application] to show what the mathematical concept should look like.” He also reported, “She is like my left hand for that type of thing.”
Tyler noted experiencing parity with his subject-area co-teacher: “We go back and forth most of the time. If he talks, I talk, and we interject. Either way it works out to make it easier. We’re both in the front [of the classroom].”

Theme 3, Subtheme 1: Specialized Skill Set

A subtheme emerged from the theme of parity. The participants expressed that parity existed because of the specialized skill set each co-teacher had. When asked about how the two co-teachers co-planned, James reported, “What types of things he thinks the kids with IEPs are going to need because he’s the expert in that. So, he’s trying to figure out how I can prepare myself for that, so it’s [the lesson is] successful.” James further elaborated that because of the co-teacher’s special skills, “If he sees somebody that’s struggling right there, that we didn’t plan for, he’ll just go get some additional resources to help support the student’s learning.” Josie shared that her specialized skill set is to find different approaches to presenting material: “I think where she may teach the technical side of the standard, I’m going to show you in a different way. Maybe mine has more pictures to it or a little bit of drawing it out to solve problems.” Dan shared that his co-teacher is an expert:

> It is nice having somebody to calm me down. My co-teacher said based on his IEP if you do this, he does this. Just her knowing these ins and outs of things with that kind of disability is helpful. Her specialized special education background has way more details about certain things that I might do to set some kids off. Her knowledge helps.

Tyler said that during co-planning specialized skills are evident: “Usually he is the curriculum part and then I am the support behind with how. So we discuss different strategies, how we want the lesson to go, and then we add it in.” Heather also supported the subtheme of specialized skills:
He knows the curriculum specifically and that is his forte. So then mine is to add on to that or come up with different ways to do that or different ways to adjust it, accommodate or modify it. There are other ways to do that. It does not have to be this way or this exact way. Here is another way. So we can just show them [students] a couple of different ways and then they get to choose and own which way they want to do it.

**Validity and Reliability Outcomes**

The researcher employed member checking, the use of a peer debriefer, and bracketing as part of the validity and reliability methods of the study. The transcription for each interview or observation was sent to the appropriate participant. During member-checking, only one teacher provided additional information and clarification based on the interview transcript provided. Two other participants responded to the researcher’s request during member checking and indicated that the message that they wanted to convey was accurate in the transcription. The transcript for the observation of the co-planning process conducted was sent to both co-teachers because the co-planning process included each participant. The participants received the transcript, but did not clarify any statements or provide additional information.

The peer debriefer reviewed the significant statements, codes assigned, subthemes, and themes. The peer debriefer asked a few questions about some of the statements that were included as significant. These were clarified by referring back to the verbatim transcription and agreement was reached that the statements were significant to the phenomenon of shared responsibility of co-teaching. The peer debriefer affirmed that the codes and themes the researcher developed were appropriate based on the raw data.

The bracketing process allowed the researcher to use the positionality statement during the data analysis process to minimize bias. The participants shared that co-planning was initiated
by the mathematics teacher who developed the lesson in advance of a co-planning session. Then this lesson plan was discussed by both co-teachers during co-planning. The positionality statement allowed the researcher to realize this was not how she visualized co-planning. The researcher recognized her beliefs and the data reported from participants did not align. However, the researcher set aside her expectations which permitted her to use the data as reported by participants in a thorough and accurate data analysis.

Summary

The phenomenological study explored two research questions about the lived experiences of highly effective co-teachers and how they made meaning of the phenomenon of shared responsibility of co-teaching. Biographical sketches and the teaming of each participant helped to provide context. The researcher analyzed interview data from all six participants and one observation of one pair of participants engaging in co-planning. Three major themes emerged during the data analysis process as well as six subthemes.

The first theme uncovered was collaboration of lesson plan development where each co-teacher had discussions about the lesson plan. The two subthemes, two-way communication and shared decision making, further demonstrated that co-teachers discussed the various aspects of the lesson plan and mutually agreed on the final product of the lesson plan. This demonstrated shared decision making where each teacher was afforded the opportunity to provide input.

The second theme that emerged from the data analysis was student learning. Co-teachers were highly focused on what students should learn and how they should learn it. This led to the development of three subthemes: (a) instructional focus, (b) student needs, and (c) monitoring and responding to learning. These themes showed that mathematical standards were important to student learning, as was having the same high expectations for all students. Student needs were
identified, discussed, and provided for through scaffolding and a variety of instructional strategies. Finally, student progress was tracked, and students were grouped for additional learning opportunities as a way to monitor and respond to learning.

The final theme that arose out of the data analysis was parity. All but one co-teacher expressed perceiving parity in the co-teach classroom and feeling that their specialized skill set, a subtheme, was used both during co-planning and instruction.
CHAPTER 5: DISCUSSION

Introduction

This chapter will include a review of the methodology for this research study and a summary of the findings. The research will present research connections and implications of the findings and discuss limitations of the study and recommendations for future research.

Review of the Methodology

This study was carried out using a transcendental phenomenological research design (Ary et al., 2019; Creswell & Poth, 2018; Moustakas, 1994) to help the researcher better understand how co-teachers experienced and made meaning of the shared responsibility of co-teaching. The researcher used one-on-one interviews of individual members of three pairs of co-teaching teams deemed highly effective based upon student outcome data in the district and conducted one observation of the instructional planning process with one pair of co-teachers.

The following two research questions were explored in this study:
RQ1: What are the lived experiences of highly effective middle school mathematics co-teachers who have shared responsibility for instructional co-planning?
RQ2: What meaning do highly effective co-teachers make of their experiences of shared responsibility for co-planning for instruction in a middle school mathematics classroom?

For recruitment of participants, the researcher targeted highly effective pairs of co-teachers. Co-teachers were defined as highly effective if the percentage of their students with disabilities (SWDS) who passed the state mathematics assessment or showed growth on the district assessment surpassed the district percentage of the same student group. The researcher
employed a spiral data analysis procedure (Creswell & Poth, 2018) and incorporated components from Moustakas’ (1994) data analysis method.

**Summary of Findings**

Three themes emerged from analysis of the data: (a) collaboration of lesson plan development, (b) student learning, and (c) parity. The first two themes, collaboration of lesson plan development and student learning, supported research question 1; the final theme of parity corresponded with research question 2. The three themes were reported with supporting data using a thick, rich description and verbatim statements from participants. Within these three themes, six subthemes were also identified and described.

**Connection Between Research and the Findings**

The connection between research and the findings for the first two themes are described in this section. The first two themes that emerged from this study supported research question 1.

**Theme 1: Collaboration of Lesson Plan Development**

The first major finding of this study was that co-teachers participated in collaboration of lesson plan development. The general education teachers (GETs), who, for the purpose of this study, were mathematics content teachers, developed frameworks of lesson plans and then sought input from their co-teachers, the special education teachers (SETs). The SETs, in turn, provided input regarding the progression of mathematics learning standards, applicable instructional strategies or supports, and roles and responsibilities for each teacher. Additionally, evident within this theme was shared decision making between the SETs and GETs.

The findings of this study for Theme 1, collaboration of lesson plan development, were supported by existing literature. Pratt and colleagues (2017) reported that lesson planning should
include sharing by both co-teachers, which leads to mutual agreement on the lesson content. Other researchers, such as Ansari Ricci and colleagues (2019), agreed with Pratt and colleagues and reported that adaption of lessons is a component of shared responsibility of co-planning. The sharing by both co-teaches was defined by Murawski and Lochner (2011) as active participation by both teachers leading to a shared responsibility of lesson planning. According to Friend and Cook (2017), active participation should lead to shared decision making towards a common goal. Participants in this study reported a positive co-teaching experience. Stefanidis, King-Sears, and Brawand (2019) reported that positive co-teaching experiences are correlated to higher levels of co-planning.

As part of the triangulation process, the researcher used her educational knowledge of lesson plan development, the interview data, and the observational data to interpret these findings. In the researcher’s experience, lesson planning should include a breakdown of the standard to be taught into learning targets, identification of an assessment question aligned to that standard, and student tasks for each learning target to include specific teacher facilitation of the learning. Thus, the researcher expected that this would occur with both teachers present during co-planning. However, the interview data and observation data did not support this. In this study, the interview data all indicated that the GET planned the lesson on his/her own and the co-planning time was used to adjust and/or add instructional strategies based on the needs of students. The interview data demonstrated these adjustments and additions of instructional strategies occurred through communication by the SET and GET which resulted in shared decision making of the final lesson plan. The observation data supported this finding as the researcher observed the GET presenting the lesson plan to the SET and seeking input. Although the way the co-planning occurred did not align with the researcher’s expectations, current
research supports this type of co-planning as an option in co-teaching. Murawski (2012) shared 10 tips and strategies of co-teaching, which included the determination of roles and responsibilities and dividing and conquering. Murawski (2012) reported that teachers have their own strengths and can each be responsible for certain tasks before the co-planning in an effort to save time. She also reported that teachers can divide and conquer by
planning a separate lesson...teachers certainly need to coordinate and discuss the standards, goals, and big picture of their instruction, but they do not need to spend time together going over the intricacies of each part of the lesson: This is where trust comes in (Murawski, 2012, p. 10).

Theme 2: Student Learning

Theme 2 from this study was that co-teachers maintained a focus on student learning. Co-teachers focused on what students needed to know, individual student learning needs, and how the teachers would respond when students faced challenges with the content. Co-teachers concentrated on mathematics learning standards and believed that all students needed to master these standards. High expectations were evident for all students, and co-teachers discussed the importance of differentiation and support for students to realize these expectations. The differentiation was described by co-teachers as instructional strategies and/or small groupings to meet the needs of learners.

The researcher used triangulation of data for the identification of this theme. As an educator, the researcher constantly assists schools in focusing on what students need to develop quality instruction. The interview data indicated that all participants referenced individual student needs throughout the interview process. Additionally, during the observation of co-
planning there was rich discussion about the needs of students. In particular, during co-planning, the co-teachers included a learning task even if only two students required it to be successful.

The literature supported the findings related to Theme 2. Rodgers and Weiss (2019) reported that specially designed instruction (SDI) includes consideration of individual student needs that may lead to small-group instruction and/or cognitive processing strategies. Research by Dieker and Murawski (2003) supports small group instruction and processing strategies: they reported standards-based instruction and specific supports for students must be considered by co-teachers. Other researchers emphasized that co-teachers must consider individual student needs (Ansari Ricci, Persiani, & Williams, 2019). These individual student needs lead to differentiation requirements for all students that address gaps and skills students may not have yet mastered (Murawski & Lochner, 2011). Researchers Boyle and Kaiser (2017) reported that conceptual student learning should be the focus of lesson planning and instruction, thus supporting the findings of this study in that the data indicated multiple times that co-teachers were primarily focused on conceptual understanding rather than procedural knowledge.

Theme 3: Parity

The third and final theme that emerged from the data analysis answers Research Question 2. Parity emerged as a theme because five of the six participants in this study expressed that they felt equal to their co-teacher. Co-teachers felt their specialized skill set was regularly considered and used during co-teaching. Additionally, parity was evident because co-teachers shared that they had active roles in all areas of the classroom including instruction. Participants shared experiences where they taught the same lesson as the GET. Additionally, both the SETs and GETs shared that they could interrupt and add to instruction any time during the lesson when their co-teaching partner was instructing.
The researcher’s knowledge, interview data, and observation data were all used to identify and interpret this finding. The researcher, having once implemented co-teaching, understood the importance of teachers feeling valued and thus had experience with supporting and fostering parity. The interview data indicated several ways participants felt valued, illustrated with specific examples of their contributions. The researcher observed the sharing of expertise during the observation of the co-planning.

Parity has been studied a great deal over the years. Earlier studies demonstrated a lack of parity because the SET mostly served as a teacher assistant (Scruggs et al., 2007). Two different groups of researchers, Wexler et al. (2018) and King-Sears et al. (2014), also reported a lack of parity and that the GET was the predominant teacher. While these research studies do not support the findings of the current study, several researchers have defined parity and expressed its importance. King-Sears and colleagues (2014) may not have observed parity in the classroom; however, they stressed that co-teach models should incorporate and ensure equal roles and responsibilities for co-teachers. Pratt and colleagues (2017) stressed equal roles and responsibilities for co-teachers: each co-teacher is important because they both bring specialized skills. Dieker and Murawski (2003) and Murawski and Goodwin (2014) also emphasized that parity is essential because of the individual expertise of the SET and GET. Dieker and Murawski (2003) reported that for parity to exist, co-teachers must recognize the specialized skill sets each contributes, which supports the findings of this study. The participants in this study reported parity because they felt their specialized skills were recognized and valued. Stefanidis, King-Sears, and Brawand (2019) reported that co-teachers may interpret parity in different ways and that researchers may not necessarily observe this parity.
Implications of the Findings

The findings from this study indicated that co-teachers assigned to a co-teach model expressed a positive experience. The mathematics GETs said they could not do their job without the SETs. The SETs recognized the mathematics teachers as the content experts, whereas the GETs shared that the SETs have a great deal of knowledge in specialized instruction. All participants indicated that their co-teach classes were successful because they had each other. In a study conducted by Oh, Murawski, and Nussli (2017), these researchers similarly found that a positive co-teaching experience resulted from open communication and frequent check-ins by co-teachers. All participants in this study with the exception of one reported a strong relationship with their co-teacher which has been supported by research (Stefanidis, King-Sears, & Brawand, 2019).

Overall, one finding of this study is the positive relationship of co-teachers because they felt their special skills were valued. This finding indicated that local education agencies (LEA) should identify classes where both SWDs and students without disabilities (SWODs) are enrolled together without a SET to support the class and consider how to include the support of a SET. The LEA should identify a SET and GET with strong specialized skill sets and consider these two for co-teaching. Time for collaboration between the SET and GET should be established by the LEA. This will allow the SET and GET to share specifics about how they approach instructional planning for SWDs. If establishing a co-teach classroom is not possible, the LEA should at least consider increasing collaboration between a SET and GET. This will allow each teacher to share his/her specialized skill set.

Another implication of this finding is that planning for instruction may look different for every pair of co-teachers. Thus, an LEA should provide time for co-planning regardless if the
teachers are assigned to a co-teach classroom. Co-planning would provide time for the SET and GET to collaborate and discuss specific accommodations or considerations for mastery of a standard. Flexibility on how co-planning occurs may be considered as collaborative planning may look differently for teachers. Standards, assessment, and learning tasks are all part of the co-planning process, but how these are discussed, shared, or decided will vary based on the co-teachers and how they best collaborate.

Participants in this study also reported a high-level of use of instructional strategies and small grouping to support student learning. They shared that all students, not only SWDs, have gaps in their learning and mathematical skills, and that differentiation is essential to promote student learning of the mathematical standards. These participants were recruited because they were deemed highly effective, which means that more of their SWDs passed the state assessment or demonstrated growth on the district assessment. For this reason, the LEA might consider how to share the differentiation expressed by the participants in this study with other teachers. The differentiation approaches shared in this study were based on specific needs of students in the co-teach classroom. Thus, the LEA would want to emphasize that differentiation is designed, developed, and selected by looking at student data and tasks.

This study also found that participants focused on standards-based instruction of mathematical standards. Participants understood the high expectations required of mathematical standards and also articulated the increased rigor and conceptual understanding of these standards. Thus, an LEA might consider providing professional learning on the mathematical standards. The targeted audience for this professional learning should be mathematics general education teachers and all special education teachers. This professional learning should focus on a deep analysis of the standards that should lead teachers to a deep understanding of what
students are required to know, how they are expected to show what they know, and how to justify conceptual understanding.

Study Limitations

Limitations are “potential weaknesses or problems with the study identified by the researcher” (Plano Clark & Creswell, 2015, p. 496). Plano Clark and Creswell (2015) report that identifying limitations of a study is important to consider how to use the results of the study. The research identified three limitations within this study.

The first limitation was that in the researcher’s previous role as a school principal, she had experience in co-teaching. The researcher began implementing co-teach models in middle school English Language Arts and mathematics middle school classrooms. These experiences had the potential to lead to bias and preconceived notions.

The second limitation pertained to the researcher’s current role in the school district where the research was conducted. The researcher served as an educational leader in the district. This role identity had the potential to influence participants’ behavior and responses.

The third limitation was not anticipated during the development of the research study, but occurred as a result of worldwide events. Because of the coronavirus pandemic, the researcher was unable to conduct all observations of the planning process as originally anticipated in the research design; the school district in which the research was conducted was closed per a statewide stay-at-home order. The researcher had the opportunity to observe one pair of co-teachers in one planning meeting.

Recommendations for Future Research

Co-teaching is a complex model which requires a SET and a GET to collaborate on the development of an instructional plan to meet the needs of all students (Cook & Friend, 1995).
This collaboration requires a special relationship between the SET and GET (Dieker & Murawski, 2003; Murawski, 2009). While the researcher acknowledges that her role as a district leader may have influenced participants, the co-teachers in this study shared they had a strong positive relationship with their co-teachers. They expressed that their skills were valued and that they relied on each other to meet the needs of all students. Future research in co-teaching should consider how this positive relationship is established and developed and evaluate its impact on student learning in a co-teach classroom. Scruggs, Mastropieri, and McDuffie (2007) reported in their meta-synthesis that co-teachers should volunteer for co-teaching. However, Dieker and Murawski (2003) reported that parity can be developed by helping teachers recognize each other’s strengths. Research needs to be conducted on the selection of co-teachers and the development of the professional relationship so that LEAs can determine how to select co-teachers as they move towards co-teaching as a service delivery model. Furthermore, the strength of the relationship of co-teachers needs to be studied and correlated to student learning.

The shared responsibility of instructional planning in co-teaching requires incorporation of the curriculum standards and supports for SWDs to access the curriculum. Participants in this study shared that instructional strategies were considered, discussed, and implemented for all students in the co-teach classroom. Future research should include how shared decision making occurs in co-teaching. An investigation into how co-teachers agree during co-planning is essential, especially when there is a SET skilled in special education and a GET who is a content expert. Research needs to show how effective co-teachers come to a common understanding and blend these two expertise areas.

The participants in this study were selected as they were deemed highly effective based on student outcome data in the district. These co-teachers had more SWDs pass the state
assessments or meet projected growth on the district interim assessment. These participants reported there was shared decision-making and collaboration on lesson plan development. These highly effective co-teachers met or communicated regularly for co-planning purposes. Additional research should include how much co-planning impacts the closing of the achievement gap between SWDs and SWODs. This research would inform school districts on best practices in the amount of time for lesson planning and how these impact closing achievement gaps as required by ESSA.

An additional recommendation for research, is in relation to specially designed instruction (SDI). Federal statutes require SWDs to receive SDI to improve success. Statutes have clearly articulated that interventions for SWDs should be research-based and proven effective. Additional research into how co-teachers plan and implement these research-based interventions in a co-teach classroom would add to the research base of co-teaching. The academic impacts of research-based interventions for SWDs is also recommended for research. Results of this type of research would provide LEAs and teacher preparation programs with co-teaching strategies to realize academic achievements for SWDs.

The highly effective co-teachers in this study had more SWDs pass the state assessment or meet projected growth on the district assessment. The co-teaching pairs included a SET and a GET with appropriate certifications in their field. Additional research would be beneficial to explore highly effective co-teachers and how much training each has had in special education and core academics such as mathematics. This suggested research could explore formal training from higher education or job-embedded training offered by LEAs. Another suggested research area to explore is to identify student outcomes of co-teachers who are dually certified in special
education and a core subject such as mathematics. Dual certification for co-teachers could lead to greater academic outcomes for SWDs.

**Conclusion**

Accountability of schools and school districts for all students has increased with the passage of federal statutes, such as the *Individuals with Disabilities Education Improvement Act* (2004) and the *Every Student Succeeds Act* (2015). As a result, co-teaching has become a well-known service delivery model to support SWDs in inclusive classrooms (Friend, 2016; Murawski & Goodwin, 2014). The researcher in this phenomenological study sought to understand the shared responsibility for instructional co-planning in a middle school mathematics classroom with a specific focus on highly effective co-teachers. The research findings indicated that participants in the study provided input on the instructional design of a lesson. Results of this study also indicated through the collaboration of lesson plan development that co-teachers maintained a focus on student learning. Finally, the participants shared that parity existed between the pairs of co-teachers.
APPENDIX A
SEMI-STRUCTURED INTERVIEW: PERCEPTIONS OF CO-TEACHING ORIGINAL INSTRUMENT
Semi-Structured Interview: Perceptions of Co-Teaching

Directions to the Interviewees:

The following questions are designed to provide additional information about your co-teaching experience. You are encouraged to answer these questions as candidly and as completely as possible; the anonymity of your responses is assured. You do not have to answer any questions you are not comfortable answering. The responses of all those teachers interviewed in the course of this study will be reported as group data according to trends that are identified. The interview normally takes from 30 minutes – although you may take as much time as you need to answer the questions.

SET 1

1. Would you describe your co-teaching experience generally as a positive one?

If yes…would you describe the positive aspects for me?

If no…would you describe the negative aspects for me?

2. Have you and your teaching partner ever disagree about an important aspect of
co-teaching?

If yes…what was the disagreement?

If no…go to question 3.

Were you able to resolve the disagreement?

If yes...how was it resolved?

If no…go to question 3.

3. Have you taught in a regular education classroom (non-inclusive) or a self-contained special education classroom?

If yes…which type?

If no…go to set 2.
How does your recollection of that experience compare with your co-teaching experience?

SET 2

1. Have you used any new instructional techniques, management strategies, or curriculum adaptations in your co-teaching?

If yes…would you describe these?

If no…would you describe the teaching methods you currently use?

If yes…which of these do you consider to be most effective? Why?

If no…which of these do you consider to be most effective? Why?

If yes…which of these you consider least effective? Why?
If no…which of these do you consider to be least effective? Why?

2. Has the collaborative teaching experience contributed to your professional knowledge and skill?

If yes…would you describe these contributions?

If no…would you describe the some of its shortcomings?

SET 3

1. Are you satisfied with your current collaborative teaching assignment?

If yes…would you describe the most satisfying aspects?

If no…what changes or improvements would you recommend?
2. Are you satisfied with the level of support provided by the school to facilitate your collaborative teaching?

If yes…go to set 4.

If no…what types of support do you think the school should provide?

SET 4

1. Do you think the collaborative teaching strategies that you are using are effective in educating students without disabilities in your classroom?

If yes…why are they effective?

If no…why are they not effective?

2. Do you think the collaborative teaching strategies that you are using are effective in educating students with disabilities in your classroom?

If yes…why are they effective
If no...why are they not effective?

3. To what extent do you think that participation in an inclusive experience contributes to the social development of some students without disabilities?

In what ways does it contribute?

4. To what extent do you think that participation in an inclusive experience contributes to the social development of students with disabilities?

In what ways does it contribute?

What type of disability

What level of severity?

5. Are the students in your inclusive classroom generally receptive to collaborative teaching?
If yes…how do you determine this?

If no…how do you determine this?

SET 5:

1. What are your responsibilities in the inclusive classroom? Which of these are exclusively your responsibilities? Which of these is exclusively the responsibility of your partner? Which of these do you share?

The following are suggested areas of teacher responsibility in the classroom:

<table>
<thead>
<tr>
<th></th>
<th>My Job</th>
<th>Shared Responsibility</th>
<th>Partner’s Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning lessons</td>
<td>______</td>
<td>______</td>
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<tr>
<td>Instruction</td>
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<tr>
<td>Modifying curriculum</td>
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<tr>
<td>Remedial instruction</td>
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<tr>
<td>Administering discipline</td>
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<td>Classroom management</td>
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<tr>
<td>Assessment and grading</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

Thank you for your willingness to participate in this interview. Your responses have provided valuable information that will contribute to this study. If you would like a copy of the results of this research project, simply provide a mailing address and one will be forwarded to you upon completion of the study.
APPENDIX B
PERMISSION TO ADAPT INSTRUMENT
Re: [EXT]: Request Permission

Ann Hembrook
Sun 9/22/2019 3:24 PM
To: Vance Austin <Vance.Austin@mville.edu>
Thank you so much for your permission and for such a quick response. It is much appreciated.

From: Vance Austin <Vance.Austin@mville.edu>
Sent: Sunday, September 22, 2019 2:32 PM
To: Ann Hembrook <Annhembrook@Knights.ucf.edu>
Subject: Re: [EXT]: Request Permission

Dear Ann,

I’m happy to provide copies of both the interview script and the survey instrument. Please feel free to use and modify as you see fit relative to your research needs. No reimbursement necessary, of course!

I wish you every success with your doctoral research project!

My best wishes,

Vance Austin

Vance Austin, PhD
Chair, Special Education Department
vance.austin@mville.edu
914-323-7262 (Office)
845-596-8214 (cell)

From: Ann Hembrook <Annhembrook@Knights.ucf.edu>
Sent: Sunday, September 22, 2019 2:08 PM
To: Vance Austin <Vance.Austin@mville.edu>
Subject: [EXT]: Request Permission

Dear Dr. Austin,

I am a doctoral candidate at the University of Central Florida and my dissertation proposal was approved by my committee. For my dissertation topic, I am looking into the shared responsibility of co-teachers in secondary mathematics classroom. My research methodology includes semi-structured interviews with pairs of co-teachers to specifically investigate their lived experiences regarding the shared responsibility of instructional planning. Dr. Dieker, a member of my committee, suggested I look for an interview protocol that is already created
and validated. I have found the interview protocol you authored called "Semi-Structured Interview: Perceptions of Co-teaching". I am writing to request permission to copy and use this protocol in my dissertation. I plan on adapting the protocol slightly to focus on the shared responsibility aspect of co-teaching.

If you have any questions or need further information regarding my study, please let me know. Additionally, if you require reimbursement for the copying of the interview protocol, please advise. An electronic copy would be helpful as I would include that as an appendix in my dissertation to credit your work which will also be listed in the references.

I look forward to hearing from you.

Sincerely,
Ann Hembrook

This e-mail transmission is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the recipient of this e-mail is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately and then delete the e-mail and destroy any copies of it. Thank you.
APPENDIX C
SEMI-STRUCTURED INTERVIEW: PERCEPTIONS OF CO-TEACHING ADAPTED INSTRUMENT
Semi-Structured Interview: Perceptions of Co-Teaching

Directions to the Interviewees:

The following questions are designed to provide additional information about your co-teaching experience. You are encouraged to answer these questions as candidly and as completely as possible; the anonymity of your responses is assured. The responses of all those teachers interviewed in the course of this study will be reported as group data according to trends that are identified. The interview normally takes from 15-20 minutes – although you may take as much time as you need to answer the questions. The results of this study will be available to you upon request.

SET 1

1. Would you describe your co-teaching experience generally as a positive one?

If yes…would you describe the positive aspects for me?

If no…would you describe the negative aspects for me?
2. Have you and your teaching partner ever disagree about an important aspect of planning for instruction in co-teaching?

If yes…what was the disagreement?

If no…go to question 3.

Were you able to resolve the disagreement?

If yes…how was it resolved?

If no…go to question 3.
3. Have you taught in a regular education classroom (non-inclusive) or a self-contained special education classroom?

If yes…which type?

If no…go to set 2.

How does your recollection of that experience compare with your co-teaching experience?

SET 2

1. Have you used any new instructional techniques, management strategies, or curriculum adaptations in your planning for co-teaching?

If yes…would you describe these?

If no…would you describe the teaching methods you currently use?
If yes…which of these do you consider to be most effective? Why?

If no…which of these do you consider to be most effective? Why?

If yes…which of these you consider least effective? Why?

If no…which of these do you consider to be least effective? Why?

2. Has the collaborative teaching experience contributed to your professional knowledge and skill?
If yes…would you describe these contributions?

If no…would you describe some of its shortcomings?

SET 3

1. Are you satisfied with your current collaborative teaching assignment?

If yes…would you describe the most satisfying aspects?

If no…what changes or improvements would you recommend?

SET 4

1. Do you think the collaborative teaching strategies that you are using for instructional planning are effective in educating students without disabilities in your classroom?

If yes…why are they effective?
If no...why are they not effective?

2. Do you think the collaborative teaching strategies that you are using for instructional planning are effective in educating students with disabilities in your classroom?

If yes...why are they effective?

If no...why are they not effective?

SET 5:

1. What are your responsibilities in the inclusive classroom? Which of these are exclusively your responsibilities? Which of these is exclusively the responsibility of your partner? Which of these do you share?

The following are suggested areas of teacher responsibility in the classroom:
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<td></td>
<td></td>
</tr>
<tr>
<td>Assessment and grading</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Can you describe the process for planning lessons?

3. Can you describe how modifying the curriculum is done?

Thank you for your willingness to participate in this interview. Your responses have provided valuable information that will contribute to this study. If you would like a copy of the results of this research project, simply provide a mailing address and one will be forwarded to you upon completion of the study.
Observation Protocol

Activities

Teacher Input (SET)
Teacher Input (GET)
Modification of Materials
Differentiation
Academic accommodations
Behavioral accommodations
Shared decision making
Incorporation of IEP goals
Discussion of IEP goals
Mathematics standards
Specially designed instruction
APPENDIX E
IRB EXEMPTION DETERMINATION APPROVAL LETTER
EXEMPTION DETERMINATION

November 26, 2019

Dear Ann Hembrook:

On 11/26/2019, the IRB determined the following submission to be human subjects research that is exempt from regulation:

<table>
<thead>
<tr>
<th>Type of Review</th>
<th>Initial Study, Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Shared Responsibility of Effective Co-teachers in Middle School Mathematics Classrooms</td>
</tr>
<tr>
<td>Investigator</td>
<td>Ann Hembrook</td>
</tr>
<tr>
<td>IRB ID</td>
<td>STUDY00001016</td>
</tr>
<tr>
<td>Funding</td>
<td>Name: UCF Research Fdn</td>
</tr>
</tbody>
</table>

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,
Racine Jacques, Ph.D.

Designated Reviewer
APPENDIX F
SCHOOL PRINCIPAL RECRUITMENT EMAIL
Dear Principal,

I hope this email finds you well.

You may know me as a CCSD school associate superintendent for Region 1. I am also pursuing a doctoral degree from the University of Central Florida. I recently was approved to conduct research in CCSD for my dissertation topic and I have attached the approval letter from Dr. Kate Eugenis for your reference. Another step required is to obtain permission from the school principal, such as yourself, prior to conducting any research.

My dissertation topic is entitled ‘Shared Responsibility of Co-teachers in Middle School Mathematics Classrooms’. The participants I am trying to recruit for my study are middle school mathematics teachers and special education teachers who serve in a co-teach capacity for the middle school mathematics classroom. In addition, I am specifically looking at teachers whose scores surpassed the district average for students with disabilities who passed the mathematics state assessment in Spring of 2019. I am happy to say that one of your teachers has surpassed the district average. Congratulations! It is my intent, with your permission, to reach out to this teacher to explain my research study and invite him/her to participate in my research study.

Participation by the teacher is completely voluntary. Participation of the teacher will not be more than a total of 3½ hours of time which includes one face-to-face interview between the teacher and myself and 3 observations of the lesson planning process when the co-teachers, the mathematics teacher and special education teacher, are planning for instruction. No classroom observations are planned and no interaction with students is planned. I only want to observe how the co-teachers plan for instruction for the mathematics classroom.

If you have additional questions about my research or want further clarification, please feel free to reach out to me either through email XXXX or my personal cell phone at 321-XXX-XXXX.

Additionally, please let me know if you grant your permission for me to conduct research with one of your teachers. If permission, is granted a “Letter of Acknowledgement of a Research Project at a CCSD Facility” must be signed by you for the CCSD research department. I will provide this to you upon your approval.

Thank you for your time and consideration. I look forward to hearing from you.
APPENDIX G
FACILITY LETTER OF ACKNOWLEDGEMENT
XXX, PhD
Coordinator III
Research Department
Assessment, Accountability, Research, and School Improvement Division
XXX
XXX XXXX Avenue
XXX, XX XXXXX

Subject: Letter of Acknowledgement of a Research Project at a XXXX Facility

Dear Kate:

This letter will acknowledge that I have reviewed a request by Researcher to conduct a research project entitled, Title of Research at school name for the 2019-2020 school year.

When the research project has received approval from the Institution Name Institutional Review Board and the Department of Research of the XXXX, and upon presentation of the approval letter to me by the approved researcher, as site administrator for school name I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the Department of Research at (XXX) XXX-XXXX Option 4.

Sincerely,

____________________________________  _________________
Signature of Principal or Division/Department Director   Date

Print Name and Title
Congratulations! You have been identified as part of an effective co-teaching team in the middle school mathematics classroom. I am a graduate student at the University of Central Florida and my research study is focused on effective co-teachers. I would like to officially invite you to participate in my research study.

The research study I have planned is called the “Shared Responsibility of Co-teaching in Middle School Mathematics Classrooms”. The intent of this research is to explore how pairs of co-teachers experience the shared responsibility of a co-teach classroom and I am specifically interested in the instructional planning process co-teachers participate in together.

Your participation in this research would add great value to the study because you have been identified as an effective co-teacher based on state assessment data for students with disabilities assigned to your classroom. Participation in this research study would entail about 3 ½ hours of your time. A face-to-face interview will be conducted which would last approximately 30 minutes. Also as a participant, you and your co-teaching partner, if you both elect to participate, will be observed three times. I am interested in observing your instructional planning sessions three times. This means that you and your co-teacher should have dedicated planning time either during the school day or before and after. Information collected from the interview and observation and used by the researcher will not be identifiable in the research report nor will this be shared with anyone.

If you are interested in participating in this research study or want additional information, please contact me either through my personal email XXXX or by phone at 321-XXX-XXXX. I look forward to hearing from you.

Ann Hembrook
APPENDIX I
RECRUITMENT EMAIL MESSAGE #2
Recruitment Email Message #2

Greetings,

Recently you were sent an email inviting you to participate in a research study because you were identified as an effective co-teacher based on state assessment data for students with disabilities assigned to your classroom. I am emailing to follow-up on your interest in becoming a participant of this study.

As a reminder, the research study is called the “Shared Responsibility of Co-teaching in Middle School Mathematics Classrooms”. The intent of this research is to explore how pairs of co-teachers experience the shared responsibility of a co-teach classroom and I am specifically interested in the instructional planning process co-teachers participate in together.

Your participation in this research would add great value to the study because you have been identified as an effective co-teacher. Participation in this research study would entail about 3 ½ hours of your time and include a face-to-face interview and three observations of the instructional planning process between you and your co-teacher. This means that you and your co-teacher should have dedicated planning time either during the school day or before and after. Information collected from the interview and observation and used by the researcher will not be identifiable in the research report nor will this be shared with anyone.

If you are interested in participating in this research study or want additional information, please contact me either through my personal email XXXX or by phone at 321-XXX-XXXX. I look forward to hearing from you.

Ann Hembrook
Greetings,

Recently you were sent an email inviting you to participate in a research study because you were identified as an effective co-teacher. I am emailing to follow-up on your interest in becoming a participant of this study. This will be the final invitation to participate in this research study.

As a reminder, the research study is called the “Shared Responsibility of Co-teaching in Middle School Mathematics Classrooms”. The intent of this research is to explore how pairs of co-teachers experience the shared responsibility of a co-teach classroom and I am specifically interested in the instructional planning process co-teachers participate in together.

Your participation in this research would add great value to the study because you have been identified as an effective co-teacher. Participation in this research study would entail about 3 ½ hours of your time and include a face-to-face interview and three observations of the instructional planning process between you and your co-teacher. This means that you and your co-teacher should have dedicated planning time either during the school day or before and after. Information collected from the interview and observation and used by the researcher will not be identifiable in the research report nor will this be shared with anyone.

If you are interested in participating in this research study or want additional information, please contact me either through my personal email XXXX or by phone at 321-XXX-XXXX. I look forward to hearing from you.

Ann Hembrook
EXPLANATION OF RESEARCH

Title of Project: Shared Responsibility of Co-teaching in Middle School Mathematics Classrooms

Principal Investigator: Ann Hembrook

Other Investigators: None

Faculty Supervisor: Suzanne Martin

You are being invited to take part in a research study. Whether you take part is up to you.

The purpose of this research is to study how co-teachers experience the shared responsibility of a co-taught classroom.

If you decide to participate in this research study, you will be asked to participate in a face-to-face interview with the principal researcher. The interview should take approximately 30 minutes and will be conducted in a location that is convenient and comfortable to you as the participant. In addition to the interview, the researcher will observe a pair of co-teachers during their instructional planning time. The researcher will conduct three separate observations of the instructional planning.

The total expected participation time is about 3 ½ hours which includes 30 minutes for the face-to-face interview and the 3 observations of about 50 minutes each when the pair of co-teachers are planning a lesson.

You will be audio recorded during this study. If you do not want to be recorded, you will not be able to be in the study. Discuss this with the researcher. If you are recorded, the recording will be kept in a locked, safe place on the researcher’s personal computer. The recording will be erased or destroyed five years after the research study.

Only demographic data on each co-teacher will be collected and only the researcher will have access to this information. No identifiable data will be collected or used during this research study. The information collected will be kept in an encrypted file on the researcher’s personal computer and will be deleted after five years.
You must be 18 years of age or older to take part in this research study.

**Study contact for questions about the study or to report a problem:** If you have questions, concerns, or complaints you may contact: Ann Hembrook, Graduate Student, Curriculum and Instruction, College of Community Innovation and Education, (321) XXX-XXXX or Dr. Martin, Faculty Supervisor, Department of Exceptional Student Education at (407) XXX-XXXX or by email at Suzanne.martin@ucf.edu.

IRB contact about your rights in this study or to report a complaint: **If you have questions about your rights as a research participant, or have concerns about the conduct of this study, please contact Institutional Review Board (IRB), University of Central Florida, Office of Research, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901, or email irb@ucf.edu.**

Your signature documents your permission to take part in this research.

<table>
<thead>
<tr>
<th>Signature of subject</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>Printed name of subject</td>
<td></td>
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<tr>
<td>Signature of person obtaining consent</td>
<td>Date</td>
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<tr>
<td>Printed name of person obtaining consent</td>
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APPENDIX L
PEER DEBRIEFER INSTRUCTIONS
Deer Peer-Debriefer,

I greatly appreciate your assistance in helping me with my dissertation.

To ensure validity and reliability of the data, I am using the peer-debrief method. I interviewed a total of 6 participants and observed one lesson planning session. As the peer debriefer, I am asking you to review my coding, categorization, and development of themes. To do this, I have included in this email documents that you might find helpful for this process.

1. I have included one original transcript from one of my interviews.
2. I have included a Microsoft word document with my coding analysis.
   a. The first table in the document has the significant statements I extracted from each interview transcript, the coded meaning I assigned that statement, and the subsequent category I placed that meaning into.
   b. After the first table are three graphics. Each graphic depicts a theme, subtheme, and which categories I used to derive at that theme.
   c. The final table includes the data from the interview questions about whose responsibility it is for certain parts of planning and teaching.
3. Also included in this email is the data analysis process I used from my dissertation.
4. I have also included my interview questions for the individual face-to-face interviews.

Here is a list of the steps I need you to take, please:

1. Read the significant statement (first column) and the code I assigned (second column). In column three, indicate your agreement or provide feedback in the column that says, “Your agreement or feedback”. If you decide to write feedback, please include what you do not agree with and why. Also, include an option for a different coded meaning.
2. Read the coded data (second column) and the category I assigned (fourth column). In the fifth column, indicate your agreement or provide feedback in the column that says, “Your agreement or feedback”. If you decide to write feedback, please include what you do not agree with and why. Also, include an option for a different category.
3. For the three graphics where each depicts a theme, read over the theme, subtheme, and category. Under each graphic is a place for you to write your feedback. It says ‘Peer debriefer feedback”. As in the above, please include why you disagree with a theme or subtheme and what your suggestion would be for a different theme or subtheme.

Again, thank you so much for your assistance. If you have any questions, please let me know.
REFERENCES


Dieker, L.A. (2001). What are the characteristics of effective middle and high school cotaught teams for students with disabilities? *Preventing School Failure, 46*(1), 1-23.


Education for All Handicapped Children Act (EAHCA) P.L. 94-142 (1975).


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