Mathematics and Special Education Co-Teaching in The Middle School: How Teachers Make Sense of Their Partnership

Bethany LaValley

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ABSTRACT

Co-teaching is the practice of general educators and special educators sharing instruction in a general education setting to deliberately meet the needs of students with and without disabilities. Co-teacher research tends to focus on the processes of co-teaching, and little is known about how teachers go about creating a system of interconnected professional expertise that flexibly meets the diverse learning needs of students. This comparative case study examines the interpersonal and professional relationships of two co-teaching teams who were supported by their respective administration, who shared common planning time, co-instructed together in the mathematics classroom, and were engaged in a common professional learning experience. The teams were both young partnerships and were actively engaged in developing collaboration norms and making sense of their partnerships within their respective schools. These teachers reported that their practices were supported by interpersonal relationships founded on honesty, trust, and open communication. The extent to which teachers created a cohesive instructional practice was related to the teachers’ ability to cross boundaries of expertise and engage in critical conversations about best practices for teaching mathematics to students with and without disabilities. Effective co-teaching seeks a balance of professional expertise and personalities, and teachers reported that attributes of their interpersonal relationship and parity in teacher roles were mirrored by the students in the classroom.
DEDICATION

I dedicate this work to my husband, Randall, and our son, Jonah, who are my greatest supporters and biggest fans. Thank you for always believing in me and for giving me the courage to do scary things. And, to my parents, grandparents, and loved ones whose support and prayers have made this journey possible.
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Above all, I thank my God, Jehovah Jireh – the One Who Provides, the God of Restoration and New Beginnings – for all these I have mentioned here, for all I am, all I ever will be, and so much more than I could ever imagine.
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CHAPTER 1

INTRODUCTION

Co-teaching is the common term used to describe the partnering of a general education teacher and a special education teacher or specialist with the goal of "jointly delivering instruction to a diverse group of students, including those with disabilities or other special needs, in a general education setting and in a way that flexibly and deliberately meets their learning needs" (Friend et al., 2010, p. 11). As early as the 1980s, the collaboration between general and special educators for the inclusive instruction of exceptional learners was introduced as a viable alternative to segregated norms.

The No Child Left Behind Act (NCLB) of 2001 intensified interest in inclusion practices, particularly co-teaching, as educators responded to the federal mandate that all students, even those with disabilities, be provided access to the general curriculum, be taught by highly qualified teachers, and be represented in standardized accountability programs. A further push for co-teaching emerged in 2004 when Congress authorized the Individuals with Disabilities Education Act (IDEA) which renewed and reformulated existing protections to guarantee the availability of free appropriate public education to children with disabilities. Specifically, IDEA Section 1412.A.5 established that students with disabilities should be educated with children who are not disabled as often as appropriate and should only be pulled for special classes when the
general classroom setting severely impedes special education services (IDEA, 2004). The response to these guidelines led to a push for co-teaching implementation with little empirical evidence to support its efficacy or establish relevant professional training (Austin, 2001; van Garderen et al., 2012; Richards et al., 2003; Scruggs et al., 2007).

**Statement of the Problem**

Historically, mathematics has received less attention in special education than reading, language, and behavior. In their work with mathematical disabilities, Garnett & Fleischner (1987) argued that among children diagnosed with learning disabilities, deficits in mathematics were just as prevalent as deficits in reading and language. However, the authors noticed that mathematics interventions were less likely to be implemented than reading interventions. Garnett alleged that this disparity could be due to the "general social devaluation of math over reading literacy or the belief that math difficulties affect a more circumscribed arena of life and employment" (p. 159). The idea that math literacy is simply a characteristic of those who are "good at math" and an insignificant forfeiture for those who are "bad at math" remains today. Garrett contends that this is not true – that math difficulties that persist without proper intervention can lead to life-long debilitations for many learners. In truth, we now understand that the brain region responsible for comprehending and producing language is the same area responsible for arithmetic manipulation and calculation (Zull, 2011).

In 1999, Gersten and Chard called mathematics “an afterthought in the learning disabilities field” (p. 25). The authors proposed that number sense is to mathematics difficulties as phonics is to language difficulties and should be considered a foundational intervention alongside language instruction for students with specified learning disabilities (SLD). However,
recommendations like these were typically aimed at special educators practicing in self-contained classrooms.

In 2020, the National Council of Teachers of Mathematics (NCTM) released a series of publications to initiate critical conversations about the mathematics education of all students. The authors call for an immediate and radical dismantling of prevalent structures that impede marginalized students, citing that “the evidence is compelling that students who are identified as Black, Latinx, Indigenous, language learners, poor, with disabilities and other marginalized learners do not have the same access to a high-quality mathematics program as their peers” (NCTM, 2020, p. 1). Federal directives like NCLB and the Individuals with Disabilities Education Act (IDEA, 2004) have specifically targeted structures that segregate students with disabilities. Still, the body of literature related to co-teaching has demonstrated that many schools struggle to integrate special and general education.

Mathematics teaching is especially at risk of segregation because the research-based recommendations for best practices for teaching mathematics and the best practices for teaching students with disabilities can appear disconnected from, and sometimes contradictory to, one another. Early shifts to co-teaching in mathematics led to what researchers deemed “The Math Wars,” a conflict between what seemed to be two competing approaches to teaching: the direct or traditional instruction of special education and the inquiry-based instruction of mathematics education (Cole & Wasburn-Moses, 2010). The struggle to reconcile these differences in the classroom has led, in many cases, to students with learning disabilities being taught using the evidence-based methods of special education in a pull-out setting, and this historical disjunction has set the stage for many classrooms to remain segregated across achievement levels today. "The Math Wars" have long pinned mathematics and special education teaching practices against
one another. However, as Cole and Wasburn-Moses (2010) maintain, more than one set of practices is required to meet the needs of all mathematics learners. All students have the right to both rigorous research-based mathematics instruction and the research-based strong supports promoted in special education.

We may also attribute the setbacks in instructional collaboration between mathematics and special education to a lack of joint professional training and common planning time among teachers (Austin, 2001; Scruggs et al., 2007). Especially in underfunded and understaffed schools, administrators must find creative ways to stretch a handful of special education teachers across multiple grade levels and classrooms. Furthermore, the type of collaboration required to provide equitable instruction to all students is not something that automatically happens when two teachers share the same instructional space (Kloo & Zigmond, 2008; Thousand et al., 2006).

While on fellowship with the Center for Mathematics and Science Education at the University of Mississippi, I co-developed a year-long mathematics content and collaboration-focused mathematics academy for mathematics co-teaching teams. The Mathematics Mentoring Academy for Teachers of Exceptional Students (MathMATES), funded by the NASA/Mississippi Space Grant Consortium, brought mathematics and special education teachers together for a week-long summer institute and two school-year follow-ups. However, in my work with these co-teaching teams, I noticed that having access to the procedural supports recommended in the literature did not guarantee that teachers formed co-teaching partnerships. Likewise, the absence of support did not guarantee that partnerships would fail. (The types of support recommended for co-teaching are shared in detail in the next chapter.)

Hackett and colleagues (2019) argue that the lack of attention given to the humanity of co-teaching teams has created a gap in the research, and I agree. Research tends to emphasize
procedures that promote successful co-teaching practices but often overlook the main components of the co-teaching system, the human actors, and how they make sense of their assignment to collaborate across boundaries of expertise to ensure the equitable instruction of exceptional learners.

Nature and Significance of the Problem

For decades, schools have endeavored to adhere to the regulations set forth by NCLB and subsequent legislations by implementing traditional models for general education and special education co-teaching in the inclusion classroom. Traditional co-teaching models, such as those discussed by Friend et al. (2010), recommend that two teachers come together in one classroom to teach a diverse group of students simultaneously and collaboratively in a way that responds to all students, including those with disabilities. More on the evolution of co-teaching design will be discussed in the next chapter. Still, regardless of changes to style or in-classroom teaching methods, the co-teaching model continues to require the presence of two teachers to share instruction for each learning session. As a result of the often impracticality of this model, researchers have struggled to obtain a clear picture of co-teaching outcomes for students (Friend et al., 2010; Hackett et al., 2021; Murawski & Swanson, 2001; Scruggs et al., 2007; van Garderen et al., 2012).

Multiple logistical roadblocks to traditional co-teaching practice have been highlighted in the research. A few of the widely reported factors that threaten co-teaching fidelity are a lack of administrative support, a lack of common planning time, and unrealistic expectations placed on special education teachers who are often stretched across many grades and classrooms (Austin, 2001; Kohler-Evans, 2006; Murawski & Dieker, 2003). Beyond logistical barriers, researchers also conjecture that known differences across the fields of mathematics education and special
education, including best practices for teaching, content development, pre-service education, and even basic language connotations, can prevent collaboration between co-teachers (Maccini & Gagnon, 2002; Sheppard & Wieman, 2020). Recommendations for reinforcing co-teaching practices include ensuring administrative support for teams, providing regular co-planning time, and engaging co-teachers in collaborative professional learning opportunities (Scruggs et al., 2007; Pancsofar & Petroff, 2016). The MathMATES project was developed in response to these recommendations. The first year of the project supported elementary mathematics co-teaching teams, and the second cohort, the year of this study, supported sixth through eighth-grade mathematics co-teaching teams.

The goal of MathMATES was to support co-teaching practice in Mississippi schools by garnering administrative support for teams, providing teachers with training in consultation practices to better leverage available co-planning time, and fostering the merging of the individual expertise of each teacher to best meet the needs of students with exceptionalities in the mathematics classroom. The primary research focus for the funded project was to investigate the influence of shared professional learning on co-teaching partnerships. As I began analyzing data from the first cohort to answer this question, I noticed that while all participating teams were experiencing some level of growth in their partnerships, some were meshing much better than others. There were teams within this project who were collaborating to incorporate their teaching expertise in remarkable ways, even though they struggled with little to no co-planning time, minimal co-teaching time, and unenthusiastic administrative support. Alternatively, some teams were provided adequate co-planning time, extended co-teaching time, and enthusiastic administrative support, yet their partnership continued to resemble that of two siloed teachers.

Specifically for one of these latter teams, each teacher respected the expertise of the
other, and they regularly sought advice from one another regarding the instruction of their shared students, even though schedule restrictions prevented the team from developing a true co-teaching partnership. The teachers reported that they were working to meet the needs of all students in the classroom and based their beliefs on classroom assessment data and student observations. The special education teacher reported feeling respected as a professional and denied any role that could be confused with a “teacher’s aide” in the classroom, even though their co-teaching followed a One Teach, One Assist co-teaching model (when the special educator was available to assist) supplemented by a self-contained tutorial period for exceptional students. From an outside perspective, however, the team failed to meet the standards for collaborative co-teaching as defined in the research (Gately & Gately, 2001). For the purpose of classification, their partnership could be judged as a team that was not co-teaching at all. This proposed study is designed in response to this anomaly to observe how teachers responsible for the learning of a shared group of students in a classroom define co-teaching for themselves and how they work within their unique contexts to collaboratively meet the needs of all learners in the secondary mathematics classroom.

Collaboration is defined as “to work jointly with others or together, especially in an intellectual endeavor; to cooperate with or willingly assist an enemy of one’s country and especially an occupying force; or, to cooperate with an agency or instrumentality with which one is not immediately connected. (Merriam-Webster, n.d.). Mathematics co-teachers are expected to work together in the intensively intellectual endeavor of educating a wide variety of mathematics learners and cooperate across discipline lines to interweave instructional strategies in creative and novel ways. While we certainly would not consider mathematics and special educators to be enemies, nor would we consider either an occupying force, we often hear, as evidenced in this
study, that co-teaching can sometimes feel like an invasion from or occupation of foreign
territory. Gately and Gately (2001) describe the components of a collaborative co-teaching
partnership as having clear and open communication between teachers who exhibit ease and
comfort in each other's presence. The authors exert that a genuinely collaborative team will teach
together so that an outsider cannot determine the general educator from the special educator.
This style of highly close collaboration, almost as if two teachers are instructing as one, sets
general and special education co-teaching apart from other teacher collaborations, such as cross-
content team teaching, sometimes also referred to as co-teaching.

Co-teaching researchers often compare the general and special education co-teaching
team relationship to that of a marriage between two partners (Kohler-Evans, 2006). The research
is clear that a unified partnership is needed to make co-teaching a successful practice (Scruggs et
al., 2007). However, little is known about how teachers define this relationship for themselves. It
is unclear whether teachers feel that a thriving co-teaching partnership is appropriately likened to
such an intimate pairing as marriage, or perhaps an arranged marriage, or if it would be better
regarded as a complex professional partnership. Research aimed at improving co-teaching tends
to focus on resolving logistical roadblocks, pedagogical content knowledge contradictions, and
other conditions that manifest outside the control of the individual teachers (Friend et al., 2010),
but this study was designed to understand how some co-teachers work together interpersonally to
make sense of their partnership despite these external obstacles.

This qualitative case study employed two theoretical models: Activity Theory (AT) and
Self-Determination Theory (SDT). I also utilized Engeström’s (1987) Human Activity
Framework, which is derived from AT. Data analysis was largely phenomenological as I sought
to understand each teacher's lived experiences within their respective systems and how these
experiences and their beliefs about their roles as co-teachers influence the actions and decisions they make in the classroom.

The research design was a comparative case study within and across two established co-teaching teams who were teaching secondary mathematics in a middle school inclusion classroom setting in two Mississippi schools. A case study method was chosen for this design because the phenomenon to be studied is not easily separated from the immediate context (Yin, 2018). More specifically, co-teaching partnerships are intrinsically entangled with the school context, including contexts such as the culture of the co-teaching practice within the school building, administrative support, co-planning and co-teaching time, teacher caseloads, and other intrinsic and extrinsic staff responsibilities. I aimed to unravel the phenomenon and the context by collecting multiple sources of evidence and comparing the two cases. The deep-dive characteristic of case study research allowed for a richness of data, sources of which originate with the teachers themselves and through my observations of their relationship and classroom teaching over the nine months I spent with both teams. I selected these multiple cases within varied environments to allow the phenomena of study to be highlighted through the emergence of similar patterns across both teams and their respective contexts.

**Purpose of the Study**

This phenomenological comparative case study aimed to understand how mathematics and special education teachers make sense of their co-teaching partnership as they endeavor to provide persistent, collaborative instruction to students with and without specific learning disabilities in the middle school mathematics classroom. At this stage in the research, sense-making will be generally defined as how teachers define their co-teaching relationship with one
another, their beliefs about their individual roles on the team, and their understanding of how they best work together to meet the needs of all students.

**Research Questions**

This study answers the following primary question and sub-questions:

1. How do middle school mathematics teacher and special education teacher teams make sense of their co-teaching partnership?
   a. How do mathematics teachers and special education teachers define co-teaching in the middle school environment?
   b. How are teachers’ beliefs about their roles on a co-teaching team demonstrated in their interactions while co-planning and co-teaching secondary mathematics in the middle school?

**Limitations and Delimitations**

The limitations of this study are those inherent to qualitative analysis and case study. First, the small sample size does not allow for generalization across a large population. Sample selection was based on convenience. Because of their involvement in the parent study, participants could skew outcomes in favor of what they believe the researcher wants to find. Additionally, there is a lack of diversity in the participants. All participants, three females and one male, are racially identified as White or Caucasian.

Field observations and interviews introduce other limitations. The researcher is present in the classroom during observations, and both students and teachers are susceptible to tailoring otherwise natural behaviors to accommodate classroom guests. Multiple observations were planned to mitigate this limitation to the greatest extent possible, but it cannot be removed. Misunderstandings between the interviewer and interviewee can lead to skewed results. It is also
possible that an interviewee could have had a particularly good or bad day when the interview was conducted and may unintentionally misrepresent their general thoughts. Interviews were recorded via audio and video to mitigate misunderstandings. Comparing individual and team interviews, documentation, and observations helped reveal teachers' long-range feelings toward co-teaching. However, like observations, the threat of limitation inherent to interviews cannot be removed.

Each case was delimited to the lived experiences and activities of the two teachers on each of the two selected mathematics co-teaching teams in their shared schools and classrooms during the 2022-2023 school year. This study focused on the internal actors and was bound by their intrapersonal relationship in their immediate context (their respective schools and classrooms). This project did not take logistical concerns such as administrative support into consideration beyond those definitions and experiences that were voluntarily revealed by subjects as related to their own perceptions.

**Definition of Terms**

**General Education**

General education refers to the classroom experiences of neurotypical and developmentally typical students in a K-12 setting. This phrase may also be an adjective to describe teachers, school spaces, or curriculums.

**Special Education**

According to the US Department of Education Office of Special Education and Rehabilitative Services (Assistance to States for the Education of Children with Disabilities [ASECD], 2006):

Special education means specially designed instruction, at no cost to the parents, to meet the unique needs of a child with a disability, including instruction conducted in the
classroom, in the home, in hospitals and institutions, and in other settings; and instruction in physical education.

**Child with a Disability**

According to the US Department of Education (ASECD, 2006):

Child with a disability means a child evaluated in accordance with §§ 300.304 through 300.311 as having an intellectual disability, a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a serious emotional disturbance (referred to in this part as “emotional disturbance”), an orthopedic impairment, autism, traumatic brain injury, an other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities, and who, by reason thereof, needs special education and related services.

**Mathematics Teacher (MT)**

A mathematics teacher is a state-licensed educator with the licensure credentials to teach mathematics courses in K-12 schools who is currently teaching mathematics in the general education setting.

**Special Education Teacher (SET)**

A special education teacher is a state-licensed educator with licensure credentials to teach students with learning, mental, physical, or emotional disabilities in K-12 schools. For this study, the SET is a teacher who does not teach general education classes. Special Education Teachers may also be called the "inclusion teacher" or "inclusive educators."

**Inclusion**

Inclusion is the general term used to describe the collaborative effort between general education and special education services to provide access to high-quality instruction to children of all learning needs, including children with disabilities, in a shared classroom environment under state-appointed curriculum standards. Inclusion teaching assumes co-teaching. However, some inclusion classes may be taught by a single general education teacher, with a special education teacher providing support in other ways.
Content Standards

The content standards, also called the math content standards, are the learning objectives set or adopted by the state government that outline what students should know and be able to do by the end of the respective course. The content standards discussed by the teachers in this study are the Mississippi College and Career Readiness Standards for Mathematics, adopted in 2016.

Individualized Education Program (IEP)

The Council for Exceptional Children (2023) calls IEP “the foundation of special education services.” The IEP is a collaborative legal document between the student, the student’s family, the school, and specialized personnel that ensures the student's right to a Free and Appropriate Public Education (FAPE) as mandated by IDEA (2004). The IEP outlines how education is provided across special education and other services. Special education teachers typically maintain students' IEPs and ensure they are reviewed and updated regularly based on students' needs.

Accommodations

Accommodations are those educational supports provided for students based on their individual learning needs and guaranteed to students by an active IEP. Examples of accommodations a student may receive include extended time to complete tests or assignments, preferred seating in the classroom, small group testing environments, or reading assistance.

Least Restrictive Environment

Least restrictive environment (LRE) is a requirement in the IDEA (2004) that guides how students with disabilities should receive FAPE. Least restrictive environment is not a physical space. Instead, it is an instructional guideline explicitly developed for a student as part of their
IEP that ensures that the student remains in the most educationally rich learning environment possible. Section 1412.a.5 of IDEA states:

To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

**Tutorial/Resource Classroom**

The tutorial or resource classroom is the special education teacher's classroom. It is where students with disabilities will meet in a small group to take tests or receive targeted instruction from the SET. The term "resource" is also used to refer to a separate classroom learning environment where students with disabilities are taught content standards exclusively by a special-education-certified teacher.

**Conclusion**

Co-teaching in the mathematics classroom is critical in addressing major equity concerns in K-12 schools. The Individuals with Disabilities Act (2004) and subsequent legislation have made it unlawful to deny students with disabilities access to high-quality instruction in an enriching environment. However, we will only be able to fully integrate IDEA into our schools once we fully understand how to provide robust, rigorous instruction and the strong inclusive support students need to succeed in the mainstream classroom. One step toward genuinely equitable education for all students is understanding how teachers work together to establish an inclusive learning environment.
CHAPTER 2

LITERATURE REVIEW

The Recent History of Co-Teaching

Legislative Foundations

In 2001, the United States House of Representatives introduced The No Child Left Behind (NCLB) Act, an exhaustive update to the Elementary and Secondary Education Act (1965), which increased federal oversight of state education systems and introduced more rigorous accountability measures for schools. Although the practice of co-teaching had been in development and limited practice for several decades (Friend et al., 2010), students with disabilities were most commonly taught in self-contained classrooms by licensed special educators. When NCLB was signed into law in January of 2002, inclusive teaching practices, specifically co-teaching, grew immensely in popularity as school leaders responded to the federal mandate that all students, including those with disabilities, be provided access to the general curriculum, be taught by highly qualified teachers, and be represented in standardized accountability programs. A further push for co-teaching emerged in 2004 when Congress authorized the Individuals with Disabilities Education Act (IDEA) which renewed and reformulated existing protections to guarantee the availability of Free Appropriate Public Education (FAPE) to children with disabilities. Specifically, IDEA Section 1412.A.5 established that students with disabilities are to be educated with children who are not disabled as often as
appropriate and should only be pulled for special classes when the general classroom setting severely impedes special education services. The nationwide response to these guidelines pushed for co-teaching implementation with little empirical evidence to support its efficacy or to establish relevant professional training (Austin, 2001; Garderen et al., 2012; Richards et al., 2003; Scruggs et al., 2007).

In December 2015, the Every Student Succeeds Act, an amendment to IDEA, was passed to include, “Improving educational results for children with disabilities is an essential element of our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities” (United States Department of Education, 2020). Since 2001, co-teaching research and practice have grown as new models for co-teaching were developed to improve practice in response to the common barriers noted in the literature.

**Traditional Co-Teaching Models**

There are six standard co-teaching methods that make up the traditional co-teaching model in which two teachers are present in the classroom during instruction. These methods are generally known as One Teach, One Observe; Station Teaching; Parallel Teaching; Alternative Teaching; Teaming; and One Teach, One Assist (Friend, 2014; Friend et al., 2010). Teachers should typically use each method to some extent throughout their practice, as each method is beneficial when used appropriately but can be harmful when overutilized or applied inappropriately (Friend, 2014).
In an exploratory study of co-teaching experiences and attitudes, Pancsofar and Petroff (2016) found that those teachers who reported using multiple co-teaching methods in practice were more likely to be teachers who had sustained contact with one another (such as available co-teaching and co-planning time) and were more likely to have fewer simultaneous co-teaching assignments. However, teachers with more co-teaching assignments and less collaboration time were likelier to report primarily using the One Teach, One Assist, or "one primary, one passive" method (p. 1051). The authors also report that negative attitudes toward co-teaching were associated with the frequency at which this latter method was used in their practice.

The six accepted traditional co-teaching methods are described here, with attention given to the benefits and shortcomings associated with each, according to the writings of Friend (2012, 2014).

**One Teach, One Observe**

In this co-teaching method, one teacher is the instruction leader while the second teacher observes the students to gather data concerning student learning, behavior, and needs. This method's primary purpose is to create an opportunity for teachers to collect detailed formative data to guide future instruction. However, this method should be used sparingly as it removes one teacher from student interaction. There is also a risk that the special education teacher is continually assigned as the data collector, while the general education teacher maintains the dominant role of the teacher in the classroom.

**Station Teaching**

In this method, teachers divide the lesson into three parts that can be taught as stations or centers in the classroom. The stations are designed such that two of the stations are led by the teachers, and one is student-led. First, the class is divided into thirds. Then, the students rotate
through the stations receiving instruction from the special educator at one station, the general educator at a second station, and working together as a group, independent of a teacher, at another station. This method allows each co-teacher to have equal instruction time, but creating stations and maintaining an ordered classroom requires careful planning.

**Parallel Teaching**

This method involves two teachers simultaneously delivering instruction to a divided classroom. Typically, a class is split into two purposeful groups, and teachers either teach identical material (to increase participation or create different points of view) or teach differentiated material to meet the needs of each group. This method provides the opportunity for quality differentiated instruction and increased student engagement, but it can be logistically challenging. It also puts students at risk of being continually divided into “high” and “low” groups in the classroom.

**Alternative Teaching**

Teachers may choose this method to remediate small groups away from the larger group. In alternative teaching, one teacher facilitates instruction for the whole group while the other works with a small group pulled aside to a designated area. While this method allows for targeted instruction and differentiation, it can lead to the students with disabilities being segregated to a designated area in the classroom. Also, it is often assumed that the special educator should only be at the small table, although teachers should take turns leading the whole and small groups. This method can be used for entire lessons or parts of lessons.

**Team Teaching**

Team teaching, or teaming, requires that teachers equally share the instruction in the classroom. This involves two teachers fully engaged in teaching the lesson together. Friend
(2014) recommends that this method be used by those teachers who are experienced with co-teaching since it involves a level of collaboration and parity that comes with practice. The benefits of teaming are that teachers represent themselves as equals in the classroom, and it can create a highly engaging classroom. However, this method typically focuses on whole group instruction and carries the risk that instructional time will be lost to talk among the teachers.

One Teach, One Assist

This last method of co-teaching is notoriously the most misused method in the classroom (Friend, 2014; Pancsofar & Petroff, 2016; Scruggs et al., 2007; Solis et al., 2012; Strogilis et al., 2023). The intention for this style is that one teacher leads instruction while the second teacher floats around the room to assist students, answer questions, monitor engagement and behavior, and provide targeted interventions when needed. This method could be beneficial if employed carefully by ensuring that instruction remains student-focused and that both teachers take part in each role equally. It can also be helpful for new co-teachers who are learning each other’s teaching styles (Friend, 2014). However, when this method is used as the primary co-teaching method with the general educator leading instruction while the special educator assists, it creates an inequitable power dynamic in the classroom. As a result, one Teach, One Assist often stations the general educator as the teacher and subjects the special educator to the role of assistant or aide (Austin, 2001; Scruggs et al., 2007).

An Alternative to Traditional Models

Consultation-style co-teaching frameworks allow teachers to engage as professional consultants ensuring that each can contribute their professional expertise to student learning. Consultation can be used as either an alternative or supplement to traditional co-teaching models and has shown promise in alleviating some of the typical burdens of co-teaching practice, like
scheduling conflicts, and may provide some flexibility in co-planning (DeMartino & Specht, 2018; Eisenman et al., 2011).

The Inclusive Consultation Model (ICM) was introduced by DeMartino and Specht (2018) as an alternative to traditional co-teaching models in the secondary classroom. The ICM was built around “specially designed instructional supports” (p. 268) that allow teachers to instruct in their certification areas and maximize their expertise in the co-planning relationship. The consultation-based framework allowed for more flexible co-planning and allowed general educators to maintain rigorous instructional practices while special educators provided targeted instructional supports for students with disabilities. This model also aimed to maximize the expertise of special educators by freeing them from full-time classroom assignments and allowing them time to facilitate the transition of secondary students to college and career readiness. DeMartino and Specht found that the consultation model was a viable alternative to traditional co-teaching models in the secondary classroom. However, they cited a need for more action research in ICMs since the inconclusive research base in co-teaching efficacy has made it difficult to gauge the effectiveness of improvements.

**Research on Co-Teaching**

Research in inclusion and co-teaching has revealed mixed results. An early study by Boudah et al. (1995) observed that special education teachers typically assumed a passive, insubordinate co-teaching role. In response to this finding, the authors introduced the Collaborative Instruction Model (CIM), which established a conceptual framework for the co-taught classroom. While participating teams spent much more time in simultaneous whole-class instruction than baseline models, student outcomes were poor. Students classified as low
achievers improved only slightly, and students with mild disabilities demonstrated no grade improvement or, in some cases, performed worse than their baseline.

Subsequent studies in co-teaching have likewise identified a positive effect on teacher practice in most cases, but measurable gains in student achievement have remained inconclusive (van Garderen et al., 2012; Eisenman et al., 2011; Magiera & Zigmond, 2005; Richards et al., 2003; Scruggs et al., 2007; Solis et al., 2012). In theory, the collaboration between two educators with diverse expertise should have shown positive gains in student learning (van Garderen et al., 2012). However, Magiera and Zigmond (2005) observed that in the inclusive setting, students with disabilities typically did not receive more individualized instruction when two teachers were present instead of one. While observing routine co-teaching practices in the middle school setting, they discovered that although students with disabilities had more opportunities for individualized instruction in the general classroom, students received significantly less interaction from the general educator when the special educator was present. Furthermore, the tendency to rely on special educators to provide instruction to students with disabilities has made it less likely that general educators will provide prescribed services when the special educator is absent (Eisenman et al., 2011). Friend et al. (2010) argued that the misconception that co-teaching, as inclusion, requires a special education teacher to be always present with students with disabilities “leads some general educators to perceive that they should not be expected to work by themselves with students with disabilities” (p. 15). Friend and colleagues assert that these misunderstandings negatively affect collaboration efforts.

Both general and special educators have agreed that the general education co-teacher does most of the active instructional work in inclusive classrooms, but teachers have disagreed on who does the most individual work with students (Austin, 2001; Hang & Rabren, 2009).
Researchers have described the typical co-taught classroom as a teach-and-assist model, with the special educator assuming a subordinate role to the general educator. (Austin, 2001; Solis et al., 2012). Scruggs et al. (2007) reported similar findings and further claimed the predominant co-teaching model had not veered markedly from traditional whole-classroom instructional models. Instead, classrooms promoted as collaborative continued to be lecture-driven, and “special education co-teachers have generally attempted to fit within this model to deliver assistance to students in need” (p. 411). The tilt of the classroom in the direction of the general educator’s rule has led to the tendency for the special educator to fill the role of a classroom assistant. Scruggs and colleagues argued that this model could not be assessed as a true collaboration between teachers. A recent metasynthesis by Strogilis and colleagues (2023) confirmed the 2007 findings. Even though research since 2007 has shown that more methods of co-teaching are being used in the classroom, the One Teach, One Assist method remains to be the most used, and most misused method, in co-teaching.

Despite these findings, attitudes toward co-teaching have been optimistic. Both general and special education teachers, across both volunteer and mandated teams, have reported co-teaching as a positive experience that they believed benefited their practice and their students (Austin, 2001; Hang & Rabren, 2009; Kohler-Evans, 2006). Teachers have reported insufficient co-planning time, a lack of training opportunities, and unsupportive administration as barriers to collaboration (Austin, 2001; Kohler-Evans, 2006). Murawski and Dieker (2004) found that in addition to these barriers, the demand for special educator teachers’ time has hindered the implementation of truly collaborative models, as special educators are usually assigned to more than one general education classroom at the same time. Other challenges arise when the special
educator is responsible for instruction within a self-contained resource classroom in addition to their co-teaching assignments (Sileo & van Garderen, 2010).

Researchers have argued that co-teaching should be a school-wide movement toward more equitable instruction for all students. Studies have shown that proper implementation of the co-teaching model is most successful when school administrators play an active role in establishing school-wide structures. Based on the work of Friend et al. (2010):

Ultimately, co-teaching stands as a metaphor for the profound transition currently occurring in education, that is, the blurring of traditional boundaries that separate students who experience significant difficulty in learning from their peers and the recognition that two systems—general education and special education—may not work in the best interests of maximizing student achievement and other outcomes. (p. 23)

A synthesis of empirical findings conducted by Solis et al. (2012) indicated that co-teaching could be associated with gains when implemented appropriately and that significant instructional changes within the classroom depended greatly on the active involvement and support of school administration. Inclusive schools that provide co-teachers with structures that foster communication, such as common planning, and schools in which administration teams work together to prioritize ongoing professional training and collaboration time have demonstrated higher achievement gains among students with disabilities (Rea et al., 2002). Teachers who are allowed more sustained collaboration time together are also more likely to report implementing the most collaborative forms of co-teaching in their classrooms and report more positive attitudes toward co-teaching (Pancsofar & Petroff, 2016). Dieker and Murawski (2003) recommended that strategic planning by the administration and supports that prepare teachers for co-teaching prior to entering the classroom are key steps in creating a successful collaborative co-teaching model in schools (see also Magiera & Zigmond, 2005; Thousand et al., 2006).
Work with collaborative teams has revealed that effective co-teaching is not something that happens naturally when experts with diverse backgrounds come together in the same classroom (Kloo & Zigmond, 2008; Thousand et al., 2006). Kloo and Zigmond (2008) stressed that effective co-teaching practices must be “dynamic, deliberate, and differentiated” (p. 16). In their proposed model, special educators were charged to step out of the subordinate role of a classroom assistant and step into an active role to teach and support everyone in the classroom, including the general educator. Kloo and Zigmond’s model called for special education teachers to adapt the instructional environment; provide individualized, intensive instruction; study the content; understand the big ideas; plan with the general educator; and teach the co-teacher to respond to students with disabilities; along with other active supports in the classroom.

During observations of middle school co-taught classrooms, Magiera & Zigmond (2005) failed to find any significant benefits to students largely because teachers were insufficiently trained in co-teaching engagement and teachers were not provided access to common planning time. In a similar study, Kohler-Evans (2006) found planning to be such a large component of success that she said, “if the co-teaching team fails to plan together, co-teaching should not be used. Schools should make mutual planning a high priority” (p. 262). Murawski & Dieker (2004) emphasized planning as an integral part of effective teaching (see also Solis et al., 2012), citing that the core of co-teaching is to determine instructional techniques that are most effective in meeting students' needs within the context of the standards. A major benefit of co-teaching has been the merging of two unique expertise, and "these diverse skills are helpful during the planning stage, as both educators can find ways to use their strengths to ensure that the lesson is appropriately differentiated for a heterogeneous class" (Murawski & Dieker, 2004, p. 55). Teachers having the time and the opportunity to get to know one another and to learn how to
engage in collaborative practices like providing constructive feedback to partners, co-planning, and sharing classroom management has been recognized as an essential step in building a successful collaboration team (Austin, 2001; Murawski & Dieker, 2004).

Consultation models have also been shown to have a positive effect on teacher practice. In an international study of consultation practices among pre-service students, Eskelson and van Ingen (2017) found that “engaging in professional development that provides teachers and specialists guidance on how to participate in such consultations as well as the opportunity to do so was beneficial for both the mathematics teachers and special education specialists” (p. 530). General educators reported being more confident in co-planning consultations in that they better understood which questions to ask, had increased awareness of available resources, and gained a deeper understanding of how to respond to student needs. Special educators reported having a greater understanding of the content area and the learning progressions associated with each standard, had more time to think about the specific needs of their students, and had greater opportunities to develop strategic action plans to respond to student needs.

**Co-Teaching in the Mathematics Classroom**

Special Education research in the field of mathematics was not established until the latter part of the twentieth century, long after its reading counterpart (Gersten & Chard, 1999). Research on best practices for teaching math to students with disabilities has remained a relatively novel topic. Still, researchers have agreed that all students must be provided access to conceptually challenging mathematical concepts to become individuals that think mathematically (Maccini & Gagnon, 2002). A report by the National Research Council (NRC, 2001) emphasized, “For people to participate fully in society, they must know basic mathematics.
Citizens who cannot reason mathematically are cut off from whole realms of human endeavor” (p. 1).

In a study of math content knowledge among special educators, Rosas and Campbell (2010) argued that pre-service special education programs may not adequately prepare students for secondary mathematics instruction. Participants reported having limited experience in mathematics, and of those experiences, many were reported as being negative. Other studies have revealed that most special education teachers are unfamiliar with the National Council for Teachers of Mathematics Standards of Mathematical Practice (NCTM; SMP; Maccini & Gagnon, 2002). Furthermore, Special education research in mathematics instruction has uncovered a divide in instructional philosophies between general and special educators (Sheppard & Wieman, 2020; Sileo & van Garderen, 2010).

The Principles and Standards for School Mathematics (NCTM, 2000) defines effective mathematics teaching as "understanding what students know and need to learn and then challenging and supporting them to learn it well" (p. 16). The Process Standards for teaching mathematics, included in the same report, asserts that programs should enable all students to form new knowledge through problem-solving, engage in the fundamental mathematics work of reasoning and proof-making, articulate their own mathematical thinking and analyze the reasoning of others, understand how mathematical ideas build upon each other, be able to apply mathematics to real-world contexts, and effectively use mathematical representations to communicate mathematical ideas. The Council for Exceptional Children's (CEC) Code of Ethics calls for special education teachers to uphold and advance the principle of "maintaining challenging expectations for individuals with exceptionalities to develop the highest possible learning outcomes and quality of life potential in ways that respect their dignity, culture,
language, and background" (CEC, 2015). High expectations for students are standard for both professions. However, Sheppard and Wieman (2020) note that the abundance of *faux amis* (words shared by both fields that have different connotations or meanings) across the fields leads to communication pitfalls and may affect the beliefs teachers have about their roles on a co-teaching team. For example, Sheppard and Wieman discussed multiple meanings of struggle as one area of inconsistency, noting that while mathematics educators view struggle as an important part of doing mathematics, special educators may be more inclined to think of struggle as a barrier to student success and intervene to reduce the cognitive demand of the task.

**Recent Movements in Co-Teaching Research**

**A Need for a Deeper Understanding of Relationships**

Studies on co-teaching effectiveness tend to focus on the contextual concerns of co-teaching (Hackett et al., 2019; Strogilis et al., 2023). Improvement measures seek to encourage administrator support, maximize teacher time, and develop tools and protocols that circumnavigate other logistical barriers. A 2004 study by Keefe and Moore found that co-teacher relationships were the most important influence on high school teachers’ attitudes toward co-teaching, specifically in the areas of professional and personal communication and compatibility. Personality, character compatibility, and team longevity have appeared as themes throughout the literature (Conley & You, 2017; Leatherman, 2009).

Kohler-Evans (2006) surveyed a sample of secondary teachers concerning their attitudes and concerns with co-teaching, subtitling the study, “How to make this marriage work in front of the kids.” Recommendations arising from this study include being comfortable with exchanging honest feedback, placing a high value on the partnership, investing time in the relationship, treating each other as equal partners, having fun, addressing the “small stuff” before it becomes
“big stuff”, communication, and being flexible (pp. 262-263, also see Ploessl et al., 2010). In addition, Trent et al. (2003) stressed that "dynamic and sustained communication on the part of teachers and administrators" is essential to sustaining co-teacher partnerships (p. 217). Yet, research addressing how peer teachers, sometimes strangers, from different fields of education with diverse personal and professional views and beliefs, make sense of these complex partnerships in the classroom is lacking.

**Communities of Practice, Trust, and Psychological Safety**

Researchers have promoted the Community of Practice (CoP) framework to prepare pre-service general and special education teachers for the collaborative instruction of students with learning disabilities in the general education classroom. Mortier (2020) argues that time usually spent educating general education teachers on the many different diagnoses of disability and the multiple educational supports available to students may be better spent focusing on the “three basic elements of communities of practice: joint enterprise, mutual engagement, and a shared repertoire” (p. 336). According to Mortier, students benefit more from teachers learning to collaborate in a CoP with other professionals and advocates (i.e., caregivers, special educators, and medical professionals) who are fluent in the students’ needs than they would benefit from general education teachers learning the classifications and impacts of a multitude of diagnoses.

A mixed-method study by Akinyemi et al. (2020) followed communities of practice from ten high schools in South Africa. The purpose was to study trust and communication as a means of professional development. The researchers found that trust was essential to knowledge sharing and positively impacted professional learning. Most notable for this literature review is the way in which the teachers interacted with one another to foster the development of trust in their relationships. The authors found that teachers formed good relationships by being willing to
assist and support, confiding in, and encouraging one another. However, Akinyemi and colleagues warn that shared interaction alone is insufficient to develop trust. Teachers must engage in deep “collegial dialogue” that is open to sharing “differing opinions, values, and views on teaching” (p. 13).

Trust in professional learning extends to team teaching efforts (traditionally defined as two general educators teaching together). However, Kollick and colleagues (2021) found that teacher collaboration does not necessarily lead to a greater trust relationship among teachers, stating that the “emergence of trust relationships in teacher networks depends on general network characteristics such as reciprocity and transitivity” (p. 102). Teachers who collaborated with others the most were often deemed the most trustworthy in this study.

The inter-professional learning that happens when networks of teachers come together for professional learning is a type of horizontal development. This crossing of expertise is called "boundary crossing" (Martin, 2008, p. 184). Practitioners naturally create boundaries around their professional norms and traditional practices. Working together always entails some level of boundary crossing as practitioners come together to join their professional expertise across lines of practice. Boundary crossing is an action common to business models and characteristic of the theoretical study of activity systems at work. However, a growing body of researchers argues for using activity theory in educational research (Engeström, 2000, 2008; Hackett et al., 2021; Martin, 2008). The activity of teachers and students going to school and employees going to work are alike in that both processes are "an exercise in trying to make sense of what is going on" (Engeström, 2008, p. 86). Hackett and colleagues (2019) argue that the unique sense-making that happens in the boundary-crossing partnership formed by the co-teaching practice obliges researchers to view co-teaching as an activity system.
Activity theory and CoP are similar in that they both contribute to understanding distributed learning among communities of adults (Zondiros, 2008). However, there are fundamental differences between the two theories. First, Lave and Wenger’s (1991) CoP situates learning within a sociocultural perspective in which a learner/newcomer enters a social context or community and grows in knowledge based on that community. Activity theory proceeds from Vygotsky’s Zone of Proximal Development and situates learning within the perspective of knowledge transfer between people that is mediated by each person’s expertise. Like CoP, learning within an activity system is communal and based on socio-cultural contexts. However, AT recognizes that each actor brings unique expertise, which leads to all community members growing in knowledge in a way that transforms the system itself (Engeström, 2001; Zondiras, 2008). Since co-teaching requires that two teachers partner to share their expertise to create something new and different, the practice can be more effectively studied using an activity theory framework (Hackett et al., 2019, 2021).

Knowledge sharing within the activity system of co-teaching requires trust between the teacher, or more broadly, it requires psychological safety among all involved (Hackett et al., 2021). Psychological safety has been shown to predict learning and performance in working teams (Sanner & Bunderson, 2015). It is defined as “a shared belief held by members of the team that the team is safe for interpersonal risk-taking” (Anderson, 1998, as quoted in Sanner & Bunderson, 2015, p. 225). Working closely together as co-teachers creates an inherently risky environment, so a sense of psychological safety is important to illicit conversations that support collaboration.

The current work of Hackett and colleagues (2019, 2021) is to design a framework for co-teaching that supports and examines the sociocultural history of practice and the
psychological safety of teachers engaging in the practice. The unique relationships formed in co-teaching, commonly referred to as professional marriages, lend themselves to being compared to and studied as one may study a romantic relationship (Dettmer et al., 2005; Kohler-Evans, 2006; Murawski & Hughes, 2021). Self-Determination Theory (SDT; Deci & Ryan, 2012) is a foundational psychological theory that has been shown to be an appropriate theoretical framework for studying close relationships between individuals (Knee et al., 2013). SDT is essentially concerned with the extent to which individuals’ personal well-being and motivations to engage with their surroundings are influenced by the supporting or thwarting of three basic psychological needs: autonomy, relatedness, and competency (Deci & Ryan, 2012). No research backing for the use of SDT as a theoretical framework in co-teaching research or research focused on teacher-to-teacher relationships was found for this literature review. However, educational research related to teacher burnout has revealed findings concerning the basic psychological needs of autonomy and relatedness (Boyd et al., 2011; Conley & You, 2016).
CHAPTER 3

METHODOLOGY

Research Questions

This study will address the following primary question and sub-questions:

1. How do middle school mathematics teacher and special education teacher teams make sense of their co-teaching partnership?
   a. How do mathematics teachers and special education teachers define co-teaching in the middle school environment?
   b. How are teachers’ beliefs about their roles on a co-teaching team demonstrated in their interactions while co-planning and co-teaching secondary mathematics in the middle school?

Conceptual and Theoretical Frameworks

The conceptual framework for the proposed study is derived from the current body of literature addressing co-teaching in inclusive classrooms, including the legislative underpinnings which safeguard students’ right to equal educational opportunity. First, this study is situated within the research-supported co-teaching structure in which a general education teacher and a special education teacher work together to ensure that students with specified learning disabilities (SLD) are provided with the same quality of instruction and the same learning opportunities as their non-disabled peers.
Within the team, each educator may abide by professional standards established by the leading researchers in their respective fields. For example, in mathematics, NCTM has established the Principles, Standards, and Process Standards for school mathematics, which guide issues like equity, teaching, assessment, content focus, and the teachers' responsibility in ensuring that all students have access to a high-quality mathematics program. These Principles, Standards, and Processes are detailed in the literature review. Most notable are the guidelines that direct equity, teaching, assessment, content standards, and mathematics teachers' role in ensuring all students have access to high-quality mathematics programs. Likewise, the CEC promotes the Standards for Professional Practice for special education teachers. These standards guide instruction, assessment, and advocacy for students with disabilities. While there is some overlap of professional expectations for these two fields of practice, these similarities may not be explicit to the participants in this study. Therefore, it is crucial that the conceptual foundation of this study incorporates each teacher's obligation to fulfill the roles and responsibilities of his/her/their respective fields.

**Activity Theory**

Activity Theory will be used as a theoretical framework, or as a lens, through which I will view the observed and reported interactions between the mathematics and special education teachers. Activity Theory (AT) is historically a business model (Engeström, 2014; Hackett et al., 2021). Vygotsky initially introduced cultural-historical activity theory with his triangular model, arguing that connections between stimulus and response are "transcended by a complex, mediated act" (Engeström, 2001, p. 134). Vygotsky's model became known as the subject-object-mediating artifact triad. The insertion of cultural mediation into the model gave the foundation for modern culturally responsive studies as it revealed that the individual could not be divorced
from their cultural identity (Engeström, 2001). Later generations of AT were transformed by Leont’ev’s arguments on the difference between individual and collective action. This new generation viewed the subject-object mediated relationship (upper triangle, Figure 1) as rooted in a collective system. Thus, a complex relationship exists between an individual, a subject, and the community or culture in which they live.

**Figure 1. The Human Activity Framework (Engeström, 1987)**

The third, most recent generation of research into AT called for a need to develop tools to understand "dialogue, multiple perspectives, and networks of interacting activity systems" (Engeström, 2001, p. 135). The latest round of research has moved into education circles as researchers explore dialogue and boundary crossing using the AT framework. Gutiérrez and colleagues (1999) build on the foundation of complex collective systems to expose the "third space" in classroom discourse and teacher learning. Gutiérrez et al. defined the third space as a discursive space where complex and conflict-ridden dialogues transform the space into "rich
z zones of collaboration and learning" (pp. 286-287). Hackett and colleagues (2019, 2021) have called for a paradigm shift in how researchers view co-teaching partnerships, citing that research treats co-teaching as a procedural-oriented space when a human-centered orientation is more appropriate. Given that the melding of two expertise is innately wrought with contradiction and the practice is embedded within a human context, “an activity-system approach to co-teaching research is an imperative contribution leading to richer theoretical understandings of this popular, yet historically misrepresented and misunderstood space” (Hackett et al., 2019, p. 15).

Five principles summarize Activity Theory in this third generation of research development. These principles are:

1. “A collective, artifact-mediated and object-oriented activity system, seen in its network relations to other activity systems, is taken as the prime unit of analysis”;
2. The activity system is multi-voiced.
3. Activity systems are formed over long lengths of time. They have histories.
4. Contradictions within the activity system play a central role in growth.
5. “Activity systems move through relatively long cycles of qualitative transformations.”

Engeström’s model of expanded activity, or expanded learning, extended AT to encompass learning as an outcome of the system. Engeström argued that standard learning theories tend to assume that the learning outcome is known. However, the most transformative kinds of learning, like the learning that happens at work (or in practice), happen when a community seeks to resolve a conflict to which a solution is not known. Thus, the entire activity system becomes a learning environment where all learners are engaged. Learning produces new activity patterns,
and these new patterns transform practice. As new conflicts arise, the cycle repeats, and practice continually improves (Engeström, 2014).

The foundations of AT, the third space, and expansive learning fit well with the unique dynamics of co-teaching partnerships. Teachers entering co-teaching relationships exist in their own communal activity systems, which are mediated by their individual expertise and their respective teaching communities. While teachers may teach within the same school, the cultures surrounding general education and special education teachers in that school are often different. This is evident in the way many special education teachers are called out for menial tasks throughout the day, while general education teachers are seen as being too important to pull from the classroom (Dettmer et al., 2005). As I analyzed how teachers made sense of co-teaching, I was mindful that each teacher was embedded in his/her/their own activity system and that co-teaching requires teachers to cross the boundaries of their individual systems. How teachers from different expertise backgrounds (the subject and the mediator, respectively) navigate boundary crossing and the third space is vital to understanding how teachers define co-teaching, what teachers believe their role is on the team, and how their definition and belief is demonstrated in their interactions.

**Self-Determination Theory**

Self-determination Theory (SDT) also served as a theoretical backdrop for this study. It enhanced the interpretation of teachers' definitions of the co-teaching partnership and beliefs about their roles on the team. As noted in the previous chapter, researchers are inclined to use the marriage metaphor to describe co-teaching partnerships. This standing metaphor presented the opportunity to view co-teaching through a theoretical lens appropriate for studying the development, maintenance, and degradation of close personal relationships (Knee et al., 2013).
Self-determination theory (SDT) is a foundational framework in the conception of social and cultural inputs that support healthy psychological and social functioning. As a psychological theory, “SDT is concerned with the nature, structure, and functioning of a person in action, including the person's inherent proactive capacities to selectively engage, interpret, and act on external environments” (Ryan & Deci, 2018, p. 8.) At the heart of self-determination is an awareness of self. SDT focuses on an individual's ability to develop self-awareness and self-reflect, including understanding one's own needs, values, and goals and whether an individual can recognize the difference between autonomous behaviors and controlled behaviors.

Within SDT, needs are defined as "nutrients that are essential for growth, integrity, and well-being" (Ryan & Deci, 2018, p. 10). Like the physical body requires that basic physiological needs be met to maintain health, the self also requires the meeting of basic psychological needs to maintain well-being. These basic psychological needs are competence, relatedness, and autonomy. Competence refers to one's basic need to feel effectance and mastery. Relatedness is the need to feel socially connected and cared for by others, including the sense of belonging and feeling significant among other individuals. Autonomy is the need to self-regulate one's own experiences and actions. Autonomy is one's ability to make choices and act in a way that aligns with one's personal views and beliefs. Contexts that support autonomy, relatedness, and competency support individuals' intrinsic motivation toward commitment, effort, and high performance. Alternatively, contexts that thwart these needs tend to disrupt one's natural motivations toward action and assimilation (Ryan & Deci, 2000). In other words, when people feel supported in their basic psychological needs, they are more likely to do things they are asked to do as if it were their own idea. However, when a person is excessively controlled, provided
with little challenge, and excluded, not only will they feel forced to do what is asked, their innate human drive to assimilate and feel productive will be impeded.

**Research Design**

The research design used in this study was an adaptive design, which is inherent to case study methodology. Data collection and analysis aimed to obtain an in-depth and encompassing interpretation of how two co-teachers from different professional knowledge backgrounds interacted to make sense of co-teaching in the middle school mathematics classroom.

Overall, the research design varied little from the original plan, but there were a few notable adaptations. The original plan called for three classroom observations. However, I gathered a wealth of data from two observations and found that the two sessions were similar enough that no further observation was needed. A third observation was tentatively planned for post-analysis to fill in any missing information or answer questions that arose in final analyses, but this observation was optional. The observation data aligned well with both cases' interview data and documentation. A second adaptation to the design was the coding scheme. The original scheme followed a grounded theory approach, but a more eclectic approach better suited the data. Coding choices are outlined in the data analysis section.

**Methodology**

The research methodology for this study was a multi-case comparative case study. The study is qualitative because the focus of the study is to interpret the phenomenon of teachers' conceptions of mathematics co-teaching within the social context of teachers' lived experiences in the natural world (Marshall et al., 2022). Case study is best defined as twofold, in which the study's scope and features are pertinent to explain the method thoroughly. According to Yin (2018), case study is defined by its scope to be "an empirical method that investigates a
contemporary phenomenon…in depth and within its real-world context, especially when the boundaries between phenomena and context may not be clearly evident” (p. 15). The unique features of case study emerge from the characteristic that phenomenon and context are not easily distinguishable in the real world. For each case to be studied, a multitude of variables exist and result from the objective to isolate the phenomenon from the context as cleanly as possible through the triangulation of multiple data sources. The features which distinguish case study are a deep inquiry into multiple sources of evidence surrounding the case, the study of conditions related to the phenomenon over time, and the inclusion of complex contextual situations. Therefore, case study is defined by its features as a unique, “all in-compassing mode of inquiry, with its own logic of design, data collection techniques, and specific approaches to data analysis” (Yin, 2018, p. 16).

The case study method was best suited for this inquiry based on three conditions of the research design outlined by Yin (2018). First, the study sought to answer research questions of the "how" format. These questions solicit explanations and point to "the tracing of operational questions over time" as opposed to survey designs which most often seek "frequencies or incidence" (p. 10). Second, the context studied did not allow the researcher control over behavioral events, as would be valid for an experimental design. Instead, the multiple variables within the context of this study were wildly outside of the researcher's control. Third, the study depended on interpretations of the phenomena when interactions between subjects occur. I needed to observe the participants interacting in their respective contexts to seek subtleties that may be unnoticed by the participants or deviate from their personal narratives. Thus, historical interviews that outline lived experiences like those gathered in other phenomenological methodologies would have provided a less rich context description.
Comparative Case Study

A comparative case study design, also known as a collective case study or multiple case study (Creswell & Poth, 2018; Yin, 2018), was used to explore the phenomenon of teachers' conception of mathematics co-teaching across similar representative cases that are predicted to generate similar findings, otherwise known as literal replication of cases (Yin, 2018). There were several reasons for the inclusion of multiple cases in this study. First, more than one case (or more than one set of participants) was readily available for the study. Second, the study of two cases helped to alleviate worries that unique contexts or conditions affecting a specific case could interfere with the phenomenon and threaten the reliability of outcomes (Yin, 2018). Third, comparison provided insight into the similarities and differences in how teachers make sense of co-teaching in the mathematics classroom across diverse school settings.

The two cases chosen for this study are represented by the whole team and the schools where the teachers co-teach. Subsequently, four sub-cases emerged - one for each participant - as data collection revealed unique experiences related to each role on the team. The cases were chosen based on the team's availability and willingness to participate in the study and their likelihood to align with the proposed replication. Literal replication was proposed, meaning that the cases were intended to be confirmatory of one another or that they were similar enough that they were expected to generate like outcomes (Yin, 2018). I purposefully selected each case based on the following criteria. First, both teams comprised one special education teacher and one mathematics teacher co-teaching in a middle school mathematics classroom. Both teams were allowed some planning and instructional time together, and all four participants reported
that administrators supported them. Additionally, the administrators had voiced support for co-teaching practices and wished to improve them in their schools. Finally, the special educators on each team were required to collaborate with more than one general educator at the school. There were stark contextual differences between teams, mainly related to the school setting, the school-based culture for co-teaching, and the student population.

**Population and Sample Selection**

Studies focused on how teachers make sense of collaboration with colleagues and provide valuable guidance across the field of education for both teachers and school leaders. Collaboration is essential to all teachers' daily work across all grade levels and disciplines. Educators are encouraged to collaborate horizontally with the teachers of other subject areas within their own grade or grade band and vertically with educators within their own subject area across multiple grade bands. School leaders often organize this collaboration through regularly scheduled school meetings and specifically designed professional learning opportunities. However, collaboration among teachers also happens naturally within daily practice as teachers informally share ideas when they find time for a brief chat or consultation during the busy school day. All teachers collaborate.

Teachers actively practicing co-teaching, a formal model of collaboration among educators, were the focus of this study. Co-teacher teams may vary in form. In addition to designating special and general education partnerships within subject areas, the term "co-teaching" has also been used to define student-teacher and supervising-teacher practicum partnerships, educator and paraprofessional partnerships, and cross-curricular partnerships (e.g., math and science teachers teaming to integrate the instruction of both subjects). While the findings of this study provide some guidance for all co-teaching and educator collaboration
scenarios, this investigation was intended to directly target the population of general and special education teachers partnered to co-teach secondary-level mathematics to students with and without specific learning disabilities in the middle school.

The cases selected for this study were part of a sample of secondary mathematics co-teaching teams participating in the second cohort of a year-long professional learning project offered by a STEM-focused education center at a Mississippi university. The Mathematics Mentoring Academy for Teachers of Exceptional Students (MathMATES), funded by the NASA/Mississippi Space Grant Consortium, was a mathematics content-focused academy designed to strengthen both teachers' pedagogical content knowledge for teaching mathematics and educate teachers in professional consultation practices that enhance co-planning and co-teaching efforts.

Recruitment for MathMATES Cohort 2, the sample of teachers from which participants in this study were chosen, began in March 2022. The center solicited applications from sixth through eighth-grade mathematics co-teaching teams across Mississippi via social media, departmental website postings, and newsletter advertisements; direct mail campaigns; email listserv postings; and through in-person recruitment at teacher conferences and other education-focused events in the state. We defined a qualifying co-teaching team as at least one general education mathematics teacher and at least one special education teacher who support the special education students included in the general educator’s classroom. Each team was allowed up to five members to make allowances for teachers with multiple partnerships, a common practice in rural schools.

The MathMATES application process began when a school administrator or team member submitted an online interest form requesting access to apply to the project. This form
generated an automatic email to all named team members. This email included an invitation to apply to the MathMATES project and linked to the project application. In addition, the team's named administrator received an email request to complete a certification of administrative support for the team to participate in the project. Nine teams, a total of 21 teachers from seven schools across Mississippi, applied to the project. All teams who applied were invited to participate in MathMATES. However, three teams of six teachers from the same school withdrew their applications because the three general education teachers declined the invitation. The remaining six teams, 15 teachers from six schools, registered for the project. Two of these teams, six teachers from two schools, withdrew from the project before the summer institute due to unexpected staffing changes. The second cohort of the MathMATES project began on July 12, 2022, with nine middle school mathematics and special education teachers from four Central and North Mississippi schools. The cohort consisted of one sixth-grade team of two teachers (Team A); one eighth-grade team of two (Team B); a team with a seventh-grade mathematics teacher and a sixth-grade special education teacher (Team C, the special education teacher assignment was changed in August); and one three-teacher team with one mathematics teacher who teaches both seventh and eighth grade, a seventh-grade special education teacher, and an eighth-grade special education teacher (Team D).

Several factors restricted case selection. First, the study was limited to the five teacher pairs (considering the possibility that Team D could be divided into two distinct pairs) participating in the MathMATES project. Team C ceased to be a co-teaching team by the project definition when the administration changed their teacher assignments at the beginning of the school year. This team no longer shared students; the teachers stayed on to obtain the desired content-focused professional development. Team A was an ideal fit for the study. However, the
mathematics teacher on this team was a former colleague and friend, and I was concerned that our relationship would impede my ability to remain objective and critical in analyzing this participant. Therefore, Team A was held from consideration to avoid the complications that come with such a bias. Only three teams remained: Team B, the seventh-grade pair on Team D, and the eighth-grade pair on Team D. I determined that studying a portion of Team D as an individual entity would be possible. The seventh and 8th-grade special education teachers on Team D had little opportunity to collaborate professionally outside the MathMATES project because they co-taught with the mathematics teacher on alternating days. So, I felt confident that excluding the third team member would not affect the remaining pair.

Screening considerations for participant selection included all team members' willingness to participate in an extension to the parent project, how well each team aligned with the research design, and the quality of data that could be gathered from each case (Yin, 2006). Team B and the seventh-grade pair from Team D (from here forward, notated as Team D7) were selected as the best candidates for this study based on MathMATES documentation and my professional interactions with the four teachers. Team B and Team D7 were selected based on several screening considerations. First, both teams fit the predominant definition of co-teaching in the literature and voiced concerns similar to those voiced by teachers in other studies (e.g., a lack of planning time, overwhelmed schedules, etc.). These teams were self-nominated to the parent project, which indicated they wanted to understand mathematics co-teaching better and improve their professional practices. Teams B and D7 also demonstrated an openness to share their thoughts and experiences with co-teaching during the parent project and were punctually responsive to all project components. The goodness of fit of the team dynamics, the possible
availability of rich narratives, and the team members’ eagerness to dig deeper into their own co-teaching practice made Team B and Team D7 ideal candidates for this study.

I first approached each team informally to ask if they would be interested in participating in this additional study. I gave each team member an overview of the study components, the research questions, and the additional time commitments. It was clear that this additional project did not contribute to or hinder their participation in MathMATES and that they would receive no additional monetary compensation for their time. All four teachers were immediately excited by the prospect of additional study and were eager to participate in this study. I followed this informal request with an official email introduction, project information, and participant consent request to the four potential participants and their respective administrators. All four teachers consented to participate, and each team’s administrator offered enthusiastic and open support for their participation.

**Data Collection**

A key strength of case study research is the opportunity to use multiple sources of evidence (Creswell & Poth, 2018; Yin, 2018). This study followed Yin's (2018) recommendations for sources of case study evidence: documents, archival records, open-ended and focus interviews, structured interviews and surveys, and direct and participant observations. Interviews, observations, documentation, and archival records were collected for this study. Data acquisition was bound by the case, the named co-teaching team, and their immediate collaboration environment during the 2022-2023 school year period beginning in July 2022. The types of data collected and the method for collecting data were duplicated for each case to align with the literal replication design. The data gathered from each participant included individual interviews plus MathMATES project participant narratives, observations, and reflections. Data
gathered from each team included in-classroom observations, MathMATES project observations, and a team interview.

*Interviews*

Interviews contribute significantly to case study evidence and are especially helpful in understanding the “hows” and "whys" of "key events, as well as insights reflecting participants' relativist perspectives" (Yin, 2018, p. 118). Interviews were a primary data source for this case study. They included one interview session with each participant (four total interviews) and one paired interview with each team (two interviews). An interview protocol and a formal structure were followed for all interviews, but the sessions were mostly conversational and more fluid than rigid. This practice was intentional, guided by case study recommendations. The conversational style of the interview was also a consequence of the relationship developed between the interviewer and interviewee throughout the study. This style of interviewing, known as in-depth interviewing, challenges the authoritative style of the structured interview lending more attention to the interviewer-interviewee relationship and a mutual sharing of knowledge (Marshall et al., 2022; Yin, 2018).

The interview structure was based on phenomenological interview design, defined by its grounding in the phenomenological philosophy of understanding how we construct our world views based on our understandings of our lived experiences. Phenomenological interviewing intends "to describe the meaning of a concept or phenomenon that several individuals share" (Marshall et al., 2022, p. 167). Seidman (2019) recommends three in-depth interviews to satisfy the phenomenological design: a historical interview focused on the interviewee’s past experiences with the phenomenon, including any related anecdotes or outcomes; a second interview focused on the interviewee’s present experience with the phenomenon; and, a final
interview designed to extract meaning from the reported experiences. Since multiple data sources were available to corroborate participants' historical and contemporary narratives, only one interview per participant using the three phases of phenomenology as a guiding structure was conducted. It may be helpful to note that provisional research plans allowed additional interviews as needed, but no other formal interview sessions were necessary. Instead, brief discussions followed each observation, allowing opportunities to ask questions spurred by interview responses. The teachers also attended a full-day follow-up for the MathMATES project in the spring, and this also allowed for additional conversation.

All interviews except for one individual interview were administered virtually. Interviews were recorded, both audio and video, onto a local private drive using password-protected video conferencing software. Individual interviews occurred approximately one week after the first classroom observations, and team interviews occurred approximately one week after the second classroom observations. I transcribed each interview manually and removed all identifying information. Recordings and transcripts were stored on a highly secure, cloud-based content management platform accessible by only the researcher and advisor named in the study protocol. Individual and team interview guides are included in the appendix.

Observations

Observations and interviews are complementary to one another in case study research. Since case studies are happening in the real world, observations reveal complex social interactions that can be used to enrich and support interview findings (Marshall et al., 2022; Yin, 2018.) Observations can be formal or casual (Yin, 2018), with early observations being more discovery-based and moving toward a more focused observation protocol (Marshall et al., 2022). Two observations occurred in each of the teams' classrooms – one early-study observation and
one mid-study observation. In addition, informal observations were conducted during a full-day professional learning follow-up at our university.

Formal observations occurred in the general education teacher's primary mathematics classroom during a class period when the mathematics teacher and special education teacher co-teach students with and without learning disabilities. During the second observation at Suburban Middle School, I observed the SET teaching in her tutorial classroom for approximately 20 minutes during a flex period. I conducted observations primarily as a nonparticipant observer. I observed from within the classroom but chose a seat at the back of the room in the most inconspicuous, non-invasive area I could find. I worked quietly, and although my presence was evident at the start of class, I quickly faded from the students' attention. There were moments, though few when my observation was as a participant. Once or twice students stepped aside to ask me about myself or my purpose in the classroom. Other times, teachers visited my desk during the class period to deliver class worksheets or explain class procedures or school protocols that would be helpful to my observation. Overall, teacher and student behavior appeared natural and unrehearsed. Following the first observation at both schools, teachers reported that they had not told the students that I was coming or why I was in the classroom. I was not introduced to the class when I entered either school. It is also important to note that both teams reported being surprised by at least one of my observation visits, saying they had forgotten that they scheduled the appointment for that day and had not prepared. Their behaviors on these "surprise visit" days and on the days they prepared for my arrival were non-distinct.

The observation protocols for this study were to be attentive to the individual actions and interactions of the two teachers as they co-teach. I scheduled observations for at least one teaching day that involved new material for students and at least one review day, in which
students reviewed learned material and prepared for assessments. I was particularly interested in verbal and nonverbal communication between teachers, verbal and non-verbal communication from teachers to students, and teachers' individual and team interactions with students. Observations were guided by understanding how teachers' beliefs about co-teaching appear in their instructional interactions. The observation protocol was refined by responses collected during individual and team interviews.

My observational field note structure included recording the layout of the physical classroom space and how the teachers used the space. I created a sketch of the classroom at the start of each session, lettering student tables and numbering student seats for clarity. For the first observation, I divided the classroom into quadrants to organize each teacher's physical proximity and movements in the physical space. I was able to determine the preferred teacher resting places from this observation. I then named and transferred these classroom locations to subsequent sketches. Furniture arrangements remained consistent across observations, but student seat placement varied. I attempted to track student movement but was only partially successful. During the second observation, I attempted to determine which students were receiving special education services based on my observations. At the end of the session, I asked the special educator to mark the students receiving services on my diagram to compare to my presumptions. Observations were followed by a quick debrief. A sample observation protocol is in the appendix.

**Documentation and Archival Records**

Sources of documentation can include personal documents and correspondence, reports of events, administrative documents, evaluations or reports of other studies related to the case in question, and news/media releases. These sources can be either participant-created, such as
journal entries or personal narratives, or historical or archival in origin, such as public-access data sets. They can be beneficial to understand the positionality of the participants within the proposed setting (Marshall et al., 2022). Documentation can also be used in case studies to plan field observations, verify reported details, and corroborate evidence from other data sources (Yin, 2018).

Documentation for both cases was obtained from the MathMATES project records. Data collection for MathMATES was approved by the UM Institutional Review Board Protocol #21X-309. Team application packets were used to build a historical foundation for the cases. Each participant completed an application narrative that provided evidence of the teachers' initial understanding of co-teaching practices and their pre-project interpretations of each teacher's role(s) on the team. Responses to the application also address teachers' perceptions of their administrative support and motivation for joining the project. Administrators answered similar questions on the Verification of Support document submitted with the application packet. These responses provided evidence of the administrator's assessment of the team's strengths and needs at the end of the 2021-2022 school year and a brief history of the team. Daily observational field notes taken during the Summer Institute and the Fall Follow-Up assisted in the thorough development of each case. Participant reflections that were completed during these sessions were also used to plan and corroborate interview and field observation data. Publicly available archival data such as school demographics, performance reports, and teacher qualifications were also accessed for case development.

Trustworthiness

For this case study, I expanded the traditional procedures of validity and reliability to standards associated with what Marshall and colleagues (2022) describe as trustworthiness.
These standards hold the research design to the expectation of credibility, dependability, transparency, and transferability. Trustworthy checks followed the procedural guide adapted by Marshall et al. (2022) which follows.

**Triangulation and Crystallization of the Data**

Triangulation of the data occurs when multiple sources of evidence converge to support the case study's findings. Convergent evidence contributes to the strength of the study's construct validity by assuring that the researcher has sought multiple ways to measure the same phenomenon (Yin, 2018). For example, teachers shared their perceptions and beliefs about co-teaching in an individual interview without their partner, in a team interview with their partner, and through written responses provided to the parent project (the documentation source) before the teachers' involvement in this study. In addition, observations of their behavior and interaction in the classroom and researcher reflective memos were also used to measure the phenomenon. Since this study focused on individuals' perceptions, it was expected that multiple realities would exist among the subjects. However, multiple sources of evidence gathered from each individual helped ensure that all perspectives were represented accurately (Yin, 2018).

Qualitative researchers argue that triangulation does not adequately encompass all the nuances of qualitative research and have developed multiple perspectives on validating qualitative work (Creswell & Poth, 2018). Crystallization is a metaphor that extends the triangle metaphor of triangulation to a multi-faceted prism that offers multiple perspectives from within and without (Marshall et al., 2022). Thus, crystallization does not simply ensure that multiple sources of evidence converge to affirm findings. Marshall and colleagues (2022) illuminate crystallization as a method that incorporates the ontological belief that multiple realities exist among study participants and researchers. Thus, the study design must ensure that all voices are
represented accurately through saturation of the data from within the researcher's perspective and among the perspectives of the research participants. In addition to the multiple sources of evidence collected in this study, reflexive memos, participant collaboration and review, and peer debriefing (as outlined below) were used to develop a multi-faceted perspective of the evidence.

**Searching for Disconfirming Evidence**

It was impossible to determine in the planning stage whether the beliefs and interactions of the participants would follow or diverge from the conceptual and theoretical groundings of this study. Further, since this study sought to understand teachers' own definitions and conceptions of the co-teaching partnership, it was not appropriate to determine which case, if either, was co-teaching the "right way" and which was co-teaching in the "wrong way." As the researcher, I remained open to descriptions that both confirmed and contradicted my assumptions about co-teaching practice in the middle school. I based the analysis solely on the teachers' conceptions of their practice.

The availability of negative cases for comparison was a shortcoming of this study, but empirically determining whether a particular team is or is not effectively co-teaching together is beyond the scope of this study. However, each teacher's prior experiences in co-teaching shared in the individual interview and their perceptions of whether these experiences involved effective or ineffective co-teaching practice did help to provide some comparative evidence. My long-term relationship with the participants through the parent project and my adherence to the conceptual and theoretical framework were also helpful in revealing alternative explanations for the phenomenon where needed.

**Engaging in Relative Reflexivity**
Strict adherence to reflexive memos and researcher reflections recorded post-observation and post-interview provided opportunities for relative reflexivity. My personal positionality related to the phenomenon in this study and my process of bracketing this experience as a researcher is included later in this chapter.

**Collaboration with Participants and Participant Review**

The parent project ensured my collaboration with the participants throughout this study. I met with participating teams five times throughout this study for the larger project, four virtual check-in meetings, and one full-day professional development. I also had access to their reflections on their continual progress during this time. Due to the small sample size and the possibility that those close to the study will be able to differentiate participant identities in the report, participants were allowed to review and approve direct quotes and paraphrases included in the findings.

**Keeping a Transparent Record of Data**

Yin (2018) recommends utilizing a case study database and maintaining a chain of evidence. A reader should be able to trace the findings back through the data to the original research questions. All data were maintained in a highly-secure online information management platform that was assessable only by the researcher and the advisor named in the protocol. The qualitative data analysis software NVivo was purchased to organize and track data, organize codes, and cross-reference data sources.

**Peer Debriefing**

The dissertation committee and investigators involved with the parent project served as “critical friends” to the researcher. The role of critical friends is to discuss the emergent findings
with the researcher and provide critical feedback to help the researcher ensure that the findings are grounded in the data (Marshal et al., 2022).

**Data Analysis**

A high-quality analysis has four main characteristics (Yin, 2018). First, analytic strategies should include strategies that prove the researcher has exhausted all the available evidence to cover the proposed research questions. Second, data analysis should investigate possible rival explanations and interpretations. Third, analysis should give the most attention to the primary research question. Lastly, analysis should demonstrate the researcher's expertise regarding the topic and evidence in question.

The data analysis technique used for this study was a cross-case synthesis. The cross-case synthesis is unique because it is case-based, whereas other synthesizes or meta-analyses tend to be variable-based (Yin, 2018). Following the guidelines for case-based synthesis as described by Yin, the goal of analysis was to maintain the integrity of each case in its entirety and then synthesize within-case patterns across the two cases. Cross-case synthesis relies on argumentative interpretation; therefore, it was important to maintain a habit of upward thinking, focusing on the big picture conceptually while paying less attention to individual variables. Some caveats to cross-case synthesis included discussing "contaminating differences" (p. 198) among different cases. Cases were selected based on their similarities, but significant differences were addressed to ensure that the common findings between the cases were not contaminated. The cross-case synthesis also required the production of "strong, plausible, and fair arguments" (p. 198) backed up by extensive and well-maintained data.

Data collection and analysis co-occurred throughout the study, a common characteristic of case studies (Yin, 2006). Data were uploaded to the data analysis software NVivo, and all
coding and analysis occurred on this platform. Analysis began with the synthesis of data within each case individually. Only researcher memos and reflections addressed cross-case observations in the beginning stages of analysis. Each case was treated as a single study unit. Interviews, observations, case-related memos, and documentation related to the single case were coded, codes were categorized, and themes were recorded. Then, the coding process was repeated with the second case. A hierarchy of codes was created in the software, in which first-round coding was nested in second-round code mapping, and then these codes were nested in the themes that emerged from third-round coding or mapping. Folders were created for Case One Themes and Case Two Themes, and inferences were drawn about each case before cross-case comparisons were made.

Data coding types were based on the format of the research questions. "How" questions have an epistemological base and are best explored using coding methods that reveal epistemologies. Saldana (2021) recommends descriptive, process, initial, versus, and evaluation as methods that best serve "how" questioning. All data were first organized with zero codes, in which the data were coded to align with interview questions and observation protocols. This zero round of coding was not part of theme-building. Instead, it served as an organizational method to make specific topics easier to find when needed and was helpful in the final check that all coded data was categorized correctly.

The open coding method, Eclectic Coding, was used for the first-cycle coding of all data. Eclectic coding is recommended for studies that use multiple data source types and is particularly helpful for researchers new to qualitative analysis. This coding style allowed me to select an appropriate combination of two or more first-round coding methods to get the best picture of data within that first round (Saldana, 2021). The combination of codes used for this study
included In Vivo Codes, Process Codes, Emotion Codes, and Attribute Codes. In Vivo Coding involves coding transcribed data using the participant's own words. Process Coding involves coding that focuses on processes, -ing words like "choosing a partner" or "standing to the side." Emotion Coding labels those emotions named by the participant or inferred by the researcher and Attribute Coding names characteristic or demographic information about the participants.

The second cycle of analysis involved code mapping. The first-round codes were lumped into categories based on their relationship. For example, the first-round codes "forgiving" and "understanding fears" were categorized as "Showing Grace" Code mapping was used for the third cycle to lump categories into main themes with the proposed research questions in mind. Continuing with the previous example, the categories "Showing Grace" and "Communicating" could be combined under the "Understanding the Relationship" theme. A fourth analysis of the proposed themes aligned the themes with the purpose of the study (Saldana, 2021). A final check was conducted on the codes, categories, and themes to ensure that the data were aligned with the proper themes and that no significant data were overlooked. This process was repeated for each case; the codes, categories, and emerging themes were unique to the individual case.

The cross-case synthesis was composed in a comparative structure. Each case was reported, and reports were compared to seek patterns across both models. Provisional Coding (or A Priori Coding) was used to investigate potential patterns, and those patterns that proved consistent across cases were categorized into common themes. Provisional Coding uses a pre-determined set of codes to analyze the data and is appropriate for studies that build on previous research (Saldana, 2021). For this study, the cases are likened to previous research, and the process codes were developed from the categories and themes that emerged in those analyses. Since the study focused on the lived experiences of individual teachers who may have diverse
epistemological views, a relativist outlook was taken in the synthesis. Determining whose outlook was most appropriate for the context was not the purpose of this research. Instead, the goal was to consider all experiences valid as they represented individual interpretations of a common phenomenon. Elements of theory-building also emerged from the cross-case comparison. This structure is typical, as cross-case synthesis has explanatory and grounded theory characteristics (Yin, 2018).

**Researcher Positionality**

I worked as a middle school math teacher in a small rural school with many students receiving special education services or struggling with mathematics. In my years at this school, I worked with special education teachers who were caring and kind and loved the students they worked taught. However, both teachers I worked with, one in seventh and eighth grades and one in fifth and sixth grades, admittedly struggled with mathematics and mathematics teaching. We discussed methods as we could, but they were often pulled from my class for other needs. For example, the special education teachers were often pulled to cover the front office when office staff had to step out, to cover recess and extra-curricular supervision, and to act as primary disciplinarians for students with exceptional behavioral needs.

In my first years of teaching, a special education teacher was available to be in my class for the entire period I had inclusion students. She sat at the back of the room with "her" students, took notes with them, and pulled them to her room for testing. I moved to fifth-grade mathematics in my third year of teaching. The fifth and sixth-grade special education teacher had a caseload of about 25 inclusion students spread across both grades. She had an extremely complicated schedule. She was the sole primary educator for two self-contained students – one with severe behavioral delays and another with severe physical delays. She was scheduled to
teach these students during the morning hours and co-teach with the fifth and sixth-grade English Language Arts (ELA) and math teachers after lunch. She did this by spending one period (about 30 minutes) of each block with each class as often as possible. The students with severe and profound disabilities under her care were watched by a paraprofessional in the afternoons. However, on many days they needed care that the teacher's aide could not physically provide. When the teacher was able to visit my classroom, she would often be called out to return to her primary classroom or for any of the trivial duties mentioned earlier.

I grew accustomed to teaching students with IEPs without "assistance" and learned that students who struggle with memorization and procedure are remarkable problem-solvers. However, we were doing our students a disservice by not forming a teacher partnership that could provide rich tasks tailored to the student's strengths and the impacts of their disabilities. We had the time and space to teach this way, but not the staffing.

My past biases and naïve assumptions are evident in my belief that the purpose of the special educator was to "assist" me in instructing "her" students. As I have grown in my understanding of co-teaching, I realize that, as a teacher, I had misconceptions about the co-teaching partnership. I believed that the special education teacher should be available to assist the students with disabilities in the classroom, while the role of "teacher" was mine alone. Looking back, it is clear that the special education teacher was also unsure of her role in my classroom and may have felt ineffective and underutilized while in my presence. This may have led to her not pushing to remain in the classroom when asked to perform other duties.

As a practitioner, my experiences with the co-teaching structure were disheartening and significant in forming my identity as a teacher educator and researcher. Therefore, I must bracket my own experiences for this study. Creswell and Poth (2018) describe bracketing as the process
of "suspending our understandings in a reflective move that cultivates curiosity" (p. 81). My experience is just one example of co-teaching amidst many unique and equally significant experiences. I must suspend the logistical and administrative frustrations that plagued my own experience and, through careful reflection, be mindful of moments when I am in danger of imposing the contexts of my own experience on others. I must also suspend assumptions and suspicions that remain as residue from my past experiences. For example, some of these assumptions include the belief that administrators do not value a special education teacher’s time, the suspicion that special educators welcome opportunities to avoid co-teaching and co-planning, and the assumption that general educators wish to remain in control of classroom instruction.

I have spent the past three years researching co-teaching and co-teaching methods for mathematics as a Graduate Research Fellow with the University of Mississippi Center for Mathematics and Science Education, and I have knowledge of the instructional practices that researchers recommend for mathematics classrooms. I also advocate for research-based methods in the classroom and the use of high-quality teaching practices in the professional development workshop that I co-develop and facilitate. For this study, I must push my beliefs about teaching methods and choose not to judge the actions of each team as right or wrong. This study is not designed to critique instruction or administrative decisions but to explore teachers' perceptions of their co-teaching experiences.

As a final point of my positionality, my research philosophy is centrally pragmatic. While I may employ phenomenological or heuristic models to gather historical or cultural norms attributed to a phenomenon, my intrinsic motivation for the research is driven by a means to an end. I am interested in the theoretical underpinnings of what is happening, but I ultimately aim to
solve a problem. My goal with this study is to lay a foundation for a solution to a complex problem. I hope that this dissertation can be expanded in future research.

**School Settings**

The schools represented in this study were diverse in regional location, size, and class organization. The schools were located in central and northeastern Mississippi. One school was a large stand-alone, grade six through eight middle school that served a suburban population neighboring a metropolitan city. The other middle school was in a small town and was part of a consolidated K-12 campus, also called an Attendance Center, that served a rural area. These two schools will be referred to by the pseudonyms Suburban Middle School (SMS) and Rural County Middle School (RCMS) for this study. Because it serves a larger population, SMS has nearly double the student enrollment of RCMS, but the enrollment by race/ethnicity is comparable (see Table 1).

**Table 1. School Enrollment Information (2021-2022 School Year)**

<table>
<thead>
<tr>
<th>Enrollment by grade</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>Students per teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suburban Middle</td>
<td>382</td>
<td>409</td>
<td>432</td>
<td>12.2</td>
</tr>
<tr>
<td>Rural Co. Middle</td>
<td>--</td>
<td>172</td>
<td>130</td>
<td>13.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enrollment details (%)</th>
<th>Suburban Middle</th>
<th>Rural Co. Middle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52.1</td>
<td>54.8</td>
</tr>
<tr>
<td>Female</td>
<td>47.9</td>
<td>45.2</td>
</tr>
<tr>
<td>White</td>
<td>60.3</td>
<td>70.5</td>
</tr>
<tr>
<td>Black</td>
<td>34.4</td>
<td>13.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.2</td>
<td>14.1</td>
</tr>
<tr>
<td>American Indian/Native Alaskan</td>
<td>0.1</td>
<td>--</td>
</tr>
<tr>
<td>Asian</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>More than one Race</td>
<td>3.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Note.* Rural County Middle School is seventh and eighth grade only. All information obtained from the National Center for Education Statistics (2023).
Both schools were in high-performing school districts. Each district earned an A rating from Mississippi's accountability program for the 2021-2022 school year. The administrators for both schools submitted written support for teachers' participation in the parent project and, later, submitted written permission for the teachers to participate in this study and for research to be conducted via teacher observations at the school. Within their certifications and permissions, both administrators reported being pleased with how the teachers worked together and their work with students.

Suburban Middle School

Suburban Middle School (SMS) was part of a large city school system in the suburbs of a major metropolitan area. A county school district governed the city school system. Suburban Schools had four campuses: a lower elementary, an upper elementary, the sixth through eighth-grade middle school, which was the setting of this study, and a high school. The middle school was housed in a sizeable multi-building complex near the city center and shared a city block with its feeder elementary campus.

National School Lunch Program (NSLP) data is typically referenced to exhibit the socio-economic status of students attending a school. During the 2021-2022 school year, all students in Mississippi public schools were eligible for free school meals through the Elementary and Secondary Education Emergency Relief Fund, which was in place during the COVID-19 Pandemic. Unfortunately, accurate numbers of students qualifying for the free or reduced lunch program were unavailable. However, the NCES reports that 261 students at SMS (21%) qualified for NSLP through Direct Certification, meaning these students live in households receiving Supplemental Nutrition Assistance or other public assistance.
The Mississippi Statewide Accountability System classifies the performance of schools and districts using an A-F grading system. Grades are populated from student performance points that are earned in applicable areas. These areas are performance and growth on State Assessments, participation in assessments and class attendance, graduation rates, meeting benchmarks on national assessments, accelerated and post-secondary credits/certificates earned by students, and English Language Progress for multilingual learners. Suburban Middle School was assigned an accountability grade of B for the 2021-2022 school year. Additionally, SMS was identified by MDE as an Additional Targeted Support and Improvement (ATSI) school. Schools are identified for Target Support and Improvement (TSI) if State Assessments show consistent underperformance of specific student groups. Schools identified for ATSI are a subgroup of the TSI schools in which the student group of focus is performing at an extreme compared to the other populations in the school. Schools are designated for targeted support annually, and SMS was reidentified for the 2022-2023 school year for the performance of students with disabilities based on the previous year's State Assessment scores (MDE, 2023a).

Suburban Middle School operated on a block bell schedule. Block schedules are designed to increase uninterrupted instructional time in the classroom by spreading the eight-period school day across two days, A-Day and B-Day. This schedule doubles the instructional time for each class meeting, but classes meet only every other school day. Students who receive Special Education services at SMS received accommodations in one of three ways: students were in a co-taught inclusion class, and they attended a separate tutorial class with the SET; students were in a co-taught inclusion classroom but did not attend a separate tutorial with the SET; or, students attended a separate tutorial class with the SET, but they were not in a co-taught
inclusion classroom. This system was in place to ensure that all students were receiving the required learning supports and accommodations in the least restrictive environment.

**Rural County Middle School**

Rural County Middle School (RCMS) was part of an attendance center in a distant-rural town in Mississippi. An attendance center is a single school campus that houses elementary through high school programs. Rural County Attendance Center comprised an elementary school, an upper elementary school, the seventh-eighth grade middle school in this study, and a high school. The attendance center was governed by a rural county school district and serviced a distant rural community. The middle school had its own leadership team, a principal and lead teacher, that worked with the high school leadership. RCMS and the RC Attendance Center were assigned an accountability grade of A by MDE for the 2021-2022 school year.

Rural County Middle School was designated as a school qualified to receive Title I financial assistance, as provided through the Every Student Succeeds Act (2015), based on the high percentage of low-income families served by the schools. Rural County Middle School operates a schoolwide Title I program. According to the Mississippi Department of Education, Mississippi public schools with poverty rates of at least 40 percent are eligible to receive Title I supplemental funding that can be used to upgrade and improve schoolwide educational programs (MDE, 2023b)

The classes at RCMS operated on a traditional eight-period bell schedule. Each period was approximately 50 minutes, and classes met daily. In past years, students with learning disabilities have been taught using a hybrid approach. The students were taught in a general education inclusion classroom for the first semester and in a segregated resource classroom during the second semester. This hybrid schedule was chosen to allow SETs to focus on
foundational skills with students who needed extra support. For the 2022-2023 school year, all eighth-grade math students were taught in a general education inclusion classroom for the entirety of the school year.

**Conclusion**

My goal for analyzing this multi-case study with cross-case comparisons was first to analyze each case individually and then synthesize these analyses to reveal themes that emerge from both contexts. There were two reasons for this style of analysis. First, looking at each team alone allowed me to expose the unique experiences of the teams within their different school environments. In this way, the integrity of each case is preserved so that comparisons across cases focus on the overarching themes instead of the individual variables (Yin, 2018). Second, since I developed a personal relationship with the teachers over the year, I needed to bracket my experiences with each team. Treating the cases as individual studies allowed for the separation needed.
CHAPTER 4

RESULTS

The purpose of this comparative case study was to explore how mathematics and special education teachers make sense of their co-teaching partnership in a middle school classroom. There were two primary foci of the research question. First, I wished to understand how co-teachers defined co-teaching in their specific contexts and whether this definition aligned with those of leading researchers. Second, I wanted to know what the teachers believed their roles were on their respective teams and how their beliefs about these roles were demonstrated in their interactions with their co-teacher.

The following results are the product of analyzing each case individually within their respective contexts and then conducting a case-based cross-case analysis of major themes that emerged from the experiences of each team. An overview of how individual variables compare across cases is presented first, followed by a single-case analysis. Finally, a cross-case comparison, with attention to each whole case, is presented.

The Cases - Two Co-Teaching Teams

Two co-teaching teams participating in a year-long professional development academy for mathematics and special education co-teachers agreed to participate in this study. The teams were given pseudonyms and will be referred to from here forward as Steve and Betsy from Suburban Middle School and Carol and Allie from Rural County Middle School. The teams
resembled each other in a few ways. Both had young partnerships; each was in the second year of co-teaching together. The educator licenses held by the teachers were also similar (Table 2). Both pairs of teachers shared an amicable working relationship during in-person and virtual meetings related to the parent project. Both teams had schedules that allowed them a shared planning period during the school day, and all four teachers had positive perceptions of administrator support in their schools. All teachers also expressed a desire to grow professionally as individual teachers and co-teaching partners.

**Table 2. Participant Educator Qualifications**

<table>
<thead>
<tr>
<th>Participant</th>
<th>License Endorsements</th>
<th>Teaching Assignment</th>
<th>Years of Experience</th>
<th>Education Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suburban Middle School</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steve</td>
<td>Math (7-12)</td>
<td>7th Math, 8th Math</td>
<td>1</td>
<td>A - Bachelor of Education</td>
</tr>
<tr>
<td>Betsy</td>
<td>Mild/Moderate Disabilities (K-12), SPED Fundamental Subject (K-12), Non-Practicing Administrator</td>
<td>7th Math, 7th Science Tutorial</td>
<td>10</td>
<td>AAA - Specialists</td>
</tr>
<tr>
<td>Rural County Middle School</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carla</td>
<td>Mathematics (7-12), Instrumental Music (K-12), General Sciences (7-12), Mild/Moderate Disabilities (K-12)</td>
<td>8th Math, 8th Algebra I</td>
<td>12</td>
<td>AA - Master’s</td>
</tr>
<tr>
<td>Allie</td>
<td>Mild/Moderate Disabilities (K-12)</td>
<td>7th Math &amp; ELA, 8th Math &amp; ELA, Tutorial</td>
<td>10</td>
<td>AA - Master’s</td>
</tr>
</tbody>
</table>

A few significant differences between the teams were evident in the early stages of the study. First, one pair of teachers was socially similar, and the other was not. Carol and Allie were white female mid-career teachers, comparable in age, with similar-aged children living in a small, close-knit community. Steve and Betsy were nearly twenty years apart in age, and the pair lived in different suburban cities of a metropolitan area. Betsy was a mid-career teacher with
middle-school-aged children of her own, and Steve was a recent college graduate who had just completed his first year of teaching. Secondly, the SETs on each team had very different daily schedules. At SMS, Betsy taught only the seventh grade, and her schedule allowed for co-teaching of every class meeting for the entirety of the class period. Allie’s caseload at RCMS included both the seventh and eighth grades, and she often had responsibilities that took her from instructional time. The administration at SMS never pulled Betsy to cover other classes or perform duties outside her role as the 7th grade SET. Allie was regularly removed from her SET assignment to serve as a substitute teacher.

Case I: Steve & Betsy, Suburban Middle School

Mathematics teacher Steve, and Special Education Teacher, Betsy co-taught students in seventh-grade Math at SMS. They shared the instruction of students in two classes, the first two 96-minute blocks of each A-Day, and they shared a planning period immediately following the second class. On Wednesdays, the team split for a 20-minute “Flex Block” between the first and second blocks. During this time, Betsy returned to her classroom to provide assignment assistance to students who received special education services. Steve remained in his classroom to provide similar aid to general education students.

Steve and Betsy reported to the SMS head principal, but assistant administration was departmentalized such that MTs and SETs reported to different department administrators. As such, departmental meetings, especially those dealing with policy and procedures, were rarely shared, and the teachers had few opportunities to talk to administrators together. Steve and Betsy were also evaluated separately, even though a SET, not necessarily Betsy, was usually present in the room when the Mathematics Department administrator evaluated Steve. Betsy was evaluated during a tutorial class in her resource classroom by the Special Education Department
administrator. Classroom space was also departmentalized. Their classrooms were on opposite ends of adjacent buildings, with approximately a five-minute walk from one room to the other.

Steve and Betsy were strangers at the beginning of the 2021-2022 school year. Neither spoke fondly of their first year of collaboration, but they claimed the second year had been a strong year of growth for their team. A few prominent themes emerged in Steve and Betsy’s understanding of their partnership and how they defined co-teaching within their specific school context. These themes were related to how they established their relationship, planned for team success, and developed their understanding of co-teaching. I will first show who Steve and Betsy were as separate teachers within SMS. The influences discussed in the following two subsections include the teachers’ administrator-assigned teaching assignments and work environments, their attitudes toward teaching and students, and their individual histories with co-teaching.

**Steve**

Steve was a white male in his mid-twenties. He graduated from a traditional four-year secondary mathematics education program in the summer of 2021. He joined the faculty at SMS near the end of July 2021, only a week or so before the school year began. Steve had two co-teaching assignments. He taught three seventh-grade and three eighth-grade sections of mathematics. Two sections for each grade were inclusion classes co-taught with either Betsy or the eighth-grade math SET. He worked with the same two SETs during his first and second years at SMS.

Steve’s classroom was small to average-sized with efficiently arranged modular furniture. Triangular single tables were pulled together to create larger tables for groups of three or four students. A large whiteboard covered one wall, and a large television was mounted on another.
Steve displayed weekly schedules and class expectations on the whiteboard and projected his iPad to the tv for instruction. The classroom’s white walls were decorated with anchor charts, vocabulary reminders, and student-created posters.

**Attitude Toward Teaching and Students**

When teachers applied to the parent project, they were asked to separately rate their confidence level with teaching the mathematics content standards and teaching students with disabilities. Steve reported being extremely confident in his knowledge of mathematics and understanding of the mathematics content standards for the grade levels he taught. However, he reported being unsure of his confidence level when teaching students with disabilities. He said about his first year of teaching, “This year, I don't think that I've done a great job teaching exceptional learners.” Like most new teachers, Steve claimed to be less confident in classroom management skills when he entered the classroom.

Steve emphasized the importance of students learning to manage their own behaviors and took his role seriously in helping students grow into independent thinkers and responsible adults. He connected much of his confidence as a teacher to students demonstrating personal responsibility in the classroom. He elaborated,

> I want [them] to learn the math. I *really* do. And I love math - probably more than I should. But, at the end of the day, I also want [them] to learn how to have some strategies that will work in real life as well.

Steve chose a career in education because he loved mathematics and enjoyed working with children and adolescents. He had a background in mentoring young people at camps and other outreach-type activities and found fulfillment in that work.
Co-Teaching Experience Before Current Partnership

Steve did not recall having any instruction in co-teaching during his pre-service educator training. While his student-teacher practicum allowed him to teach in an inclusion classroom, he felt this experience was insufficient to help him understand co-teaching. Moreover, Steve shared that he never experienced co-teaching or inclusion as a K-12 student. He came into the prospect of a co-teaching partnership “open-minded,” and the idea of having a veteran teacher with him in the classroom helped to ease his anxiety about classroom management. He shared, “Especially as a new teacher, I was thinking it was going to be maybe nice at first to have someone with experience to help out with classroom management.” Steve entered his career with no preconceived notions of how co-teaching should look or his role on a co-teaching team.

Betsy

Betsy was a white female in her early 40s who gained licensing through a post-baccalaureate alternative route Master's degree program. Betsy was a department head in the Special Education Department at SMS. She co-taught two seventh-grade Math sections with Steve, one seventh-grade Math section with a different MT, and seventh-grade Science. She also taught a daily tutorial period for all subjects in her classroom. Betsy’s classroom was in a newly-constructed portion of the school and was connected to the adjacent special education classroom by an opaque sliding wall. The adjoining classroom was empty then, but Betsy expressed that she was looking forward to sharing the space with her partner SET in the future. The classroom space had a different vibe than the general education classroom. Warm lighting, cheerful decor, and flexible seating made the room feel inviting and peaceful.
**Attitude Toward Teaching and Students**

Betsy was endorsed in special education fundamental subjects, which means she was highly qualified to teach the core subjects of Math, Science, Social Studies, and English to students with disabilities. Betsy indicated she was confident, but not extremely confident, in her ability to provide for the needs of students with exceptionalities in the math classroom. Betsy explained that she knew she had room for growth because sometimes she struggled “with differentiation and teaching the standards to students that are 4-5 years behind in math.” As for the mathematics content standards, she reported that she was extremely confident in her knowledge of the standards and more confident in mathematics than in any other content area. She credited her 10-year history in mathematics classrooms and her work with general education teachers for her confidence in mathematics, saying these experiences “broadened my scope of understanding the standards.”

**Co-Teaching Experience Before Current Partnership**

Like Steve, Betsy did not recall receiving any instruction on co-teaching during her pre-service training. She completed one year of practicum under an in-service SET but recalled spending most of her practicum experience in the tutorial or resource setting. Betsy’s perception of being in the general education classroom during her pre-service practicum was that “it was kinda like you were in the backseat.” Betsy taught at a different school, not SMS, for the first four years of her career, where she co-taught with English, Reading, and Math teachers in the 7th and 8th grades.

When asked about unpleasant past experiences with co-teaching, Betsy recalled a moment from early in her career that helped her learn the importance of advocating for an active role in the classroom. Betsy explained this as an experience “where I was just basically like an
extra person in the room. I was expected to make sure that [students with IEPs] passed and they
got their accommodations. But, other than that, that was pretty much all I was able to do.” Betsy
explained that the other teacher didn’t specifically communicate these expectations. Instead, it
was the way she felt in the classroom space.

It was just kind of the room feeling. Like, there was never an opportunity for me to step
up, and it wasn't one of the subjects that I'm stronger in. So, I didn't feel as confident,
either. It was in one of my first few years of teaching, so just trying to find that balance of
not feeling like [pause]...Just, they did not understand how to utilize me in the room, and
I didn't understand how to insert myself into that.

Betsy had other, more favorable, partnerships in her early career that also helped to shape her
understanding of co-teaching. For example, she described the benefit of being mentored by
general education teachers who had previously worked with “good inclusion teachers” and could
guide classroom roles and student advocacy. From their mentorship, Betsy was able to “build
[her] own perspective” of co-teaching.

Growing as a SET also meant that Betsy challenged herself to set aside insecurities and
become an advocate for her students. She found ways to “insert herself” into the general
education setting to ensure that students' needs were met. Betsy recalled,

And, so I, at that point, had figured out better communication skills with how to
approach the teacher, the Gen Ed teacher, and kind of have that conversation. And, I
really focus those first few times of having a new teacher, of just really building my
relationship with them, so that they didn't feel like I was coming into their territory and
trying to take over and say, you know, bet the type A person within their territory.

Betsy’s consideration of her partner teachers’ authority and owned space often came up in our
conversations.

Betsy desired to take on an active role in the general education classroom. She described
good co-teaching experiences as “where we think of our kids as ours” and “I’m not just standing
in a back corner watching a lesson…and then I pull my kids to the side.” She enjoyed being
“allowed to teach” and related co-planning to her comfort level in the classroom. Lesson co-planning helped Betsy prepare her students for upcoming units and allowed her to refamiliarize herself with content skills. She shared, “I think a lot of times they [general education teachers] forget that we [SETs] have to know all the subject areas, so sometimes we forget a specific skill.” Before Steve, Betsy had at least one co-teaching partnership that met her needs with this team-like approach.

**The Teacher Relationship**

The team at SMS first met only days before the start of the school year. Steve referred to his hire at SMS as being “last minute” and “really lucky” for someone who had just completed his degree requirements that summer. Steve and Betsy met only once, and briefly, before the school year began.

Betsy: I walked in and was, like, ‘Hey, I'm your inclusion teacher. What do you need me to do?’ And he was so overwhelmed with just trying to get into his classroom that I did not want to even - he was like, ‘I don't even know.’ And I was like, ‘Ok. We'll just figure it out as we go.’ Because, I mean, it was just one more thing on his plate.

Steve: And it was so last minute. I hadn't even walked into my classroom until a week before.

Betsy: Right. So, it was kind of like, do I say let's sit down and plan and overwhelm him? Or, do I say, well, I'll catch up with you the first week of school kind of scenario?

This first-meeting encounter set the rhythm for Steve and Betsy’s first months of collaboration. By their accounts, the year quickly progressed into “survival mode.” Betsy stepped back to allow room for Steve to establish authority in the classroom, and said they never really developed a structure that worked. They struggled with classroom management, and any co-planning focused on getting through the next unit plan.
The team shared mutual respect and understanding for each other. Still, no time was dedicated to intentionally establishing an open and honest line of communication. Steve and Betsy credited their second-year partnership to a willfully formed teacher relationship unique to co-teaching. This relationship grew from open and honest communication, an appreciation of personal differences, and having grace for each other, which included being flexible when circumstances were beyond their control.

**Communicating Openly and Honestly, No Exceptions**

The team at SMS separated their two years of collaboration into the year of surviving and the year of thriving. When asked about the difference between the two years, Steve answered, “A lot of it just boils down to communication, honestly.” Betsy said that the pivotal moment for her was when the team engaged in targeted conversations that facilitated honest communication. She shared,

I think my game changer was actually when we came [to the Summer Institute], and we sat down and talked openly and honestly. And realizing that he saw his struggles and his weaknesses, I saw mine, but neither one of us were communicating those to each other. And, so when we finally put those out on the table, we were able to be more comfortable in saying we've got to have a better plan for next year.

The Summer Institute was the initial meeting of the year-long academy that parented this study. During this week, teachers engaged in guided discussions and personal strengths-finding activities aimed at fostering honest team conversations. Both Steven and Betsy felt that these exercises had a major influence on their second year. During the team interview, Betsy recommended that new teams engage in training that encourages the “facilitation of honest questions where there is an opening up of a relationship” She said, “Honestly, I think the only reason it [our partnership] is successful is because we chose to make our teacher relationship a
priority so we could work together.” Steve and Betsy spoke of communication within their relationship as something they chose, planned, and preserved.

By choosing to make their relationship a priority, Steve and Betsy discovered that the discourse that led to successful co-teaching would not naturally develop just because they shared a classroom. Their early attempts at surface-level communication, in which they focused mainly on upcoming lesson plans, left both parties vulnerable to assumptions and miscommunication. Betsy recalled that both teachers had a high level of frustration that year, and at times she would avoid conversations with Steve because he seemed overwhelmed. Instead, she would “just go find another one of the math teachers and ask them,” because she was worried that her questions would bother or burden Steve. The teachers were tiptoeing around one another, avoiding opportunities to engage critically, which left them feeling disordered. Betsy recalled,

I think there were moments where it was like, ok, we're on the same page, and moments where it was like, I don't even know how we are going to even find the page that we're supposed to be on.

Steve agreed that superficial communication and reluctance to approach each other about concerns significantly contributed to the difficulties they experienced the first year.

**Critical Discourse Leads to Trust and Ease.** At the start of the second year, Steve and Betsy set a non-negotiable team goal to establish a routine of critical discourse, and they worked toward that goal continuously. It was work that left the teachers vulnerable as they needed to share concerns and insecurities, ask for help, and be open to being wrong. They created a safe space that welcomed these conversations by choosing to engage with one another in positive and reassuring ways. The teachers shared a few of the lessons they learned through this process:

Steve: Don't be rigid...Don't make [others] think a certain way. Also, like, be prepared to admit you are wrong.... Be open-minded because you’ve got to, like, it's a team, not a one-way street either way.
Betsy: I just think it's so important to be able to…bounce your ideas, your strengths, and your weaknesses, and be very open…. We've had to really figure out what the other one needs because we're so very different. And that was very hard because you don't want to hurt anybody's feelings, or say the wrong thing, or overstep your boundaries. I think I've had to watch my face, my tone of voice, my approach, in order to help him to be comfortable with [initiating critical conversations].

Trust developed between the teachers because each carefully considered the other’s feelings and learned how their partner inherently gave and received affection (expressed as “love languages” by the teachers).

Betsy and Steve also articulated an expectation of trust by developing a communication plan early in the school year and agreeing to stand by the promises made, no matter what. Betsy said,

Once we developed that plan, really holding each other's feet to the fire, that that wasn't - we weren't gonna undo that, that we were going to stick with something, and if it didn't work, we were going to immediately change it. Fix it. But we needed to do it together.

Togetherness meant that any decisions from the department level on either side were passed through the partner teacher before they entered the classroom. This included lesson plans and student accommodations, and it was non-negotiable. Every decision had to be a team decision. Betsy said,

Anything that I'm going to try, or do, or have ready, I generally will run it by him, even if it's the few minutes before class starts. So that he doesn't feel like I'm coming in and doing something that he's unaware of.

She affirmed that Steve reciprocated the courtesy.

**Discourse Evolves Naturally.** In Steve’s interview, he used adjectives like “natural” and “easy” to describe how he and Betsy communicated and interacted in the classroom. Betsy’s perspective had more focus on the work of developing their relationship, but the work they did to improve communication led to a natural flow of verbal and non-verbal communication within the
team. Non-verbal communication was a critical co-teaching skill both teachers described as an “easy” or “natural” part of co-teaching.

Steve: [We] have, like, this non-verbal communication. Like, we know what we want the other to do. So, say, I'm up there teaching, and a student asks a question that we…like, it's not even close to what we're talking about. We just know right away *points as if to go to that student*. So, it's just part of that non-verbal communication, all the success that we've seen. It's a lot of that.

Betsy: Generally, [in the classroom] we are bouncing back and forth, and usually it's just a cue of an eye or handing the iPad off.

Steve felt that much of the success their students were experiencing was because they liked how he and Betsy taught together in the classroom, which both teachers considered “fluid” and unified because of this “natural” communication.

**Protecting and Maintaining Their Open Line of Communication.** Betsy advised that teachers who want to develop successful collaborations should “deal with conflict,” and “handle whatever disagreements that they have outside of the classroom and wait until their out of the classroom to do it.” Dealing with conflict was how Steve and Betsy maintained open communication. They were comfortable approaching each other with concerns or initiating difficult conversations because they had established an expectation of honesty, and they knew that they both wanted what was best for the students.

While “not holding back” was a characteristic of their communication, they understood that not every conflict needed to be resolved right away. Sometimes, an issue just needed to be recognized, and then other stakeholders needed to be called in for a resolution. Other times, one teacher would simply inform the other of something that was on their mind that they would like to discuss in the future. Being open and honest meant that teachers’ concerns, no matter how small, were never left to grow into bitterness or animosity. The teacher’s concern was the team’s concern.
Personalities played at least a small part in the team’s ability to share with one another so easily. Steve contributed his easiness to a “go with the flow” attitude, saying, “It takes a lot to make me mad.” He observed that Betsy was very knowledgeable and helpful, and she was not easily offended. Betsy called Steve “really receptive” and “never territorial.” Additionally, both teachers had their own personal approach style, from managing body language cues to guiding the conversation with questions instead of demands.

Learning to “Work with Someone Different Than You”

When asked about the biggest threats to co-teaching, Betsy cited a lack of professional learning. She insisted it came down to whether someone had been taught how “to work with somebody that is totally different from you.” Steve said he and Betsy were “different personalities that work together,” but like discourse, this was not a natural consequence of being in the same classroom. They had to get to know one another and learn to work together. Betsy said that “trying to figure out [the other teacher’s] personality, as well as…how you fit within each other’s world at the same time” was one of the hardest parts of a new co-teacher relationship. Steve added that learning to work with someone may mean having to let go of yourself and make it work, “if they're gonna have conflicting personalities, if they're all, like, competing with one another, then that's gonna really not work.”

Learning each other’s personalities and figuring out how to make their personalities click required communication. They needed to understand each other’s personality styles and emotional limits.

Betsy: I’m very - he and I have had this conversation…I’m very type A and he’s not. And, so how much type A do I bring before it overwhelms his type B?”

Steve: My love language is definitely, like, teasing, and a little bit of good-natured fun a little bit - a lot of the time. It’s a big part of my love language. So, she is also - she has some thick skin, so…It works that way.”
It was difficult for Steve and Betsy to find personal commonalities early on because of their age difference. Still, they were able to develop a comfortable working relationship because they sought to understand how their different personality styles could complement each other in the classroom. Toward the end of their second co-teaching year, they began sharing more of their personal lives with each other and were developing their relationship in that way. However, their professional relationship was well-developed and strong even without a close personal connection.

Steve and Betsy’s “opposite personalities” led them to interact with the students in different ways, and their complementary relationship created a classroom culture where differences among students were embraced as community strengths. According to Steve, this was a key team characteristic that set them apart from other teams in the school. He said, “I mean, it's all about personality…We have two different ones that work together. I'd say that's where a lot of the difference comes from.” Steve saw their shared instruction as being “the same teacher, but with different personalities.” Observations supported this claim. The team worked harmoniously as instructors, and Betsy’s propensity to keep the classroom structured and the students on task balanced Steve’s cool playfulness.

**Having Grace in the Hard Times**

At the beginning of their partnership, Betsy empathized with Steve’s first-year teacher struggles and tried to support his professional transition however she could. However, neither teacher truly understood the other’s responsibilities and circumstances until they trusted each other enough to have those conversations. Betsy recalled,

I didn't understand some of the pressures he was under. I didn't know some of the things that were happening, because we just weren't there, relationally. He didn't understand some of the things that were going on on the SpEd side…we just kinda realized that…we
were on two different pages. It was really two different books. I think that was the game changer when we were able to honestly say, ‘These are the issues. We've got to fix them.

Steve and Betsy’s different positions in the school came with different responsibilities. They needed to talk openly about the differences between their two environments and be honest about the stress and pressures that came with their positions. They were able to support one another in this way and work together to bridge any divides between their two departments.

Being supportive of each other’s teaching responsibilities outside the team was essential to developing a teacher relationship void of animosity, especially when a SET’s daily schedule can be unpredictable. For example, as a SET, Betsy’s availability depended on the specific needs of the students on her caseload each year. She recalled years in which she was out of the classroom responding to urgent student needs more than she was in the classroom. She said the current year was good for being in the classroom regularly. Steve agreed and compared their more predictable schedule to his other co-teaching partnership stating it’s “very different, and there's nothing that [the other SET] can do about it.”

Betsy was mindful of how co-teaching can make a general educator uneasy. For example, Steve was in a position where another teacher watched his instruction daily and having that kind of audience in the classroom could make even a veteran teacher nervous. Also, Betsy recognized that certain fears come with teaching inclusion classes, especially in the context of high-stakes testing and teacher accountability. Betsy explained,

Sometimes when you get those inclusion classes, [you’re worried they could affect] your scores. You’re worried about your accountability. They slow down your pace sometimes. But, then you're also worried about behaviors, things that you're not taught in school. What are these odd things that these kids are doing? They're stemming; they’re up and down, they can't sit still. And, so, like, just easing those fears.

She advocated for mentoring among MTs and SETs to help facilitate positive conversations about co-teaching in inclusion classrooms to help alleviate those fears.
As the practice of showing grace often does, it spilled over from Steve and Betsy’s relationship onto the students in the classroom. The teachers designed instruction with flexibility in mind, knowing that success would have different definitions depending on the day. Steve explained, “We don't have a certain strict way we are going to run that classroom that day because that's just not going to work. Middle schoolers are very unpredictable.” They viewed their students from a strengths perspective. They praised students’ success and showed grace for their humanity. Steve said, “They might have a couple of bad days here and there…but, like overall, they're doing fantastic,” and Betsy added, “Even on the bad days, they are just really good kids.” Both teachers focused on praising student work in the classroom and celebrated with students. Instead of scolding students for atypical behavior, they offered classroom breaks and other positive reinforcements to help students self-regulate and get back on track.

**Defining Their Teacher Relationship**

Steve and Betsy described their relationship as “fluid,” “cohesive,” “natural,” and easy. They both agreed that they “get along really well” and that their relationship “just works.” However, they struggled to develop a definition or a metaphor to represent the relationship. Steve likened his relationship with Betsy to a siblingship, but Betsy didn’t immediately see the relationship that way.

Steve: I definitely feel like she's more of a big sister, kinda thing. Like, she's always asking me questions - not just about what's going on in the classroom, but what's going on in my life, too. So, it's not just about what's going on in the classroom that makes us really good partners, but, like…making sure that we know what's going on outside of school, what's going on in our other life…we just get along really well that way.

Betsy: I think, personally, we are still very professional. I don't know how to word it - like there's still a professional sense about it. We have shared more of our personal lives in the last few months…so that has deepened that relationship. But, I think there's still - there's a big age difference, which makes it hard to figure out that connection.
Steve’s explanation of his relationship with Betsy aligned well with how they came to know one another. He was a new teacher, and Betsy was something of a mentor in the classroom. However, since Betsy was so supportive of Steve’s professional self-image, it is understandable that she would not have infantilized him as a little brother to mirror the “big sister” metaphor. Steve even alluded to not wanting to be considered this way, saying, “I hope that she calls me…maybe not little brother…but…I don’t know what.”

At the end of the interview series, I asked the team if they thought the marriage metaphor was appropriate for their co-teaching relationship, Steve replied that he felt it was better to consider their relationship “more of a brother/sister type thing” Betsy admittedly agreed, and ran with the metaphor as if it were the description she had been searching for in her interview. She elaborated,

I think that, you know, it's the give and take of any relationship - you could really put any relationship in there as long as it's one that is very cohesive. So, you know, you can't say always it's a marriage. I think last year we were like Good Cop/Bad Cop. We would use that analogy a lot. But, this year it's been more - I agree with him, it's more of a brother/sister kinda thing. Where we are very honest. We've got each other's backs. We are very consistent. We are very much working together. You can tell that we are related…but we're not identical.

The marriage analogy was problematic for the team. For one, it all depended on the teacher's experience with marriage. Another concern was that teachers also have several different co-teaching partnerships when married individuals typically have only one partner.

Betsy: Yeah, so I think it depends on, like, your dealings with marriage. Like, have you had good experiences or bad experiences?

Steve: Or, never married!

Betsy: I don't want to be in a bad marriage!

…..

Betsy: [My marriage] would be a polygamous one. I’m cheating on you, Steve!
Steve: Oh, no!

Betsy: I go to three other different classrooms, so I have to change my hat on a daily basis of, like…now I'm the lead teacher in my room, and now I'm a co-teacher in this room, and now I'm a lead teacher in this room, and now I've got a co-teacher with a totally different personality, and a different subject, and a different...So, I don't know. Like, my marriages are spread thin!... I think it would work better as siblings on that. Like, I have a sister over here and a sister over there…. Each one of them is so different. Like, each relationship I have with every co-teacher is very different and my role in their classroom doesn't look the same for any of the three.

For Steve and Betsy, siblingship was a more fitting metaphor for how they interacted with each other and with other teachers, but describing their relationship metaphorically was something they had to excavate. Their natural definition of the relationship remained a true partnership founded on honesty, trust, and mutual respect.

**Building the Co-Teacher Team**

Developing a teacher relationship and building an effective teaching team happened nearly simultaneously for Betsy and Steve. The two endeavors shared the same foundation of communication, trust, and respect. However, there were moves the team made that were more specific to the growth of the instructional team. These expanded on their interpersonal relationship to reveal how they made sense of their shared roles and navigated their context to meet the needs of all students in their classrooms. These moves included how they strategically planned for successful teaming, designed team roles, and advocated for students.

**Planning for Team Success**

Steve and Betsy shared that knowing that they both wanted “what was best for the kids” made the hard work of building a team easier. However, they found that a common goal was only beneficial if they had a plan for how to reach that goal together.
Steve: I mean, part of it last year was just, like, we figured out that we wanted what was best for the kids. But we never really planned on how to implement that. And I feel like that's what changed over the summer.

Betsy: Yeah. It was more of a concept, and this year it's actually happening.

Co-planning was a way that the team could make team decisions toward their goal. Both teachers admitted that utilizing their co-planning time to its greatest potential was something they wanted to improve, even though many threats to their time were beyond their control. They believed the time spent planning was paying off in their partnership and in the classroom, so they decided to prioritize planning in whatever ways they could fit it into their week.

Betsy: If it's not in person then it will be through email or text, somehow, at least once a week. We were better at being face-to-face, but even if it's just like ten minutes before I leave to go to my room, or if I stop in while [I'm nearby] … just being able to say, Can I talk to you a few minutes about this situation? We've had a few situations come up that…I don't know how to handle, or he doesn't know how to handle. And, just saying, I don't know how I feel about this. Or…I might even just shoot a text to him and be like…This manipulative is not working…. This year, to be able to do that has come so far…we've just really kind of honored that time - whatever time it looks like - is our planning time to provide each other honest feedback. And that's been a lot easier, I would say, this year.

Steve: Oh yeah. Yeah, we're not just in survival mode.

Co-planning was a characteristic of the year of thriving. Neglecting their planning in that first year left the team feeling like they were “going in circles…just trying to survive until May.”

Planning together supported the professional confidence of each teacher on the team. Betsy said, “I think everybody feels more confident with a plan. Because I think, from a SpEd perspective, if I don't know [what’s going on in the classroom], then I have no power in that classroom.” Steve said that he felt more confident meeting students' social-emotional needs when he and Betsy planned the lessons together, saying,

We also have to plan a lesson that specific students need, and how we can best teach them that next day. What kind of group are going to work best? Are they going to be talkative that day? What's going on at home? Because [Betsy] can get them to open up a
lot more in tutorial than I can in the classroom…. So, it's really good to know about those things - about what’s going on that day - whenever we are planning.

Through co-planning, the teachers were growing more confident and improving how they could meet the individual needs of their students.

During the co-planning time, Steve and Betsy provided feedback to one another about lessons, tools, or instructional strategies. At SMS, the Math Department shared all course planning in a common-planning session. Betsy and the other SETs were invited to attend those meetings, but Betsy’s schedule prevented her attendance. However, she did feel that her thoughts were represented in those meetings through Steve. She explained,

Generally, he and I will sit down and look at the pace of [the plans] and determine if we are going to have to slow down, speed up, skip something and come back to it…usually it's a class-by-class kind of thing with us….We just had a discussion about [a concern]…I just kind of gave some feedback on what might be more beneficial with struggling students. So, they'll usually take that and put it in when [the MTs] meet with just them.

According to Steve, co-planning a lesson focused more on ensuring that both teachers understood the content and agreed on the lesson's goal. He added, “Even though [Betsy has] been doing this longer than I have, she teaches science, too. So, she might not always be, like, kept up on what math we are learning that day.” The teachers did not divide co-planning roles for the lesson. Instead, they created a plan for which instructional moves would be used and prepared for student misconceptions or computational errors. After planning this way, they could pass the instructional lead to one another in the classroom, flowing naturally in response to students’ learning needs.

Steve and Betsy said that if they could change anything about co-teaching, they would want dedicated planning time before the start of the school year like they had during the Summer Institute. They felt that this time together was most beneficial to their collaboration.
Steve: [We are not in survival mode because] we actually had time to prepare and plan beforehand, and realize that our personalities are - we're kinda, like, good partners…. Other than that it's - yeah, it's the time - getting more of a chance to plan and figure out what co-teaching is, all of the above.

Betsy: That one week of no interruptions and then that last day where we could sit and say, this is the first thing we're doing, and this is kind of how we want to approach it - it just kinda set the bar for us that that was how it was going to be at the beginning of each unit, or somewhat what it was going to be like for each unit…I felt more at ease and did not immediately feel like we were surviving.

Unfortunately, Betsy could only see this type of yearly planning “in a perfect world.” She didn’t see a possibility of this level of planning happening during the busy school year, either. She asked, “Once the school year starts…when do you have time to sit down for that extensive amount of time to go over each unit before you start the next unit?” This team's planning needs extended beyond their scheduled common planning period. The previous summer had set them up for a successful year, and they wanted more dedicated, uninterrupted time together at the beginning of the school year to renew their collaboration goals and expectations.

**Defining Team Roles**

The teachers organically navigated toward roles that reflected their individual strengths and titled position on the team. For example, Betsy indicated in interviews that she relied on Steve to be the expert in the math content, and Steve also implied that he relied on Betsy to be the expert in how to teach the content to students with disabilities best. These beliefs were also reflected in the strengths inventories the teachers created for the parent project. For example, Steve saw himself as strong in math content, while Betsy saw herself as strong in breaking the content down into conceptual models to assist students with disabilities.

The teachers encouraged the strengths they saw in one another. Betsy expressed that Steve was “creative” and that he held the line by not “allow[ing] our kids to make excuses.” She felt he contributed to the team by knowing “what the standards are saying and what we should be
focused on,” and “if it’s a super technical skill, he’s generally more of that person.” Steve thought Betsy was “really good at knowing what a student needs…she can really see what they are struggling with.” Betsy’s knowledge of the students’ home lives, “even the GenEd students,” contributed significantly to their team. Steve noted Betsy’s other strengths were knowing how to explain the content to students who struggle, breaking procedures into steps, and putting content into real-life contexts to help students better understand the concepts.

As for each teacher’s job on the team, they claimed that their professional duties only differed in what would be expected of each teacher based on their professional titles. Both teachers delegated content-pacing, standards-based lesson planning, and classroom logistics to the MT and assigned IEP planning, monitoring accommodations, and classroom supports to the SET. Beyond these department-based assignments, Steve did not consider their classroom roles to be different;

I wouldn't say that we really have two different roles, honestly. Because, we kinda do a lot of the same things. We are pretty much the same teacher; we just teach in different ways…. like go with the flow…if Betsy is up there teaching, I know that if I see a student that has a question...I'm going to be right there making sure. And she's going to do the same thing…it just depends on what's going on.

Classroom observations confirmed this. An outsider would have found it challenging to decipher the SET from the MT during most of the instructional block.

On the other hand, Betsy, who was always aware of territory and boundaries, saw classroom roles a little differently. She explained, “As far as teaching, [Steve is] generally the one that does the first introductory, so I can see what his expectations for those lessons are. And then, we'll start bouncing off of teaching from there.” Betsy saw Steve as the instructional lead and herself as instructional support, but this structure seemed more of a way for Betsy to organize their partnership for herself. This hierarchical view did not manifest in their interactions
in the classroom. Betsy held quite an authoritative presence. She took the lead in classroom management. She regularly revoiced Steve’s instruction but interjected in ways that supported their shared space. Betsy said they had “a good balance” in the classroom. They claimed this balance was naturally occurring, but it was facilitated by their underlying beliefs about their roles on the team and how they were to support one another in these roles.

During one observation, Betsy led instruction at the front of the room while Steve observed or assisted students. At some point in the lesson, Betsy made a procedural mistake. A student caught the error, and as Betsy corrected herself, the student teased, “But, Mrs. Betsy! You’re the teacher!” Betsy responded to the student with a good-natured rebuttal about also being human, and after a brief technology complication, instruction continued. During this exchange, Steve never spoke up. He did not engage in mistake-correcting. Instead, he continued to work with students when Betsy moved forward with the lesson.

This exchange demonstrated two characteristics of Steve and Betsy’s co-teaching dynamic. First, the students did not view Betsy as a helper-teacher. They saw her as a math teacher and responded how one would expect a student to respond to a content-focused teacher. Second, Steve trusted Betsy to teach the content. He intentionally gave her the floor during instruction and was careful not to do anything to disrupt her instructional authority. When debriefed about this event, Betsy agreed that the students treated her as if she was a math teacher for all the students, not just the students with IEPs, and she recognized that significance. She replied, “I know! Yes, and that doesn't happen all the time for all of us [SETs].” Steve also confirmed that he was purposefully refraining from interrupting Betsy’s lessons or revoicing her instruction. He wanted her to have authority in the classroom when she was teaching. He also understood the importance of keeping the classroom student-centered.
Both teachers considered their primary role on the team to be a teacher to all the students in the classroom. Steve was adamant that co-teaching, based on the word alone, mandated the presence of “two teachers,” and that having two teachers during instruction was what made their team work so well. Steve used his teaching strength to provide students with a “deep dive” into the conceptual foundations of the content. Betsy’s strength was revoicing his instruction in ways that help some students understand the concept better, “so, it's just a lot of both directions, and that's part of why it works so well.” Knowing how to use their different teaching styles and when to intercede came from having a relationship with their students, understanding each student’s learning needs, and knowing which teacher could best provide for that need.

**Advocating for Instructional Practice**

Steve and Betsy had strong positions on the best instructional practices for their students based on the recommendations from their respective fields. Betsy supported research-based instructional supports in the classroom, and she felt the best way for Steve to see the benefits of these practices was for the team to debrief instructional moves that she used during lessons. The team regularly debriefed student success but often failed to discuss practice. Steve said,

> Because she's been doing this for a lot longer than I have, there's certain things that she teaches better than I do. I haven't exactly asked what's the best way to teach certain things...and how to better teach certain students.... I can be kind of rigid. I like to break everything down. I don't like those shortcuts. But, I have to embrace that, too...even though I don't particularly like them myself.... because there are some students who like to learn that way, and probably need to learn that way.

Betsy felt that debriefing was the best way for Steve to understand the purpose of the supports and become comfortable with providing them to students in her absence.

The team also had to confront their different beliefs about the level of mathematical rigor that should be used when teaching students with disabilities. Steve had high expectations for all the students he taught and believed that if students with disabilities were given access to rigorous
tasks, they could meet these expectations. He said, “I’ve definitely noticed, especially with our 7th graders, that they think they’re low just because they have an IEP, but they’re really not that low; it’s just confidence.” Steve knew that Betsy’s priority was student success. However, he still saw a problem in how they would often reduce rigor, make excuses, or inflate accommodations for their students without realizing the full impact of their incremental modifications. Steve explained,

In the past, we've kinda modified our students without realizing it. So, like we've taken answer choices away on the summative because we really just want them to succeed, like in their grades. But maybe they aren't succeeding in life because they kind of have a crutch. So, I talk to her about that. And, yeah, they still are testing in a separate environment, which is really, really good for them, especially since they need to focus. But we're not modifying them anymore. We're not giving them that crutch. We're not giving them redos after redo…. Because, they need to learn that, if I don't try in the classroom then, you know, I'm not gonna get a redo, and then another one,...and have an answer choice taken away....And, our kids are meeting that expectation right now and it's really good to see. They're succeeding not just in the classroom but like in knowing that they have to study.

He and Betsy decided to increase their instructional rigor while simultaneously supporting students’ confidence in mathematics.

Steve’s critique of their joint practice caused Betsy to confront her instructional biases. She explained,

I think a lot of times in this SpEd world, we get stuck in, well, they can't do it because they have a disability. Or, you know, I think that's all they can do. And, so just him saying, ‘Hey, back up a minute, let's see what they do.’ Or, ‘Let's just give them the formula and see if they can figure this out.’ Or, ‘Let's remind them of this, instead of just reaching in and rescuing them.’ He really kind of pushes us that way.

Betsy said seeing her students succeed in “doing hard things” had made her feel successful and grow as an educator. Working through the conflicts between teaching fields helped teachers step outside their comfort zone, advocate for their students, and grow as teachers.
Defining a Successful Team

When talking about their team and how they work together, Steve and Betsy use the same terms they used to describe their relationship. They felt their team had a very “natural” flow in how they were “just really good at balancing.” Betsy said one of the critical characteristics of their teamwork was the way they were always “bouncing off of each other, like a ping-pong.” This organic exchange in the classroom assured the teachers that their team was working together well.

Betsy’s goal for successful teaming was to be a “cohesive classroom” supported by careful balancing. The balance she and Steve found may have felt natural, but the process to get to that type of fluid co-teaching, which Betsy described as being “ping-pong”-like, was prefaced by “knowing what the other one needs” in the classroom space. It originated with knowing they had a common goal of “wanting what was best for the kids” and evolved from difficult conversations, careful planning, and diligent accountability. Betsy described this as “holding each other’s feet to the fire,” so as not to undo their progress toward a working team. These were the characteristics that defined Betsy and Steve’s partnership.

Perceptions of Co-Teaching

Steve and Betsy said they enjoyed co-teaching and would choose to co-teach even if it was not required. It benefited their students and their professional growth, and they wanted to share what they had learned about teaming and partnership with their school. They believed that their co-teaching methods were “very different” than their colleagues’ methods. Steve said the difference was “definite” based on students’ test performance alone. Betsy said that when she visited other math classrooms, she just experienced a different “feeling” in the room. However, neither teacher could find a way to define that difference in simple terms. Steve claimed that
their personalities were “where a lot of the difference comes from.” Betsy shared that her other experiences in math classes were more in line with what she would consider traditional inclusion, being “inside the tidy box of I’ll teach today, you teach [tomorrow]” and “not so much like an interjection and pass off in the middle of class” that happened in Steve’s classroom.

Steve and Betsy felt that co-teaching mathematics was a unique type of co-teaching. Steve admitted that his understanding of co-teaching in other subjects was limited but felt that mathematics was “on its own because there’s so much more group work, so much more understanding of like, the root of what happens…not just the process.” Steve felt that the attention to conceptual foundations and the process students used to make sense of these understandings set math co-teaching apart from others.

Betsy had experience in other subject areas, but she was not able to say exactly why she felt mathematics was different. She said, “for other subjects, it’s just so different because…[pause] I don’t know how - I know how inclusion looks in an English classroom, but it looks different than a math classroom for various reasons.” The differences she experienced in the other subjects were not just related to the way she and Steve worked together. She felt that mathematics needed a unique style of instruction altogether.

**Understanding How Co-Teaching Works in The Classroom**

Steve and Betsy’s co-teaching most closely followed the Team-Teaching model. Both teachers were actively engaged in instruction, but there were moments where they more closely followed One Teach, One Assist; One Teach, One Observe; and Alternative Teaching. It is important to note that Steve and Betsy were unfamiliar with these models, and these interactions evolved naturally from their beliefs about their roles on the co-teaching team.
When Steve and Betsy presented new material to the class, Steve introduced the lesson and taught the first portion while Betsy observed his instruction from her station behind the students. Once the lesson was established, Betsy fell into the assistant role while Steve taught. She revoiced material as needed and helped by monitoring student engagement and supporting note-taking. If a student appeared to need help with the lesson content, Betsy sat with the student and provided additional instruction while Steve continued the main lesson. This move resembled the Alternative Teaching Model. After the introductory portion of the lesson, the students were allowed to practice as groups for formative assessment. Steve and Betsy engaged equally with the students during this time, strategically placing themselves at different points in the room and responding to students as they observed their needs. Instructional time alternated between lesson presentation and formative practice. Betsy and Steve took turns leading the class and alternated roles. While Betsy taught, Steve observed and assisted students. If a student appeared to need extra help, Steve sat with that student and provided targeted instruction while Betsy continued the main lesson. During review days, the teachers’ methods incorporated Team and Alternative Teaching models. Both teachers were actively engaged with students and provided mini-lessons and independent instruction to groups.

Steve and Betsy used the possessive pronoun “ours” to describe the students in their shared classroom. They designated students as being in general education or having IEPs, or Betsy may have called the student “mine,” only when it was contextually necessary. This understanding of mutual ownership materialized in practice. Steve and Betsy distributed their attention equally among all students. Some students obviously needed more or less assistance than others, but I still found it incredibly difficult to separate the students receiving IEP accommodations from those who did not. Betsy shared this information with me at a follow-up
observation, and I observed that several students who would traditionally be considered “Betsy’s students” seemed to prefer assistance from Steve. Alternatively, several of the “general education students” seemed to prefer assistance from Betsy. The teachers responded wherever needed, whenever possible. There was never an indication that students should request assistance from a specific teacher or that one teacher should respond to requests over the other.

Togetherness was a big part of Steve and Betsy’s co-teaching plan, and they demonstrated this togetherness through shared decision-making in the classroom. The teachers spoke to one another very little during classroom instruction, but they communicated nonverbally and through very quick exchanges in passing as real-time instructional decisions were made. For example, when calling students to the board to share work, the teachers engaged in brief consultations. One such exchange was as follows:

Betsy (quietly to Steve): Who’s going to the board?

Steve: John? Or did he go the other day?

Betsy: He did. I think this will be a good one for Jane. She knows it.

This was a quick agreeable exchange to the side, but the teachers ensured they agreed on which student’s work was displayed. They were concerned with including all students and carefully took advantage of opportunities to showcase student strengths and boost student confidence. The teachers made joint, on-the-fly, instructional decisions in this same way. For example, following a formative assessment within the lesson, Steve asked Betsy how the students she visited were doing. She replied, “They’re all making the same mistake; they’re doing what we talked about.” The teachers agreed that they needed to revisit that skill before moving on.

Betsy said she and Steve tried to keep their instructional time “super streamlined and focused.” This included student activities, interactions, and conversations with each other. The
quick-check type of teacher meetings was the extent of their conversations about instruction in front of students. Steve said that this was intentional, because “the whole goal is to have a conversation with the students,” and if teachers are talking to each other, then “[we’re] having a conversation with [each other], and not the students…that’s not gonna work.” However, the teachers enjoyed a friendly banter from time to time to interject humor into the classroom. In one observation, a friendly debate about the proper pronunciation of “kilometers” broke out among the teachers and students. The debate continued for only a minute or so before Betsy pulled the class back to order.

Steve and Betsy also acted individually in the classroom when appropriate, with each assuming the authoritative decision-making role of a lead teacher. Mostly, this involved moving students from one group to another or student behavior management. Betsy was most active in the behavior management role. She was the teacher who stopped at student desks and had private conversations about behavior expectations, pulled students into the hall for one-on-one consultations, and provided classroom breaks for overstimulated students. She assumed this role with all students in the classroom. These moves were not discussed with Steve beforehand but were sometimes communicated with him as “I [did this]” to make him aware of the situation or to request that he make a note of what happened so that she could ask his opinion later. During one observation, Betsy allowed a student who usually worked alone as a behavioral support (related to their IEP) to work in a group with another student. She informed Steve that she had put the students together and had asked them to stay on task. She told Steve, “Let’s see how it works.” At the end of class, the students asked if they could work together again, and Betsy replied that she and “Mr. [Steve] would talk about it.” The team debriefed the move after class and planned how this student could engage more in group work in the future.
Being “on the same page” was a goal for Steve and Betsy, and the goal was evident in the way they ran their classroom. They were determined to be consistent as a team, had high expectations for all students, and presented a united front in instruction. Betsy shared,

I hate to give this analogy because I think it's like an overused one, but I think of it like a parent relationship with the kids. We're consistent together and we...hold their feet to the fire together, so they know they can't pull one over on either one of us. So, they can say...whatever their excuse is that day…and they can say it to Steve and come right back and say it to me, and they're going to get the same response. You know, like they can say, ‘I don't know where to start,’ and they can say it to either one of us, and we are going to have the same prompting questions. We're not just gonna…take the pencil like, ‘Ok, let me show you. First you're going to do this, and then....’ We don't do that. So, I think our consistency has definitely made them more consistent with their math.

Steve agreed that the consistency they modeled by holding themselves accountable to the students had helped the students to be consistent in their thinking. Indeed, much of Steve and Betsy’s perception of co-teaching was interwoven with how they felt their partnership contributed to their student’s learning outcomes.

Understanding How Co-Teaching Influences Students

When Steve and Betsy explained how they felt about co-teaching, both teachers supported co-teaching in student-centered ways.

Steve: We've seen so much success with our inclusion...I love seeing students, like, achieve a lot. It's probably my favorite thing about teaching, just in general, because I really do it for the kids. And, whenever I see that, it's just like 'this works. This is awesome. This is why I'm a teacher in the first place!' And, that's just a big part of [why I enjoy co-teaching.]

Betsy: When we go in and see how well we can work together and the benefits it has for ALL the kids in that classroom, not just the kids with IEPs, and how, you know, we think so differently, and the kids think so differently. It allows us time to shift perspectives to help every single child.

They saw tremendous growth in their students over their second year of co-teaching, and they related their students’ success to their own development as a co-teaching team.
Steve and Betsy claimed that, on the rudimentary level, the presence of two teachers in the inclusion classroom is a benefit of co-teaching. Steve shared,

For inclusion classrooms, it is very, very, very beneficial. Like, ten times out of 10…They need someone up there teaching and helping out while teaching…answering all of their questions that they are probably going to be too embarrassed to ask in front of everybody.

From his experience, Steve noticed that many of their students struggled in class because they lacked confidence in their performance. When a teacher was available to answer private questions, the learning environment was safe and gave the students more confidence to engage. He also felt that two teachers provided a double confidence boost for students, “especially middle schoolers, they want that confidence builder, that booster…having two teachers tell you, ‘Yeah, that’s right.’”

Two teachers in the classroom allowed for richer instruction. Betsy felt that having the extra support, especially in larger classes, allowed teachers the flexibility to try more student-centered instructional methods. She said,

[Co-teaching] also gives us a little more opportunity to do some outside-the-box things because we can better manage the classroom with two adults in the room as opposed to just one. So, we are able to pull out the manipulatives and we're able to do more project-based things…We’re a large school. With 25-26 kids, [that’s] a little more difficult.

Betsy trusted Steve to make appropriate accommodations for students in her absence. However, she made being in the classroom a priority in her day because she felt strongly about the benefits of shared instruction to both their partnership and their students. The students expected her presence. She said, “They’re used having both of us. So, if one of us is not in the room, it’s difficult on them as well. Not just the IEP kids, but your gen ed kids, [too].” She said that when she did have to miss a class for some extenuating circumstance, the “gen ed” students would search her out to ask where she was and let her know that they had needed help on something
during class. She joked, “And, I’m like, was Mr. Steve not in the room?” Joking aside, Betsy wanted to be in the classroom because the students wanted her in the classroom. Betsy recalled times when persistent urgent matters trumped co-teaching and said of her classroom absences, “It’s just not fair. It’s not fair to any of the kids.”

The benefits of having two engaged teachers in the classroom were evident in observations. On one occasion, a student near the back of the classroom beckoned Betsy to her desk while Steve was teaching. She asked Betsy if an answer was correct, and once Betsy reassured her, the student raised her hand and engaged in the class discussion. Another time, a technology malfunction threatened to stall instruction while Betsy was teaching. Steve jumped in to fix the problem, while Betsy kept the class on task and moved the lesson forward. This teamwork ensured that class time was neither lost to remedying the situation nor re-engaging the students once the problem was fixed.

Another notable moment occurred during whole-class instruction when Steve was teaching. A student attempted to answer a question but stopped mid-explanation, saying she “lost” what she was going to say. As the lesson continued, Betsy watched the student from the opposite side of the room. After a minute or so, Betsy responded to some non-verbal cue the student made and got Steve’s attention, “Mr. Steve, I think [student] remembers what she was going to say.” The student was then able to share her thinking with the class. Betsy later shared that the team works together to ensure that all students have an opportunity to speak, so while one of them was teaching, the other would support student voice in whole class instruction.

While one major appeal of co-teaching, at least initially, for the teachers was having another teacher in the room to share the workload, they discovered that a true partnership fixated on students’ success was more than just putting two teachers together in a room. Steve said that
when he first learned of his co-teaching assignment, he was excited to have a veteran teacher to help him with behavior management. This may have been a catalyst for their “Good Cop, Bad Cop” relationship that first year. However, Steve followed up with, “But then, it turned into a lot more than that because we turned into actual co-teaching partners.” Likewise, Betsy shared, “I tell people all the time, wouldn’t you prefer to have two adults in the classroom?” Then she added, “But it takes a lot of humility, I mean, you gotta be ready. You’ve got to be ready for it, for sure.”

Steve and Betsy reiterate that one of the most substantial commonalities they share as co-teachers is their desire to see their students succeed. However, sharing the instruction of a group of students challenged each teacher to view their students from different, and sometimes uncomfortable, perspectives. All conflicts the team mentioned involved advocating for their students from different perspectives. Betsy shared that the advantage of being challenged by Steve to look at student learning from his perspective was that he could bring attention to concerns she may have overlooked. She explained one conflict, “It was something that I had not considered. So, my brain was not thinking, like, that’s an issue. So, I really had to step back and say, ‘Oh, that is an issue.’” Steve shared that Betsy’s experience teaching students with disabilities and her knowledge of instructional support had challenged him to be more attentive to how students with disabilities best learn mathematics.

Moving to a more rigorous curriculum was an uncomfortable transformation for Betsy because she had to fight her desire to intervene, help, or “save” the students. Steve often told her, “Push them. Betsy, they can do this. Push them higher.” Betsy challenged herself to embrace Steve’s perspective and saw significant gains in her students. She noted that she had even adopted the mindset in her tutorial classes, “and I think my kids are better off because of it.”
Betsy recalled a special moment with her students while reviewing a standardized test question about unit rates. The question was written in an odd context, and Betsy shared how the students engaged in the discourse around this context:

So, there was a question that said…which of the following has the same unit rate as one-half? Each of [the answer choices] was a fraction answer...like, I make 3/16 of a meal in 3/8 of an hour. None of them were common things…I think one was miles per hour, but it was like ¾ of a mile in - something. It was all really hard contextual information. And, so in their minds, they're like, ‘This doesn’t make sense’…. The correct answer was the one about how many meals in a day…they were like, ‘I would not make 3/16 - how much of a meal is that? How do they know that that was 3/16 of a meal?’ So, they understood the fraction, that it was part of a meal. But they also understood that we don’t measure our meals in sixteenths…So, just being able to have that intelligent conversation [was a successful moment].

This moment was special because it revealed that students could engage in the math content in ways she had not allowed in the past. She said, “Before, I don’t know that I created [those] opportunities…I just gave basic questions, accepted that you just [did it right or not].” Being challenged to step back and allow students to find their way through the math content was uncomfortable but fulfilling for Betsy. She saw value in “[pushing] them to do harder things and let them talk about it - in a safe space.”

Steve concluded that student growth was also evidenced in students’ “summative scores” on the quarterly benchmark standardized assessment administered to all students at SMS. Steve shared that the scores earned by the students he and Betsy co-taught were impressive and competitive with the more advanced sections of seventh-grade math. He believed that co-teaching and their shared mission to ensure rigorous instruction for all students catalyzed such remarkable student growth.

Understanding Co-Teaching as Professional Learning

Steve and Betsy praised co-teaching as a practice that “just made us better teachers.” They spoke of ways that co-teaching helped them understand how students learn math, how to
teach it to diverse learners, and how to work collaboratively with another teacher. Lessons learned from the first “rough” year of collaboration gave the team experiences that shaped who they were as a co-teaching team. Steve shared, “Over the summer [and] the first nine weeks of this school year, I learned more than I probably did the whole last school year. [Co-teaching] was very beneficial, I’d say.”

Betsy expressed a desire to help other teachers understand how beneficial co-teaching can be to their professional growth, “I think you learn so much. I wish everybody could have a good experience with it.” Both agreed that the type of collaboration they shared was a professional skill that required training. Betsy said,

I think one of the biggest things is figuring out how to train people to collaborate and to do what we do…. I think that every…teacher at some point should have to go through some…like, part of their student teaching should have to be in a co-teaching classroom. But then, it’s kinda like - Well, it is an effective one? You don’t want to put them in an ineffective co-teaching classroom.

Steve felt that pre-service co-teaching would have been lost in the first-year struggle. He explained,

Maybe [training would have helped]? If I wasn’t a first-year teacher, then definitely…. Like, having some kind of training or instruction beforehand would have been awesome. But, as a first-year teacher, I definitely felt…overwhelmed from the get-go. So, maybe not last year.

Steve and Betsy’s most effective professional development occurred as they worked to make sense of co-teaching in the context of their interpersonal relationship, in their classroom, at their school.

Professional learning also occurred when the teachers crossed into “each other’s worlds” to merge their two fields of practice into one instructional goal. Betsy explained that she was “being challenged more as a teacher” to provide more rigorous learning experiences for students with disabilities and that her children “were better off because of it.” Steve’s professional growth
benefited from having a mentor in his classroom throughout his classes. He was expected to be the math content expert on the team, so he was challenged to meet that expectation. At the same time, he was learning about Special Education and how to campaign against the common stigmas associated with inclusion teaching in his school. Betsy elaborated,

> There's such a stigma, and there's such an emphasis placed on scores, that it's like…Oh, I'm getting the inclusion ones. What's that gonna do? And how's my admin gonna come down on me? And, all those, I think, are just stereotypical fears - that you just don't know. So, I think without good training, that it's just gonna…I think people are going to be more and more [afraid of co-teaching].

Steve has spoken with other math teachers at SMS to help calm these “stereotypical fears” and help them to be more open to co-teaching.

**Case II: Carla & Allie, Rural County Middle School**

Math Teacher, Carla, and SET, Allie shared students in the first-period section of eighth-grade Math at RCMS. The class met for approximately 50 minutes daily, and Allie typically joined the class after her morning duties. Allie tracked their time in classrooms by scanning a QR code which was displayed on the wall near the door of each classroom. She also met with students during a tutorial period later in the day.

All teachers at RCMS reported to the same administrator, the middle school head principal who was supported by a lead teacher. Carla and Allie served on a school leadership team alongside the principal, so they had opportunities to speak to him regularly as a team. Their teacher evaluations were also conducted simultaneously during a co-taught period. Carla and Allie’s classrooms were a few doors apart in the same hallway.

Carla and Allie were colleagues and had an established professional friendship before they were paired to co-teach. They first met at RCMS after Allie joined the faculty. Carla had been teaching there for several years and was out on family leave when Allie came to RCMS.
So, Allie was familiar with Carla’s reputation before they formally met. Allie said, “She has gotten teacher of the year for the school and the district time over time, like a lot. She's gotten it a lot, and I was very intimidated…. The best part was…both [of our kids] went to the same daycare, and she lives right down the street from me. So, I got a little bit of a chance to get to know her before I got into her classroom.”

Carla recalled that when she returned from family leave, she only knew Allie “in passing” and thought she was “super nice.” She got to know Allie better the next year when Allie took over morning duty. She said, “In the cross-halls every morning she would play ridiculous, like Brittney Spears, 90's music that just had the kids pumped up.” Carla’s first impression of Allie was that she was energetic and outgoing. Carla was known to be quiet and reserved, and it took time for their two different personalities to come together. However, they soon found commonalities that spurred a friendship. At the time that they were assigned to co-teach together, the two considered themselves to be friends. The themes that emerged in case analysis were related to the ways that the team made sense of building a co-teaching partnership, creating a hybrid co-teaching and consulting team, and making co-teaching work best for their students.

First, I will establish who Carla and Allie were as separate teachers. In the next sections, I will discuss their individual teaching assignments at RCMS, their attitudes toward teaching and student learning, and the co-teaching experiences that preceded this partnership.

**Carla**

Carla was a white female in her mid-thirties. She was in her 13th year of teaching, and her 12th year at RCMS. Carla was licensed through a traditional four-year secondary mathematics education program, and she held a Master’s degree in Special Education. However, she had never worked as a special education teacher. During the year of this study, Carla taught
three sections of eighth-grade Math and one section of Algebra I for advanced eighth-graders. All three sections of eighth-grade Math were considered inclusion classes, but there were no students with IEPs in Algebra I. Carla co-taught with Allie and one other special education teacher.

Carla’s classroom was at the far end of a hallway in the middle school building. It was an average-sized classroom with a large whiteboard and several bulletin boards. A television that displayed the teacher’s computer and tablet hung above a bulletin board on one wall. Students sat at six oblong four-person tables arranged in two rows, and a single student sat at a horseshoe table at the rear of the room. A podium near Carla’s desk area was also used as a student area when needed. Carla typically taught from the center of the classroom and maintained proximity to the students throughout the lesson.

**Attitude Toward Teaching and Students**

Carla chose to teach as a career when she was a child. She recalled, “That's all I've ever wanted to be was a teacher.” She remembered having many impactful teachers throughout her education, but she could not pinpoint a certain moment in her life that prompted her desire to teach. On the application for the parent project, Carla reported that she was extremely confident in the mathematics content standards and confident in her ability to teach students with disabilities. Carla contributed her confidence levels to her teaching experience and to her education. While Carla enjoyed co-teaching, she felt that she could manage an inclusion classroom without a second teacher. She acknowledged that inclusion classes could sometimes become overwhelming when working alone, especially when the content is particularly difficult for the students. However, she had taught many inclusion classes without an assigned co-teacher, and she felt equipped to handle the classroom on her own.
Carla said that her knowledge of the mathematics content standards and learning progressions were strengths that she brought to the classroom. She was certain of her mathematical abilities, but she felt challenged when using manipulatives and other models to explore a problem instead of finding the answer procedurally. Carla noted that she wished to improve her knowledge of teaching mathematics to students with disabilities. Specifically, she wanted to learn more about instructional supports and ways to make the content assessable to all students.

Carla said that her first responsibility in the classroom was to “build a positive relationship with each one” of her students, and her second responsibility was to teach mathematics. Her definition of success for students included aspects of growth, achieving goals, performing skills, and problem-solving. She felt that all students could be successful but stated that some students may need more support than is available in the general education classroom. She believed that since all students were tested, they needed to be taught using the grade-level content, however, there were students under her instruction that she felt may have been better served by a self-paced small group setting.

**Experience With Co-Teaching Prior to Current Partnership**

Carla did not recall having any co-teaching training through pre-service teacher education or her student teaching practicum. Her first experience with co-teaching was during her first year of teaching. She recalled,

I don't know that we actually talked about co-teaching very much when I first started teaching. I was just told, ‘Hey, you're gonna have an inclusion teacher in your classroom one period’…she would help sometimes, but she kinda stayed at the back…she only helped her students that were in the classroom, you know?... That was my very first experience with co-teaching.
Carla did not have another co-teaching assignment for the next several years after her first experience. During these years, students with disabilities attended the general education classroom but received modifications and accommodations in a resource-type setting. Carla added that she had shared one period a day with one special education teacher for the previous five years or so. During the year of this study, she was co-teaching three periods a day with two different teachers.

Carla described her best experiences with co-teaching as being those shared with Allie. She recalled other experiences that “weren’t terrible,” but were not necessarily memorable for any reason. Her worst experiences were mostly those in which the co-teacher was disengaged from the classroom. She explained,

I have had [experiences with] co-teachers or inclusion teachers that have come in here, and they just sit in the back, and they don't do anything. They don't help anybody. You know? They play on their phone the whole time. They're just in here.

These experiences were uncomfortable and frustrating for the general education teacher.

Carla admitted that learning to loosen control and share the classroom with another teacher was a journey. She said, “[Co-teaching] was hard for me to get used to…. I want to do stuff myself, and I want to be in control of everything. But now that we have been doing it for several years, I enjoy it.” She shared that a new teacher coming into the classroom could feel “iffy” or just “different” and it takes time to get to know one another and how to work together in the class.

The other SET that Carla worked with during the year of this study was certified in mathematics, taught mathematics classes at RCMS, and served as a SET. He was a new teacher at the school, so they were still getting to know each other. However, she felt that they were
building a good team. She liked that he was engaged in instruction and planning and that he was concerned with the learning of all students in the classroom, not just the students on his caseload.

**Allie**

Allie was a thirty-something female who had been teaching for ten years and was in her fourth year at RCMS. Allie was racially identified as white, but she was descendant from and raised in an itinerant ethnic community that is categorized as a white-other minority. Allie co-taught seventh and eighth-grade Math and Science and supported all subjects in a tutorial period. Allie was licensed to teach through an alternate route Master’s degree program after earning a Bachelor’s degree in Behavioral Health Science. Before becoming a classroom teacher, she taught in the private sector. Allie worked with any student receiving special education services at RCMS, but she had specialty knowledge in autism spectrum disorders and emotional disabilities. At the time of this study, Allie was pursuing a terminal degree in education.

**Attitude Toward Teaching and Students**

Teaching was not Allie’s first career choice. She originally planned to be a behavioral health professional. Allie shared that she was raised in a culture where individuals with disabilities were commonly shunned or isolated and were not provided education in academics or in dignifying life skills. These early experiences led Allie to pursue a career of care and advocacy for individuals living with physical, mental, and emotional disabilities. She chose to pursue a career in teaching by circumstance. She first taught children with fragile, medically complex disabilities, and from this experience, she developed a desire to remain in education. She recalled,

I became a teacher for the medically fragile…And then, I had five kids die from their disabilities within the first three years…and I [suffered some personal losses]. There was a lot of death and grieving around that time. And God really steered me towards
continuing teaching and going into all of the multi-levels of special education. So, I’ve literally done every aspect of special education [except for working with incarcerated populations.] So, I feel like this is absolutely where I’m meant to be and where I’ve been led.

In the project application materials, Allie reported being extremely confident in her ability to teach students with exceptionalities in the classroom. She attributed her confidence to years of experience in which she “learned to prioritize relationship building” with students by “collaboratively exploring their disabilities, learning styles, love languages, and executive functioning, so as to not only understand the students better but also create advocates within the students themselves.” Allie was a cheerleader in the classroom and approached teaching with a mindset of support for and service to her students and her colleagues.

Allie reported that she was confident, though not extremely, in her knowledge of math content standards. She said, “I have made it a personal goal to familiarize myself with the scaffolding document for grade level expectations in math…so I know how to better guide my students toward skill mastery.” She wished to gain a “stronger knowledge base for general education mathematical content” from the parent project. Allie entered the project with the mindset that she was not a “math person.” However, over the course of the summer institute, she became more confident in her knowledge of the standards and in her mathematical strengths. At the end of the institute week, facilitators held an awards ceremony to present fun-spirited award certificates that highlighted a moment, action, or characteristic demonstrated during the week. Allie was awarded the “I’m a Math Person Now” award - an announcement she made during the institute. This award hangs on her classroom wall alongside her diplomas and other certificates and professional awards.

When talking about students, Allie focused heavily on behavioral expectations. She felt that students needed to be supported and encouraged in the classroom and that all students
should be held accountable to the same behavior expectations. She defined student success by classroom behaviors which included their involvement in the lesson, how engaged they were in problem-solving, and whether they were asking questions about the math content. She also looked for students to meet their academic and behavioral goals over the course of the school year. She believed that all students were capable of performing well in mathematics, but admitted that she often felt a need to “hover” which led to her interrupting them and “pushing them along rather than allowing them to explore and challenge themselves.” Allie counteracted this need by using questioning techniques when helping students instead of giving them hints or showing them the answer.

Allie was known for the fanny pack she wore in the classroom. It was filled with extra classroom supplies, like pencils, candy, and various motivational and funny stickers. She distributed stickers to reward and encourage class participation and build rapport with all students in the classroom. During one observation, Allie was proudly sharing the new Spanish-language stickers she had purchased. She explained that a few of the students who were Spanish-English bilingual had playfully heckled her about having “white-people candy and white-people stickers.” She realized that the students’ observation, though meant to tease her, was a serious omission that she wanted to correct. So, she visited the Mexican grocery to buy the students’ favorite candy and ordered stickers in their preferred language. It was important to Allie that all students felt seen and supported and that they felt validated in their individual identities.

**Experience With Co-Teaching Prior to Current Assignments**

Allie’s first exposure to co-teaching was during her own high school education. She remembered being taught in a room with two teachers “who would co-teach but it was a room completely separated. This teacher would teach over here and this teacher would teacher over
there…. They would teach at the same time. That’s what I thought co-teaching was.” She said that she was relieved when she found out that there were other ways that teachers could teach together because she did not enjoy that model. She recalled, “They would be teaching two totally different lessons at the same time, and then they would swap…two different lessons at the same time. They were two different standards…and all kind of nonsense.” Allie, who acknowledged that she was neurodivergent herself, had trouble following this co-teaching style.

Allie had been teaching in inclusion-based special education for three years and had worked with several different general education teachers. She explained that she had some great experiences in classrooms where there were “no territorial issues.” She referred to the partnership he had with Carla as the “dream team.” and said that she also experienced this type of teamwork with other teachers who were open-minded and “willing to involve me in the process.” Co-teaching assignments with teachers who were territorial were the most difficult. She said that most of this conflict arises when teacher turnover is high, stating, “When new teachers come in, they’re usually really territorial, because they’re not familiar with the roles and purposes of special education in their classroom.” She understood that sometimes harder experiences can become easier over time if the teachers have opportunities to get to know one another.

Allie had at least one experience with a general education teacher who did not want co-teaching in their classroom at all and made it clear that Allie was not welcome in the space. She recalled,

I cried every day in the parking lot…. They were very territorial, but they would not tell me - I would ask for self-reflection at the end of every period. I’m like ‘Ok, I’m doing the behavior logs on this kid, this is what I got today, what’s the plan for tomorrow? How would you like me to interact? Is there anything you want me to do?’ And he would just smile and nod, and say, ‘Ok,’ and then just go tell all the other co-workers and admin how he felt about me being in the classroom. It ended terribly…But, yeah…that one hurt
a lot. That was not fun. Because…once I figured out his communication style – he wasn’t comfortable talking to me, and the more I tried to talk to him [the more I] pushed him away. So, our communication style was not meshing well - to the point that the admin just eventually moved me out of that classroom and put another teacher in there.

The major conflict in this assignment may have been due to their personality differences or differing views about education. However, they never had the opportunity to talk about their beliefs with one another. She recalled that after trying to interact with the teacher and attempting to take a more active role, she became silent in the classroom.

I did nothing. I was taking my behavior data and my behavior logs, but I didn’t want to interfere…. I did not impose or enforce any type of discipline, and he took that as I need to make his copies and get him a soda, and sit down and not bother him.

This situation was extremely difficult for Allie, but she looked back on the year as a learning experience that is common to special educators, saying, “It happens…. It’s part of the learning process…it makes you appreciate what you have now.” Allie said her experiences taught her that learning to co-teach was “just trial and error.”

Building A Partnership

Even though they were friends, Carla and Allie entered new territory in their relationship when paired to co-teach. They had to find ways to translate their established friendship into a teaching partnership. It was one thing to be brought together in a friendly relationship by personal commonalities and quite another experience to be brought together by the administration to share teaching assignments and professional accountabilities.

Carla and Allie also had to navigate school contexts that challenged co-teaching. Most notable was that the administration regularly relied on SETs to cover classrooms for absent teachers (e.g., to serve as substitute teachers). Allie explained that the school system had only two registered substitute teachers and that administrators would cover classrooms themselves, or
pull an assistant teacher, before involving SETs. However, she was still out of the classroom two to three times a week, on average, due to “subbing.”

Another challenge for the co-teachers was that the school administration and other teachers were more familiar with a traditional student pull-out or resource room special education program than with co-teaching. Rural County Middle had been trying to install a working co-teaching model in the school for a few years. Allie shared, “The state department is really pushing for full inclusion everything, so the district said full inclusion everything.” However, some teachers and administrators were pushing to return to a resource-room model. This model proposed general education inclusion, without co-teaching, for only higher-performing students with IEPs. Those students with cognitive disabilities would attend departmentalized small-group classes taught by SETs.

**Translating Friendship into A Co-Teacher Partnership**

Carla and Allie felt that their friendship was a strength in their co-teaching partnership. Both teachers co-taught with other teachers, and while they felt those partnerships were doing okay, there was something special about the partnership they shared with each other. Allie called them, “The Dream Team,” and Carla said that their relationship inside and outside of the classroom “made a world of difference between us and some of the other partnerships in the building.” They felt that the friendship they shared was a positive model for their students, and Carla believed that it was important that the students knew they enjoyed each other’s company.

During observations, their friendship in the classroom looked more like a respectful partnership between colleagues than a pair of teacher pals, because they capitalized on the aspects of their friendship that best built a foundation for collaboration. Carla and Allie learned how to make their vastly different personalities work in their favor for instruction and classroom
management. They also developed a deeper trust relationship by leaning on the confidence that was established in their friendship.

**“Hood and Holy.”** Carla and Allie had strikingly different personalities. The contrast was unmistakable. Carla was quiet and had a gentle nature. She spoke softly, and though she would eagerly join in the conversation, she was not inclined to speak up first or say more than was needed to make her point. Allie was the opposite of all these things. She was outspoken and sociable. She often led discussions, and she shared ideas in colorful detail. When asked to describe her relationship with Carla, Allie laughed loudly and said,

> This is gonna be terrible, but it’s the only thing I got, honestly…Uhm, I would like to say that our relationship is very - Have you seen those t-shirts that say, ‘Hood and Holy, Pray with Me, Don’t Play with Me’? I’m the hood and she’s the holy. We’re the dream team together. We will help you get through it, but don’t take advantage of us helping you. And don’t think that we’re doing this for us, we’re doing it for you, type of thing. Very hood and holy…. Like, we balance each other out very, very well.

Allie felt that their two personalities were complementary in the classroom. She saw Carla as “very focused” and a model of “what you are supposed to do in the classroom.” There were times when Allie would get excited with the students and get them riled up, and Carla “will look at me and she’ll be like, ‘I just got them calmed down! Shh!’” Allie felt that this playful, yet correcting banter, created a well-balanced and safe classroom for the students. She explained, “When the kids see her interact with me in that way, it makes them feel more comfortable with [us].” Allie relied on Carla to keep the class grounded and engaged in the math content.

Carla shared that Allie’s sociable nature benefitted their friendship and partnership. She said, “She made a point to get to know me…she worked hard building our relationship, and that kinda spread into our classroom.” Carla enjoyed working with Allie. She was “a fun person [who] makes us laugh just about every class period.” Carla also said that Allie was thoughtful and “just takes care of stuff.” She was always eager to fill any need, and because she and Carla
view the world differently, Allie could respond to needs that Carla may have overlooked. Carla explained,

This year she has started carrying a fanny pack every day and she has stickers. And I'm not usually one to give out prizes or whatever, but she throws stickers out all the time to kids who answer questions right and are doing what they are supposed to do. And, like, that's just been a huge thing in our classroom that's motivated the kids - to get a sticker.

Where Carla was knowledgeable in mathematics and in how to teach the content to students, Allie was an expert in knowing what students needed to succeed in the classroom environment, whether the student had an IEP or not. Carla appreciated Allie’s ability to make personal connections with the students and the energy she brought to the classroom.

Differences brought complementary views into the partnership, but they also brought conflict. Carla and Allie had moments when they needed to come together and find compromise when extreme differences in personality were affecting their partnership. One difference was the way in which each teacher approached student discipline. Allie was an advocate of communicating life skills to all students, and she believed that all students should be held to high behavioral standards. However, Carla was more likely to give a student the benefit of the doubt to avoid harsh consequences. Allie explained one disciplinary event:

There was a student who was fairly new, and [Carla] is very delicate when it comes to our special education students, and I am very...like, treat them like everybody else. [Carla asked me if she should write her up.] I mean, this child dropped an f-bomb in class. [Carla] gave her a warning. I was like, ‘Uh-uh. Write her up. Write her up! Write her up now.’ So, I think that's the only disagreement we've really had - I guess discipline? But, holding the standards to the same as the other kids. That child knew better. She knew better.

Much of this disagreement may have emerged from the concerns of their different expertise. For Carla, the discipline measure would have caused a greater classroom disturbance than the infraction, so she chose to give the student a warning and move on. On Allie’s end, the warning
did not sufficiently convey the seriousness of the misconduct, and the student missed a valuable lesson in social expectations.

Carla recalled that she and Allie had conversations about how difficult it was to get the class started when the students were chatting and laughing with Allie. Carla appreciated Allie’s relationship with the students, but she felt there were moments when Allie’s friendliness distracted the students from their tasks. She added that for any of these conversations, “it wasn’t really like, a fight or anything. We just talked about it.” Allie understood that it made Carla uncomfortable to have to quiet her as well as the students. Carla also understood that it was in Allie’s nature to engage others socially.

Carla and Allie shared a “comfortable” communication style. Carla insisted that, even though she had a natural aversion to conflict, she could approach Allie with any concern, and “[Allie] would be fine with it.” Carla also appreciated how at ease Allie was when she brought up issues, saying, “She just comes right and says it.” There were no mysteries and no hidden hostilities between them. Any conflict that could not be resolved was taken as personal or professional differences, for which the two worked toward a compromise. Allie considered their conflict resolution methods to be more like “healthy” feedback, “It's always understood that we're [providing feedback] to better each other.” They developed this understanding on “day one.”

Their partnership was defined by and thrived on “balance.” Both Carla and Allie reported that their administrator was vocal in his observations of how they “balanced each other out.” They received high marks in their formal evaluations because of the way they worked together in the classroom, and the “balance” they gave to the instruction. Allie described an instructional characteristic of their balance:
I'm not afraid to be wrong, and she has a very graceful of turning when I'm wrong into an educational moment for the kids. And I'm not afraid to make a fool of myself, and she is the absolute balance to that. She will rein me in like it's one of the kids. So, I think our balance - our partnership is a lot of give and take. A lot of balance.

The team found success in this “give and take” and “trial and error” process of learning how to teach together. They did not expect perfection from their partnership. They understood co-teaching to be a process of finding a healthy equilibrium in the classroom.

**Trust.** Trust was a foundational support in Carl and Allie’s partnership. Their trust relationship began when they confided in one another as friends and expanded as they grew to know each other as professional partners. It gave them the confidence to try new strategies in the classroom and allowed each of them to let go of control and know that their partner was doing their job on the team.

Allie believed that the most important aspect of a teaching team was building trust “from day one.” Most of her poor experiences with co-teaching were characterized by a lack of trust and communication, so it was essential for Allie to have that level of confidence and assurance in a partner. She shared, “There is a trust there with Carla, and there is a foundation of understanding that has never wavered.” She trusted Carla to treat her with respect in the classroom even when she made mistakes. She said,

She lets me be involved in the process, and if I make a mistake in teaching something, she will say, ‘OK, did anybody catch that?’ And she will work it as she and I were trying to see if the kids were paying attention, rather than telling me I was wrong in front of the kids. So, that type of trust and communication and collaboration – that is just my favorite.

Allie was comfortable providing support for Carla in the classroom because she trusted Carla not to treat her as a “teaching assistant” or errand runner. Allie eagerly took on the supporting role, saying that she felt that part of her job was to “make sure that everyone has what they need, including Carla.” Allie explained that sometimes that meant making a “run to the Sonic [to] get
her a tea because we need that sweet tea to make it through [a difficult] day!” One major
difference between the expected soda order mentioned in Allie’s history and a sweet tea run for
Carla was that the teachers were mutually invested in the other’s wellbeing. Allie trusted that
Carla was also ready to back her up when she needed it.

Carla trusted Allie as a colleague whom she could consult for ideas or concerns regarding
the school or students. She saw Allie as a safe place to seek support and assurance to better her
own practice. Carla explained,

I know if I have an issue, whether it's [a student] or somebody else, I know I can go talk
to her in confidence and she's not gonna…tell everybody else…. She’s just a person that I
can trust, all the time.

Carla spoke often about her confidence in Allie who looked out for the interest of all the students
in the classroom. She knew that Allie was adept at knowing exactly which supports or
interventions students needed to be successful in mathematics. Because they trusted each other to
be working toward a common goal with all students, they were able to present a more united
front in the classroom.

Most partnerships around Carla and Allie that seemed to be struggling had fallen victim
to a lack of professional trust in the partnership. High-stakes accountability models are often a
barrier to trust in co-teaching partnerships. Allie remarked,

I feel like [general educators’] jobs are held to the scores of kids, and if they are gonna
be held responsible for the scores of those students then they are gonna want to do things
their way, and under their terms. And I understand. I get that. But we're also responsible
for our kids, too. So? [General educators and special educators] don't like to share
responsibility.

Carla acknowledged that as a general educator, she had trouble letting go of control and that
there existed a common fear of “messing up what you have going on” in the classroom. Allie
shared that from the SET perspective, there’s “always a fear” that the SET will not be able to
cross the boundary lines in the classroom to access their students and support their learning needs. However, she and Carla were able to leverage their trusting relationship to alleviate these fears. Carla said of her partnership with Allie, “I think because we’ve gotten to know each other personally…we are willing to share things and try things together that I’m not as comfortable doing with other teachers that I don’t know as well.” Carla shared that in the past when she had been unsure of sharing instruction with another teacher, she didn’t want them to think that she “was a terrible person.” Her uncertainty was attached to a common fear of risking her professional accountability with a teacher she did not trust.

**Finding Ways to Make Co-Teaching Work**

Rural County Middle School fell into the category of small schools that did not qualify for enough SET faculty lines to dedicate SETs to individual grades. So, co-teaching was difficult for SETs like Allie, who had students spread across several different classes that met simultaneously. Allie’s schedule was arranged to allow her as much time in the classrooms with her students as possible, but she battled the additional problem of being pulled from the classroom regularly. Carla and Allie had to work together to understand how a co-teaching partnership should work in the classroom, like what roles they each should take, and how to navigate instructional territories. Then, they had to find ways to practice co-teaching in their limited time together in a school that was new to the practice.

**Understanding Co-Teaching Roles.** Allie had dreadful experiences with co-teaching in spaces where she felt unwelcome, so she strongly recommended that all co-teaching assignments begin with a conversation about team roles. She asserted, “I’m not a teaching assistant. No getting you coffee and making you copies. Which, I will do that off and on, if it’s needed, but
that’s not my main purpose in the room.” Allie explained more about the fear SETs face when they enter a new classroom with a new teacher, saying,

You never know who is territorial, and you don't want to overstep. Like, you don't want to handle discipline in a way that the other teacher doesn't see is necessary, and you don't want to let slide discipline that is disrespectful towards that other teacher. Like, you never know where the boundaries are in the beginning.

Allie preferred to enter a classroom with clear roles in place and a clear understanding of professional boundaries. Furthermore, she mentioned that it was often most difficult to co-teach with general education teachers brand new to co-teaching because in those pairings, teachers “really don’t know where the boundaries are.”

Allie placed much more emphasis on developing co-teaching roles and procedures than Carla. Carla talked more about making room for Allie’s assistance in the classroom than she did about sharing roles. For the math teacher, her role in the math classroom was obvious. Carla was the “Lead Teacher,” and though she did not consider Allie to be an assistant teacher, she did feel that Allie was more of the “Helper Teacher” compliment to her math lead. Carla did not think that the students saw Allie as any less of a teacher, but she felt that students did see them as two different kinds of equally qualified teachers. Allie seemed to agree to this distribution of roles, as she called herself the “Support Teacher” when asked to define her own place in the classroom.

When Carla and Allie were first paired as co-teachers, Allie had many questions for her new partner. Carla said that Allie asked questions about “the flow of the class and how we did things because every general ed teacher does it differently.” Allie added, “and, expectations of what I need to know. What do I need to go study? What would be my role in this class? How do I not mess it up?” Allie felt supported by Carla because “she always asked what I was comfortable with” and “she lets me be involved where I feel comfortable.” Allie recommended that co-teachers begin their partnership with an open line of questioning so that they start their
relationship by understanding each other’s needs. She said that being provided with “some sort of questioning guide” would be helpful in facilitating these early conversations.

Carla said that one of Allie’s strengths was that she “was always ready to learn new things.” Allie was invested in learning how to better provide for the conceptual needs of students in the math classroom. She found that, as a SET, she did not “have to be a master of the standards to be a part of the co-teaching team. It helps, but I don’t have to master it.” Carla carried the role of content expert on the team, and both she and Allie were happy that the math content was Carla’s responsibility. Allie felt validated in her support role. She explained,

  I think my role is support. Not only support for the kids, but support for Carla. Because, when…there's questions flying up and hands going up, it's hard for her to continue teaching and answer so many questions at one time. So, I can go and answer the question, whether it's my kids or the GenEd kids, and help them work through it. If they can't figure out how to do a problem one way, I can try to do those concrete or those abstract ways and give them different methods to try…and ask questions rather than giving them answers.

Observations confirmed Allie’s description of her role in the classroom. She also monitored student behaviors, made sure that students had the supplies and motivation they needed to participate, and ensured that students had the high-quality supports and accommodations guaranteed to them. These supports often involved assistance with notetaking and helping to formulate questions or comments so that they could join in classroom discussions.

  During one observation, the students were completing an opening activity online. Allie spent the first few minutes of the class finding and preparing a computer for one student while Carla got the class started on the assignment. Allie gave the computer to the student and observed the student’s work while she also helped those other students nearby. Later, Allie explained that the student was on a behavior plan that allowed online access only when supervised. Allie’s presence in the classroom allowed her to support the student in making
healthy personal choices as well as support their mathematics learning. During the same lesson, another student told Allie that he had lost his computer. Allie found the computer at another student’s desk. She did not discipline either student. She simply picked the computer up from one student and gave it to the other, while reminding both that it was important to be responsible for their belongings. Allie was continually prompting students to practice social skills and responsibility while she fostered their engagement in math content. She demonstrated that social accountabilities were part of the learning process.

Allie was more confident in her support role than she was in teaching the content, but she enjoyed having opportunities to teach mathematics. She recalled a recent lesson when she and Carla pivoted to Station Teaching, or to rotating groups or centers when the lesson content proved to be particularly difficult for the class. The teachers simultaneously taught mini-lessons to the student groups based on the students’ individual learning preferences. Allie said this was one of her favorite moments in the classroom and declared it the moment she felt both most successful as a team and as an individual teacher. She said it was such a memorable team moment for her because “the kids were getting it…and we really were working well [together] for the kids.” She added that it made her feel successful as a teacher because “I felt like I was really seen…I felt like my talents were utilized as well as hers. I also got to branch out and teach more of a math concept rather than a behavioral intervention style.” The lesson was a confidence booster for Allie, and it helped Carla to understand how valuable co-teaching can be when teachers merge their talents well. Carla also rated this moment as the one where she felt they were most successful as a team.

**Threats to Co-Teaching.** Allie claimed the biggest threat to co-teaching was SETs being pulled from the classroom for other duties. She was most often pulled to substitute, but parent
meetings and report deadlines were another reason she was absent from the class. Both teachers felt that these circumstances were beyond their control and mostly frustrating since Allie’s absence affected the students. Allie said that if she was not in a class, “the kids notice. They know.” She explained that she would often get emails from students asking where she was during class time.

When asked if she thought her absence was detrimental to the students learning, Allie replied that she felt the students were still getting all they needed under Carla’s instruction, saying, “She’s the MVP…she handles her own when I'm not in there.” However, Allie felt being absent was detrimental to her own professional growth. She was missing learning opportunities that would help her better serve her students. Allie said that she didn’t think the students were suffering from her absence, “but I feel like I am suffering. I don’t understand all the [math] standards, and she teaches them in a way that makes sense to me. So, when I go back and look at it on my own, it makes sense.” Carla also felt that Allie being pulled from teaching was not “a very fair thing.”

Carla and Allie contended with their administrators’ preference of using departmentalized special education classroom, or a “resource” model, over co-teaching. During their first year of co-teaching, the team was separated mid-year and Allie was assigned to teach math to students with IEPs in a different classroom. She said,

Last year we only had a half a year in before [and administrator] pulled me to do what was called Resource, where…I would go to [Carla’s] classroom for the first half of the year, see her teaching style, see what she was teaching the kids. And, then we pulled the special education students out to be more of a least restrictive environment, and that's where I taught them math. And we took the power standards from the state department and hammered those into the kids so that their test scores would be higher. Or that was the goal, for them to be higher. But I did not know the material, because I only knew half a year's material rather than all of the year's material.
Allie went on to say that she advocated in the current year to reject the resource model for her students.

Carla and Allie shared the common goal of wanting their students to learn mathematics in their preferred learning style, in their most productive environment. There may have been a few small matters that would occasionally arise as disagreements, but they both asserted, “It’s really all about the kids.” They were willing to talk through conflicts to better serve the students in their classroom. Carla argued that co-teaching will not work unless you have this common goal and are willing to get over yourself and make it about the students. She said,

It's always all about the kids. So, even if you hate each other, that's not what's important when you're in the classroom together, you know. What's best for all of the kids is what's best for you, too, or what should be best for you, too.

Allie later added that co-teachers must find a way to work together in the classroom. She advised, “You just have to make it work. Fake it ‘til you make it. At least in front of the kids, at least in front of the kids.” Carla and Allie had different expertise, and, at times, different expectations in the classroom, but they always presented a united front for “the kids.”

**Building a Hybrid Co-Teaching and Consulting Team**

Even though Carla and Allie were often separated by context beyond their control, they remained optimistic about the benefits co-teaching provided their students. In the classroom, they worked well together as a team. Their lead and support teacher roles were apparent during instructional portions of the lesson, but less visible when facilitating student tasks and group work. However, it was clear even when they were working together seamlessly that each teacher had their own objectives. For example, when a student called for help, Carla was more likely to reteach a procedure or demonstrate a skill for the student using a personal whiteboard she carried. Allie was more likely to ask questions of the student, focusing on the student’s personal
responsibility to develop their own understanding. She often reminded students of similar skills, mentioned a mnemonic or visual tip, or helped the student to scaffold the skill in some way. These differences provided insight into how the teacher approached co-teaching as two separate professionals, with individual expertise, who are both engaged in helping students succeed in mathematics.

Allie described their time together in the classroom to share in co-teaching “sparce.” Yet, the teachers still had responsibilities to the students under their care that did not go away or transfer to the other when co-teaching was impossible. In response, Carla and Allie merged co-teaching in the classroom with consulting practices outside of the classroom to develop a unique hybrid model that best fits their needs within their context.

Two Experts, One Common Goal

When the teachers talked about their roles in lesson preparation, their descriptions followed those common to their respective fields. Carla took on the job of pacing the standards for the year and planning the lessons and activities. As the MT, Carla was also in charge of standardized testing preparedness and the subsequent tasks associated with the testing protocol for the general mathematics class. Allie assumed the responsibility of making sure that the students had all the supports that they needed and ensured that they were mentally and physically prepared for success. She said, “That’s why my fanny pack is full of snacks and fidgets and pencils and rewards. I feel like that's my responsibility.” Allie also developed and managed all student IEPs and upheld the policies and procedures associated with special education. She was also charged with managing standardized testing measures for students with disabilities.

Both Carla and Allie were satisfied with the division of teacher duties. Carla preferred that Allie be in control of IEPs and student accommodations, and Allie liked that she did not to
be involved in general lesson planning and pacing. Allie was adamant that Carla was the content expert on the team, and she was the expert in how to teach the content to students with disabilities. She did not wish to cross the boundaries of those roles any more than was required for effective collaboration. It did not appear that the teachers were separating their responsibilities out of a sense of control, though both admitted to having a healthy portion of “control issues.” In individual interviews, they each made comments that they welcomed their partner’s council and found their input helpful. However, both teachers adamantly declared that they were completely satisfied with the way their partner was handling their own professional obligations and did not wish to interfere in any way. Carla said she trusted Allie’s evaluations of the students, and Allie said she preferred to, “let [Carla] do what she’s great at, and get out of her way.”

Allie explained that SETs often find it hard to co-teach during “paperwork season,” the time near the end of the year when SETs are busy updating and writing new IEPs, meeting with parents, and preparing accommodations for “testing season” (i.e., the weeks of standardized testing at the end of the school year). While Allie would have liked to be in the classroom, these procedures are one way that she contributed her expertise to the school. When Allie was out of the classroom, Carla had to manage both roles in the classroom herself. She was confident in her ability to teach the inclusion class on her own, having taught that way for several years before the school instituted co-teaching. However, she admitted that the class ran more smoothly when Allie was present. Carla said, “It’s definitely a whole lot more helpful when she is in here and can work with them, but…You know, we make up for it pretty well.”
Consulting Practices

Carla and Allie were “supposed” to have a planning period together, but it rarely worked out that they were able to come together during that time. Most days the teachers would meet for a few minutes after school to prepare for the next day. Allie said that it was helpful that Carla was so organized in her planning because they didn’t have to find time to sit and talk. Allie could just look at Carla’s plan book and ask questions as needed. Allie consulted Carla’s plans to prepare for students’ needs during each class. She would pull materials she felt the students would need during the lesson, like math manipulative or extra fidget toys for students that become easily overstimulated during active learning and have them available in the classroom so that she or Carla could disperse them as needed.

When Carla planned lessons, she would go through the pacing guide with Allie and ask for input on what materials and pacing the students would need. Carla would also consult with Allie during lesson units for input on scaffolding lessons for students who were not reaching the learning targets at the prescribed pace. Allie added that Carla involved her “[in areas that] I feel like I would want to be incorporated in, and she handles the rest of that. Now, we get to analyze the [student] data…she incorporates me in that part.” Working through student data together helped both teachers in their planning and was especially important when setting learning goals for IEPs. Allie also sought Carla’s expertise on the standards and the math learning progressions to set learning goals for students.

When the teachers could not find time to get together, they would communicate through email and text. Carla was intentional about having some sort of consultation session or debrief with Allie at least once a week so that they stayed connected in their practice. The team did not
establish a consultation routine. Instead, they made communication a priority so that both of their expertise would be represented in their work with the students.

Making Sense of Co-Teaching For the “Kids”

Carla and Allie both said that they enjoyed co-teaching and enjoyed working together in that way. Early in the study, Allie commented that the students’ summative assessment scores reflected the benefit of co-teaching. She believed so much in co-teaching that she spoke up and advocated to keep “her” students in the general education classroom. She explained,

We had an opportunity to bring back resource, which is where I would teach the kids their math and I would teach the kids their English. And I was - I'm very passionate about that, because that is selfishly is where I get to spend the majority of the time with my students, and I get that one-on-one time for bonding and confidence building with them. But, I truly felt like the co-teaching was better for them than the resource…. So, I rejected that model for this year. It didn’t go well at first, and I had to buck up to the principal and the SpEd director. But I won! Because I provided data to go with it.

Allie felt that what benefited her students most was being in an environment where she could model the learning process for them. She could model how to ask questions, take notes, and engage in classroom discourse. She said that “the fact that I don’t know how to do every standard” was a plus. The students could see that she was learning, too, and she felt that made them feel better about what they did not know. She believed that her time in the classroom taught her “a great deal about using my deficits to help kids with the same deficits…It kinda builds their confidence up.” It was just a great opportunity to show students what it means to be a life-long learner.

Carla spoke more about classroom management and test preparedness when she spoke of co-teaching. She commented that it was helpful when the co-teacher was willing to help all the students in the room, and when they shared in monitoring student work and answering questions
during lessons. When asked if she thought co-teaching was beneficial to students with
disabilities, she answered,

    I think so, just because they're tested, you know, just like our regular kids. And, so the
more that we can expose them to the grade-level content, the better that they do on the
test. Now, obviously, everything's not about the test. So, some days when they're really
struggling on something, I do think it might be better if they could be back in their
resource class.

It was not unexpected that Carla would be concerned about testing. As an MT, she is held
accountable for the scores of all students enrolled in her classes. Testing is a major concern for
most teachers, and Carla had a reputation for producing high test scores. She connected feeling
successful as a teacher to students’ success on standardized tests.

    So, while both teachers touted the advantages of a co-taught inclusion classroom, there
still seemed to be a lack of buy-in from at least Carla early on. She expressed some doubt that the
general education environment could meet the needs of all students. Carla had a desire to work
with Allie to modify instruction in the classroom to better meet all of the students’ needs.
However, since Allie was pulled from the classroom so often, she could never quite get the
lesson where she thought it should be for the students who struggled the most.

    Near the end of the study, Allie and Carla’s attitudes toward co-teaching began to waver.
The teachers expressed that some of their students “were drowning” in the general education
classroom. Allie felt the problem was with their prior knowledge. A few of their current students
had been taught in a resource classroom for most of their early grades, during which they were
taught content that corresponded with their tested level instead of content on their actual grade
level. For example, if a student in the fifth grade took a diagnostic test that placed his/her math
knowledge on a second-grade learning level, that student received instruction in the second-
grade standards. So, some students were transitioning from second and third-grade standards to
seventh and eighth-grade standards. The administration was developing a plan for the next year that would help to “wean students out of resource,” but the plan, unfortunately, would likely end co-teaching for the teachers. There simply was not enough special education staffing to teach resource classes and co-teach in the general education classroom.

Carla and Allie seemed disconcerted by the new plan. They continued to express that co-teaching was beneficial to the students and to their own professional growth. However, they seemed fixated on the argument that students were “drowning” and made comments about how some students were not meant to be successful in the general education classroom. It appeared they were trying to figure out for themselves which side of the conflict they were on. They wanted to co-teach, but they also wanted their students to have the support they needed in the classroom every day, not just on the days that Allie was allowed to be present. Both teachers insisted that co-teaching would be easier if they could spend more time together in the classroom, and if they could spend their time co-teaching with one partner instead of multiple partners throughout the day. They felt that if they had just had more time, they could have made co-teaching what they wanted it to be. Regrettably, they did not get that time.

**Cross-Case Synthesis**

A cross-case synthesis was conducted to determine themes and patterns that arose within across teams. The synthesis was case based, so the goal was to preserve the experiences of each team as a whole and then decipher their common understandings of co-teaching from within their unique context (Yin, 2018). Along with commonalities, I also discuss the differences that exist between their two contexts that may have influenced the way the teachers made sense of their co-teaching partnership. The common themes that emerged through cross-case synthesis were
related to the teachers’ understandings of the co-teaching interpersonal relationship, the co-teaching team, and the ways that they define co-teaching for their team.

**Dissimilarities in Case Context**

The cases were chosen because they reported having the major supports recommended by researchers: class time together, co-planning time, a supportive administrator, and joint professional development focused on co-teaching. They were also similar in longevity and all four teachers had positive attitudes toward project involvement. However, a major deviation developed between the teams after the start of the third quarter of the school year when at RCMS, Allie was pulled every week, at a rate of two to three days per week, from the classroom for other duties. I was aware at the beginning of the study that Allie was called on occasion to substitute, but there was no way to predict that those occasions would increase as they did in the second semester. This circumstance appeared to have a compounding effect on Carla and Allie’s attitudes toward co-teaching in their classroom as the semester progressed. Alternately, at SMS, the administration prioritized co-teaching above all other SET duties. Betsy would only be called from class to attend to immediate, unexpected, or unavoidable responsibilities directly related to her student caseload, and even then, she rarely missed an entire class period.

**Contextual Differences**

There were several differences in school context that could not be avoided. These were discussed in detail in the previous chapter but are repeated here for more clarity in comparison. Suburban Middle School was a much larger school, and because of the larger population of students, the school had many more special education teachers than RCMS. That does not mean that SMS had abundant SET staffing and the RCMS staff was insufficient. Student-to-teacher ratios in special education must meet federal guidelines in all schools (MS Special Education
Advisory Board, 2016). However, a larger special education department and a larger, more specialized, administrative staff did award SMS some advantages over RCMS - at least where co-teaching is concerned. Most notably, at SMS each department was responsible for developing and maintaining its own substitute plan, meaning that if a contracted substitute teacher was not available, only teachers within that department would be responsible for filling that need. Suburban Middle School was also well-practiced in co-teaching and prioritized special education teacher presence in inclusion classrooms, due in part to the school’s ATSI status. Rural County Middle School was in the early phases of transitioning to co-teaching in response to state and district mandates, and administration and teachers were still investigating what Least Restrictive Environment meant for their students. At RCMS, there remained some notion that SETs were expendable in the general education classroom.

**Differences in Teacher Experience and Personal Attributes**

There are variations in teacher experience that also influence cross-case comparisons. On the RCMS team, the MT was a veteran teacher with a long-standing reputation of outstanding student performance. She had an advanced degree with a special education emphasis and had taught inclusion classes without co-teaching for many years. Granted, students with cognitive disabilities were not included in these classes. The MT at SMS was a recent college graduate who was learning to put his training into practice while simultaneously learning how to co-teach. His first experience with inclusion classrooms was in a co-teaching environment, and he was mentored by veteran SETs.

Looking across the SETs, at RCMS the SET was admittedly insecure in her math content knowledge, and, for a mid-career teacher, she had little to no experience with co-teaching. Moreover, her specialty was in the behavioral sciences, not curriculum and instruction. The SET
at SMS was very comfortable with her math content knowledge and had many years of experience with a variety of co-teachers. Her licensing in Special Education Fundamental Subjects also certified her highly qualified to teach mathematics to students with disabilities.

Case comparisons must also consider the socio-relational differences that exist between a team of two women who are roughly the same age and are both biological females, as opposed to a team comprised of a man and woman who were raised in different social generations and are opposite biological sexes. At least one teacher on each team alluded to the influence of gender or age commonalities or differences on their relationships. For example, Carla (MT, RCMS) mentions that one reason her relationship with the other SET in her classroom was different because he was a man, and explained that interpersonal relationships with men at work was “just different” than those with female colleagues.

For the most part, these divergencies merely allowed for a richer comparison of teacher perceptions across diverse backgrounds. However, Allie and Carla’s limited time together may have limited the discovery of patterns related to the co-teachers’ perceptions of roles in planning and delivering instruction since their circumstances encouraged the predominant use of the One Teach, One Assist model. Indeed, more noticeable patterns were found across relationship development and team building than classroom instructional practices.

Understanding How the Co-Teaching Relationship Develops

Relationship-building was a common thread throughout both cases. Developing a personal and professional teacher relationship was a multi-step complex process that was wrought with confounding influencers, but there were two actions that both of these co-teaching teams promoted during the relationship-building process. First, partners took the initiative to get
to know one another professionally and personally. Second, they established a common goal. In both cases, the SET initiated relationship development.

Professional relationships were built first, and once a common goal was established, the teams began to develop more personal relationships. In Carla and Allie’s case, this professional relationship formed when they were colleagues, not co-teachers, and evolved into a friendship. However, they had to start over, in a way, when they were paired as co-teachers because they had to get to know each other professionally within their new context. Steve and Betsy were strangers, so this progression was more obvious within their relationship.

Communicate. “Fake It ‘til You Make It.”

Both teams prioritized communication. This supported the evolution of their colleague relationship into a close professional partnership, which eventually looked more like a professional friendship. All four teachers declared that communication was key, and all four advised that if paired teachers can do nothing else, they should communicate. In the case that relationship-building was hard, or when partners struggled to find common ground, the advice was simple, “Communicate.” Betsy and Allie, the SETs, separately advised teachers to “Fake it ‘til you make it.” Talking through differences was an avenue to compromise and learning from each other in this way allowed the team to establish common goals. Common goals led to a common plan, which deepened communication, which then deepened the relationship. Deeper relationships grew trusting relationships.

Trust was a big deal for the teachers in both cases. Trust grew with communication, but the types of conversations that developed trust required teachers to be vulnerable, humble, and honest. It was difficult for the teachers to initiate these critical conversations on their own. Both cases credited the facilitation of these conversations to their shared professional development and
recommended that trust be developed through “having
maybe some facilitation of honest questions where there is an opening up of a relationship
there,” (Betsy, SMS-ST) or “like roles and expectations that were common that could be a
possibility to start the conversations off.” (Allie, RCMS-ST). So, the teachers appreciated having
some sort of guiding protocol that established professional trust as an expectation. Open and
honest communication led to the development of personal trust, which deepened the teacher
relationship. Once trust was established, the teachers felt safe to engage in deeper and more
critical discourse, which led to mutual risk-taking. When they trusted each other, they felt
comfortable trying new methods together in the classroom. Risk-taking led to new goals, new
plans, and new conversations which led to more mutual risk-taking. This cycle, which I have
described as a Professional Growth Cycle provides a visual representation of the teachers’
descriptions of how relationship-building led to mutual professional growth (Figure 2). This
process was most evident in Steve and Betsy’s co-teaching because of the amount of time they
were able to spend together in the classroom. However, there was evidence of the cycle, or at
least the early stages of cycle development, in Carla and Allie’s partnership. All teachers
reported that the unique relationship they shared with their co-teaching partner was beneficial in
that they felt more confident in their practice and felt that they were growing professionally.
Interestingly, both SETs reported the most gains in confidence were related to when the MTs
trusted them to teach math to all students.

There existed a solidarity in the co-teaching relationship among these teachers, an
assurance of “having your back” (Betsy, SMS-SET) that the teachers claimed to be unique to co-
teaching partnerships. Hard conversations in this space felt more like team building than
criticism. The teachers found that the more they were able to freely provide feedback to one
another, the more they grew as a team and as professionals. Better yet, in both cases, the teachers noticed that their relationships had an influence on the students in the classroom. The classroom community became an extension of the team and developed into an inclusive learning hub that was safe, supportive, and enjoyable.

**Figure 2. Co-Teaching Professional Growth Cycle**

![Co-Teaching Professional Growth Cycle](image)

**How Teachers’ Beliefs About Co-Teaching Influence Team-Building**

The different school contexts caused some notable co-teaching teaming and instructional practice dissimilarities between the two cases. These dissimilarities were not contradictory to one another but were different enough that only a few patterns could be observed across team roles. The co-teacher teaming was alike in the management of field-specific roles. Both MTs managed content standards and lesson planning and both SETs managed IEP protocols. At SMS, the lesson plans were developed within the Math Department, but Steve and Betsy together adjusted the plans to meet their students’ needs. At RCMS, Carla planned the math lessons but consulted Allie when she had questions about lesson pacing or accommodations. Otherwise, Allie read Carla’s plans to prepare educational supports for the students. Both MTs were accountable for
standardized test scores, though the team at SMS appeared to be more mutually invested in the accountability measures. Additionally, both SETs advocated for the team with administration. At SMS, Betsy stood up to administrators when Steve was at risk of being reprimanded because their lesson pacing remained a day or two behind the general education math classes. She argued for pacing leniency in their work to meet the learning needs of students with disabilities. At RCMS, Allie convinced the school district to allow their team to co-teach the entire year instead of transitioning to a pull-out model in the spring to prepare for state testing.

**How Past Experiences Influenced Teachers’ Approach to Co-Teaching**

The roles that divided MTs and SETs in team formation appeared to be related to the historical co-teaching experiences of the teachers. Carla was the only MT with co-teaching experience outside of Allie. When asked about her worst experience co-teaching, Carla explained that she had worked with teachers who either only helped “their own” students or came into the room, played on their phones, and did nothing. Steve’s experience was limited, but he did student-teach in an inclusion classroom. He just did not remember if there was any co-teaching. The experiences shared by the MTs were at the least forgetful, and at the most, frustrating, or uncomfortable. Between the two MTs, Carla was most likely to address a desire to maintain control of her teaching and her classroom, but it was unclear whether this was related to her co-teaching history or her reputation of being a teacher who produced high test scores. However, having experiences with SETs that she deemed untrustworthy most certainly may have played a part in her need to remain the “lead teacher” in the room.

**Special Education Teacher Initiates Team-Building.** The SETs told very different stories than the MTs when sharing their co-teaching histories. All their experiences were memorable, and the worst of those were much more than frustrating or uncomfortable. The
stories the SETs told involved emotional and professional trauma. During one school year, Allie “cried every day in the parking lot.” The teachers had been made to feel unwelcome, unappreciated, and insignificant, like their hands were tied, and they were silenced. These assignments were hard. They “hurt” (Allie, RCMS-SET). So, when it came to building a new team, Allie and Betsy attacked the challenge with intention and with a plan. The initial actions that the SETs took when paired with a new partner were the same. They had two main objectives: get to know their partner’s communication style and find their boundaries.

It was striking when Steve explained the evolution of his and Betsy’s partnership in such organic terms, but Betsy called it work. For Steve, their collaboration bloomed from their relationship. Betsy explained that their team was an intentional creation, that was planned, developed, and maintained. It was a strange juxtaposition until the same pattern emerged in Carla and Allie’s conversations. Carla made comments like, “[Allie] made it a point to get to know me” and spoke of how she did not have to ask Allie for anything, Allie just naturally knew what to do. Yet, Allie’s experiences within the same phenomenon included being intentionally attuned to Carla’s needs and figuring out how to fit into the classroom on a daily basis. Allie studied published research to find ways to better insert herself into the classroom environment. She self-reflected and asked for feedback. She was continually aware of every way the partnership could go wrong, so she worked hard to make sure that their collaboration remained active and effective. In both cases, the MTs acted as the object of team-building while the SETs assumed the action. To be clear, neither MT was docile. There were many formable actions that both math teachers took that advanced the team once the foundation of the team was established. However, the cornerstone laid at the birth of both partnerships was a stone that the SETs hewed from their own lived experiences and carefully set in place.
Math Teachers Set the Boundaries. Boundaries were a recurring concern in both SET’s accounts of co-teaching. They spoke of the boundaries in the classroom as being unspoken limits instituted by general educators that determine the extent of the SET’s authoritative space in the classroom. Finding those boundaries early in the partnership was vital because the SETs felt that boundary crossing before a relationship was established would be detrimental to the partnership. Allie (RCMS) said that her worst experience had been so hard because she crossed boundaries without conversation. Betsy (SMS) spoke of learning how to strategically insert herself into general education classrooms in a way that allowed her to claim an authoritative space without disrupting boundaries. Allie mentioned that working with first-year teachers was most difficult because “they don’t know where the boundaries are.” And Betsy spoke of “stepping back” to let first-year teacher Steve establish classroom authority and set his boundaries before she inserted herself into classroom instruction. The SET laid the foundation that established the relationship and created an opportunity for communication, but what happened next was at the mercy of the MT and whether they were willing to allow space for the SET in their classroom.

Boundary-Crossing. The difference in the SMS and RCMS boundaries was where the data began to diverge. At SMS, Betsy gave Steve room to establish boundaries, but he built these boundaries with their partnership in mind. There were boundaries of expertise, but that appeared to be the extent of the instructional divide and the pair crossed these boundaries often. At RCMS, Carla had taught inclusion classes for many years without an inclusion teacher, and she could not plan for Allie’s presence in the classroom from day to day. So, even though Allie was at ease in the space, had authority, and the two worked together in the classroom very well, there was a clear boundary between being the content teacher and the learning specialist. Carla and Allie did
not speak of crossing boundaries into one another’s expertise beyond what was required to learn from one another (Figure 3).

**Figure 3. Rural County Middle School Co-Teaching and Consultation Structure**

The two conflicts presented by the teachers at SMS were examples of the type of boundary crossing that the co-teaching team engaged in regularly. Steve pushed Betsy to increase rigor for students with disabilities. By doing so, he crossed a pedagogical boundary between the fields and engaged Betsy in critical discourse about best practices. He stepped over into Betsy’s professional territory and asked her to do something different. The same happened when Betsy asked Steve to debrief instructional moves with her after classes. She crossed over into Steve’s professional territory and asked him to learn something new and view instruction from a different perspective. The teachers actively engaged in the space at the edge of their boundaries, consolidated their differences, and consequently pushed the boundary. The more they engaged, the less they spoke of boundaries (Figure 4).
Alternatively, at RCMS Carla and Allie’s friendship made professional boundaries less obvious, but there was a clear divide between their fields (see Figure 3). Instead of boundary crossing, they appeared to have more boundary meetings. Carla planned lessons and Allie added in accommodations and learning supports. Allie’s role in the classroom was to fill any needs she observed and provide support. She made her plans based on what she understood Carla needed. So, even though the boundaries were not obvious, they guided classroom interactions.

It is not fair to assume that Carla and Allie never engaged in boundary-crossing. They each told of conflicts that were boundary-crossing engagements. For example, Allie approached Carla about rearranging the room so often because it disoriented some of the students with neurodivergence, and Carla adjusted this practice. Carla spoke with Allie about having too many off-topic conversations with students during class. Allie believed personal connections were important for students’ behavioral development, but understood she needed to be more reserved during instruction. However, there was no clear indication that these crossing events were developed beyond professional courtesy, advising, and compromising. Carla and Allie practiced boundary crossing as needed, but it did not appear that they were continually engaged.
Teachers’ Perceptions of Working Together

Both co-teaching teams spoke about the significance of being balanced in their partnership. Allie, very creatively, described how she and Carla balance one another in the classroom. She, the no-holds-barred, tell-it-like-it-is, social butterfly, found a counterbalance in Carla, the shy, mild-mannered, model of self-control and delicacy. Their balance was the strength of their partnership. They considered this to be a positive aspect of their work and reported that their administrators also described the pair as “balancing each other really well.”

When Steve and Betsy described the outcomes of the growth they experienced in their second year of collaboration, they often referenced their balance. When Betsy spoke of the setbacks they suffered the first year, it was because “we just never could find that balance.” Moreover, they voiced certainty that their co-teaching was something special in the second year because they felt they “had a really good balance.” Balance was a fundamental characteristic of both partnerships.

Differences in the cases’ contexts influenced how the teams described the ways in which they found and maintained a stable balance. At RCMS, Carla and Allie were allowed to be in the classroom together for only about half, or possibly fewer, of their instructional days. They defined their balance mostly by their opposite personalities, the ways in which they related to their students, and the different jobs they had on the team. Their interactions with the students extended from their personalities. Allie was assertive in disciplinary guidance and playful during instruction, very much a cheerleader and friend to the students. Carla took a meeker approach to discipline and her classroom presence was firm yet nurturing. Much of their conflict concerned differences in personalities or student interactions.

When it came to Carla and Allie’s contributions to the team, there was a clear focus on being balanced, yet separate. When Allie was in the classroom, she provided support for the
students behind her own boundary (see Figure 3). She did not step into math instruction unless “allowed” or asked to do so. Carla did not necessarily hold the line between her role and Allie’s role. She was not territorial; the environment was friendly and inviting. However, there was a sense of Carla making allowances within her personal space for Allie to “assist.” Moreover, the teachers inhabited two different spaces in the room - Carla seemed to own the “stage” in the classroom and Allie chose to join the students as a participant. From their interviews and interactions in the classroom, Carla and Allie appeared to be two different teachers, working two different jobs, but doing so in a way that was very complementary to one another.

Alternately, Steve and Betsy were together in the classroom regularly. When they spoke of balance, they also used words and phrases like “cohesion,” “flow,” “ping-pong,” and “back-and-forth.” They described their personalities as being opposites, but then Steve followed by describing their partnership as “one teacher with two different personalities.” The classroom felt like a shared space. While the teachers were more inclined to venture near their belongings (Steve at the main desk, and Betsy near the rear of the room) whenever students were being assessed, they shared the classroom space and the “stage” equally. They crossed over into one another’s expertise regularly in the classroom. Steve provided students with educational supports and Betsy led instruction. Much of their conflict involved issues of expertise. Steve pushed Betsy to provide the students with more rigorous instruction that allowed the students to productively struggle. Betsy pushed Steve to incorporate more research-based special education teaching practices into his own instruction. Steve and Betsy’s balance went beyond opposites who complement each other. They were working together to incorporate their expertise to balance their combined practice.
Teachers’ Understanding of the Effects of Co-Teaching

All the participants considered the practice of co-teaching to be beneficial to both their students and their own professional learning. There was at least some mention of improved performance on standardized testing from both teams, but SETs were clear that the value of co-teaching was how they saw their students find their voice and their place in the classroom. Allie (RCMS) said when she was in the classroom, students seemed more comfortable asking questions and she felt like they were more comfortable in the class when she was learning alongside them. The RCMS team felt that their friendship and comfort with one another also put the students at ease. Betsy (SMS) said that her students enjoyed being in the general education classroom because of co-teaching, and her active role in the classroom gave the students a sense of belonging. The teachers were certain that the benefits of their co-teaching extended beyond the students enrolled in special education. Other students in the classroom that did not have IEPs were helped by the supports and accommodations that were available in the classroom.

Steve, Betsy, and Allie reported growing professionally through co-teaching. At RCMS, Allie spoke of growing more familiar with mathematics, which increased her confidence in the subject, and helped her to better accommodate her students. Carla did not specifically speak on professional growth but did say that she thought the partnership was beneficial to her practice. Steve and Betsy both considered co-teaching an exercise in professional development. Betsy used the term “holding each other’s feet to the fire” to illustrate how she and Steve pushed each other to step outside of their comfort zones and look at things in a new way or try new methods. They felt challenged and reported that co-teaching was making them both better teachers.
CHAPTER 5

DISCUSSION

Research and advocacy for co-teaching tend to focus on the co-teaching process (Hackett et al., 2021) and the support that is needed to implement functional co-teaching programs. We know little about the lived experiences of the persons within the practice, like what makes teachers want to share their practice in such close proximity to one another, or how they work together to form a co-teaching team in the classroom. Years of educational research and writings on co-teaching explain what co-teaching should be, but what do teachers who are engaged in co-teaching think it is? How does co-teaching make sense to them?

For the past year, I have followed two pairs of teachers who were assigned to co-teach in middle school mathematics classrooms and who were actively engaged in developing their co-teaching practice within their respective contexts. My goal was to observe their interactions and listen to their stories about co-teaching. I wanted teachers to describe their experiences using their own thoughts and feelings. I refrained from imposing any pre-determined perimeter around their definitions of the practice, so that I could better understand how these teachers made sense of co-teaching, specifically mathematics co-teaching, in their middle school classrooms. I wanted to know how they defined the co-teaching relationship with their current partner, and I wanted to see how their beliefs about their place within this relationship and within the co-teaching team,
or their roles on the team, were demonstrated in the way they professionally interacted with one another.

**Defining Co-Teaching in the Middle School**

The procedural definitions for co-teaching presented by the cases were somewhat different, but not conflicting, and stemmed from their school context. Everyone procedurally defined co-teaching as two teachers in the classroom for at least most class meetings supplemented by some schedule of planning and consulting outside of instructional time. These findings align with most mainstream definitions of co-teaching practice (Friend et al., 2010).

Concerning definitions that emphasize the human components of co-teaching practice, cross-case synthesis revealed a few common interpretations across all participants. The dominant relational description was that co-teaching was that it was two different systems balanced by one common goal. The systems included the teachers, their individual personalities and expertise, and the unique ways in which they each interacted with and supported students. The common goal was for all students to experience success. Foundations of communication, trust, and a desire to grow professionally supported and sustained their balance.

**The Co-Teaching Relationship**

There were two types of relationships in this study: friends who became co-teachers, and co-teachers who became friends. Nonetheless, both argued that friendship was the byproduct of good co-teaching partnership. This was not surprising, as the types of communication that were required to develop a trusting relationship pushed teachers to be open, honest, and professionally vulnerable with one another. Even if the relationship remained professional, co-teachers reported having bonds with one another that they did not share with other teachers.
Is Co-Teaching a “Marriage”?

Kohler-Evans (2006) and others have used the metaphor of a “marriage” to describe the co-teaching relationship. However, the metaphor may be problematic, since marriage is generally known to be an extremely close intimate relationship between two attracted individuals who entered a life-long partnership by choice. Typically, co-teachers do not get to choose their partner, nor do they share the intimacy that the word marriage connotates. All participants found the metaphor of marriage to be at least slightly problematic, citing the absence of choice and the presence of multiple partners in the school. Even though the team at SMS used a parenthood analogy to illustrate the united front co-teachers held for their students, they felt that co-teaching most closely resembled a sibling relationship. The RCMS team felt marriage described the way they were expected to work together, but they described their relationship as a close friendship. Since the marriage metaphor aligns better with the co-teaching procedures and not the interpersonal connection between the partners, like other research, calling co-teaching a marriage neglects the human component.

Teachers are rarely allowed to choose their co-teaching partner (Strogilis et al., 2023), so if marriage were the appropriate analogy, teachers would need to be culturally familiar with the practice of arranged marriage and be able to view the practice favorably. Arranged marriage is viewed negatively by a vast majority of Americans, but research has indicated that individuals in carefully selected arranged marriages can and do enjoy fulfilling partnerships with their spouses because of the relationship that partners develop over time (Bradbury & Karney, 2014). So, arranged marriage would be a better metaphor since co-teachers desire to remain together long-term and longevity contributes to co-teacher relationship formation. However, cultural
boundaries may transfer the negative stereotypes associated with arranged marriage onto co-teaching, and thus further stigmatize the practice.

The co-teaching partnership is better to be likened to any close relationship where there is a standard of solidarity and trust. Ryan and Deci (2014) explain that human motivations to join in a practice are supported by the basic psychological needs of the person – the need for relationship, autonomy, and competency. Autonomy is thwarted when partnership choice is removed, but the SET’s move to navigate boundaries early in the relationship, gave the partner-teacher an opportunity to invite co-teaching into the space by choice. The SET is further motivated by the need to form a relational connection with the general educator. When both autonomy and relational needs are mutually met, the teachers are more comfortable engaging in conversations that build the relationship because they also feel supported in their need for competency. Needs-meeting is a vital part of the co-teacher relationship, because when teachers feel autonomous in their work, they are less likely to be defensive in conflict (Knee et al., 2013), and they are more likely to be intrinsically motivated to engage in practices that facilitate professional growth (Deci & Ryan, 2000).

**Two Balanced Systems**

The participants’ roles on the team extended from whom they perceived themselves to be as professional individuals within their immediate context. This included their inherent personality traits, professional histories, job responsibilities, their propensity toward professional growth, and their professional confidence. Through the lens of the Human Activity Framework (Engeström, 2014), each teacher worked within their own system in the school. The teachers shared some commonalities that are consequences of shared space and administration, but for the most part, each teacher had different rules, roles, and objectives within their individual systems.
(Figure 5). For example, the relationship between both MTs and SETs with their work objective was mediated by their levels of professional expertise and teaching experience. However, the rules that bound their work were different. Math teachers were held accountable to the content standards and the expectations of high-stakes testing. Special Education teachers were responsible for instituting federal mandates, upholding the expectations of stakeholders (e.g., parents and medical professionals), and they had to also navigate boundaries within general education classrooms. Furthermore, while the objects of each system, the primary objective of each teacher, were somewhat different, the goal of both teachers was the same. Every teacher sought successful outcomes for all students.

**Figure 5.** Mathematics and Special Education Individual Activity Systems

The practice of co-teaching can also be considered a unique activity system (Hackett et al., 2019). According to the teachers in this study, the rules, community, division of labor, and object of the co-teaching system were something different and were in addition to their work in the school (Figure 6). One team further believed that mathematics co-teaching was a specialized

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*Note.* The diagram was adapted from Engeström’s Human Activity Theory Framework (1987, 2014) and populated by teachers’ perceptions of their roles in the classroom and school.
type of co-teaching, but that sentiment was not shared by the other case. The comparison of the two cases revealed differences in how each team entered this co-teaching space. It appeared, at least in the two cases in this study, that teachers did not leave their individual systems and then enter a new system when they were in the co-teaching space. For example, the MT was still a math teacher when in the inclusion classroom – he or she did not shed the cultural context of teaching mathematics in an accountability-driven field and suddenly became only a co-teacher when the SET entered the room. Rather, both the MT and the SET teachers remained in their individual systems and the co-teaching space was created when MT and SET worked together to merge their respective objectives.

**Figure 6. The Co-Teaching Activity System**

![Diagram of the Co-Teaching Activity System]

*Note.* The diagram was adapted from Engeström’s Human Activity Theory Framework (1987, 2014) and populated by teachers’ perceptions of their roles in the classroom and school.

**Balancing Expertise**

In the RCMS case, the teachers worked together as two separate experts with a common goal. While there was some meeting of their objectives, grade-level proficiency and student access, they did not cross over into these spaces any more than was necessary for consultation.
This does not mean that the students with disabilities did not have access to the course material in the SET’s absence, nor does it mean that the two teachers were not providing equitable instruction for students as individual teachers. They were working toward co-teaching, and working toward a common outcome, but they were working through their own practice (see Figure 3) - their own systems - to achieve the desired objective and outcome. For example, when the SET was in the classroom, she provided the expertise needed to assure the students had access to the curriculum while the MT provided the content. They each managed their own outcomes. When the SET was absent from the classroom, she provided the appropriate tools to the MT through consultation, and the MT adjusted her objective to include both content and access. It was not clear whether consultation resulted in the merging of objectives. This case managed a balance of expertise, accentuated by their complementary personalities, to achieve the co-teaching outcome.

**Boundary-Crossing and “Cohesive” Balance**

The SMS case shared the same expertise balance that was observed in the RCMS case. However, at some point in their practice, the SMS team pushed through their expertise boundaries and began crossing over into their partner’s space to align their attitudes toward teaching and students. This space beyond the boundaries of their own system is called the Third Space (Gutiérrez et al., 1999). The Third Space is a discursive space where conflicts are resolved and change is catalyzed. The Third Space was the area where two objectives joined, so that grade level objectives and growth crossed over student access, and thus created a third objective – equitable instruction (Figure 7). It was in this space that the two activity systems, MT and SET, began to merge into one co-teaching system.
We can understand how teachers learn to make sense of co-teaching by examining their work within this Third Space and how this expanded interaction of their activity evolves into new opportunities for professional learning. The combined object of their boundary crossing, or the third object, was a fluid space much like Vygotsky’s Zone of Proximal Development (Engeström, 2001; Gutiérrez et al., 1999). The type of learning that this team engaged in was similar to Engeström’s (2001) Expansive Learning Cycle. In the co-teaching relationship, this expansive learning cycle involved the professional growth of the teachers and was dependent on trust. In Figure 8, The Professional Growth Cycle (Figure 2) that emerged in cross-case synthesis is compared with Engeström’s Expansive Learning Cycle.

The mathematics and special educators in this study defined co-teaching as a method of balancing teacher expertise in ways that lead to professional growth and successful student outcomes. Regular and dependable shared instructional time gave teachers the opportunity to
push beyond the boundaries of their own expertise and join in a system of expansive professional growth fueled by conflict and resolution that catalyzed change in the classroom. Moreover, the lack of time together was a limit to professional growth for other teachers. Kohler-Evans (2006) charged that if teachers cannot co-plan together, then co-teaching should not be used. The experiences of these teachers suggest that regular co-instruction may carry the same significance for inclusion classrooms.

**Figure 8. A Comparison of the Professional Growth Cycle and Expansive Learning Cycle (see Figure 2; Engeström, 2001)**

The special educator that spent more time in co-instruction was more confident in her mathematics content knowledge and held a more authoritative presence in the classroom. She saw herself as a math teacher, the students understood her to be a math teacher, the MT trusted her with the content, and she performed as an additional math teacher in the room. The special educator who spent less time in co-instruction was noticeably less confident with the content and took on an assistant-type role with content instruction but remained authoritative in her knowledge of behavior management and student support.
Limitations and Implications

The purpose of the study was to tell the story of these teachers’ experiences with the phenomenon of co-teaching to better understand how a teacher may make sense of the practice. This study was not designed for statistical generalization to a larger population. In fact, Yin (2018) warns that designing case study for such generalizations is a “fatal flaw” (p. 38). The findings of case study can be analytically generalized to theory, much like analysis of a single laboratory experiment is generalized to a scientific concept beyond the immediate boundary of the experiment itself (Yin, 2018). The combined experiences of the teachers in this case study can be generalized to co-teaching theory and provide insight into how any teacher may approach a co-teaching partnership, both personally and professionally. The patterns that emerged did so across schools of vastly different sizes and across both new and veteran teachers. Furthermore, the experiences of these teachers align with findings from the dominant meta-syntheses in the field (Scruggs et al., 2007; Strogilos et al., 2023). The implications of this study are informative for administrators, teachers, and teacher educators.

Implications for Co-Teacher Training

Co-teaching was partially defined as a professional learning activity where teachers learn from one another. However, teachers who receive training in co-teaching have an advantage over those who do not (Meadows & Caniglia, 2018). Co-teacher training was recommended by all participants. Specifically, the teachers felt professional learning opportunities that facilitated the teacher relationship were most needed. Co-teacher and inclusive practice training should guide communication between partners, with a focus on the expectation of trust, and provide opportunities for teachers to practice planning together (Strogilos et al., 2023). Content development is also needed, as the teachers’ confidence in the content is a mediator in the co-
teaching relationship. It should not be expected that the SET become a content expert, or that the MT become fluent in special education practices. Instead, professional learning should center on how teachers can share their expertise with one another to facilitate Third Space discourse. Teacher educators should also seek opportunities to induce productive conflicts between participants in a safe learning environment and guide partners through mutual resolutions.

Pre-service training should include some guidance on expectations of co-teaching across fields. This study did not provide a conclusive understanding of what teachers needed from their pre-service education, but both general educators felt that they were thrown blindly into co-teaching with a special educator when they began their career. Preparation for the purpose of inclusion co-teaching and the roles associated with the practice would be beneficial to content-focused pre-service teachers (Paulsrud & Nilholm, 2020; Solis et al., 2012). Study participants also recommended having some type of in-service orientation for co-teachers at the beginning of the school year that would allow veteran co-teachers to share experiences, tips, and support, to alleviate some of the common fears and misconceptions associated with co-teaching.

Professional learning opportunities for school administrators are also needed. It is not enough for teachers to want to co-teach. Administrators must understand the significance of prioritizing teacher presence in the co-teaching space. Providing some time for administrators to engage in professional development alongside the teachers assigned to co-teaching in their school would be beneficial to the students whom the school serves. Administrators should be involved in training that promotes their understanding of the importance of teacher co-planning and co-instructional time, as well as methods to promote parity among teachers and avoid the lead teacher/assistant teacher stigma of co-teaching (Scruggs et al., 2007).
Implications for Practice

Co-teaching is one of many inclusive practices that protect the educational rights of students with disabilities (Kohler-Evans, 2006). If schools intend for teachers to co-teach, then administrators must prioritize co-teaching above all other non-instructional teacher duties. If teacher co-planning and co-instruction time cannot be upheld, then administrators should seek out other inclusive models, like teacher consultation, and adhere to whatever model can be practiced with fidelity. Children with disabilities have a mandated right to Free and Appropriate Public Education (IDEA, 2004) that includes high-quality instruction taught by highly qualified teachers. Implementing a co-teaching model to fulfill this mandate, and then setting schedules or supporting school cultures that make it difficult or impossible for teachers to co-teach the children under their care is a disservice to the students and the teachers (Strogilos et al., 2023).

The participants in this study found it easier to access co-planning time than co-teaching time, but co-planning should not be overlooked. Co-planning time together prevents disparity between the teacher roles in the classroom (Embury & Dinnesen, 2012) and promotes the sharing of expertise which promotes professional growth cycles. This study demonstrated that teachers do not necessarily have to plan lesson content together, but they do need to co-plan how the lesson content will be presented in their co-taught classrooms. Co-planning should include instructional moves, decisions about which tools will be available for students, anticipated student responses and possible misconceptions, and plans for how teachers will address mistakes and misconceptions. Attention should be placed on the pacing needed for the students in the classroom, and not on the pacing standard of the school (Scruggs et al., 2007). However, co-planning should be attentive to rigor, and co-teachers should not allow pacing in inclusion classes to fall farther behind the general population than is absolutely necessary.
Finally, teacher compatibility should influence pairing. If possible, administrators should consider whether teachers would make a good interpersonal team when making assignments. If staffing numbers do not allow for such discretion, then relationship building should be teachers’ first priority, and the teachers should be given time and space to do that work. Furthermore, team longevity supports the development of inclusive and equitable practices, so teachers should be allowed to remain with the same partners for as long as possible and teachers should co-teach together for as many classes as possible.

**Future Research**

Co-teaching research focuses on the procedures of co-teaching, but there is little known about how co-teachers form effective partnerships and what these co-teachers actually do in the classroom (Hackett et al., 2019; Strogilos et al., 2023). This study provides only a peek into the classrooms of one team that is actively engaged in co-teaching, and another that is meeting students’ needs by supplementing co-teaching with consultation. A follow-up study should compare teams across like schools to explore patterns among co-teachers in similar contexts. These studies may also consider student interaction and student experiences in these environments and may include exploring the co-teaching program as a whole across one school.

Three specific questions that warrant further exploration emerged from this study. The juxtaposition of the co-teaching perceptions of a first-year teacher who was informally mentored by a special educator and the co-teaching perceptions of a veteran general educator was interesting. A study restricted to first-year teachers’ co-teaching experiences would provide insight into how teachers develop understandings of co-teaching when their perceptions are not mediated by experience. Secondly, more research is needed to verify the Professional Growth Cycle of co-teaching and understand its relationship to the Expansive Learning Cycle. Finally,
one team of co-teachers in this study declared adamantly that mathematics co-teaching was a unique type of co-teaching. This claim is worth exploring, especially at the secondary, or middle grade, level.

Conclusion
Recent studies of co-teaching practice have revealed some growth in the way co-teaching is implemented in schools (Strogilis et al., 2023), but more research is needed to understand the nuanced complexities of the co-teacher relationship (Hackett et al, 2021). For the past few decades, co-teaching research has been bookended by the need prove that co-teaching produces statistically significant gains in student performance so that the practice can be more uniformly implemented and the need to implement uniform practice so that reliable data is available to determine the statistical impacts of practice. However, many qualitative studies like this case study show that co-teaching is a valuable practice that teachers believe to be beneficial to both their students and their own professional learning. Teachers, by nature of the field, seek equity and justice for their students, and co-teaching is a way to join two fields of expertise to ensure that all students are receiving the rigor of a high-quality education program and the strong supports guaranteed to them to meet their learning needs. Prioritizing co-teacher collaboration and teacher relationship-building counteracts disparities in co-teaching roles, and by teachers’ own reports, also counteracts disparities among the students in inclusion classroom.
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REFERENCES


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APPENDIX
APPENDIX

Proposed Interview Questions

**Introduction:** In this interview, I will be asking you questions about your experiences co-teaching in your school with your partner teacher. Neither your partner nor your administration will see this interview and any responses provided will be anonymized in the report. However, since this is a case study, your identity will likely be obvious to those closely involved in the study, like your co-teacher and your administrator. The purpose of the study is to understand how you make sense of co-teaching in the middle school mathematics classroom. It is helpful to know which parts of the co-teaching relationship are working well and it is also helpful to know what is not working. So, I do ask that you be open and honest. Much care will be taken to ensure that your reported responses will not harm you in any way. You will have the opportunity to review the reported results and object to the inclusion of any quotes or items that can be directly traced back to you that you feel may be harmful to your career or your relationships.

**Individual Interviews**

History:
- Have you had co-teaching experience with a teacher other than your current partner?
  - Give a brief history of your co-teaching experience.
- What is the worst co-teaching experience you have ever had? What is the best?
- What was your first impression of your co-teacher?
- If you have only worked with your current partner, tell me about that experience. How have you and your partner grown as co-teachers in your time together?
- What did you understand about co-teaching when you first entered the teaching field?
- Did you want to co-teach? Or was it something you did because you were told to do it?

Current experience:
- Describe your partnership with your current co-teaching partner.
- Describe a typical co-teaching day with your partner.
- What happens in the classroom when you share the classroom together?
- What is your role on your team? What is your partner's role?
- Are there specific “jobs” on your team that you do alone without any input from your partner? Why do you do these jobs alone? What would it look like if your partner assisted you in this job? Would you like for your partner to assist in this job? Why/Why not?
- Are there specific “jobs” on your team that your partner does alone without any input from you? Why do you think your partner does these jobs alone? What would it look like if you were asked to assist your partner in this job? What could you contribute? Would you like to contribute to this job? Why/Why not?
- Do you enjoy working with your partner? Why or why not?
- What is something about your partnership that you would like to improve upon? Explain.
● Is there anything you have had to confront your partner about lately in order to improve your collaboration? What did you do? How did it go? Did it resolve the conflict?
● What is something you wish your partner would do differently?
  o Have you spoken with them about this? Why or why not?
● Think of a time when you felt like you and your partner were teaching “as one” - a moment when you felt like you were a model co-teaching pair. What was happening? What were you doing? What was your partner doing? What were your students doing?
● Do you get to talk to your administrator together? Are you evaluated together?
  o What do you think your administrator would say about your team?
● Do you feel that your team is meeting the needs of the students in your classroom?
● Do you feel that it is necessary to teach together in the same space to meet the needs of the students? Plan together?
● Describe a time this year when you felt the most successful.
  o What made you feel successful?
  o Was this an unusual situation or typical? Do you often feel successful?
● As you reflect on a typical day, what are some things that you look for that allow you to say that the day was successful?

What does it all mean?
 ● How would you define the relationship that you have with your co-teaching partner? (Personally, and professionally)
 ● Does this relationship different that the collaborative partnerships you have with other colleagues? If so, why do you think that is? If not, do you feel that it should be different? How? Explain.
 ● Do you think you and your co-teacher collaborate together well? Explain.
 ● What is different about your team and other teams you work with or other teams you have worked on?
 ● Do you feel like you have something “special”? What is it?
 ● If your administrator asked you to present a PD on successful co-teaching to your general/special education colleagues, what big ideas would you share/what advice would you give?
 ● Why do you teach?

Team Interviews

History:
 ● When did you first start teaching together? Tell me about your first year of teaching together.
 ● What knowledge of co-teaching did each of you bring with you to the partnership when you first began working together?
 ● Did you discuss roles and responsibilities of team members when you began working together?
 ● What was most difficult about learning to co-teach with a new partner? What was easy?
 ● Did you feel comfortable giving each other feedback when you first started working together? Why or why not?
• How would you describe your co-teaching relationship before this teaching year?

Current:
• How would you describe your co-teaching relationship today?
• How do you provide feedback to one another? What is it that makes you comfortable giving and receiving feedback? In what instances would feedback be uncomfortable for you two?
• How often are you able to teach together in the classroom?
• How often are you able to plan together? What do you talk about when you do find time to plan together or consult together?
• Do your colleagues notice your co-teaching partnership? Do you stand out? What do they say? How does this make you feel about your roles on a co-teaching team?
• If you could change one thing about co-teaching to make it easier to work together more cohesively, what would that be?
• Define your partnership.
• Tell me about your planning time. What do y’all do when you get together?

Meaning
• What is something that makes you enjoy working together?
• If I were to tell you that your team had something “special”, what would you say that is?
• What are the biggest threats to collaboration in co-teaching? (Either in your team or something you see in others.)
• How do you think your partnership contributes to your students learning outcomes?
• What do you feel are the essential parts of co-teaching?
• If you could design an instructional model for students with learning disabilities what would it look like? Would it involve co-teaching?
Observation Protocol

**Field Notes**

**Date:** Date of Observation

**Location:** Team Number; School

**Type of Setting:** Classroom, Class period

**Time in Setting:** 1 full class period (50 minutes); 1 full class block (126 minutes)

1. Complete a sketch of the classroom, including desk placement. Number each occupied desk on the sketch, and place an “X” in each empty desk. Divide the room into appropriate sections and label each section with a letter. These designated sections will be used to track teacher movements during the lesson. The organization of these sections will be dependent on the classroom layout since care will need to be taken to differentiate classroom spaces that may be used for special education student segregation (like back tables used for pull-aside interventions), teacher lecture areas, and communal student areas.

2. Important things to notice before class starts
   a. Where is each teacher at the beginning of the class period?
   b. How do students greet each teacher as they enter?
   c. Can you surmise which students have IEPs and which do not based on how they enter the room, which teacher they interact with, and where they sit?

2. Examples of important things to notice during instruction
   a. Proximity of each teacher to students, to each other, and the “classroom stage” (main instructional space) throughout the lesson.
   b. Verbal communication between teachers
   c. Nonverbal communication between teachers
   d. Use of humor in the classroom
   e. Actions of each teacher. Who is teaching? Who is helping? What kinds of questions are teachers asking students? How are teachers helping students?

Sample Observation Template

<table>
<thead>
<tr>
<th>Observation</th>
<th>Reflection/Comments/Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET moves to A.</td>
<td>SET seems to be using A as a holding area until needed. Why does she continue to stay in this area of the room?</td>
</tr>
</tbody>
</table>
VITA

Education

Ph.D.  2023  University of Mississippi, Secondary Education, Mathematics
M.A.  2014  University of Mississippi, Curriculum and Instruction, Mathematics
B.A.  2010  University of Mississippi, English, Religious Studies

Honors and Awards

- Outstanding Doctoral Student in Secondary Education, School of Education, University of Mississippi, 2023
- Research-In-Progress Award, Mid-South Educational Research Foundation, for dissertation research presented at the Mid-South Educational Research Association Annual Meeting, 2022
- Recipient of the Thomas Richardson and Alice Ragland Lamar Memorial Scholarship, School of Education, The University of Mississippi, 2022-2023
- Diversity, Equity, and Inclusion Best Presentation Award, [Poster presentation], Graduate Research and Creative Achievement Symposium, University of Mississippi, 2022
- University of Mississippi, Center for Mathematics and Science Education Graduate Fellowship, 2012-2014 and 2019-2023
- Outstanding Staff Member, School of Engineering, University of Mississippi. 2010

Professional Service

- Conference Planning Committee, Association of Mathematics Teacher Educators, 2023-2024
- Graduate Student Ambassador, The International Consortium for Research in Science and Mathematics Education, 2022-2023
- Student Council for Diversity, Equity, and Inclusion; School of Education, University of Mississippi, 2022-2023
- Co-editor, The International Consortium for Research in Science and Mathematics Education Quarterly Newsletter, 2021-2023
- Conference Proposal Reviewer
  - International Consortium for Research in Science and Mathematics Education, 2022
  - Mid-South Educational Research Association, 2022
  - International Group for the Psychology of Mathematics Education – North America, 2022
  - Association of Mathematics Teacher Educators, 2020-2022
Publications

Conference Presentations

**International**


**National**
LaValley, B., James, J., & Steimle, A. (2023, February 2-4). *Supporting collaboration between mathematics and special education teachers* [Conference session]. Association of Mathematics Teacher Educators Annual Meeting, New Orleans, LA.


**Regional**
LaValley, B., James, J., & Steimle A. (2022, November 10). *Building elementary mathematics and special education co-teaching partnerships through content- and collaboration-focused shared professional learning* [Conference session]. Mid-South Educational Research Association Annual Meeting, Little Rock, AR.

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