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The Impact Of Selected Special Education Co-Teaching Models On Math And Reading Student Achievement And On Student Behavior In Kindergarten Through Fifth Grade

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THE IMPACT OF SELECTED SPECIAL EDUCATION CO-TEACHING MODELS ON MATH AND READING STUDENT ACHIEVEMENT AND ON STUDENT BEHAVIOR IN KINDERGARTEN THROUGH FIFTH GRADE

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Dedication

To Loraine, who made sure I had every opportunity for a great education.

Acknowledgments

Everyone thinks that teachers go into education because they love students, I went into education because I love teachers! They are the reason I wanted to be a teacher. Mrs. Taylor, Mrs. Snyder, Mrs. Davis, Mrs. Harris, and Mrs. Moss were such positive influences during my young life. My middle school teachers, Mrs. Cox, Mrs. Wilfong, Mrs. Hopkins, and Mr. Tormey were role models and nurturers. Mrs. Holmes, Mrs. Proctor, Mr. Beard, Mr. Arcand, Mrs. Day, Mrs. Hall, and Mr. Tormey (again) encouraged me to write, to read, to question, and to explore!

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I am eternally grateful to the educators whom I have worked with at Lee-Jackson Elementary, Agassi Pre-school, Mathews High School, Thomas Hunter Middle School, and West Point Elementary School. Teachers are the magic makers for me still!

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Abstract

Providing special education services for students with identified special education needs in the least restrictive environment continues to be a challenge for schools. The co-teaching model of special education service delivery provides an opportunity for students to receive individualized instruction, remediation, and practice in the general education classroom by the general education teacher or the special education teacher. Given the uncertainty surrounding the efficacy of co-teaching, there is a need to evaluate the practice based on its effectiveness in the specific setting of a small-town elementary school and based on important criteria of the specific setting. The purpose of this program evaluation study was to evaluate the effectiveness of the co-teaching model in this specific setting and whether this inclusive model of service delivery for special education students, impacts student achievement, student behavior, and what challenges and successes the teacher who work within this model face. Benchmark data and student behavior data were analyzed and the results showed that the co-teaching model had no effect on general education or special education students' performance on benchmark tests or behavior. Despite co-teaching having no effect on student behavior or benchmark performance, the teachers interviewed spoke very favorably about the practice of co-teaching. Teachers believed that co-teaching was a challenge to implement with fidelity, but that contrary to the evidence, the practice of co-teaching was successful. Recommendations include continued training and professional learning on co-teaching, as well as professional development on high yield instructional strategies.

THE IMPACT OF SELECTED SPECIAL EDUCATION CO-TEACHING MODELS ON MATH AND READING STUDENT ACHIEVEMENT AND ON STUDENT BEHAVIOR IN KINDERGARTEN THROUGH FIFTH GRADE

CHAPTER 1

Background

Equal access to education for all students has been an issue since the conception of schools in the United States. Students across the country attend school each year with varying degrees of experience and diverse abilities (U.S. Department of Education, 2010). Regardless of students' backgrounds and abilities, each school's primary responsibility is to provide their students with a quality education (Every Student Succeeds Act [ESSA], 2015). As part of receiving a quality education, students who qualify to receive special education services deserve the same opportunity to learn and grow as their general education peers (Hang & Rabren, 2009; Individuals with Disabilities Act [IDEA], 1994; Scruggs et al., 2007). A system should be embraced by schools where a diverse group of individual students are all included within a positive, inclusive, least restrictive learning environment (Kloo & Zigmond, 2008; IDEA, 1994; Solis et al., 2012).

Legislative History of Education for Students With Disabilities

Several key pieces of legislation have been passed to reinforce equal access to a free and appropriate education for all students, including:

- The Education for All Handicapped Children Act (1975) protected the rights of children with disabilities by providing for their individualized needs and improving their educational opportunities.

- Individuals with Disabilities Act (IDEA, 1994) made expectation that students with disabilities would receive their education with nondisabled peers in the general education classroom, the least restrictive environment.
- Individuals with Disabilities Educational Improvement Act (IDEIA, 2004) required inclusion in the general education setting for students with disabilities and ensured students with disabilities, and those in need of special education services, were given every opportunity to be educated with their typically achieving peers.
- No Child Left Behind (2006) increased the accountability measures for states and localities regarding the achievement of all students.
- Every Student Succeeds Act (ESSA, 2015) required all students be held to high academic standards and compelled school systems to be accountable where students were not making progress.

These laws were enacted to ensure students with disabilities would receive a free, public education with non-disabled peers within the least restrictive environment, including in general education classrooms when applicable (ESSA, 2015; IDEA, 1994; IDEIA, 2004). Additionally, these laws focus on progress, achievement, and accountability for all students (Education for All Handicapped Children Act, 1975; No Child Left Behind, 2006). However, it should be noted that instructional models, including co-teaching, are not specifically prescribed as part of special education law (Kauffman & Hallahan, 2011).

Co-teaching as One Instructional Model for Educating Students With Disabilities

There are several different ways school districts can obey these laws and meet the learning needs of special education students. Co-teaching is one of the service delivery options that can be considered for meeting the needs of students who have been identified as requiring

services (Friend & Cook, 2007; Friend et al., 2010; Murawski & Lochner, 2018). Co-teaching allows special education students to learn in an inclusive environment with their general education peers (Friend, 2019; Hang & Rabren, 2009). For generations, removing special education students from the general education setting was the most predominant service model for special education services (National Center on Educational Restructuring and Inclusion, 1995; Magiera & Zigmond, 2005). During this practice, special education students were isolated in self-contained classrooms and received special programming that was often unsuccessful (Bauwens at al., 1989). The thinking was the more severe the need, the more time the students should spend in a separate setting (Friend, 2019; Solis et al., 2012). Over the years, most schools moved to having special education students in general education classes for part of the day and in a self-contained setting for the balance of time (Friend & Cook, 2007), where students would receive specialized instruction individually or in a small group with other students identified as needing special education services (Friend et al., 2010; Scruggs et al., 2007). Although this was an effort to remediate students and help them to achieve their learning goals, these students would often miss new material or experiences being presented in the regular classroom (Friend, 2019; Sweigart & Landrum, 2015). Thus, this practice reinforced learning gaps and amplified that these students were different in some way (Friend, 2019).

In addition to the potential achievement gains and learning experiences that inclusion into the general education classroom presents, there are other possible benefits for students in the co-taught classroom. One benefit some authors point out about the co-teaching classroom environment is the belief that there are fewer behavior problems in these co-taught classrooms. These authors believe that positive behavior is one result of the co-teaching environment (Sweigart & Landrum, 2015). Murawski and Hughes (2009) ascertained that maintaining smaller

ratios of teachers to students in the classroom leads to fewer disruptions. Many suppose that student behavior is better in the co-taught classroom because there are two teachers attentive and present with a classroom of students (Walther-Thomas, 1997). Though the purpose of the co-teaching model is to maximize the learning potential for students with disabilities, it is very possible that there are secondary benefits to using the co-teaching model of special education services delivery.

Legislation and the Education of Special Education Students at Small Town Elementary

Legislation to protect special education students is clear. Students needing special education services should have every opportunity to be educated in the least restrictive environment alongside of their general education peers (ESSA, 2015). Across the United States, as well as in our school, students were missing large amounts of time in the general education classroom. They were working one on one or in small groups with the special educator in an office space or specialized setting (National Center on Educational Restructuring and Inclusion, 1995; Magiera & Zigmond, 2005). This caused students to re-enter the general education classroom and not know what was going on. They missed new curriculum and instruction, they stayed behind, and they did not attend fundamental fun and community classroom activities (Friend, 2019; Sweigart & Landrum, 2015).

School Response to Legislation. Our school system provides assurances for the education of our special education students. According to this school divisions website, one such assurance is that the students in our school district will be educated in the Least Restrictive Environment (https://www.wpschools.net/en-US/special-education-b928196fn). This elementary school's leadership team, with the legislation in mind (ESSA, 2015), and because it is the ethical thing to do, decided to move towards a more inclusive model of serving our special education

students. The 2019-2020 school year was our first year implementing the co-teaching model for teaching students who require special education services.

This study of a co-teaching model of special education service delivery in an elementary school seeks to determine the impact that the co-teaching model has on student achievement and behavior, as well as looking at how the co-teaching model was implemented and what effect the COVID disruption (March 13, 2020, to the present) had on the implementation of the co-teaching model. This evaluation of our co-teaching program will provide us with data and information that we will use to make decisions as we move forward with co-teaching and ever improving services, learning environment, and community for our special education students, general education students, and their teachers.

Program Description

For the purposes of this study, the co-teaching model, first introduced by Dr. Marilyn Friend, was the program being implemented and evaluated within a specific school context. Friend (2008) writes about six prevalent co-teaching approaches: One Teach, One Observe; Station Teaching; Parallel Teaching; Alternative Teaching; Teaming (Team Teaching); and One Teach, One Assist, formerly One Teaching, One Circulating (L. Cook & Friend, 1995; Friend, 2019).

The purpose of this evaluation will be to determine the effectiveness of the co-teaching model at Small Town Elementary School (STES) during the first year of implementation. In years prior, special education students were removed from the general education setting and provided with individualized instruction in separate classrooms or offices. During the 2019-2020 school year all, specialized instruction is occurring in the general education classroom. This change represents a fundamental shift in thought from believing that special education students

have to be educated separately to learn and grow, to special education students do not have to be removed from the general classroom setting to learn and grow. They can learn alongside of their general education peers (Friend & Shamberger, 2008; Idol, 2006; Shamberger & Friend, 2013).

Factors to be considered are math achievement, reading achievement, impact on student behavior, whether the co-teaching model of special education services in the general education classroom were implemented with fidelity, and what changes occurred with the implementation of co-teaching during the COVID disruption. Also, this program evaluation study seeks to better understand the impact of the co-teaching model on general education students in the co-taught classroom. An evaluation is an appropriate way to determine the usefulness of this model during the first year of implementation in order to make improvements with implementation of co-teaching moving forward.

Context

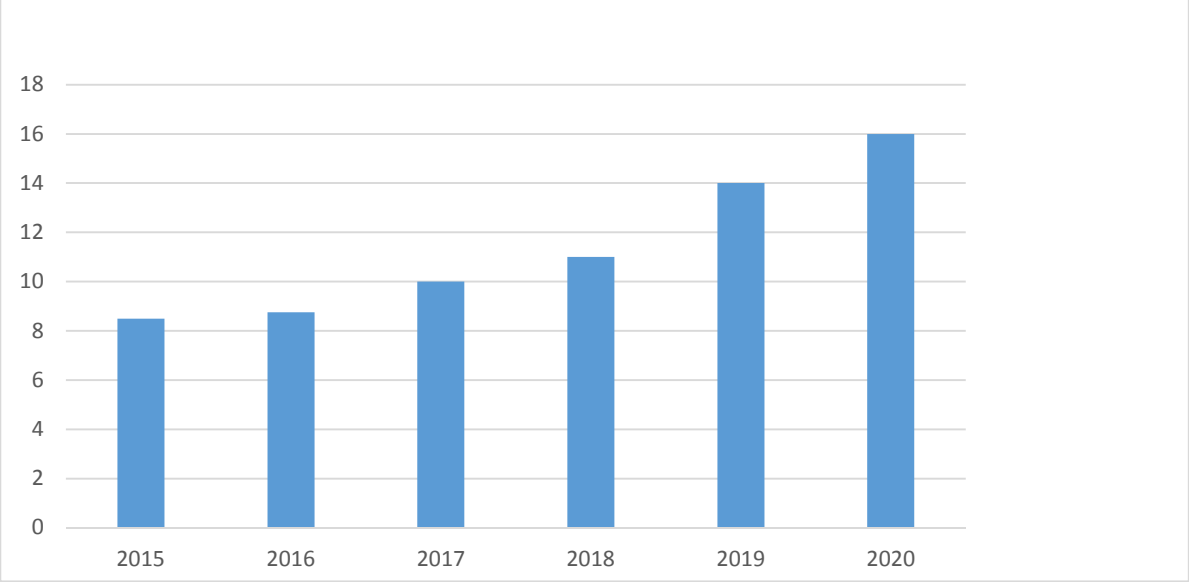
The study took place within the context of STES. This small town has two schools. The elementary school is pre-school through fifth grade and the middle/high school is grade six through grade twelve. There are three core teachers in each grade level at this elementary school. This elementary school currently has 360 students. Average class size is 16–22. This small-town school system is one of two town school systems in the State of Virginia.

There are 795 students in grades preschool through Grade 12. Another unique quality of this school is that each year 20–30% of the students are tuition students. Only 3–5% of these tuition students are identified as needing special education services. Students whose families live outside of the town pay for their children to apply to attend school at STES. There is a rigorous application process and acceptance into STES is competitive. Approximately 50% of students who apply each year are accepted to attend (Superintendent of Schools, personal communication,

August, 24, 2019). Currently, 16% of the students who attend STES are identified as needing to receive special education services (Registrar, personal communication, December 8, 2020). The number of special education students has consistently increased over the past 5 years.

Figure 1

Identified Numbers of Special Education Students at STES

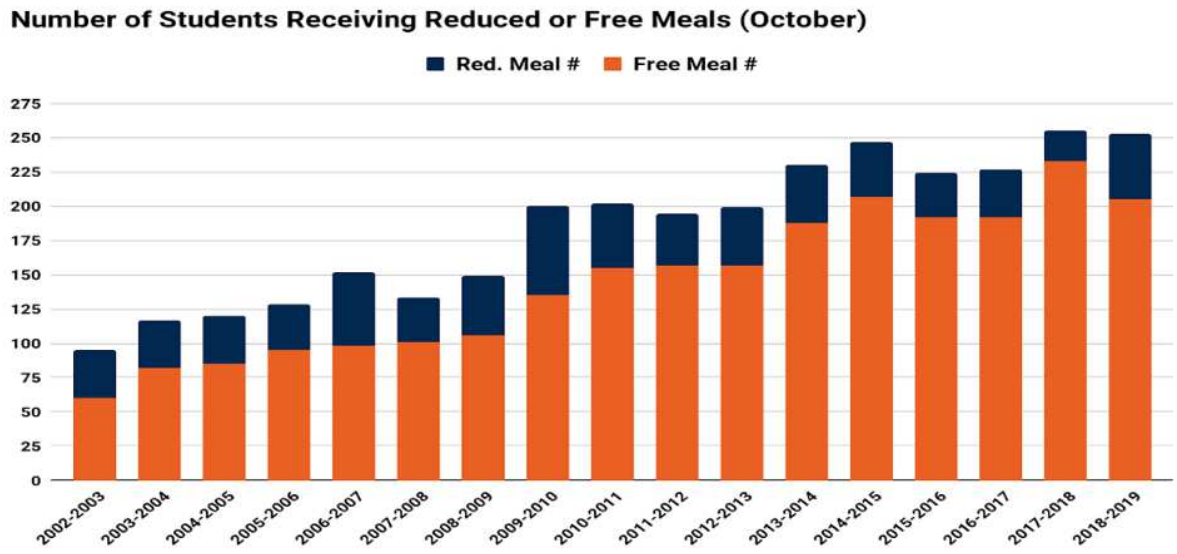


Note. This information was created by me from a figure created by the Director of Innovation for the school district of Small-Town Elementary School (STES). These data were presented to faculty and staff during the summer of 2019. 2020 school year data was added by me.

The population of STES reflects the demographics of the town; 40% of the STES students qualify for free or reduced-price lunch. Small Town Elementary School is a Title I school. Additionally, 28% of the school population identifies as American Indian, Asian, Hispanic, Black/African American or of mixed race; 72% identifies as White/Caucasian. The student population of STES is more diverse and impoverished than ever before (Director of Innovation, personal communication, August 7, 2019). Figures 2 and 3 show a chart representation of free and reduced-price lunch and ethnicity and race data over time.

Figure 2

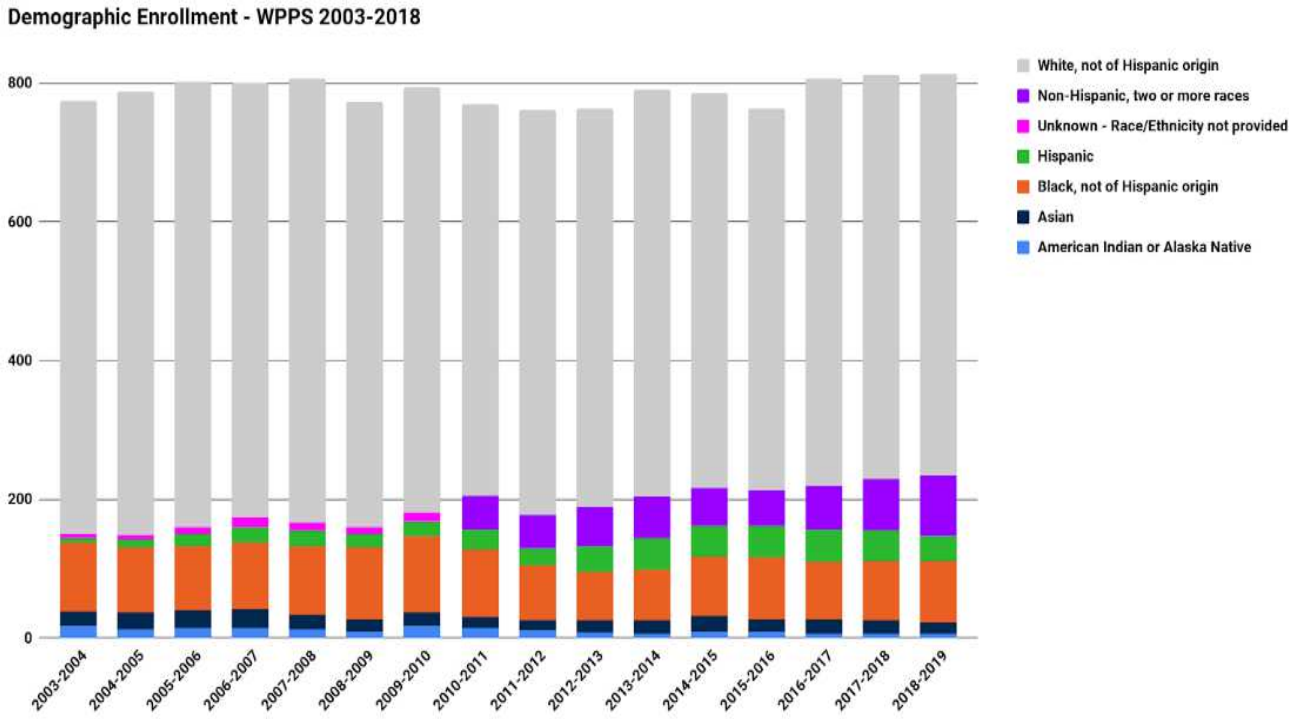
Number of Students Receiving Free and Reduced Lunch Over Time



Note. This figure was created by the Director of Innovation for the school district of STES. These data were presented to faculty and staff during the summer of 2019. STES data were unable to be extracted from the combined schools. 40% of STES students receive free or reduced-price lunch.

Figure 3

Ethnicity and Race Data Over Time



Note. This figure was created by the Director of Innovation for the school district of STES. These data were presented to faculty and staff during the summer of 2019.

Small Town Elementary implements an inclusive early intervention program for reading. There is a Title I coordinator and two interventionists who assess student's literacy needs and work with students for small group instruction in Early Literacy Groups. These three instructional support specialists work with all kindergarten and first graders. Students in second through fifth grades are assessed and students who have specific identified weaknesses in math, reading, or both subjects, work with instructional staff to attain skills in small groups, while classmates practice the same skill with the larger group in the general education classroom.

The Virginia Standards of Learning (SOL) assessments are used to measure both state and federal accountability standards in math and reading. Pass rates for STES are historically very high. STES is fully accredited and last year was recognized by the State of Virginia as achieving the highest status as Distinguished School of Excellence. The subject school is one of six elementary schools in Virginia to receive that recognition. As displayed in Table 1, our SOL pass rates for the 2018-2019 school year were excellent.

Table 1

STES Reading and Math SOL Pass Rates 2018-2019

Grade	Reading	Math
3	100	100
4	100	100
5	87	95

Note: STES stands for Small Town Elementary School and SOL stands for Standards of Learning.

Historically this school is very high performing and has always met all accreditation standards. The same is true of the secondary school. Graduation rates are historically between 96–100%. This school district has six focus areas to ensure students have high quality learning experiences. As displayed on the Small Town Elementary School Division Webpage, the STES school system focus areas are:

- Engage in performance-based learning and assessments that offer students the opportunity to actively apply their skills and knowledge in real world, relevant settings.
- Utilize flexible grouping strategies to promote active student engagement and collaboration.

- Leverage technology as an instructional tool to facilitate learning beyond the confines of the classroom and the textbook.
- Teachers and administrators serving as lead learners continually refining best practices.
- Build a truly collaborative culture that supports shared leadership and problem solving.
- Integrate workplace readiness in all grade levels and content areas to ensure out graduates are future-ready.

It is important to note that the focus of our school system is on learning experiences for students in real world settings, flexible grouping and collaboration, researched based best practices, collaborative culture and problem solving, and real-world experiences, according to the Small-Town Elementary School Division Webpage. This foundation of priorities for our schools are in line with the co-teaching model of special education services. The focus areas are not compatible with the practice of removal of special education students from the general education classroom in order to teach them. Prior to implementation of the co-teaching model during the 2019-2020 school year, special education students were systematically removed from their home classrooms to remediate in a separate setting. This remediation occurred in the special educator's office, a designated special education classroom, or in the school's conference room.

This elementary school has four full-time special education teachers and three full-time special education teacher's assistants. The number of staff members stayed exactly the same as we moved from the pull-out model to the co-teaching model of special education. During the 2018-2019 school year we had a specialized classroom for students with severe and profound

disabilities. There was a full-time teacher and teacher's assistant assigned to meet the needs of those students in a separated classroom.

Last year there were four students who used that space as a classroom: three fifth graders and one kindergartener. Sadly, these students made little to no academic, behavior, or social-emotional progress during the 2018-2019 school year. The three fifth graders have moved on to middle school and to another classroom designated for severe and profound learning needs, however; the kindergartener moved into the co-teaching classroom for first grade. The teacher previously responsible for the learning of severe and profound students is now co-teaching in kindergarten. Her former assistant is placed to support second and third grade for this school year. All co-teachers have 5 plus years' experience teaching and are fully licensed teachers. The co-teaching model of special education service delivery will meet the needs of students identified as special education in the least restrictive environment, the regular general education classroom (Friend, 2019; Murawski & Lochner, 2018).

The co-teaching model of special education service delivery was piloted at STES during the 2018-2019 school year with fifth grade. A special education teacher co-taught with the fifth-grade reading teacher and fifth-grade math teacher during two sections of each of these courses every day. A cluster of special education students was in each of these four classes with their general education peers.

Description of the Program

In 1994, the Individuals with Disabilities Education Act (IDEA) made expectation that students with disabilities would receive their education with nondisabled peers in the general education classroom, the least restrictive environment (IDEA, 1994). Ten years later IDEIA required inclusion in the general education setting for students with disabilities and ensured

students with disabilities, and in need of special education services, were given every opportunity to be educated with their typically achieving peers (IDEIA, 2004). Co-teaching is one model of special education services that allows for maximum inclusiveness (Kloo & Zigmond, 2008; McLaughlin, 2010; Pancsofar & Petroff, 2013).

Co-teaching is when two professional educators come together to address the needs of every single student in their class in a shared physical space (L.Cook & Friend, 1995; Fitzell, 2018). Both identified special education students and general education students receive instruction in a way that has the potential to meet their learning needs by enabling educators to more readily determine students' strengths and weaknesses, deliver instruction, assess learning more efficiently, and tailor activities to the exceptional needs of students (L.Cook & Friend, 1995; Fitzell, 2018; Friend, 2019; Friend & Cook, 2007; Friend et al., 2010; Murawski & Lochner, 2013; Stein, 2018; Wilson & Blednick, 2011).

This small-town elementary school in the southeastern region of the United States has moved toward fully implementing a co-teaching model of special education services delivery as a way to meet the diverse needs of a variety of students in the least restrictive environment (Friend, 2019; Little & Theiker, 2009; Shamberger & Friend, 2013). The co-teaching takes place in the following ways:

1. Kindergarten students identified as needing special education services are cluster grouped in two kindergarten classrooms. In each of these two classrooms, a special educator and a general education teacher are co-teaching special education and general education students throughout the total duration of the school day in all content areas.

2. First grade students identified as needing special education services are grouped in one first grade classroom with their general education peers. A special education teacher and general education teacher instruct together in all of the content areas the entire school day.
3. Second, third, fourth, and fifth grade students with disabilities are grouped together in one classroom at each grade level. During reading and math instruction, they are co-taught by both a general education and special education teacher in the general education classroom with students of diverse abilities.

Within the co-teaching program at STES, in the first year of whole-school implementation, were four full-time special educators and nine general education teachers. There was a school-based special education coordinator (STES assistant principal) and a special education specialist in our building who support our co-teaching efforts and total special education program.

During the 2018-2019 school year, our school leadership team at STES began to research models of special education services delivery and how we could best meet the needs of our increasingly diverse population of students. One of our four full-time special educators introduced us to the co-teaching model. She earned her Master's in Education with a concentration in Special Education K-12 from Radford University. Her coursework included classes about the co-teaching model and her student teaching experience was in a co-teaching setting as the special educator within the co-teaching partnership (Teacher G., personal communication, December 19, 2019).

All four of our full-time special educators are fully licensed professional educators. Two have endorsements in Learning Disabilities, two have endorsements in Emotional Disturbance, two have endorsements in Special Education K-12, and one has an endorsement in Intellectual

Disabilities (Virginia Department of Education, 2019). These four ladies have 63 years of combined special education teaching experience (Assistant Principal, personal communication, December 19, 2019).

In the spring of 2019, these special education teachers began to meet regularly with the district special education coordinator and our school based special education coordinator to begin to look at the feasibility, as well as the advantages and disadvantages of implementing the co-teaching model at STES. In grade level meetings, discussions began about what teachers were open and willing to partner for a co-teaching relationship. After identifying those faculty members, the book *Co-teach! Building and sustaining effective classroom partnerships in inclusive schools* (3rd ed.) by Marilyn Friend, Ph.D., was purchased for the special educators and those general education teachers desiring to co-teach during the 2019-2020 school year. This core group of teachers studied the book and met to discuss what they read.

Members of this group, including personnel from every grade level attended the co-teaching training during the summer of 2019 at James Madison University (JMU). Each of these teachers attended professional learning and presented a workshop on the six models of co-teaching that Friend writes about: One Teach, One Observing; Station Teaching; Parallel Teaching; Alternative Teaching; Teaming; One Teaching, One Assisting (L.Cook & Friend, 1995; Friend, 2019). Three of the four special educators attended the JMU co-teaching training and four of the nine general education co-teaching partners attended as well. At least one member of each co-teaching partnership completed this professional learning experience. The first grade, second grade, and third grade co-teaching teams attended the training together. Upon their return from the conference, these teachers met multiple times to debrief and plan professional learning about co-teaching to present to our entire faculty and staff.

To differing degrees, dependent upon the classroom and teachers, One Teach, One Observing; Station Teaching; Parallel Teaching; Alternative Teaching; Teaming; One Teaching, One Assisting (L.Cook & Friend, 1995; Friend, 2019). These are the methods of co-teaching being implemented in our school with our special education students in the general education setting. The co-teaching pairs report that they are using a variety of co-teaching strategies, but in what ways are they implementing what they learned about co-teaching? How do the teachers decide what strategy to use and when? These teachers continue to meet regularly with the district special education coordinator and our school based special education coordinator over the course of the 2019-2020 school year to discuss how they can improve their co-teaching practice and further contribute positively to the growth and development of all students, including those with special needs.

On March 13, 2020, school came to a screeching halt. In an effort to slow the spread of the COVID 19 virus, school was closed by our state governor for the remainder of the year. A host of changes occurred with the implementation of co-teaching during the COVID disruption period beginning on March 13, 2020, and continuing through December 2020.

During this time, the co-teaching model had to change in order to survive the transition to on-line and virtual learning. How did the co-teaching change during the COVID disruption and were teachers able to continue to co-teach when instruction moved to virtual? Many instructional lessons were learned during this period, what was learned that can inform the implementation of co-teaching in the future?

Logic Model for the Program Evaluation

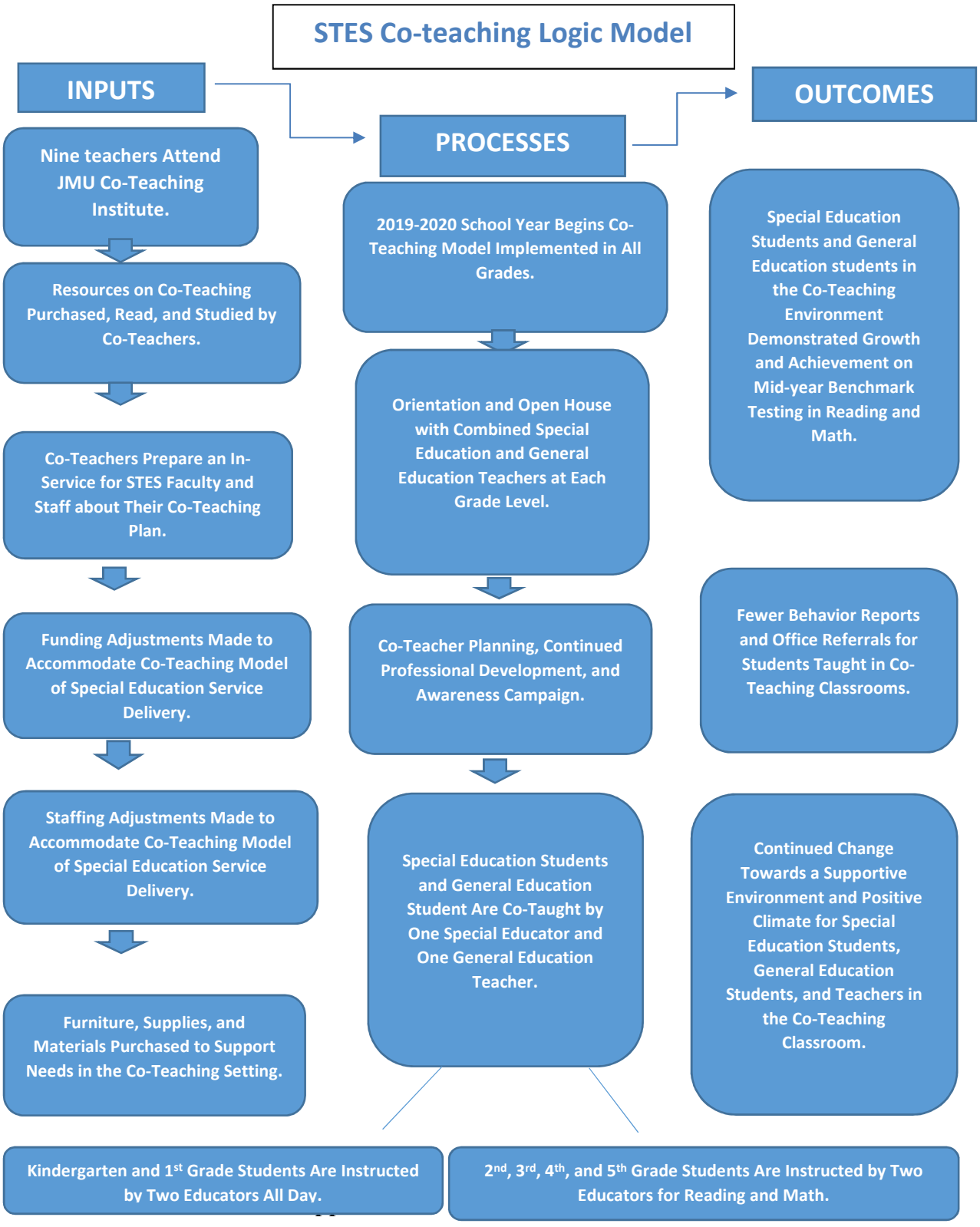
Logic models can be used to understand programs better by visually depicting the effects of a program or intervention. Logic models illustrate cause-and-effect relationships in a

sequence. The logic model links the inputs, activities, and the outcomes and help us to create a visual process of inputs, activities, and outputs (American Evaluation Association, 2004; Fitzpatrick et al., 2011; Frechtling, 2007; McCawley, 1997; Mertens & Wilson, 2012; J. R. Sanders & Sullins, 2006).

The purpose of this evaluation is to understand whether the co-teaching model of special education services is an effective model of service delivery at STES. The CIPP Model is intended to help us understand how the components of a program evaluation fit together (Kellaghan & Stufflebeam, 2012). The logic model used in this study is derived from CIPP and includes key inputs, processes, and products (Figure 4).

Figure 4

STES Co-Teaching Logic Model Framework



This program evaluation comes under the umbrella of the pragmatic paradigm and use branch of program evaluation. This program evaluation is useful to all stakeholders, including students, teachers, staff, parents, school leadership, division leadership, and the community. This type of evaluation is most informative in providing useful and meaningful information to decision makers (Mertens & Wilson, 2012; Stufflebeam & Shinkfield, 2007).

This program evaluation is a way to understand whether a program is working the way it is intended to work (Mertens & Wilson, 2012). The primary reason for implementing the co-teaching model of special education services at STES is to eliminate potential barriers to an equal education for our identified special education students. Co-taught classrooms provide the least restrictive learning environment and equitable access to the curriculum and instruction for all learners, including those who are identified as needing specialized services (Friend, L. Cook, Hurley-Chamberlain, & Shamberger, 2010; Friend, 2019). Additionally, a program evaluation identifies what changes could be made to strengthen to program in the future.

Program Evaluation Model

Program evaluation begins with a thorough understanding of the program being evaluated (Frechtling, 2007). Formative evaluation of a program is a way of understanding to what degree the program is working to fidelity. Program evaluation in the educational setting looks at the desired outcomes and identifies inputs and activities that would lead to the desired outcome (W. L. Sanders, 2002).

Using formative evaluation is a way of understanding whether the co-teaching model of special education is having the impact school leadership and instructional faculty hoped it would. There is tremendous value in evaluating a school program during the school year as the activities are evolving. This study will help determine whether this educational program is meeting the

needs of our students. The program model used to conduct this research is the CIPP model. CIPP stands for context, inputs, process, and products (Mertens & Wilson, 2012). This analysis of this program is most closely united with the CIPP model and the Use Branch of program evaluation, which uses both qualitative and quantitative data to inform stakeholders of the usefulness of a program (Mertens & Wilson, 2012).

Context means the needs, problems, and opportunities of the specific setting of STES. Input includes alternate approaches, action plan, and participant characteristics. Process is the implementation of the plan. Product is the assessment of outcomes, both intended and unintended (Mertens & Wilson, 2013). Daniel Stufflebeam concluded that evaluation involves examining a program's objectives, what activities are needed to make the program work, the extent to which the program is implemented with fidelity, and what outcomes result from the program being evaluated (Mertens & Wilson, 2012; Stufflebeam & Shinkfield, 2007). This evaluation will help to determine the quality of a school program and how the program can be improved in the years to come (W. L. Sanders, 2000). The pragmatic paradigm is use based and is interpreted by the individual. The pragmatic paradigm uses mixed methods. Methods determine the evaluation questions and there is a focus on data useful to stakeholders (Mertens & Wilson, 2012). Note that I am the principal of STES and, thus, was a participant-researcher in the design and implementation of the study.

Purpose of the Evaluation

This was a formative evaluation of the co-teaching model conducted during the development and delivery of the program during the 2019-2020 school year with the purpose of providing feedback to improve or pinpointing specific aspects of the program that are working or need improvement (Mathison, 2005; Mertens & Wilson, 2013). This program evaluation will

determine whether the co-teaching program was implemented with fidelity and what changes occurred with the co-teaching model during the COVID disruption. Measuring special education and general education student growth and investigating student behavior patterns within the specific categories of defiance and disruption in the co-taught classroom are additional purposes of this evaluation. These results will provide the basis for making improvements to our current special education services within the co-teaching model in our school.

Focus of the Evaluation

The evaluation is judging the worth of a program (Scriven, 1967). First described by Scriven within the field of education, formative evaluation is a way to improve the implementation of a program and could provide feedback about whether or not a program is working. This evaluation will provide information to school leaders who are responsible for making decisions about how to improve or provide resources to the co-teaching model moving into the future. The evaluation will center on how teacher's processes lead to student outcomes. The focus of the evaluation will be collecting qualitative and quantitative data. The outcomes will concentrate on student achievement on midyear benchmark. Also, this study will look at the achievement of general education students in the co-taught classroom, categorical student behavior report data, to what degree the co-teaching model was implemented with fidelity based on the design and training provided, to what degree and in what ways were the six models of co-teaching implemented with the co-teaching pairs in the general education classroom, and what decision-making processes were used by co-teaching teams when deciding on the co-teaching methods. Additionally, what changes occurred with the implementation of co-teaching during the COVID disruption and how did the co-teaching practice change. Lastly, this evaluation asked the

co-teachers what lessons were learned by the co-teaching teams that can inform the implementation of co-teaching in the future.

Evaluation Questions

Given the uncertainty in the research surrounding the efficacy of co-teaching across a variety of settings, there is a need to evaluate the practice based on its effectiveness in individualized settings and based on important criteria of the specific settings (Wilson & Blednick, 2011). The problem to be investigated in this study is specific to this elementary school and explores whether the inclusive model of service delivery for special education students, co-teaching in the regular classroom, impacts student achievement, student behavior, and what challenges and successes the teacher who work within this model face. This study will address the following research questions:

1) Was a co-teaching model of special education services in the general education classroom implemented with fidelity based on the program design and training?
    a. To what degree and in what ways were the six methods of co-teaching implemented with the teaching pairs in general education classrooms?
    b. What decision making processes were used by co-teaching teams when deciding on the co-teaching models and methods?
2) How will reading and math midyear benchmark scores in co-taught and general education classes in third, fourth, and fifth grades for 2019-2020 compare to the 2018-2019 and 2017-2018 midyear benchmark scores for general education and special education students?
3) To what degree does the School Wide Information System (SWIS) for behavior management data in the specific categories of defiance and disruption, differ between

special education and general education students instructed in non-co-teaching classrooms and co-teaching classrooms for the first 100 days during the 2017-2018 and 2018-2019 school years compared to the 2019-2020 school year? *Note:* The same time frame was used for all 3 years to allow for comparability with the COVID disruption period beginning on March 13 in 2019-2020.

4) What changes occurred with the implementation of co-teaching during the COVID disruption period beginning on March 13, 2020, through January 2021?
    a. In what ways did co-teaching survive during the COVID disruption period and how did the co-teaching practices change?
    b. Based on co-teaching experiences during the COVID disruption period, what lessons were learned by the co-teaching teams that can inform the implementation of co-teaching in the future?

Definitions of Terms

Accommodations—Curricular adaptations that compensate for a learners' weaknesses without modifying the curriculum thus allowing full participation in the activity (Hancock, 2019; Special Education Guide, 2019).

Behavior Management System—Web-based information system to collect, summarize, and use student behavior data for decision making. SWIS is an example of a behavior management system (Positive Behavior Intervention System [PBIS], n.d.).

Benchmark Data—An interim assessment that educators use to evaluate where students are in their learning process and determine whether they are on track to perform on future assessments, such as standardized tests (Glossary of Educational Reform, 2013).

Collaboration—A teaching strategy in which two or more teachers work together, sharing responsibilities to help all students succeed in the classroom (Special Education Guide, 2019). Collaboration is often used synonymously with co-teaching.

Co-teaching—A professional instructional partnership which enables educators to more readily determine students' strengths and weaknesses, deliver instruction, assess learning more efficiently, and tailor activities to the exceptional needs that some students have (Friend, 2019).

Inclusion—Secures opportunities for students with disabilities to learn in the same classroom setting as other students with the appropriate supports in place (Hancock, 2019; Special Education Guide, 2019).

Interventions—Sets of teaching procedures used by educators to help students who are struggling with a skill or lesson succeed in the classroom (Special Education Guide, 2019).

Least Restrictive Environment—The placement of a special education student for maximum interaction with the general school population (Hancock, 2019).

On the Spot Remediation—When there is a need in the co-teaching classroom for a skill to be retaught, the general education teacher or special educator can reteach the skill immediately to an individual or small group (A. P. Hauser, personal communication, August 22, 2018)

Standards of Learning—Established minimum expectations for what students should know and be able to do at the end of each grade or course in English, mathematics, science, history/social science and other subjects in Virginia Public Schools (Virginia Department of Education, n.d.).

Chapter 2

Review of Related Literature

This chapter provides an overview of selected extant literature regarding practices of co-teaching in public schools in kindergarten through 12th grade. Specifically, definitions and types of co-teaching, as well as the history, benefits, and the liabilities of the co-teaching model are reviewed.

Definitions and Characteristics of Co-teaching

The term, co-teaching, began appearing in the education literature approximately 35 years ago (Friend et al., 2010). Co-teaching was first defined as two or more professionals delivering substantive instruction to a diverse or blended group of students in a single physical space (L. Cook & Friend, 1995). Over the next 2 decades, the definitions expanded to specify two qualified and certified professional educators planning together to bring both general education and special education expertise to a collaborative partnership where responsibility for all student growth is shared (Blednick & Wilson, 2011; Fitzell, 2018; Friend & Cook, 2007; Friend et al., 2010; Murawski & Lochner, 2018 Stein, 2018; Villa et al., 2013).

These two professionals, with their individual expertise, work together to plan, instruct, and assess a heterogeneous and diverse group of students, including those with disabilities or other special needs (Fitzell, 2018; Friend & Cook, 2007; Friend et al., 2010; Stein, 2018). The collaborative team plans high level instruction, incorporates differentiation techniques, creates various co-instructional approaches, and customizes activities to help meet the learning needs of diverse students (Blednick & Wilson, 2011; Friend, 2019; Murawski & Lochner, 2018). Given

these characteristics, students' learning takes place in an inclusive setting, a classroom space that is shared by a general educator and special educator, and typically includes students with a range of abilities (Fitzell, 2018; Friend & Cook, 2007; Stein, 2018). The general education curriculum is provided by the general education teacher and the special educator provides specialized support (Potts & Howard, 2011).

Definitions of Co-Teaching

The following is a table of the most commonly cited definitions of co-teaching from the past 25 years. The six key characteristics of co-teaching present in the definitions are two teachers, one general education teacher and one special education teacher, a shared instructional space, mixed ability learners, teachers differentiating instruction, and joint planning and assessment. The language in the definitions has evolved over time; however, the foundation of co-teaching remains the same: two teachers, in the same space, teaching a mixed ability group of students, together. For the purposes of this study, it is important to note that no single definition contains all six of the prevalent characteristics of co-teaching. In fact, definitions either included two teachers or specified one general educator and one special educator. Surprisingly no single definitions included all four of the other characteristics: shared instructional space, mixed ability learners, differentiated instruction, and joint planning and assessment. Grubesky (2014) noted that co-teaching is a partnership, where instruction is delivered jointly, but most importantly he noted that co-teaching is an action, it is the work that is accomplished between the teachers and the students.

Table 2

Key Characteristics in Definitions of Co-Teaching

Authors	TT	GESE	SIS	MAL	DI	JPA
L. Cook & Friend, 1995	Yes	No	Yes	Yes	No	No
Friend & Cook, 2007	No	Yes	Yes	Yes	No	No
Friend et al., 2010	No	Yes	No	Yes	Yes	No
Blednick & Wilson, 2011	No	Yes	No	Yes	Yes	Yes
Murawski & Lochner, 2017	Yes	No	No	Yes	Yes	Yes
Fitzell, 2018	Yes	No	Yes	Yes	No	No
Stein, 2018	Yes	No	Yes	Yes	No	No
Friend, 2019	Yes	No	No	Yes	Yes	Yes

Note. TT = Two Teachers; GESE = One General Education Teacher and One Special Education Teacher; SIS = Shared Instructional Space; MAL = Mixed Ability Learners; DI = Differentiated Instruction; JPA = Joint Planning and Assessment.

For the purposes of this study co-teaching used a combination of the most recent prevalent definition authored by Dr. Marilyn Friend (2019): "a professional instructional partnership which enables educators to more readily determine students' strengths and weaknesses, deliver instruction, assess learning more efficiently, and tailor activities to the exceptional needs that some students have" (Friend, 2019, p. 31), as well as one of Friend and Cook's (2007) previous definitions of co-teaching to include two certified teachers, one general education and one special education, instructing a heterogeneous group of students in a single classroom. These definitions are merged to reflect what co-teaching means at STES: a general education teacher and a special education teacher sharing a single instructional space in order to meet the diverse learning needs of a heterogeneous group of students. At STES, the co-teaching instructional pair works together to plan, determine the most appropriate co-teaching method, implement the instructional plan, and assess a variety of differentiated learning opportunities for their varied ability students (Friend, 2019; Friend & Cook, 2007).

Types of Co-Teaching

There are six prevalent co-teaching approaches: One Teach, One Observing; Station Teaching; Parallel Teaching; Alternative Teaching; Teaming (Team Teaching); One Teaching, One Assisting, formerly One Teaching, One Circulating (L. Cook & Friend, 1995; Friend, 2019). One teaching, one observing is when one teacher is leading the instruction and the other teacher is setting up the classroom or collecting data on students (Friend, 2019). Station teaching can be described as multiple stations that students complete in a rotation (Friend, 2019). Parallel teaching allows for each teacher to take an equal portion of the class and provides instruction (Friend, 2019). Alternative teaching is when one teacher works with a large group of students and one teacher works with a small group of students (Friend, 2019). Team teaching is both teachers working in tandem in front of the class (Friend, 2019). One teaching and one assisting is when one teacher is providing instruction and one is assisting (Friend, 2019). Table 3 depicts the similarities and differences of the six main types of co-teaching.

Table 3

Types of Co-Teaching

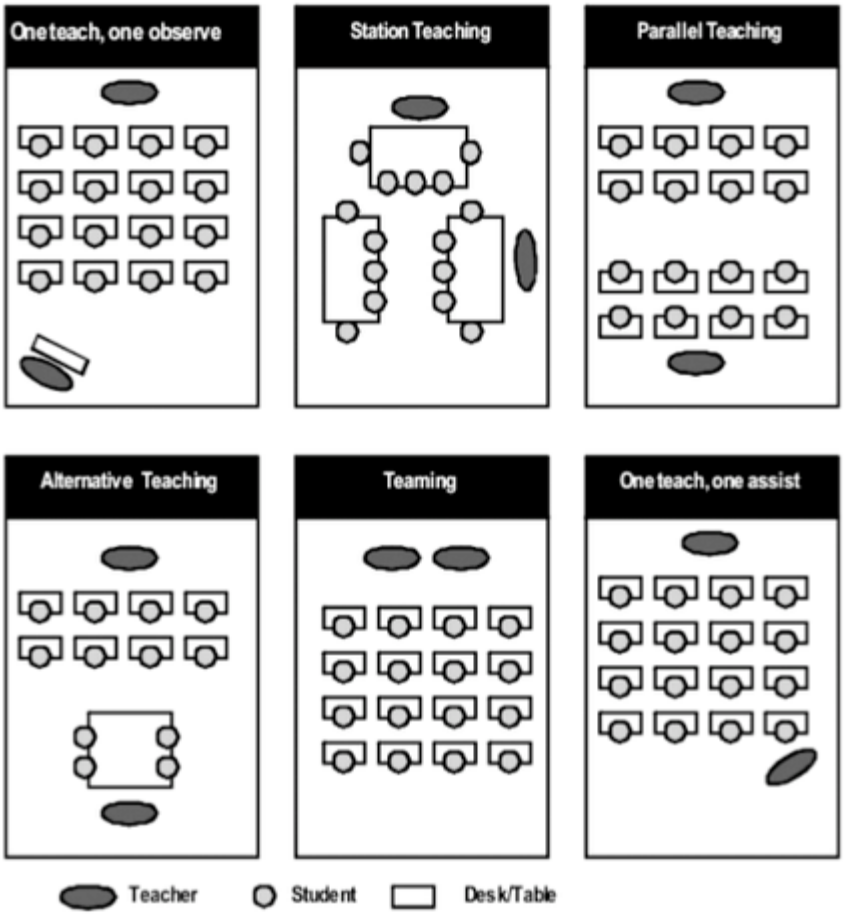
Co-Teaching Approaches	Whole Class or Flexible Grouping	Recommended Use	Best Practices	Challenges
One Teaching, One Observing	Whole Class	Frequent	Helpful for data gathering	Takes a great deal of planning time
One Teaching, One Assisting	Whole Class	Infrequent	Individuals get their questions answered	Attention away from instruction
Alternative Teaching	Flexible Grouping	Occasional	Individual attention, instructional flexibility	Must continuously mix small groups.
Station Teaching	Flexible Grouping	Frequent	Small groups, skills based, interactive	Stations must function independently, noisy, requires a great deal of planning
Parallel Teaching	Flexible Grouping	Frequent	Maximizes participation and minimizes behavior issues.	Teachers must both know content and requires balance
Teaming	Whole Class	Occasional	Highly engaging	Loses small group and individual approach, must have strong and balanced partnerships

Co-teachers need to be trained in the different models of co-teaching so that they can plan to use the model that best matches the needs of the specific students and the purpose of the lesson (S. C. Cook & McDuffie-Landrum, 2018). The six different co-teaching models lend themselves to different types of instructional objectives, opportunities for learning, and the

learning styles of students (L. Cook & Friend, 1995; Friend, 2019). Figure 5, adapted from Lynne Cook and Marilyn Friend (1995) depicts the two teachers, groupings of students, and layout of the instructional space for the six methods of co-teaching.

Figure 5

Representations of the Six Co-Teaching Methods



Note: Figure adapted from Cook & Friend, (1995).

At an early point in the development of co-teaching practices, the dominant configuration was support teaching, where one teacher taught and the other observed or assisted, and where the special education professional assigned to the class often held a subordinate role (Scruggs et al.,

2007). An observation made in many classrooms is that often one teacher is teaching while the other teacher tutors (Beninghof, 2012). Currently the foremost method of co-teaching is one teaches and one assists with the two co-teachers switching roles throughout the class (Friend, 2019). Two methods of co-teaching—one teach, one observe and one teach, one assist—do not require that both teachers have the ability and background to deliver the content, while the other four methods need both teachers to be competent in delivering the content.

Each of these types of co-teaching has strengths and weaknesses. Thus, it is assumed that one method may be more useful to meet the needs of a particular lesson or group of students at a particular time, while a different method of co-teaching may work better within a different context (Dieker & Little, 2005). Additionally, the length of time that co-teaching is programed within the school day varies by individual setting. Co-teaching experiences could be one to two hours long or all day in length. Moreover, co-teaching could be implored in specific subject classes, while not implemented in other courses (Friend, 2019).

One Teach, One Observe. This method is where one teacher is active and one teacher is passive. One teacher is the lead instructor, while the other takes detailed notes and collects data. This method is only impactful to students if the teachers have discussed what kind of data needs to be collected, gathered, and analyzed; as well as what impact this data will have to the instruction and learning (L. Cook & Friend, 1995). This method should be used frequently, but only for brief periods of time (Friend, 2019).

One Teach, One Assist. This method is sometimes referred to as "one teach, one drift" (Friend, L. Cook, Hurley-Chamberlain, & Shamberger, 2010, p. 11). This method of co-teaching is the dominate method and the default of most co-teaching classrooms (Scruggs et al., 2007).

With this method one teacher is the primary instructor and the other teacher walks around and helps students (Friend & Cook, 2013; Murawski, 2009). With this method, one of the teachers is in the lead and the other teacher is the "helper" (Friend & Cook, 2003). This method should be used seldom or never because it places one teacher in a subordinate role (Friend, 2019).

Parallel Teaching. The most common form of the parallel teaching method is when the class is divided into two equal groups and each group is assigned a teacher (Wilson, 2008). This method requires a great deal of planning since each teacher is independent of each other (L. Cook & Friend, 2004). Parallel teaching allows for more choice, student participation, re-teaching, differentiation, interaction, practice, and review. This method decreases the teacher student ratio and whereby is beneficial to students who need more supervision and behavior monitoring (L. Cook & Friend, 2004; Embury, 2010). Both parallel teaching and station teaching allow the co-teachers to identify the needs of students and group them according to their specific needs (Johnson & McMaster, 2013). Friend (2019) recommends parallel teaching be used frequently as it maximizes opportunities for student participation.

Station Teaching. With station teaching, students are typically divided into three groups and these groups visit three different learning stations (Wilson, 2008). The student groups rotate between stations where two groups are always with one of the two co-teachers and one group performs an independent activity (L. Cook & Friend, 2004; Wilson, 2008). The students learn the information at one station before moving to the next (L. Cook & Friend, 2017). This method splits the content and the students and is particularly useful when teaching difficult and diverse content (L. Cook & Friend, 2004). Station teaching is one of the most effective methods of co-teaching for students with disabilities as the method reduces the distractions of larger groups of

students and it provides a lower student to teacher ratio that builds from an integration of students with learning disabilities with their typically achieving peers (L. Cook & Friend, 2004, 2017; McDuffie et al., 2009). Also, station teaching allows for a variety of different student groupings (Friend, 2019). This method of co-teaching requires medium planning (L. Cook & Friend, 2004). Station teaching should be implemented frequently to maximize opportunities to group students based on data (Friend, 2019).

Alternative Teaching. With this method, one teacher works with a smaller group of students in a separate section of the classroom for specialized instruction for a small amount of time and then reconnects with the whole class. This method's optimal use is to regroup and reteach students who need remediation with a skill or content (L. Cook & Friend, 1995). Alternative teaching should be used only occasionally, when a small group of students needs a second or third round of direct instruction (Friend, 2019).

Team Teaching. The method of team teaching is one of the more effective co-teaching strategies for students regardless of their disability status (McDuffie et al., 2009). Two teachers sharing the same classroom at the same time can address a wide range of educational goals (Organization for Economic Cooperation and Development (OECD), 2014). Much scholarly work claims that team teaching is beneficial but does not assert that co-teaching or team teaching have a beneficial impact on learning or improvement (Murchu & Conway, 2017). Both teachers share responsibility for teaching and leading the class. This method should be implemented occasionally as this method does not take full advantage of having two teachers in the classroom (Friend, 2012).

Choice of Method and Implementation

The six different methods of most co-teaching partnerships report that they use a combination of approaches, and they have preferences for which methods and models work best for them and it has been reported that the most successful co-teaching rotate through the six methods based on instructional match and student need (L. Cook & Friend, 2004; Friend, 2019). Logistics, experiences with the models, and instructional goals are contributing factors as to whether or not the collaborative partnership chooses one model over the other (Friend, 2019). There is no research about which models of co-teaching are most effective. This could be in part because of the difficulty with conducting large scale, standardized research on co-teaching because of the various definitions of co-teaching and co-teaching partnerships, making it difficult to compare settings. Studies suggest that co-teaching teams do not use the various models of co-teaching, but rather find one model they are comfortable with and stick to that method (S. C. Cook & McDuffie-Landrum, 2018).

After reading at length about the six methods, it became apparent that two of the methods do not require co-planning, content mastery, or philosophical match between the two teachers. The other four models require co-planning, content mastery, and a partnership in order to be effective. Convenience and lack of time for communication, development, and planning would be the probable reason for one teach, one assist to be the predominant method, though the research states that method should be used infrequently due to lack of positive contribution to student learning (Friend, 2019). Specialized instruction, planned according to student learning goals, should be the purpose of having two teachers in the classroom. Table 4 illustrates the professional opinion of Dr. Marilyn Friend (2019) on the impact of each of the six co-teaching

methods on teacher improvement and student achievement when each of these methods is implemented.

Table 4

Impact of Co-Teaching Method

Method	Teacher Improvement	Student Achievement
One teach, one observe	Medium	Low
One teach, one assist	Medium	Low
Parallel teaching	Low	High
Station teaching	Low	High
Alternative teaching	Medium	Medium
Team teaching	Low	Medium

Note: Low is of low impact, medium is of medium impact, and high is high impact.

History of Co-Teaching

Co-teaching, as a specialized instructional application with two educators in one classroom, emerged in the early 1980s (Friend et al., 2010). In 1989, Bauwens et al. introduced the term co-teaching for two teachers working together to meet students' special education needs. Over the subsequent decades, legislation put pressure on educators and school leaders to find the best ways of educating students with disabilities (Solis et al., 2012). Simultaneously, co-teaching was seen as merely a trend by many (Shamberger & Friend, 2013), but by 1995, co-teaching was the most prevalent inclusive educational model used to meet the educational needs of students with disabilities previously enrolled in exclusive segregated settings (Magiera &

Zigmond, 2005; National Center on Educational Restructuring and Inclusion, 1995). Many students who were formerly educated in separate settings began to move into general education settings with their non-disabled peers because of the wide adoption of co-teaching models (Chitiyo, 2017).

By 2009, co-teaching had become a widely implemented instructional model (Muller et al., 2009). Co-teaching allowed the special education teacher to work alongside of the general education teacher to provide supports and making it unnecessary for students with disabilities to leave the classroom to get specialized instruction and assistance (Solis et al., 2012). Implementation of inclusive practices continued to grow in popularity (Friend & Shamberger, 2008; Idol, 2006) and by 2013-2014, 62% of students with disabilities were receiving the majority of their instruction in the regular classroom setting (Digest of Educational Statistics, 2016).

Currently, the co-teaching method is the most popular service delivery option for students identified to receive special education services and is a way to provide specially designed instruction in a general education setting for those students with identified disabilities inside of the general education classroom (S. C. Cook et al., 2017; Friend, 2019; Murawski & Lochner, 2018). Some authors have written about and labeled co-teaching a promising school-based practice and co-teaching has become an ever increasing, widely implemented instructional model (Pancsofar & Petroff, 2013). Others maintain co-teaching is an appropriate response to the challenge of educating diverse learners in a single classroom (Kliegl & Weaver, 2014). However, the limited research on co-teaching has produced mixed results about the effectiveness of co-teaching on student achievement (Banerji & Daley, 1995; Welch, 2000).

Benefits of Co-Teaching

The main potential benefit of a co-taught classroom is improved academic performance for students with special needs, struggling students, and general education students. Co-teaching leads to improved academic performance for students with disabilities (Klinger et al., 2015. Several more researchers reported an improvement in state assessment results (Tremblay, 2013; Walsh, 2012). Another study suggested that the special education pull-out instruction did not reflect the goals of the general education classroom (Walsh & Jones, 2004). Dieker & Hines (2018) suggested that the time saved by special education students staying in the general education classroom was an additional reason to use co-teaching as this provided more opportunities for learning and instruction.

There are many benefits of co-teaching, including collaborative partnerships among educators and meeting the needs of all student learners in the least restrictive environment (Conderman, 2011; Friend et al., 2010). Also, there are claims for numerous secondary benefits for both general education students and special education students in the co-taught general education classroom. Examples of secondary benefits are friendships between diverse students, fewer classroom behavior problems, low teacher to student ratio, improved attendance, and a variety of instructional styles that have the capacity to match to student learning type (Harter & Jacobi, 2018; Odom et al., 2006; Rea et al., 2002 Sweigart & Landrum, 2015; Walther-Thomas, 1997). Additionally, there are advantages that specifically benefit the students identified as having special education needs. Those gains for special education students include reduced stigma, increased self-confidence, and high expectations for learning (Blednick & Wilson, 2011; Friend & Pope, 2005; Hang & Rabren, 2009).

Collaborative Partnerships and Successful Teams

One undeniable component of the co-teaching model is the potential for general and special education teachers to work collaboratively in the inclusive classroom setting to teach students with academic difficulty and disabilities (Bauwens et al., 1989). In fact, the majority of the literature on co-teaching is about the relationship between the general education and special education teacher (Conderman, 2011). Some authors suggest that the professional relationship between the two educators is the critical factor which determines the success of the co-teaching model, where both teachers are on equal footing and share equal responsibility (Baeten & Simons, 2014; Ploessi et al., 2010; Rytivaara & Kershner, 2012). The co-teaching model combines the strengths of the special educator, an expert on individual learning differences and adaptive curriculum, and the general educator, an expert on delivering the curriculum (Murawski & Lochner, 2011). The collaboration between general education and special education teachers is an important contributor to student success (Reinhiller, 1996). General educators often lack coursework and experience working with special education students (Ploessl et al., 2010). Additionally, co-teaching gives the special education teacher a chance to better understand the behavior expectations, setting, and content of the general education classroom (L. Cook & Friend, 2017). If co-teaching is the predominant, acceptable model to educate students with identified special education needs then teachers need preservice learning opportunities that will contribute to a successful implementation and collaboration (Cavanagh & McMaster, 2015; Pancsofar & Petroff, 2013).

Using special education law as a basis, many schools are working on creating collaborative cultures by emphasizing partnerships between special education and general

education teachers. The most inclusive practice and partnership is the co-teaching model (Shamberger & Friend, 2013). After all, one way to increase collaboration between teachers is to put them together in the same classroom and the basis of the co-teaching model is just that: two educators in the same space (Dieker & Murawski, 2003). Others point to a student teacher model of fostering peer learning, where a student teacher is placed with an experienced co-teacher to learn how the co-teaching process works (Duran & Miquel, 2019). Co-teaching can be used to mentor teacher candidates where the mentor remains in the classroom and teaches with the teacher candidates (Henning, Gut, & Bean, 2018). Many of the authors writing about co-teaching believe that more can be accomplished by teams of teachers working together toward common goals than by teachers working alone to educate increasingly diverse learners (Hansen, 2007).

Murawski and Lochner (2011) concluded that best practice for collaboration includes co-planning, co-instructing, and co-assessing. The two professionals co-manage the diverse instructional and behavior needs of their students both with and without disabilities. Many researchers on co-teaching agree that when planned and implemented properly, co-teaching is built upon trust, healthy communication, and collaborative approaches (Villa, Thousand, & Nevine, 2004). The relationship between the two providers is the key (Lava, 2012). There has to be a balance between both the special educator and the general educator and their teaching styles have to be able to go together (Stark, 2015). Instructors must want to plan together, be familiar with course content, and understand the needs of the class (Potts & Howard, 2011). The two licensed teachers are jointly delivering substantive instruction to the diverse, blended group of learners (Conderman, 2011; L. Cook & Friend, 1995; Volonino & Zigmond, 2007; Walther-Thomas, 1997).

Sources suggest that co-teachers who work on the technical aspects of co-teaching before engaging in the co-teaching relationship achieve a greater benefit. This enables the co-teachers to establish and negotiate the roles and responsibilities before the work with the students begins. Also, this would be the optimal time for the co-teaching partners to decide on what methods of co-teaching fit the lesson and the students the best. Both professionals then advocate for appropriate instruction for all students, as well as using their individualized expertise. Over time, a balanced relationship between the two teachers strengthens (Bauwens et al., 1989; Murawski & Lochner, 2011; Sileo, 2011).

Some authors propose that this partnership provides professional growth for the teachers as they learn from each other (Austin, 2001; Fenty & McDuffie-Landrum, 2011; Scruggs et al., 2007). An additional benefit of co-teaching is that the teachers have a partner to teach with and professional support in close proximity (Friend, 2019). The two educators learn from each other, support each other, and share accountability for the students they share. The teachers face the students' challenges and successes together in a professional relationship (Friend, 2019; McDuffie et al., 2008). The intensity of the collaboration between the two educators is an important factor when researching effectiveness of the model (Tremblay, 2013).

According to much of the writing about co-teaching, two teachers working in tandem provides a sense of mutual support, blended expertise, and shared responsibility of educating their pupils. Working collaboratively with colleagues presents the opportunities for success that would otherwise not be possible (Friend, 2019). Having a teaching partner combats the isolation and helps teachers feel less overwhelmed and isolated when meeting the needs of a diverse population (Little & Theiker, 2009).

There is an emphasis in the research about collaboration working best when teachers work together to diagnose what they need to do, plan and teach interventions, and evaluate their effectiveness (Scruggs & Mastropieri, 2017). The roles are in place to best meet the students' needs. Effective collaboration means communication, planning, and content mastery and instruction is explicit (Scruggs & Mastropieri, 2017). The educators make joint instructional decisions and share accountability for student growth (Friend, 2019).

Meeting the Needs of Students

Co-teaching combines the strengths of the two teachers to empower all the learners in the room (Friend & Cook, 2007). Several authors suggest that collaboration by teachers can help students to receive more comprehensive instruction as a result of shared instructional responsibilities, planning, and goals (Brownell et al., 2006). Individualized instruction for struggling students, and meeting the various needs of diverse learners, is one of the greatest benefits of co-teaching (McDuffie et al., 2008). Co-teaching emphasizes the unique needs of students and plans for explicit instruction to meet those needs (Friend et al., 2010). One of the greatest benefits of co-teaching are opportunities for small group instruction, individualized instruction, and the re-teaching of concepts to students who may be struggling, whether they be general or special education students (Hurd & Weilbacher, 2017).

Common to the many definitions of co-teaching is an expectation that general and special education teachers work collaboratively within the general education setting to teach students with disabilities and those at risk for academic difficulty (Bauwens et al., 1989; Murawski & Lochner, 2011; Sileo, 2011). Some researchers argue that co-teaching improves the academic performance of students with special learning needs and all students taught in the co-taught

classroom (Hang & Rabren, 2009; Idol, 2006). Increased achievement for special education students is one of the primary reasons for implementing a co-teaching model of special education service delivery (Friend, 2019). Co-teaching is more effective than addressing student needs through pulling them out of their regular classrooms and general education classrooms that do not adhere to the co-teaching model (Harpell & Andrews, 2010). Co-teaching provides support for all students at their instructional level (C. M. Connor & Morrison, 2016).

Some co-teaching sources suggest that elementary students with disabilities in co-taught classrooms make significant educational progress (Trembay, 2013). Additionally, general education students have the potential for improved academic achievement in the co-taught classroom as their specific learning needs also have to opportunity to be addressed. Furthermore, when a student in the co-taught classroom has a question or does not understand a concept, there is a greater prospect of having that idea re-taught before greater confusion arises because there are two teachers present to address the deficit (Friend, 2019; Hang & Rabren, 2009). Some authors conclude that all students achieve in co-taught classrooms (Fitzell, 2018). Many co-teachers believe that all students are *our* students and both teachers are vested in the success of all students in the co-taught class (Friend, 2019).

Several authors ascertain that students with learning challenges experience growth in achievement in the co-taught classroom. Previous studies on co-teaching found that co-teaching models of special education service delivery accomplished the highest growth in achievement (Silverman et al., 2009). Meeting the needs of a wide spectrum of learners, from special education to general education, is often overwhelming. Partnering teachers with this wide range of students is a way to deliver appropriate and individualized instruction to all (Little & Theiker,

2009). Students with disabilities who receive services through co-teaching sometimes demonstrate growth in reading and math achievement (Walsh, 2012). When progressive collaborative factors converge, co-teaching has shown a strong effect size on student achievement (McLeskey et al., 2017).

Co-teaching allows for adapting to the needs of the children with regard to the context, methodology, and delivery of instruction (Education for All Handicapped Children Act, 1975. The co-teachers group and regroup students to revive and refine instruction (Friend, 2019). One of the main points some authors make is co-teaching provides students with identified special needs and disabilities access to the general education curriculum and teacher, while providing the required accommodations from the students' Individualized Education Programs (IEP) (Magiera et al., 2005). Co-teaching is regarded as being beneficial to student outcomes by many special educators and general educators alike (Hang & Rabren, 2009; Scruggs et al., 2007).

Secondary Benefits for All Learners

Social acceptance and friendships are touted as meaningful outcomes for students with disabilities in inclusive settings, as well as general education students in these mixed ability classrooms. Writers in the special education field, say students identified as needing special education services acquire friendships with typically developing peers and students who do not have difficulty accessing the curriculum meet friends who are different from themselves (Odom et al., 2006). Co-teaching allows for students to interact and learn from peers (Harpell & Andrews, 2010). Students identified as having special learning needs get to stay with their peers and avoid the "special class" and are not singled out as students with disabilities (Griffin & Shevlin, 2011; Walther-Thomas, 1997). Isolating and labeling students is dangerous and the co-

teaching environment provides the opposite (McCoy et al., 2012). Scruggs et al. (2007) concluded that co-teachers perceive social benefits to students who participate in co-taught classrooms. The world is full of many different kinds of people, co-taught classrooms are a great place to begin to develop an understanding of the differences in people and to negotiate a world where all people are extraordinary, valuable, and different (Friend & L. Cook, 2013; Scruggs et al., 2007).

Another benefit some authors point out about the co-teaching classroom environment is the belief that there are fewer behavior problems in these co-taught classrooms. Additionally, these authors believe that more positive behavior is a result of the co-teaching environment (Sweigart & Landrum, 2015). Murawski and Hughes (2009) ascertained that maintaining smaller rations of teachers to students in the classroom leads to fewer disruptions. Ledford and Wolery (2015) determined that students with or without disabilities learned all target academics when instructed in smaller groups of mixed ability. Thus the co-teaching classroom allows for more positive reinforcement from teachers, increased student engagement, and individually targeted behavior interventions (McDuffie et al., 2008). In general, many have confidence that co-teaching improves student behavior (Hang & Rabren, 2009; Idol, 2006) and two teachers are able to offer much needed behavior support (Austin, 2001; Fenty & McDuffie-Landrum, 2011; Scruggs at al., 2007). Two teachers are capable of monitoring the behaviors more closely and thus fewer problems arise (Conderman, 2011; Walther-Thomas, 1997). Many suppose that student behavior is better in the co-taught classroom because there are two teachers attentive and present with a classroom of students (Walther-Thomas, 1997). A few research studies point to

one outcome of co-teaching being that there are fewer behavior problems in the classroom (Hang & Rabren, 2009; Sweigart & Landrum, 2015).

The co-teaching model provides for two teachers in the classroom, whereas the teacher-student ratio is cut in half. This smaller student-teacher ratio allows for a more intimate instructional setting and an increase of individual attention (Conderman, 2011; Walther-Thomas, 1997). Two teachers mean more attention on students because this ratio of students to teacher is lower (Murawski, 2009). Additionally, the attention from two teachers gives more opportunities for student participation (L. Cook & Friend, 1995).

Another advantage that the co-teaching model presents for all students is the opportunity for a strong connection with a teacher. Because there are two teachers in the classroom, there is a greater opportunity for students to connect with one adult or the other; whereby, there is a substantial likelihood that there will be an instructional and/or personality match between the student and at least one of the teachers. With two teachers, there is a greater likelihood that the complex academic and social-emotional needs of students will be met (Friend & Cook, 2013). Individualized instruction increases opportunities for students to build better relationships with teachers and also to observe effective adult communication between the two adult teachers up close (Dugan & Letterman, 2008). Also, there are increased instructor perspectives and a variety of teaching styles (Harter & Jacobi, 2018). Co-teachers bring their own personal skills and a greater likelihood that at least one of the teachers will have a connection with specific students. Thus two teachers will have twice the effect (Murawski & Lochner, 2011). Two teachers have more variation in teaching method to connect with students diverse learning styles (Murawski, 2009). Some research shows that co-teaching increased instructional options for all students,

reduced stigma, and support for teachers (L. Cook & Friend, 1995). Improving academic achievement for all through on the spot remediation and opportunities for more individualized instruction occurs through more teacher interaction (Friend, 2019; Sweigart & Landrum, 2015). All students valued the support of the special education teacher, but often did not know that he or she was the special education teacher (Vaughn & Klingner, 1998). Improved performance by struggling students who are not identified as needing special education services, but who do struggle with learning targets is a potential outcome of the co-teaching model (Murawski & Hughes, 2009).

Some research shows that attendance improves for students learning in the co-taught classroom. Other research suggests that report cards as well as attendance is better in co-taught classes (Rea et al., 2002). Students with learning disabilities may benefit from collaboration between teachers and increase the chances that students succeed and stay in school (Reinhiller, 1996).

Secondary Benefits for Students Identified as Needing Specialized Services

Much of the research suggests that all students benefit from the advantages that the co-teaching model brings to the classroom, but there are also qualities of the co-teaching model that are especially beneficial to special education students. These benefits include reduced stigma as a full member in the classroom, increased confidence, and higher expectations for learning (Blednick & Wilson, 2011; Friend & Pope, 2005; Hang & Rabren, 2009).

Several studies suggest that special education students' being educated in the co-taught general education classroom have full membership in a regular education (McLaughlin, 2010). The co-teaching classroom is less fragmented and the stigma of being identified to receive

special education services is reduced (Friend, 2019). Some researchers maintain that for students, co-teaching reduces the stigma sometimes associated with leaving the classroom for special instruction because these students are no longer moving in and out of the general education classroom (Friend & Pope, 2005). The co-taught, inclusive classroom fosters a deep sense of belonging with all students of variable abilities (Carroll et al., 2011).

Authors suggest that special education students who learn in co-taught classrooms become increasingly self-confident and that improved self-confidence is a byproduct of the co-taught classroom (Friend, 2019). Students who have identified disabilities or special learning needs develop a more positive self-concept and increased confidence (Hang & Rabren, 2009; Idol, 2006). Membership in the regular classroom makes special education students full members of the regular community which gives them increasing confidence (Friend & Pope, 2005).

High expectations for special education students become a self-fulfilling prophecy. Through IDEA and ESSA all students are held to the same standards of potential for learning (McLaughlin, 2010). Various data suggest that higher academic achievement for students transpires more often in co-taught classrooms than in non-co-taught classrooms (Bacharach et al., 2010). Often teacher expectations for special education students rise when these students are a full component of the co-teaching classroom environment (Blednick & Wilson, 2011). Co-teaching may provide an environment conducive to active engagement, differentiation, multiple learning strategies, improvement in behavior; as well as improved academics, social abilities, and self-esteem (Murawski & Hughes, 2009).

Increased Instructional Time. When special education students are no longer being moved in and out of the classroom to receive specialized instruction and are no longer missing

whatever is happening in the general education classroom when they are pulled out, this results in the students having greater confidence in what they know and their abilities (McLaughlin, 2010). Much of pull out instruction was not meeting the diverse needs of special education students (Volonino & Zigmond, 2007). When students have to be moved to a resource room for pull-out services, instructional time is lost during these transitions. If 15 minutes of instructional time is lost per day, that equates to 75 minutes each week (L. Cook & Friend, 2017). In this sense, the co-teaching model preserves precious teaching and learning time.

Specific Disabilities

Special education students have a variety of diagnosis and disabilities. Tremblay (2013) found that co-teaching is effective for students with learning disabilities working in inclusive classrooms. Co-teaching is a way to meet the needs of students with learning disabilities, behavior disorders, as well as emotional disorders (Meadows & Caniglia, 2018).

Liabilities of Co-Teaching

There are concerns associated with co-teaching (Hang & Rabren, 2009). Co-teaching has not been fully endorsed as a 100% evidence-based practice (Scruggs et al., 2007). Research suggests that even when co-teaching is effective, a variety of issues persist (Austin, 2001; Keefe & Moore, 2004).

Co-Teaching Is Not Impactful

Research is mixed about the impact of co-teaching on student outcomes. Both the results for students who are identified as special education and those who are general education students are often inconsistent (Weiss & Brigham, 2000). John Hattie (2008) researched the effects of hundreds of strategies on student achievement and found that co-teaching ranked 118th on the list

of effective strategies with the effect size of .19. This means that the educational strategy of co-teaching does not have a strong effect on student achievement. Co-teaching is not a guarantee of student outcomes and co-teaching at the elementary level has yielded mixed results (Banerji & Daley, 1995; Welch, 2000). Findings fluctuate as to whether co-teaching is an effective method to meet the needs of special education students (Hang & Rabren, 2009). Moreover, Zigmond and Magiera (2000) concluded that co-teaching did not result in improved outcomes for students with disabilities. Few studies have proven that co-taught instruction leads to individual learning (Strogilos & King-Sears, 2019). Murawski and Hughes (2009) state that one of the main drawbacks of co-teaching is that it is extremely difficult to measure success. Additionally, the little available research focuses on co-teaching at the secondary level and not the elementary school (Tremblay, 2013).

Too Much Focus on Special Education Students

Some authors report that in the co-taught classroom, there is a complex dynamic between students who are strugglers and students who are achievers (Murawski & Swanson, 2001). More personal and academic attention is given to special education students than to general education students in the co-taught classroom which creates an inequitable learning environment for general education students (Murawski & Swanson, 2001). Teachers felt the special education students got more attention than their general education peers in the co-taught classroom (Scruggs et al., 2007). Co-teaching is used to implement activities and instruction with the main purpose of improving the learning outcomes for students with learning needs and other disabilities, leaving the general education students to receive less of the teachers' focus and attention (Shamberger & Friend, 2013). Some maintain that co-teaching is a sound instructional

practice for servicing the needs of students with disabilities, but much of the writing on co-teaching asks what about the general education students and then presents no answers (Hang & Rabren, 2009; Kloo & Zigmond, 2008). Educating students with disabilities alongside their non-disabled peers has been happening for years, and sometimes faces resistance (D. J. Connor & Ferri, 2007; Reeve & Hallahan, 1994; Zigmond, 2001). Educational trends may lead to improved outcomes for students with disabilities or may prevent regular students from reaching their potential (Shamberger & Friend, 2013). Educating special education students alongside of general education students could negatively affect the education of their typically developing peers (Ferretti & Eiseman, 2010). Co-teaching classrooms are often more chaotic and unstructured than regular general education classrooms making it hard to concentrate and stay focused (Mastropieri et al., 2005).

Lack of Training for Co-Teachers

Most teachers feel they do not have the skills to co-teach and yet there is a high demand for trained co-teachers (Chitiyo, 2017). An additional issue is many special education teachers are not trained in the co-teaching model and about how and when to best use the six methods. Many teaching preparation programs include time spent learning about the co-teaching model and many do not (Bauwens et al., 1989; Murawski & Lochner, 2011; Sileo, 2011). Lack of professional development on co-teaching and poor teacher pairing plague implementation of the co-teaching model (Murawski & Swanson, 2001). Professional development is one way to improve the implementation and facilitation of co-teaching and yet it often does not occur (Shamberger & Friend, 2013). General and special educators who are paired to co-teach often feel unprepared to co-teach (Capizzi, 2009; Friend, 2008). More collaborative training for co-

teachers impacts teacher's perceptions positively and never-the-less professional learning for these teachers is often completely absent (Keefe & Moore, 2004).

Co-teaching teacher efficacy is a belief in his or her ability to successfully work with another education professional to meet the needs of special education and general education students in a co-taught classroom. When teachers are not properly trained to co-teach, they have less faith in their ability to do so (Friend, 2019). Hattie's (2008) study of highly impactful factors on student achievement, showed that teacher efficacy had the greatest influence on student achievement (Hattie, 2008). Professional development is one way to impact teacher efficacy and attitudes about teachers' instructional practice (Pancsofar & Petroff, 2013). When co-teachers are not trained properly, they lack confidence in their ability to implement the co-teaching model (Murawski & Swanson, 2001). Thus, the co-teaching model is not set up for success.

Setting-Specific Concerns

Co-teaching should be evaluated based on its effectiveness in individualized settings and based on important criteria of the specific school (Blednick & Wilson, 2011). The fact that the effectiveness of co-teaching is based on many criteria specific to a particular setting, makes it difficult to generalize whether co-teaching is effective across different locations. This lack of generalizability is a concern in the co-teaching literature and a liability in the successful implementation of this model of special education services delivery (Zigmond et al., 1993).

Common Challenges Faced by Co-Teachers

There are variety of challenges faced by teachers working with the co-teaching model. These challenges include lack of a common planning time, the special education teacher lacking content knowledge, a lack of professional communication between the two educators, control

issues, differences in teaching philosophy, and differing methods of managing discipline and student behavior (Scruggs & Mastropieri, 2017).

Empirical Evidence Regarding Outcomes for Co-Teaching

There is an adequate amount of writing about co-teaching; however, very little scholarly research has been conducted about co-teaching. Even though the practice of co-teaching has existed for four decades, there is a mere smattering of research on the co-teaching model of special education services delivery on the achievement of students in those classrooms. The most seminal research studies on co-teaching from the past several decades are minimal and noted in this section.

One of the first works to be cited repeatedly in the writing on co-teaching is the work of Zigmond et al. (1993). The summary of their work, which looked at learning disabled students mainstreamed in social studies classrooms, offered ambiguous results. Their research concluded that sometimes co-teaching works and other times it does not. Co-teaching and perceptions of co-teaching offer different results (Zigmond et al., 1993).

Banerji and Daily (1995) explored the effects of an inclusion program on second through fifth grades. Inclusion practices were examined in a three-part study centering on the academic and outcomes of fifth-grade students, who were identified as general education, or showed specific learning disabilities; teacher and parent perceptions of students' growth in an inclusion setting for third, fourth, and fifth grades; as well as a breakdown of teachers' records. Banerji and Daily's findings implied that students with specific learning disabilities made some academic gains at a similar pace to that of regular education students in the co-taught classroom. Parent and teacher surveys indicated improved self-esteem in students with specific learning

disabilities.Also, these researchers' data noted reduced stigma for students with disabilities. This study found that students with disabilities and general education students showed growth in achievement; however, students with learning disabilities did not show as much growth (Banjeri & Daily, 1995).

According to the work of Scruggs and Mastropieri (1996) a small percentage of teachers agreed that full-time inclusion provided more benefits over students being pulled out to receive specialized services. Twenty-eight investigations were identified in which general education teachers were surveyed about their perceptions of including students with disabilities in their general education classes. Research synthesis procedures summarized responses and examined the consistency of responses across time. The researchers found that approximately two-thirds of general classroom teachers supported the concept of mainstreaming special education students with general education students. Although more than half of the teachers felt that inclusion could provide some benefits, less than one-third of teachers believed they had the time, skills, and training to make inclusion work in their classrooms (Scruggs & Mastropieri, 2017).

Saint-Laurent et al. (1998) evaluated the impact of an in-class service model on the achievement of students at risk of school failure. The model of special education services that they used included collaborative consultation, cooperative teaching (co-teaching), and adapted instruction. The model was implemented for 1 school year in 13 different schools. The research findings confirmed the benefits of the in-class service model for some students. Reading and math achievement improved for students both with and without disabilities in these 13 schools (Saint-Laurent at al., 1998).

Welch's research in 2000, employed formative experiments to conduct evaluation procedures. Student outcomes, teaching procedures, and teacher impressions were included in the quantitative and qualitative analysis and results. Descriptive information regarding planning time, type of instructional format of team teaching, and student groupings was obtained through weekly teacher logs. Focus interview groups and written teacher comments provided information regarding teacher satisfaction of the team-teaching experience. The results of Welch's research concluded the performance of general education students and students with learning disabilities on assessment measures given before and after team teaching suggest academic gains in reading and spelling for all students. The students without disabilities showed significant improvement in reading skills. There was improvement in reading skills with the students with disabilities, though this improvement was not notably significant.

In 2001, Austin studied the perceptions of 12 co-teaching partners. The results concluded that general education teachers were perceived as doing more work than the special educators in a co-teaching partnership. This research provided some information about the state of practice from the point of view of the collaborating teachers. This investigation focused on factors affecting collaborative teaching, including effective strategies, and teacher planning. Information relative to these issues was collected using a survey instrument developed by the researcher. Survey respondents were selected randomly to participate in a semi-structured interview. One hundred-thirty-nine participants returned the completed survey, 92 of the respondents were collaborative teaching partners. Of the teachers who responded to the survey, 12 of the co-teachers were interviewed. Two primary conclusions resulted from this study. First, general education co-teachers were perceived as doing more work than their special education partners in

the co-taught classroom. Second, co-teachers who had access to training responded that the training was not valuable in practice (Austin, 2001).

Zigmond and Magiera (2000) examined four case studies which looked at the effectiveness of the co-teaching model (Bear & Proctor, 1990; Boudah et al. 1997; Martson, 1996; Schulte et al., 1990). These four studies did not show that co-teaching improved student outcomes. Their work found that co-teaching varied across content and grades and is inconsistent as a practice. In fact, this research was unable to establish that co-teaching was beneficial for students with disabilities (Zigmond & Magiera, 2000).

Murawski and Swanson (2001) completed a meta-analysis of 32 qualitative studies of co-teaching and synthesized that more attention is given to special education students than to general education students in co-taught classrooms Also, this research found that the co-teaching model is a moderately effective service delivery option. Dependent measures were varied and included grades, achievement scores, and social outcomes. Results indicate that further research is needed to demonstrate that co-teaching is an effective service delivery option for students with disabilities (Murawski & Swanson, 2001).

In 2005, Fontana studied two elementary schools and provided quantitative research that synthesized some positive results from co-teaching. This study investigated the effectiveness of co-teaching on the academic achievement of eighth graders with learning disabilities who were at risk for school failure. The final averages of students with learning disabilities in co-taught classes when compared with their final averages as seventh graders were significantly higher than a similar comparison of averages of students with learning disabilities who did not attend co-taught classes. The learning-disabled students who attended co-taught classes also

demonstrated significant improvement in self-concept, reading, and math scores, but not writing scores as measured on standardized instruments. The teachers of these students were pleased with the co-teaching model and were continuing to participate in collaborative teaching settings (Fontana, 2005).

Co-teaching is ineffective when it is not implemented properly. In 2007, Harbort and fellow researchers observed that special educators presented material only 1% of the time in co-taught classrooms, despite the literature available on the different types of co-teaching models. These researchers examined roles and actions of members of co-teaching teams including a special educator and a regular educator in a public high school. Observational data were collected. Results indicated that regular educators presented material to students in 29.93% of observed intervals; special educators presented material in less than 1% of observed intervals. Researchers observed general education teachers conducting the majority of the planning, while special educators observed more than they taught (Harbort et al., 2007). This study showed that co-teaching was not effective because the relationship and teaching between the two educators was imbalanced.

Scruggs et al. (2007) conducted a metasynthesis of 32 co-taught classrooms and concluded that co-teachers generally supported co-teaching; however, one teach, one assist was found to be the most observed model of co-teaching, often with the special educator taking a lesser role. The researchers found that training, resources, planning time, and administrator support are the main contributors to positive co-teaching.

Hang and Rabren (2009) worked with 58 students and 45 teachers and identified their perspectives of co-teaching. Significant differences were found between the year before co-

teaching and the year of co-teaching. They collected survey, observation, and records data. This study found that students had more discipline referrals in a co-taught classroom, which was contrary to the writings of other researchers. Also, Hang and Rabren (2009) concluded that the achievement data of students with disabilities in a co-taught classrooms was the same as students without disabilities, and further generalized that co-teaching *appears* to be an effective service delivery option for meeting the needs of special education students with disabilities in the general education classroom.

McDuffie et al. (2009) found that the use of peer tutors was an effective approach to supporting the learning needs of students taught in a co-taught classroom. This research determined the effects of a peer-tutoring intervention on the academic achievement of 203, seventh-grade science students, with and without disabilities in co-teaching and non-co-teaching settings. Results indicate that the peer-tutoring intervention was connected with improvements in student performance, and students in co-teaching settings perform better than those in non-co-teaching settings. In other words, when lesser ability students are tutored by higher ability students within the co-taught classroom, growth is produced (McDuffie et al., 2009).

Silverman et al. (2009) conducted two large scale evaluation studies. They looked at Ohio school districts that demonstrated growth in student achievement of students with disabilities. Participating school districts' responses to these interview items were collected through interview notes and then analyzed for commonalities among strategies or practices. Four common strategies emerged from the analysis: leadership, inclusive access to core curriculum, data-based decision making, and a collaborative school culture. Co-teaching was found to be a

primary service delivery model for schools that showed success in growth and achievement for students with disabilities (Silverman et al., 2009).

Bacharach et al. (2010) conducted a 4-year study which identified the differences between a co-teaching and a non-co-teaching model of student teaching. The researchers quantitative and qualitative results clearly demonstrated the positive impact of co-teaching on learners. Bacharach et al. found that there was a positive statistical advantage in math and reading achievements among students who studied in the co-taught classrooms of student teachers as compared to students with regular teaching by a single teacher. The researchers found that the practice of co-teaching in student teaching holds great promise in transforming the world of teacher preparation.

A co□teaching synthesis was conducted by Solis et al. (2012) to better understand the evidence base associated with collaborative models of instruction. Six syntheses were identified: four investigated inclusion, and two investigated co□teaching. Collectively, the syntheses represented 146 studies. Their work investigated research on collaborative models; student outcomes; teachers' attitudes, beliefs, and perceptions; and students' perceptions. Common themes of collaborative models were identified across the six syntheses, which included collaborative models; student outcomes; teacher support issues; and attitudes, beliefs, and perceptions of collaborative models. Findings concluded that a successful co-teaching relationship requires training in co-teaching and a solid plan regarding the technical aspects of co-teaching. Roles and responsibilities of each partner should be clearly defined and should be based upon the strengths that each teacher bring to the collaborative relationship (Solis et al., 2012).

Walsh (2012) summarized data from Maryland school districts from 20 years with co-teaching being used as a way for special education students to access the general education curriculum. System-level co-teaching implementation strategies were identified that resulted in successful participation by students with disabilities in co-taught general education classrooms which resulted in accelerated outcomes on state reading and mathematics assessments. The specific effect of co-teaching as a system-level strategy to close achievement gaps and promote continuous improvement for students with disabilities in Howard County, Maryland, is studied over a six-year period. Walsh found that students with disabilities, who received co-teaching services, showed *improved* outcomes, including greater achievement (Walsh, 2012). Walsh (2012) concluded that improved special education student performance is associated with increased access to general education classrooms through co-teaching support.

Tremblay (2013) compared the effectiveness of first grade co-taught classes. After examining several variables, the researcher found that co-taught classes resulted in higher achievement for students with disabilities over classes taught by only the special educator. Also, attendance was better for student instructed in a co-taught classroom. The research found that students who were able to continue to second grade in a co-taught setting continued to make significant gains, while those who did not continue to learn in the co-teaching environment did not make advances in achievement (Tremblay, 2013).

Sweigart and Landrum (2015) focused on the effects of having two teachers in a secondary classroom. The investigators found that more than one teacher in a classroom gives students more opportunities to respond; however, student engagement was lower in these settings than in classroom settings with only one teacher. Findings in elementary classrooms included

that more than one teacher in a classroom provided more positive reinforcement for students, feedback improved for students who needed it the most, and there was more individual or small group instruction in co-taught classrooms. Co-teaching at the elementary level offered some positive results, co-teaching was not effective at the middle and high school level (Sweigart & Landrum, 2015).

Vizenor and Matuska (2018) looked at the positive impacts for all students in the co-teaching environment. These positive characteristics for special needs students in the co-taught classroom included reduced stigma, more teacher attention, higher expectations, more social opportunities with diverse learners, and differentiated instructional approaches. Furthermore, they identified many positive attributes for general education students co-taught in classrooms, including more teacher attention, increased social understanding, and academic growth. (Vizenor & Matuska, 2018).

Much of the current research on co-teaching is qualitative, specifically case studies, which are not created to establish the impact of co-teaching on student achievement progress (S.C. Cook & McDuffie-Landrum, 2018). Table 5 depicts the prevailing research on co-teaching from the past 3 decades. Very little quantitative research has been done to establish the effects of co-teaching on student achievement. The table below shows the title of the study, whether the study showed that co-teaching was effective in significantly raising reading and math achievement scores, and the third column is whether or not the co-teaching model contributes to improved student behavior. Results are broken into three categories: co-teaching is effective, results of the research are mixed with regard to the effectiveness of co-teaching, and co-teaching is non-effective strategy.

Table 5

Summary of Findings on Special Education Students in the Co-Taught Classroom

Study	Math Results	Reading Results	Results of Study
A Study of the Effects of the Inclusion Model on Students with Specific Learning Disabilities. Banjeri & Dailey (1995)	**Mixed**	**Mixed**	**Reduced Stigma, Improved Self Esteem, SLD made some gains**
Academic Achievement Effects of an In-Class Service Model on Students with and Without Disabilities. Saint-Laurent et al. (1998	**Mixed**	**Mixed**	**Gains in writing, reading and math for SPED, need more research**
Descriptive Analysis of Team Teaching in Two Elementary Classrooms: A Formative Experimental Approach. Welch (2000)		**Not Effective**	**Little to zero improvement in reading and spelling**
The Effects of Co-teaching on the Achievement of 8th Grade Students with Learning Disabilities. Fontana (2005)	**Mixed**	**Mixed**	**Improved self-concept, gains in math scores**
Behaviors of Teachers in Co-taught Classes in a Secondary School. Harbort et al. (2007)	**Not Effective**	**Not Effective**	**Needs more study**
An Examination of Co-teaching: Perspectives and Efficacy Indicators. Hang & Rabren (2009)	**Effective**	**Effective**	**Students and teachers had positive opinions of co-teaching**
Co-teaching as a School System Strategy for Continuous Improvement. Walsh (2012)	**Effective**	**Effective**	**Closes achievement gaps for SPED**
Comparative Outcomes of Two Instructional Models for Students with Learning Disabilities: Inclusion with Co-teaching and Solo-taught Special Education. Tremblay (2013)	**Mixed**	**Mixed**	**No difference with SPED, different outcomes observed**
The Impact of Number of Adults on Instruction: Implications for Co-teaching. Sweigart & Landrum (2015)	**Mixed**	**Mixed**	***Student behavior did NOT improve*, co-teaching can have limitations and implications**

Note. The predominant author on the topic of co-teaching, Dr. Marilyn Friend, uses only four of these studies as her research-based evidence. The studies she used are bolded above. Two of the studies cited

by Friend found co-teaching to be effective and two offered mix results. SLD is defined as specific learning disability. SPED is short for special education students.

Summary

Co-teaching research is limited in both scope and depth (Friend, 2019). There is insufficient evidence that addresses the instructional value or the achievement, outcomes for students who are co-taught (Volonimo & Zigmond, 2007). In 2000, Zigmond reported that he found only four articles about the effectiveness of the co-teaching model. Unfortunately, current academic, and behavior outcomes research on co-teachers' efficacy and effectiveness remains miniscule (L. Cook et al., 2011; Embury, 2010). Friend is a proponent of co-teaching and yet Friend et al. (2010) summed up the lack of solid research about co-teaching by saying that writing about the educational model of co-teaching is like "constructing meaning from an incomplete knowledge base" (p. 21).

The only option that provides students with disabilities continuous access to the general education content, as well as the support of a general and special educator, is the co-teaching model of special education service delivery (Kloo & Zigmond, 2008). The goal of an excellent education is to improve instruction and supports for a variety of learners and co-teaching accomplishes this in an inclusive way. The biggest challenge when moving forward with the co-teaching model of special education service delivery is the fact that the decision is made from a relatively absent research knowledge base (Friend et al., 2010). An additional challenge is that co-teaching success or failure, achievement or challenges are specific to the teachers, students, and context where the model is implemented (Blednick & Wilson, 2011). The literature and research on co-teaching remains difficult to pinpoint; on the other hand, pull-out as a service

option for special education students fails to meet the needs of exceptional learners and moreover creates obstacles to success (Will, 1986). Yet, some contend that co-teaching has not become a widespread practice in schools (Duran et al., 2020).

Co-teaching provides an inclusive and pragmatic model of education, which allows schools and school districts to comply with the law, while providing all students with social and behavior opportunities to learn and grow in the least restrictive environment (Friend, 2019; Helmboldt, n.d.). It is important to remember that co-teaching is a service delivery model used to provide specialized services to students with disabilities. Co-teaching is not an intervention within itself, but rather the umbrella under which the interventions occur. The what that the two teachers do and the how that they do it is what has the potential to make a difference in the achievement of learners with identified special education needs (Scruggs & Mastropieri, 2017).

Chapter 3

Methods

The purpose of this program evaluation was to study the impact of the co-teaching model of special education services on the achievement of special education students and general education students in the specific co-teaching setting of Small-Town Elementary School (STES). Also, this evaluation identified the extent to which co-teaching was implemented in this specific setting with fidelity during the 2019-2020 school year and to what degree and in what ways were the six models of co-teaching implemented with the co-teaching pairs in the general education classroom. Furthermore, what decision-making processes were used by co-teaching teams when deciding on the co-teaching model and methods. Additionally, this evaluation determined how the co-teaching model evolved during the COVID disruption of 2020. Specifically, in what ways did co-teaching survive during this untraditional time, how did the teaching practices change, and what lessons were learned by the co-teaching teams that can inform the implementation of co-teaching in the future. Finally, this research study determined a relationship between the co-teaching classroom and the specific categories of disruption and defiance with student behavior in the co-taught classroom.

The CIPP (context, input, process, and product) model of program evaluation wasthe explicit model used for this evaluation. The CIPP model was used for this evaluation, in this specific setting, to take a broad look at the co-teaching program, its implementation, and how the program changed during the COVID disruption. The co-teachers at STES have been trained to implement co-teaching in their classrooms with their students and employed co-teaching

strategies throughout the 2019-2020 school year. Description and analysis of the output data is be the product of the evaluation (Stufflebeam & Shinkfield, 2007).

Participants

Participants in this study represented students and teachers at Small Town Elementary School (STES). The teachers implemented the co-teaching model during the 2019-2020 school year and the students learned in the co-taught classroom during the 2019-2020 school year. Participating teachers' responses remained anonymous and the data collected remained confidential; student achievement data and behavior data collected in this school remained unidentified.

The teachers who implemented the co-teaching model of special education service delivery in the general education classroom expressed a desire to participate in the co-teaching model. Teachers at every grade level were willing and wanted to implement the co-teaching model with their students. Our four special education teachers were the leaders of our move towards the special education service model of co-teaching. At the time of this evaluation study, there were four special education teachers, two highly qualified special education teacher's assistants (one is a certified teacher endorsed in pre-school through sixth grade and the other has her bachelor's degree in human development and psychology), and nine general education teachers directly responsible for implementing the co-teaching model in grades kindergarten through fifth grade. All instructional staff working within the co-teaching model have five or more years of experience and are all fully credentialed educators.

These faculty members, as depicted in Table 6, were invited to participate in an open-ended, semi-structured interview in January of 2021. The purpose of this interview was to inform the STES special education structure moving forward and to better understand how the program was implemented and how the program evolved during the COVID disruption period.

Table 6

Co-Teaching Assignments for 2019-2020

Name	Role	Assignment
A	General Educator	Kindergarten 1
B	Special Educator	Kindergarten 1
C	General Educator	Kindergarten 2
D	General Educator	Grade 1
E	Special Educator	Grade 1
F	General Educator	Grade 2 Reading
F	General Educator	Grade 2 Math
G	Special Educator	Grade 2 Reading
G	Special Educator	Grade 2 Math
H	General Educator	Grade 3 Reading
H	General Educator	Grade 3 Math
G	Special Educator	Grade 3 Reading
G	Special Educator	Grade 3 Math
I	General Educator	Grade 4 Reading
J	Special Educator	Grade 4 Reading
K	General Educator	Grade 4 Math
J	Special Educator	Grade 4 Math
L	General Educator	Grade 5 Reading
J	Special Educator	Grade 5 Reading
M	General Educator	Grade 5 Math
J	Special Educator	Grade 5 Math

Teachers were asked to describe how co-teaching was implemented in their classrooms. Also, the co-teaching partners were questioned about how their instruction evolved during the COVID disruption. The teachers' responses to the questions were video recorded via Zoom. The interview answers were coded for the secondary purpose of answering the questions in this program evaluation research study.

Data Sources

The CIPP Model is pragmatic and is part of the use branch. The data produced from this program evaluation will be useful to school leaders and stakeholders (Mertens & Wilson, 2012). To accomplish this purpose, the study employed Stufflebeam's CIPP design and focuses on

Inputs, Processes, and Outcomes. This study was a mixed methods program evaluation of co-teaching in a small-town elementary school. This evaluation study included both quantitative data and qualitative data.

Multiple sources of data were collected during this program evaluation. This program evaluation research was part of a continuous cycle of decision making, changes and action based on the data, and conversations with stakeholders in order to make improvements to the program that will benefit the school community in the years to come. Data collected for this research was mixed methods and thus will give a more complete look into the impact of the co-teaching model. The data collected was used to inform decisions about co-teaching in this school. This was data-based decision making (O'Neale, 2012).

Students did not participate directly in this evaluation. However, student data was a main data source. Student dataincluded midyear benchmark test scores from the past 3 years for the third, fourth, and fifth grades. Benchmarks were given in Grades 3, 4, and 5 and provided data to teachers on what content needs more review before students participate in SOL testing. SOL tests begin at the elementary level in Grade 3 and continues through fourth and fifth grade and the benchmark tests give the students a chance to practice their test taking. SOLs were not given in the spring of 2020 due to the COVID disruption and students not being in school. Data from approximately 275 special education and general education students was included in this evaluation. Students in kindergarten through second grade did not take SOLs and therefore did not take benchmark tests.

Other student data includes SWIS behavior reports and office referrals from any of the 360 students in this elementary school who had a documented behavior infraction. Students in Grades K–5 had their behavior infractions recorded on a behavior report and submitted to the

parent, assistant principal, and principal. The principal, assistant principal, and parent worked together to come up with a plan to prevent future behavior infractions and a consequence was assigned. Then the completed behavior reports were turned over to the PBIS committee. One member of the PBIS committee, input the behavior data into the SWIS system. The system contains categories of behavior infractions, including disruption and defiance.

Midyear Benchmark Tests

Benchmark tests of achievement were given at the beginning, middle, and end of each course for reading and math in grades third through fifth as required by STES. Last year's midyear benchmark and the scores from the midyear benchmark two years ago were compared to the 2020 midyear benchmark scores for last year's third, fourth and fifth grades. Descriptive statistics described the students' data from one school year to the next. Benchmark scores were a primary data source that STES uses to measure student growth and achievement.

Table 7

Special Education Student Benchmark Scores

Year 1 No CT	M	Year 2 No CT	M	Year 3 Co-T	M	Grade	Content
17-18		18-19		19-20		3	Reading
17-18		18-19		19-20		3	Math
17-18		18-19		19-20		4	Reading
17-18		18-19		19-20		4	Math
17-18		18-19		19-20		5	Reading
17-18		18-19		19-20		5	Math

Note: All students had the same core teacher, class setting, and instructional methods. The letter M stands for the mean score for each year, to be determined.

Table 8

General Education Student Benchmark Scores

Year 1 No CT	M	Year 2 No CT	M	Year 3 Co-T	M	Grade	Content
17-18		18-19		19-20		3	Reading
17-18		18-19		19-20		3	Math
17-18		18-19		19-20		4	Reading
17-18		18-19		19-20		4	Math
17-18		18-19		19-20		5	Reading
17-18		18-19		19-20		5	Math

Note: All students had the same core teacher, class setting, and instructional methods. M stands for the mean score for each year, to be determined.

Due to small sampling sizes, the mean of reading and math scores for each grade level were calculated, but not statistically analyzed. The evaluator studied the means of the students taught without the co-teaching model and students taught using the co-teaching model while all other factors have remained virtually the same over the three years. Three different years of midyear benchmark scores were represented the three different years of mean benchmark scores. Year 1, Year 2, and Year 3 means were calculated. Midyear benchmark data from Year 1 and Year 2 included means for third and fourth grade, the 2 years before the co-teaching model of special education services was adopted. Year 3 means for third and fourth grade were taught in the of co-teaching classroom. Both of the data sets Year 2 and Year 3 of the fifth grade included students who were co-taught, as co-teaching was piloted in the fifth grade during the 2018-2019 school year. Year 1 data for fifth grade was when students were taught without using the co-teaching method. However, no training occurred for the fifth-grade special educator or the fifth-grade general education teacher prior to the co-teaching model being implemented during the 2018-2019 pilot year in fifth grade.

Student Behavior Assessment Data

All faculty and staff have been trained in PBIS and consistent behavior expectations of students and data reporting of student behavior infractions. The SWIS database software is an add-on component of the PBIS program. SWIS data on behavior was kept in an on-line school-wide information system. All behavior reports and office referrals were logged in and information was kept on each student who had a behavior write up.

All faculty and staff have received the total PBIS training. Additionally, all members of the STES team were instructed on how to fill out the behavior reports and office referrals. Furthermore, four members of our staff have been taught how to input the behavior report and office referral data consistently into the SWIS system. Having all staff receive training on PBIS and how to reliably document student behavior increases the validity of the data we input into SWIS system. The codes on the behavior reports correlated directly to the categories in SWIS, increasing the reliability of what was reported and recorded. The SWIS program allowed our team of educators to view the reports of the data program and look for trends within the behavior data reported in our school across multiple categories.

STES subscribed to the SWIS data management system for the past two school years. The system allowed us to look at data by grade, class, and by numerous other categorical descriptors. Behavior data was kept during the 2017-2018 school year, but the school did not subscribe to SWIS. Every effort was made to match categories from behavior data two years back to compare that data to last year's data with the co-teaching intervention in place. Two years of behavior data prior to implementation of the co-teaching treatment provided a sound point of comparison to the year of behavior data collecting during the first year of the co-teaching model being implemented in classrooms. The specific behavior categories of defiance

and disruption will be the focus of the SWIS evaluation question and the total number of infractions will be tallied in addition to the number of the defiance and disruption infractions, as depicted in Table 9.

Table 9

Student Behavior Infraction Data

G	C	Year 1 No CT	T	Dis	Def	Year 2 No CT	T	Dis	Def	Year 3 CT	T	Dis	Def
K	GE	17-18				18-19				19-20			
K	SE	17-18				18-19				19-20			
K	SE	17-18				18-19				19-20			
1	GE	17-18				18-19				19-20			
1	GE	17-18				18-19				19-20			
1	SE	17-18				18-19				19-20			
2	GE	17-18				18-19				19-20			
2	GE	17-18				18-19				19-20			
2	SE	17-18				18-19				19-20			
3	GE	17-18				18-19				19-20			
3	GE	17-18				18-19				19-20			
3	SE	17-18				18-19				19-20			
4	GE	17-18				18-19				19-20			
4	GE	17-18				18-19				19-20			
4	SE	17-18				18-19				19-20			
5	GE	17-18				18-19				19-20			
5	GE	17-18				18-19				19-20			
5	SE	17-18				18-19				19-20			

Note. G stands for Grade Level. C stands for whether the class is General Education or Special Education. T stands for the total number of behavior infractions when that data is collected, D stands for the subcategory of Disruption to be determined after data collection, and Def stands for the subcategory of Defiance, numbers to be determined after data collection**.**

Teacher Interviews

Co-teachers, both general education and special education, participated in an open-ended interview in January 2021. The questions were general and open to give the teachers the greatest

opportunity to generate their own distinct ideas. This researcher created the interview questions and the teachers who have been in co-teaching settings had the opportunity to communicate their thoughts on the implementation of the co-teaching method and the evolution of co-teaching during the COVID disruption. Interviews were conducted with the co-teaching pairs. Data was coded and themes were generated.

One of the main focuses of this evaluation was on the change in climate from a non-co-teaching model to a co-teaching model. The special educators and general educators were the exact same from Year 2 to the intervention year of Year 3. The teachers pushed for this change in services because they believed it would serve their students better, both academically and socially. Qualitative data was gathered in the form of interview questions. The interview questions focused on teachers' perceptions of implementation of the co-teaching method and on how the co-teaching model changed during the COVID disruption. The interview questions probed them to compare the previous year without co-teaching with this school year implementing the co-teaching model. The questions allowed them to focus on whether the reasons why they wanted to move to the co-teaching model have come to fruition.

Data Collection

Data collection took place in February and March of 2021. The College of William and Mary Institutional Review Board approved the methods of data collection for this evaluation study before data were collected. All results from the interviews of teachers remained confidential. As depicted in Table 10, the following data collection will take place during the 2020-2021 school year.

Table 10

Evaluation Data Collected

Date	Data Collected	Grade
January 2021	2018 Midyear Benchmark Reading Achievement Data	3-5
	2019 Midyear Benchmark Reading Achievement Data	3-5
	2020 Midyear Benchmark Reading Achievement Data	3-5
	2018 Midyear Benchmark Math Achievement Data	3-5
	2019 Midyear Benchmark Math Achievement Data	3-5
	2020 Midyear Benchmark Math Achievement Data	3-5
	2018 Behavior Management Report Summary	K-5
	2019 SWIS Behavior Management Report	K-5
	2020 SWIS Behavior Management Report	K-5
February 2021	Co-Teaching Open-Ended Interviews	Co-teaching Pairs

Note: The acronym SWIS stands for School Wide Implementation System.

The first set of data collected was the Reading and Math midyear benchmark scores which were collected in January 2021. It was important to note that the third, fourth and fifth grade students' benchmark data from 2018 and 2019 were collected by teachers in those years, and were gathered by the researcher in January 2021, but this data was not studied with regard to this program evaluation research study and the research questions.

In February 2021, the instructional faculty members, who participated in the co-teaching model of special education services during the 2019-2020 school year, were asked to participate in an interview about the co-teaching implementation at STES. Only the faculty who were willing to be interviewed participated. The teachers were interviewed in their co-teaching pairs. The interviews were scheduled at the convenience of the participants during the month of February 2021. The faculty had the ability to withdraw from the evaluation both verbally and in writing. Additionally, the interview questions were open-ended to allow for individualized responses and personal insights into each teacher's unique perception and experience with the

co-teaching model, the implementation of the model, and the evolution of the model during the COVID disruption.

I created the interview protocol. Moreover, the interview questions were scrutinized by my dissertation committee. The answers to the interview questions answered the program evaluation research question one and Research Question 4.

The interview questions asked the teachers to compare points from last year without the co-teaching model to points from this year with the co-teaching model. The special education teachers, as well as the general education teachers, were the main resource as depicted in the logic model. They were the deployed resource to implement the change in methodology within the classrooms. The teachers were the participants and were asked what changed in the classroom for students and teachers when co-teaching was implemented and was the co-teaching model implemented with fidelity. The teachers were asked to compare planning for instruction, meeting the needs of special education and general education students, and implementing instruction during the COVID disruption from March 13, 2020, through December 17, 2020.

There were advantages and disadvantages to using interviews to collect data. The advantages were that follow up questions can be asked, the interviews could be recorded for accuracy, response rate was increased, and the interview was a more personal method to collect data. The disadvantages to using interviews was there could be interview bias, interviews were less structured, and the personal connection could have made the interviewees answers less accurate.

After permission was granted to continue with this research, a Behavior Management Report was run for the entirety of the 2019-2020 school year. This report consists of all student behavior referrals for the preceding school year. The Behavior Management Report was from

SWIS, which is an add-on application of PBIS. Also, a school wide behavior report was run for the 2018-2019 school year. The categories on our behavior referral forms at STES matched the categories in SWIS. Because of this, behavior data from the 2017-2018 school year was included for comparison. The categories of behavior scrutinized from these 3 years are defiance and disruption.

Researcher-Participant Statement

I was the principal of the elementary school where the research was conducted. Because I was also a practitioner in this setting, there were several safeguards in place to control for potential bias and to ensure an objective process for the evaluation data collection and analysis. I was both a doctoral student at The College of William and Mary and the principal of STES. This section addressed these dual roles and provided information on the research precautions and specific details that demonstrated that as the principal of the school, I was the appropriate person to conduct this research in this particular setting.

Participation in this study was completely voluntary. The teachers were not coerced into participating and although I was their supervisor, this research was not related to their employment, evaluation, or continued employment in any manner. The teachers received a letter asking them to participate in an interview about the issue of co-teaching. The letter described the purpose of the study and how the data was collected and used. The identities of participants were kept anonymous (Creswell & Creswell, 2018).

I had an established professional relationship with each of the teachers invited to participate. For the past 3 years, I have worked towards creating a work environment where being honest and open, no matter whether what is shared is good or bad, is accepted and accounted for in order for our school to be the strongest and most productive place for students

and educators. Building trust with participants and the culture of the research setting are often challenges for researchers (Creswell, 2003), but this was be an advantage for me in conducting this program evaluation. I have worked with these teachers over long periods of time, on a daily basis, through struggles and successes, that was crucial to the validation of this study (Creswell, 2003).

I was transparent about my role and continued to be transparent and clear throughout the data collection process and the duration of this research. As part of my proposal for research, I was clear about my position within the school and my commitment to keeping the research impactful and honest (Merriam & Merriam, 1988). Part of this transparency in my approach to this research was acknowledging that my biases and prejudices could impact this study, but I am dedicated to doing my best to ensure that they did not. It was my belief that conducting these interviews improved the human situation in the school because the data collector/principal was dedicated and made time to listening to opinions, ideas, and thoughts of her teachers and, ultimately, the information they provide was used to make decisions (Creswell & Creswell, 2018). These data were valuable, and participants were treated with respect and appreciation. Additionally, there was no harmful data collected in this program evaluation research I wanted to know what they really think and they knew this about me already. Additionally, the full range of findings of this research were reported back to the participants.

My status as researcher-participant did not skew the data collection or data analysis. In fact, my rationale in serving as the researcher in the project was that my staff would be more open and honest with me than with anyone. For the past 2 years, 100% of my faculty and staff have rated me in the highest category of trust on the School Climate Survey sent out yearly by

the Virginia Department of Education. Additionally, I have 100% faculty and staff retention for both the 2018-2019 and 2019-2020 school year.

As the principal leader in one of only five schools in Virginia designated as top tier "Schools of Excellence" by the Virginia Department of Education, I was committed to continuing to improve learning and outcomes for both students and teachers. This research on co-teaching was important to me as a stakeholder and as a researcher who was always trying to improve learning for students as well as teachers. In summary, participation was a voluntary process, clear and transparent, and ensured safeguards regarding bias and objectivity.

Data Analysis

Data collection for this study used both quantitative and qualitative research methods. Each type is described below.

Quantitative Analysis Methods

Means were calculated for the midyear benchmark testing data from the past three test administrations. This provided the scores from before and after introduction of the co-teaching model for both special education and general education students. Also, descriptive statistics were used to illustrate the values between each of the third, fourth and fifth grade SOL midyear benchmark test scores in reading and math, and the 2019-2020 year with implementation of the co-teaching model and the preceding two years without the co-teaching model.

The midyear benchmark scores were calculated for the 2 years prior to co-teaching with the scores from the year after implementation began of the co-teaching model. These data had an interval space of 1 year in between the three sets of scores. Descriptive statistics were used to report the data. The data were described verbally by the researcher.

A numerical report of SWIS data was run. This report was generated in January of 2021 and was used to study the behavior data from co-taught classrooms to non-co-taught classrooms. Additionally, this system was used to look at the 2018-2019 behavior data to the 2019-2020 data after implementation of the co-teaching model of special education services in the general education classroom. The data was viewed and described for each of the three years. Descriptive statistics were used to present and summarize the data without providing an analysis.

Qualitative Analysis Methods

The qualitative data were the interview responses the teachers gave about their implementation of the co-teaching model of special education services during the 2019-2020 school year as well as the evolution of the co-teaching model during the COVID disruption. Teachers were invited to participate, received instructions, and received a thank you and follow up letter at the conclusion of the study.

Teacher interviews were face to face on zoom, recorded, and transcribed. The interviews were recorded to increase reliability of the data, but the researcher also took notes during the interviews (Creswell, 2013). There were few questions, the intention being that the main ideas, views, and opinions, came from the participants. The evaluator read the transcripts multiple times to increase understanding and began to generate meaning and assign understanding to the data.

Coding Procedures. Teacher interview transcription data was divided into segments and the segments were hand coded and labeled (Creswell, 2009). These chunks of data were organized. The researcher used the words of the interviewed teachers to label ideas. The codes emerged from the information collected from the interviews. Inductive coding arrived from the data and described the content of the data. The researcher reviewed the data several times to

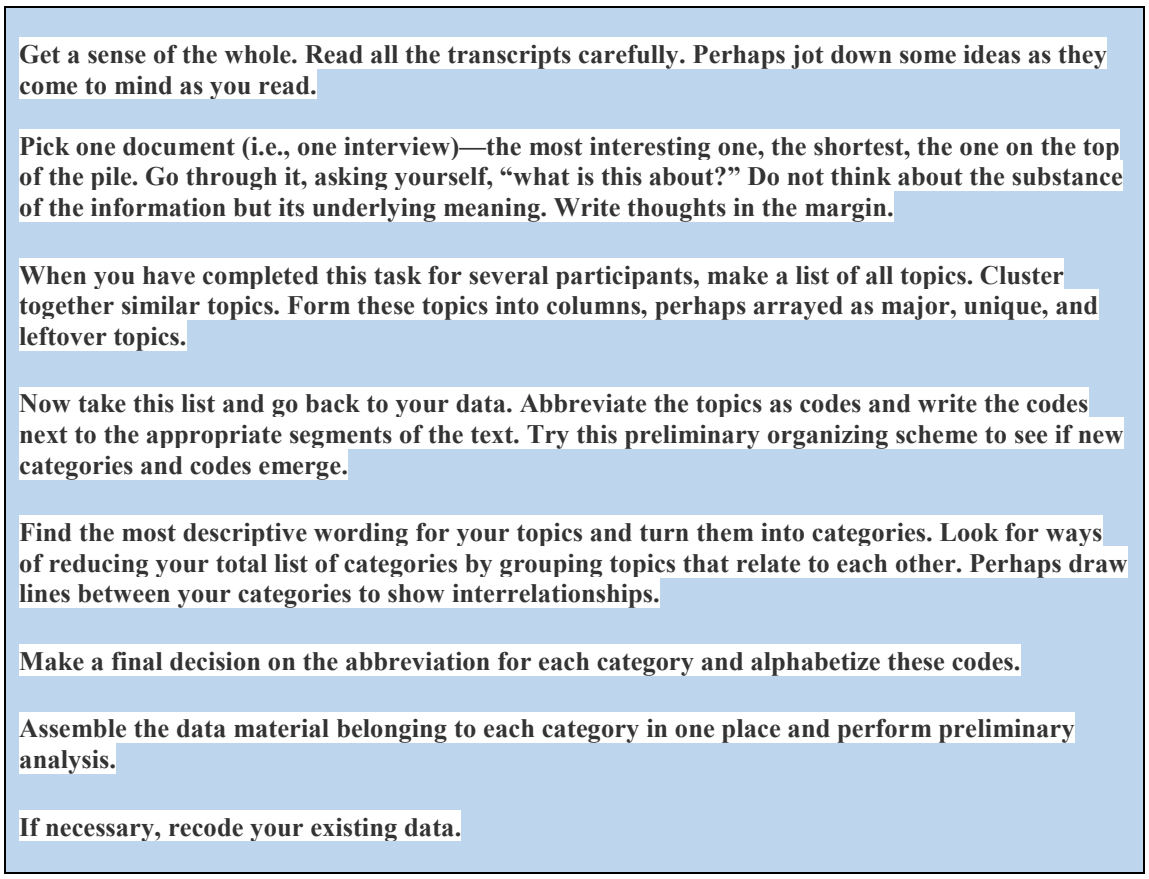
identify patterns of codes. As codes emerged and overlapped, the researcher reduced the overlap and redundancy by generating themes (Creswell, 2014). If three of the same code or three overlapping similar codes resulted from the data, a theme was generated.

These themes represented what occurred with the co-teaching model at STES during the study period. The researcher was expecting that some themes were expected and some were unexpected (Creswell, 2013). The themes were shared with the faculty interview participants at the conclusion of the research evaluation. This strengthened the validity of the evaluation data and contributed to the transparency between the teachers and the evaluator. This method of gathering data and constructing meaning provided insight for school district leaders and stakeholders about the current status of the co-teaching model of special education service delivery.

Co-teachers, both special education and general education partners were asked in the interview the specifics about how the co-teaching model was implemented and about how the co-teaching pair chose the models of co-teaching that were used. Then, these teachers were asked specifically about what changed during the COVID disruption of the traditional school year. My coding process was based on Tesch's Eight Steps in Coding Process (Creswell, 2013).

Figure 6

Tesch's Eight Steps in the Coding Process



Note: Adapted from Tesch's Eight Steps in the Coding Process from J. W. Creswell (2014).

Relationship Between Questions, Data, and Methods

Table 11 shows the relationship between the evaluation questions, data sources, and methods of analysis. The combined processed reflected in the table was followed in the data analysis for the four research questions.

Table 11

Evaluation Questions and Data Analysis

Evaluation Question	Data Source	Data Analysis
1. Was the co-teaching model of special education services in the general education classroom implemented with fidelity based on the program design and training? a. To what degree and in what ways were the six models of co-teaching implemented with the teaching pairs in general education classrooms? b. What decision making processes were used by co-teaching teams when deciding on the co-teaching models and methods?	Co-teaching Pairs Semi Structured Interviews	Qualitative Coded Data Emerging Themes
2. How will reading and math midyear benchmark scores in co-taught and general education classes in third, fourth, and fifth grades for 2019-2020 compare to the 2018-2019 and 2017-2018 midyear benchmark scores for general education and special education students?	STES Midyear Benchmark Scores 2017-2018, 2018-2019, 2019-2020	Quantitative Descriptive Statistics
3. To what degree does the School Wide Information System (SWIS) for behavior management data in the specific categories of defiance and disruption, differ between special education and general education students instructed in non-co-teaching classrooms and co-teaching classrooms for the first 100 days during the 2017-2018 and 2018-2019 school years compared to the 2019-2020 school year? *Note:* The same time frame will be used for all three years to allow for comparability with the COVID disruption period beginning on March 13 in 2019-2020.	SWIS Behavior Management End of Year Data for 2018-2019 and 2019-2020	Quantitative Descriptive Statistics
4. What changes occurred with the implementation of co-teaching during the COVID disruption period beginning on March 13, 2020, through January, 2021? a. In what ways did co-teaching survive during the COVID disruption period and how did the co-teaching practices change? b. Based on co-teaching experiences during the COVID disruption period, what lessons were learned by the co-teaching teams that can inform the implementation of co-teaching in the future?	Co-teaching Pairs Semi-Structured Interviews	Qualitative Coded Data Emerging Themes

Timeline

The evaluator proposed the timeline in Table 12 for completion of this evaluation of the co-teaching model of special education service delivery at STES.

Table 12

Timeline of Proposed Study

Dates	Activity
January, 2020	Dissertation Proposal
February, 2021	Collect and Analyze Quantitative Data
March, 2021	Collect and Analyze Qualitative Data
April, 2021	Write Chapter 4
May, 2021	Write Chapter 5
June, 2021	Defend Dissertation

Delimitations, Limitations, and Assumptions

Delimitations

Delimitations were set by the researcher as boundaries for the scope of the study (Creswell, 2013). An important delimitation of this research study was the context was very small. The evaluation was a program being implemented in a small elementary school.

The program evaluator was embedded and involved in this school context which was also a delimitation of this evaluation research study. I was the program evaluator and simultaneously the school leader. As the school leader, I was the participant teachers' evaluator as well. A potential delimitation was that teachers may feel pressured to speak positively about co-teaching when they were interviewed. However, at the end of the 2018-2019 school year, a school climate and safety survey was filled out by all staff of this school. The survey data established that the faculty and staff of this school had a very high level of trust for the building leadership, had an open dialogue with their administration, and felt that their work environment was a safe space to

learn and share ideas (School Climate and Safety Survey, 2019). As a result, it was an assumption that interview responses of the teachers were honest and truthful responses, considering the evaluator was the principal of their school of employment.

Limitations

Limitations were aspects or characteristics that influence the study's findings. One limitation of this evaluation was the context was only one school and the entire population of multiple grade levels. Each evaluation study is specific to a particular context and this context was very small, thus the sample size was extremely small. The findings from this evaluation were specific to this setting. Whereas, the results from this evaluation cannot be generalized to other places or other schools (Creswell, 2014). An additional limitation was the length of this study was relatively short.

A potential limitation was the researcher's relationship with these teachers and her relationship with the school and district; however, there could also have been benefits to the researcher having a relationship with these teachers and the setting. Fitzpatrick et al. (2011) reported that an internal evaluator often behaves more responsibly when it comes to evaluating a model or program close to the researcher. To maintain trustworthiness, the researcher kept all data, transcripts, and recordings of interviews and all notes related to this evaluation research. The researcher was prepared for whatever data was collected and analyzed and was ready and willing to give feedback about the evaluation and recommendations for program improvement (Fitzpatrick et al., 2011).

Assumptions

The main assumption in the program evaluation was that the teachers were implementing the co-teaching model of special education services with fidelity in this school. Moreover, an

assumption was that teachers will give honest answers during the interview process. Another assumption was that co-teaching would have a neutral or positive effect on the culture of our school. Additionally, an assumption of this evaluation of the co-teaching model of special education service delivery was that students would benefit from being in a co-teaching environment. Another related assumption was that students would experience more growth and achievement in a co-taught classroom than they would in another special education service delivery option.

A final assumption was that stakeholders would want to understand the impact of co-teaching and the information from the evaluation process. The school board of the districts of STES received a great deal of positive feedback from parents during the first two months of the 2019-2020 school year. As a result, during October, the school board asked the co-teachers to present to the school board so that the board members would have a better understanding about what many parents had communicated so positively about.

Ethical Considerations

One important factor that was worthy of consideration was the fact that the person conducting the evaluation was the principal of STES. This could be viewed as a conflict of interest. The evaluator conducting this study adhered to the College of William and Mary's research protocol. Also, the evaluation was guided by program evaluation standards. The logic model of the work being evaluated was shared in the STES school district.

This evaluation was used to plan for future school years at STES. This work determined how the co-teaching model could be improved over the next few years and ultimately whether or not co-teaching will continue to be the model for special education service delivery at this

school. The results of the evaluation were valuable in determining how the school and school district will proceed with staffing and funding for the co-teaching model moving forward.

One of the most important ethical considerations to consider was beneficence. That is that there was nothing about this study that harms students or teachers. The benefits of this program evaluation study outweighed any potential harm.

Specific standards were used to create this program evaluation. *The Program Evaluation Standards* give us a framework for determining if an evaluation was of good quality (Joint Committee on Standards for Educational Evaluation, 2011). The standards consist of utility, feasibility, propriety, accuracy, and ethical considerations (Yarbrough et al., 2011).

Propriety

The propriety standards sought to ensure that participants were treated safely morally, legally, and ethically (Mertens & Wilson, 2012). The researcher was transparent, communicated findings, and protected the participants. It was emphasized to the interview participants that there were no right or wrong answers and that there was no need to be unnecessarily complementary or critically of the co-teaching model. Another idea that contributed to propriety was that the interviews with co-teachers were videoed and these videos were shared with the participants in order for them to review their responses and provide additional feedback prior to being incorporated into the evaluation findings.

Utility

Utility standards addressed the appropriateness and usefulness of the open-ended interview and potential review of the videos, encouraged the teachers working with the co-teaching model to be reflective about their practices and perceptions about the challenges and

successes of implementing the co-teaching model. Another element of utility of this study was that the evaluator has pre-established credibility in this school, school district, and community.

Feasibility

The feasibility of this evaluation addressed whether or not this evaluation could be accomplished successfully in the specific setting (Mertens & Wilson, 2012). This evaluation study managed effectively and efficiently and was feasible within the standards of program evaluation (Joint Committee on Standards for Educational Evaluation, 2011).

Accuracy

The accuracy standards denote how trustworthy and dependable an evaluation is (Mertens & Wilson, 2012). The context of this evaluation was a single school. The data and results of this evaluation were not generalizable to other schools, contexts, or settings; but were specific to the setting of STES.

Summary

This program evaluation allowed for study of the implementation and results of the co-teaching model of special education service delivery at STES. Mixed methods, including comparison of numerical student achievement data and behavior data, as well as reporting of descriptive statistics were primary quantitative data points. Qualitative teacher interview data revealed how the model was implemented during the regular school year and during the COVID disruption. Findings from this study were used to inform all stakeholders as they continue to improve the co-teaching model and its implementation at STES.

CHAPTER 4

FINDINGS

The purpose of this evaluation was to better understand whether the co-teaching model of special education services is an effective model of service delivery at STES, Small Town Elementary School. The problem to be investigated in this study was specific to this elementary school and explored whether the inclusive model of service delivery for special education students, co-teaching in the regular classroom, impacted student achievement and student behavior. This study investigated how the model was implemented over the course of the last year, including the time of the COVID-19 disruption.

In order to address these evaluation questions, the CIPP model was utilized. Both quantitative and qualitative data were collected. This chapter presents the results based on the data that were gathered to answer each of the four stated research questions. The findings of the evaluation will be presented in this chapter and organized by research question. Relevant emergent themes are included with the corresponding research questions.

Evaluation Research Question 1

Was a co-teaching model of special education services in the general education classroom implemented with fidelity based on the program design and training?

Program Design and Training

Eight of the co-teachers were interviewed via Zoom with their co-teaching partner. The researcher asked each of the four pairs forty-one questions which directly matched the evaluation research questions. The interviews lasted from one to two hours. The four co-teaching pairs

interviewed for this research study included the kindergarten, first grade, second grade, and fifth grade co-teaching partners. These four pairs of teachers confirmed the co-teaching model of special education services was implemented in the general education classroom with mixed fidelity based on the program design and training. The co-teaching pairs responses to the interview questions are detailed below, organized by both question and theme.

In Chapter 3, Table 6 details a complete listing of the special educators and general educators who co-taught during the 2019-2020 school year. For the purposes of this evaluation, each special educator was interviewed with one of their co-teaching partners. STES has four special educators. The kindergarten special educator teaches with two of the kindergarten teachers. This special educator is in each of these classrooms during reading and math instruction. The kindergarten general educator who attended the co-teaching training at JMU was interviewed with the kindergarten special educator. The first-grade co-teaching team consists of one general educator and one special educator. This co-teaching pair are both with their group of students all day long and both attended the training at James Madison University(JMU). The second-grade special educator is split between two grade levels, second grade and third grade. The special educator and the second-grade teacher, who both attended the JMU training, were interviewed for this evaluation. The final special educator co-teaches in fourth and fifth grade math and reading. This special educator was interviewed with the fifth-grade math teacher. Due to extenuating circumstances, the fifth-grade math teacher was the only co-teaching partner, who works with this special educator, available to be interviewed. In total four pairs of co-teachers were interviewed, eight teachers total. Table 13 has been abbreviated below to include only the teachers who participated in the interviews for this evaluation. The letters listed under “name” will be used as identifiers in the narrative below and when citing interview content.

Table 13

Co-Teachers Interviewed

Name	Role	Assignment
A	General Educator	Kindergarten 1 Reading and Math
B	Special Educator	Kindergarten 1 Reading and Math
D	General Educator	Grade 1 Reading and Math
E	Special Educator	Grade 1 Reading and Math
F	General Educator	Grade 2 Reading and Math
G	Special Educator	Grade 2 Reading and Math
J	Special Educator	Grade 5 Reading and Math
M	General Educator	Grade 5 Math

Six of the eight teachers interviewed for this research study attended the co-teaching training at JMU during the summer of 2019. Both the special educator and the general educator attended for Grades 1 and 2. Also, the kindergarten general educator and the fourth/fifth grade special educator attended the training. Each of these four co-teaching pairs had at least one teacher in the co-teaching pair who attended the JMU conference. The teachers were present for multiple sessions and workshops on co-teaching over 3 days at this professional learning conference. These six teachers describe their experience as an informative and bonding learning experience (Participants D, E, & F).

The keynote presenter and speaker at the JMU conference was Dr. Marilyn Friend. Each teacher attending the conference received a copy of her book, *Co-teach! Building and sustaining effective classroom partnerships in inclusive schools* (2019). The conference attendees also received a binder full of co-teaching resources. The conference, the book, and the resources were all free and given to each conference participant.

Upon their return from the conference, the first-grade co-teaching pair submitted a purchase order to get Dr. Friend's videos on co-teaching and they were purchased by the bookkeeper of STES. The first-grade team reported that they watched these videos in their

entirety and planned to incorporate the most impactful clips from the videos into the part of the professional learning experience they were planning for the entire faculty (Participants D & E).

The co-teaching conference attendees worked together over the summer, 2019, to plan a professional development session for the other teachers at STES, to be presented during pre-service learning time prior to the beginning of the 2019-2020 school year. The teachers who attended the training planned a professional learning session where they explained co-teaching, described the six methods, and planned opportunities for the other teachers to practice implementing the six methods. These teachers agreed that they wanted to show the other members of the STES's faculty and staff that they are invested in co-teaching and believe that it is an important practice to implement (Participants A, B, D, E, F, G, J, & M). The session they created for teachers and staff was shared during a three-hour professional learning preservice session in late August 2019.

In addition to planning the in-service for the entire faculty, the co-teachers used summer 2019 to plan for the school year. According to the teachers interviewed, the planning began during their time at JMU. The conversations detailed what they needed to plan and think through. The first-grade team reported that they met for the remainder of the summer at least once a week to share ideas and make plans (Participants D & E). The second-grade co-teaching pair reported that they talked on the phone throughout the summer and met in person at school four times. (Participants F & G). These four teachers described working and planning together all summer, thinking through curriculum, preparing activities, and redesigning classroom space. Before the school year began, these teachers agreed that they were planning together constantly (Participants D, E, F, & G).

The kindergarten general educator attended the JMU conference, but the special educator did not. The kindergarten teacher told me that she thought about what she had learned at the conference over the remainder of the summer but because the special educator who works with kindergarten did not go, she did not talk to her about it (Participant A). The fourth and fifth grade special educator reported that she learned many strategies that she could take back and share with her teams of general educators, but that the fifth-grade language arts and reading teacher, who attended the conference, was unable to meet over the summer due to unforeseen circumstances (Participant J).

The two co-teaching pairs, where both the general educator and the special educator were able to attend the conference, reported that one of the best things about the experience was that they had the opportunity to attend with their co-teaching partner (Participants D, E. F, & G). These two pairs believe they had an advantage when implementing co-teaching because they attended the conference together, began to learn about co-teaching as a pair, and started to plan to implement the model while still at JMU (Participants D, E, F, & G). They began to discuss in detail the ideas they had for their classrooms and for instructing their students using the six methods, while they were still at the conference (Participants D & E).

Another benefit the teachers noted was that nine teachers from the school attended the conference, so they had a solid group who learned the six methods to come back to the school and work with the other teachers to train and implement the co-teaching model (Participants D, E, G, & J). Also, the teachers said they received many materials and resources while at JMU and they worked through it together when they got back from the conference (Participants E, F, & G). One of the teachers expressed, “we are doing co-teaching the way they taught us at JMU, the

way they said we should do it! I got proper training to do something good for my students!" (Participant E).

The group of nine educators who attended the JMU training met twice during early August of 2019 to plan their professional learning for the rest of the faculty and staff. Three of these teachers were special educators, five were general educators, and one was a teacher's assistant. They did not include the fourth special educator or the other general education co-teachers who did not attend the conference in their planning and preparations (Participants A & B).

Once the school year began for students, only one of the co-teaching pairs, first grade, continued to plan together regularly (Participants D & E). The three other co-teaching pairs complained in the interviews that they did not have time to plan together or did not have common planning time (Participants A, B, F, G, M, & J). The following statements were made by these three pairs who did not plan together when describing their method of planning: "It just kind of happens" (Participant A); "We never plan together" (Participant B); "Everything is impromptu" (Participant F); "We do things spur of the moment" (Participant G); "We fly by the seat of our pants" (Participant M); and "We plan on the fly" (Participant J).

Evaluation Research Question 1- Sub-question A. *To what degree and in what ways were the six methods of co-teaching implemented with the teaching pairs in general education classrooms?*

Implementation of Methods. All six methods of co-teaching were implemented by at least one of the four co-teaching pairs in the co-taught classroom; however, the models were implemented to varying degrees. For example, the kindergarten co-teaching pair reported that they used one teach, one assist throughout the day 8–10 times; the other three co-teaching pairs

reported that they do not believe one teach, one assist is effective and, as a result, they never use this method of co-teaching. During the interviews, the teachers were asked to talk about their use of the different methods of co-teaching, which methods they preferred, and to give examples. The co-teaching pairs named, described, and gave examples for the methods which they implemented in their classrooms with their students (Table 14).

Table 14

Degree of Implementation of Co-Teaching Methods by Co-Teaching Pairs

Grade (Pair)	One Teach, One Observe	One Teach, One Assist	Parallel Teaching	Alternative Teaching	Station Teaching	Team Teaching
K (A & B)	2	1	2	2	3	3
1 (D & E)	2	3	1	1	1	2
2 (F & G)	2	3	1	1	1	2
5 (J & M)	3	3	1	1	1	3

Note. 1 = fully implemented, 2 = partially implemented, and 3 = never implemented.

One Teach, One Observe. Three of the co-teaching pairs use this method specifically for gathering data about a student's behavior or student's academic concerns. Often these data are used to create Behavior Intervention Plans (BIPs) or for use in the Individualized Education Program (IEP) determination process. With the one teach, one observe co-teaching method, the teachers interviewed reported that the special educator is always the person observing and collecting the data and the general educator is always the one teaching. Among the kindergarten, first, and second grade co-teaching pairs, the kindergarten and first grade special educators reported that they observed students twice to take data, while the second-grade special educator used this method three times to record student data. Though these three teams reported using one teach, one observe, their use of the co-teaching method was minimal and used on an as needed basis. The fifth-grade math co-teaching pair reported that they never used this method and never had cause to use this method to collect data (Participants J & M). This method represents the most passive of the six co-teaching methods. In practice, from the student perspective, this

method is the same as having one teacher in the classroom teaching. The co-teacher is not teaching but is collecting data for a purpose external of the teaching and learning at hand.

One Teach, One Assist. Two of the co-teaching pairs conveyed that they never use the method of one teach, one assist. The only team who reported using this method consistently was the kindergarten co-teaching pair. The general education kindergarten teacher reported that their "dominant method" was one teach, one assist (Participant A). She added that she is always the one teaching and the special educator is always the one assisting (Participant A). The special educator stated that she "just starts helping the kids or kind of picks up and supports" the general educator (Participant B). The kindergarten general educator described her special education collaborating as being "such a big help," and "she just helps me with whatever I need, including behavior issues in the classroom" (Participant A). The fifth-grade special educator talked about being responsible for special education students across four content areas and two grade levels. She describes coming into the fifth-grade math class and assisting students while the math teacher is teaching. This is also a passive method of co-teaching, as there is only one teacher teaching; however, with this method the co-teacher is tutoring and supporting students who are practicing with the content.

Parallel Teaching. All four co-teaching pairs communicated that they use parallel teaching. They explained that they divide the class into two groups and each teacher has a group to teach. They all stated that what they like about parallel teaching is teaching and working with a smaller group of students. The first-grade co-teachers reported that their room is arranged in two equal squares to accommodate parallel teaching. This pair implements parallel teaching "at least once a day" (Participant D). The second-grade co-teaching pair conveyed that parallel

teaching is their preferred co-teaching method. When asked how often they implemented parallel teaching, the general educator answered with "pretty much once a day, I feel like."

The fifth-grade math co-teaching team talked about parallel teaching with students in two groups, but they were actually describing alternative teaching. The researcher then defined the two methods during the interview. At that time the special educator explained that "the reason why we are getting confused is because sometimes our groups have the same number of students, but one of us is working with students who need re-teaching." This pair went on to say that they both work with the groups who need re-teaching. "All the kids love working with [J], not just the sped students, so we take turns working with the kids who need remediation" (Participant M).

The kindergarten team expressed that they implemented parallel teaching, but at a different part of the interview the special educator said that she never did any of the teaching. When the researcher asked a follow up question, the special educator explained that while the general educator is teaching one group, that she is supervising work completion with the other group. This is neither parallel teaching nor alternative teaching, this is an example of one teach, one assist.

Parallel teaching offers both co-teachers a chance to teach a smaller group of students. For this reason, instruction can be tailored to the interest, learning style, or ability of the group of students. Also, this method allows for more contact between student and teacher. Parallel teaching is different from one teach, one assist and one teach, one observe because both teachers are actively teaching groups of students.

Alternative Teaching. The teachers told me that they like to use alternative teaching because sometimes it is best to keep moving with the larger group of students while the other teacher reteaches the concept to the small group to improve the students' mastery of the learning

objective (Participants D, E, F, & G). The kindergarten special educator reported that she takes the small group out of the classroom to reteach them using the alternative method. The same special educator pointed out that was strange because they have a small group table in the room that goes unused. The researcher noted that this is not alternative teaching if the small group of students leave the room with one of the teachers. Co-teaching happens with two teachers in the same classroom teaching students.

Alternative teaching is the preferred method of co-teaching for the first-grade team. This team explained that they are in a "continuous fluid state of alternative teaching" (Participant D) and that "we are constantly moving students around so that some can move on while others gets more instruction" (Participant E). The second-grade co-teaching pair use alternative teaching when there are some students who need more practice. The general educator said this about the special educator, "all the kids want to work with her. She takes different kids all the time. Depending on who understands what. She is usually the one who takes the kids that need all practice, but not always." The fifth-grade math co-teaching pair conveyed that they both work with small groups of students who need help with a math concept. The general educator stated "sometimes while the whole class is working on practice problems, we both pull small groups to make sure they get it."

The co-teachers interviewed asserted that alternative teaching is the method where on-the-spot remediation can take place (Participants D, E, F, & G). All eight of the interviewed teachers talked about on-the-spot remediation. On-the-spot remediation is a term I taught to these teachers. On-the-spot remediation happens in one of two ways. First, it the teacher realizes that the class has not mastered the concept and is not ready to move on, then the teacher stops the progression of the lesson and remediates on the spot. The second way on the spot remediation

can occur is if a whole group lesson is being taught in the co-taught setting, then if there is a point where part of the class is ready to move on, but the other part of the class needs the concept to be retaught, then one teacher continues to move the students forward who are ready to move on and the other teacher reteaches and remediates the learning objective with the students who have not yet mastered the content. It makes no difference which group the special educator or general educator works with. I taught every teacher at STES how to do this because teachers at the school were pushing forward at such a frenzied pace, that students were getting instructionally left behind.

The first and second grade co-teaching pairs reported to use on the spot remediation constantly. "We remediate on the spot, and are always ready to move and change. It is great to stop and teach somebody where they are" (Participant E). Another teacher said, "on the spot remediation is one of my favorite things about co-teaching because the larger group can move on and the smaller group can be offered on the spot remediation" (Participant F). The teachers report that instead of having to wait that they can take care of learning difficulties on the spot (Participants D, E, F, & G). "We often use one of our best teaching strategies on the spot when we are trying to reach a student" (Participant F).

Alternative teaching permits the teachers to work with two groups of students who are at two different places with the learning. One of the teachers will work with the larger group of students to continue through the content, while the other teacher will work with the smaller group of students who need remediation, re-teaching, or additional practice before moving on. As is the case with alternative teaching, the teachers using this method of co-teaching report that they are both dynamically progressing student learning forward during this instructional time (Participants D, E, & F).

Station Teaching. Station teaching is a method of co-teaching where the teachers create stations for students to rotate through. Each of the co-teachers is at a station and typically there are one or two stations where students work through an activity independently. Both teachers are engaged in teaching students the whole time, but there are station stops in the rotation when students are not with a teacher. What makes this method different is that because students are divided into small groups, they are able to have an authentic discourse with the teacher at the two stations with the co-teachers.

The first, second, and fifth grade co-teaching pairs report that station teaching is a beloved co-teaching strategy. They describe stations where the teachers are instructing in two of the stations, and students are practicing and participating in activities in the other stations. The fifth-grade co-teaching pair pointed out that one of the main aspects of station teaching that the students enjoy is working closely with both of the teachers during the station rotation. All three of the teams that use this method described student engagement as being one of the best things about imploring station teaching. “The kids are really into it and like doing something different” (Participant F). The kindergarten team did not implement station teaching. The kindergarten general educator added “I do not think station teaching would work for kindergarteners.”

Team Teaching. Team teaching is when the general educator and special educator are both in front of the whole group of students instructing. This method is often described as both teachers in the front of the room bouncing back and forth with the instruction. Some students may find this method engaging, exciting, and entertaining as two teachers teaching simultaneously is not something that students often encounter. Other students might find team teaching distracting. This is particularly true if the teachers have not planned out a way to deliver the content in a fluid and consistent manner.

The first and second grade co-teaching teams relayed that they love to team teach. The second-grade co-teaching pair said they have so much fun team-teaching math. They bounce back and forth and build momentum and excitement with the students. The first-grade co-teaching team described using different strategies with the whole class to take turns teaching the content and then taking turns providing the class with examples to work through and practice.

Both the kindergarten and the fifth-grade co-teaching pairs reported that they have never used the team-teaching method. The fifth-grade special educator added "I do not even know what team teaching looks like. I mean, how do you do that? If there are people here who do that, I want to see it."

Based on the roles of the teachers within the six models, three of the methods allow teachers to work with small groups of students with the potential to personalize instruction and thereby impact and, hopefully, increase student learning. Following listening to teachers talk about the methods, Table 15 provides a classification of the six methods as used in the study.

Table 15

Classification of Co-Teaching Methods

Method	Group	Teachers Teaching	Purpose
One Teach, One Observe	Whole	1	One teacher teaching, one gathering data
One Teach, One Assist	Whole	1	One teacher teaching, one helping student(s) or teacher
Team Teaching	Whole	2	Both teachers teaching to engage students
Parallel Teaching	Small	2	Both teachers teaching students in small groups, more personalized
Station Teaching	Small	2	Both teachers teaching, increased discourse with students. Allows movement.
Alternative Teaching	Small	2	Both teachers teaching, all students making progress, but starting at different points

Roles of Co-Teachers

All co-teaching pairs, except for the kindergarten team, described implementing these methods where the special educator and the general educator routinely switch roles. For example, the special educator and the general educator alternate who works with the smaller group during alternative teaching. The same three co-teaching pairs report that they work with mixed ability groups consisting of both students identified as receiving special education services and general education students. The kindergarten co-teaching pair reported that the special educator continues to pull special education students out of the general education classroom for specialized instruction, despite reporting that they have a small group table in the classroom for the purpose of working with small groups of students.

Table 16

Co-Teaching Method Preferences

Grade	#1 Preferred Method	#2 Preferred Method	#3 Preferred Method	#4 Preferred Method	#1 Used Method
K	One teach, one assist				One Teach, One Observe
1	Alternative	Team	Station	Parallel	One Teach, One Observe
2	Parallel	Station	Alternative	Team	One Teach, One Observe
5	Station	Parallel	Alternative		

Note. Preferred methods were described as being used daily and secondary methods were used approximately 1 per week or less.

It was clear from my conversations with these co-teaching pairs that they liked to employ a variety of different co-teaching methods. The first, second, and fifth grade pairs like to "mix things up" (Participant M) and implement different co-teaching methods throughout the day.

These three co-teaching pairs emphasized student engagement and continuing to move and change instruction so that students are connected and paying attention. Co-teachers described trying to improve and change their activities to keep students interested, as well as diversifying their co-teaching methods (D, E, & F). While the kindergarten pair prefers to stay with one teach, one assist. Rather than instruction, the kindergarten team was focus on decorum. The kindergarten general educator described the special educator by saying "she is amazing with the behavior problems and really helps with keeping the students focused and on task."

The interview pairs were asked about the relationships they had with their co-teaching partners. The partnerships the eight co-teachers described were strong and supportive. They defined their relationship as respectful, flexible, strong, trusting, and comfortable (Participants A, E, F, G, J, & M). The first and second grade teams explained that they are "equals," "best friends," and that they are "work spouses" (Participants D, E, F, & G). All four pairs illustrated a cycle of constant and fluid communication with their partners. They used terms like "we read each other's mind," "we have a secret language," and "we have a shorthand and our own language" (Participants D, E, & G).

They talked about how great it was to have a collegial partner, someone who supports their teaching and learning, and being able to learn from each other every single day (Participants D, E, F, & G). Teacher D explains that:

> There is no difference between us. We both have 100% ownership of this class, we get along, we work well together and we know each other so well. Most importantly, we want all of our students to reach their potential! It is our common mission!

Evaluation Research Question 1 Sub-Question B. *What decision making processes were used by co-teaching teams when deciding on the co-teaching models and methods?*

Decision-Making Processes. Teachers were asked how they make decisions about which methods of co-teaching to implement. They named a variety of factors which impacted the decision-making processes of the co-teaching teams. Several factors dominated the decision-making processes of the teachers and dictated which methods of co-teaching were used with students in the classroom.

First, only one of the co-teaching pairs, the first-grade team, planned together and this pair described being in a constant and continuous state of planning (Participant D & E). The first-grade co-teaching pair described talking constantly about their plans for instruction in the coming days. Both members of this team attended the first-grade team meetings regularly, sometimes the special educator was working on IEPs or in IEP meetings during the time that the first-grade team members planned. However, she said that she and the general education teacher would meet and the general educator would go over everything that was discussed and decided at the first-grade team meetings. The special educator pointed out that since they share a room and are together all day, that whenever the students are out of the room for lunch, planning, or specials classes, they are talking about what is coming up, exchanging ideas, and planning instruction. They not only decide the content, but how they are going to deliver the content and what model of co-teaching would work best. This team said they have everything planned out in advance, yet there have been times where something they were doing was not working and they switched co-teaching method or instructional strategy to keep the students learning.

The other three teams did not plan together during the school year. The second-grade co-teaching team reported that they met four times over the summer to talk about the classroom and ideas they had for co-teaching. The kindergarten, second, and fifth grade co-teaching teams said that their co-teaching methods are impromptu. The decision making for these three teams sits

with the general educator. These pairs described scenarios where the general educator plans the instructional objectives and a rough sketch of how the instruction is going to go (Participants B, F, & M). The general educators planned and told the special educators what they were going to be doing and how they were going to be working with the students. These teachers have a thorough knowledge of instructional strategies, but the fact that the teachers do not plan together sets up an unequal footing between the two teachers.

Second, there are philosophical differences about the methods amongst these four pairs of co-teachers. Three of the teams decided never to use the method of one teach, one assist because they believed this method to only have minimal impact on student achievement. The three special educators who make up half of these co-teaching teams went to the conference at JMU and came away with the conclusion that one teach, one assist is not the most effective of the co-teaching models. Also, these teachers said that in one of the co-teaching sessions "the presenter said that one teach, one assist often ends with the special educator being a helper or assistant to the special educator" (Participants F & J). The kindergarten special educator attended this session at JMU, but the special educator did not attend the conference.

Additionally, three of the teams used one teach, one observe, but only to record behavior, IEP, or learning difficulty data. The kindergarten, first, and second grade teams described using one teach, one observe a handful of times when they needed to collect data on a student during instruction. The fifth-grade team stated that they never used this method and never needed to collect data during instruction.

Third, three of the co-teaching pairs talked about how parallel, station, and alternative teacher are vehicles to deliver quality instruction and high impact strategies to students. When asked why they used a particular method, at least one member of three of the co-teaching pairs

talked about the instructional strategies used during the implementation of the co-teaching methods, specifically used during alternative, parallel, or station teaching (Participants D, F, & M). The teachers brought up repeatedly that when they are implementing alternative, parallel, and station teaching that the teaching and learning strategies they use with their groups are considered best practices (Participants D, E, F, G, J, & M).

The first-grade co-teaching pair said "we both teach all day, every day. We never waste a minute of time. We sometimes even teach until a few minutes after the dismissal bell" (Participants D & E). Within the co-teaching methods, the teachers are using the most effective strategies, including the strategies for reading that the reading specialist shares regularly (Participants D, E, F, & G). "We are constantly mixing kids up, swapping kids out, and moving kids around" (Participants M & D). The second-grade general educator stated, "one of the most important things to remember about why we are a successful co-teaching team is that when we are in our co-teaching formats, we use sound instructional strategies and are constantly focused on teaching and learning."

The first, second, and fifth grade co-teaching pairs decided before, during, and after the JMU conference, that they were going to implement station, team, parallel, and alternative teaching in their co-teaching classroom environments. They believed those four methods are more effective than the other two methods (Participants D, E, F, G, & J). The first-grade team pointed out that it is not about those four methods but is rather about those methods being a vehicle for best practices and sound instructional strategies. Examples of strong instructional strategies that were told to the researcher are problem solving, direct instruction, concept mapping, questioning, and cooperative learning (Participants D, E, F, and G).

Evaluation Research Question 2

How will reading and math midyear benchmark scores in co-taught and general education classes in third, fourth, and fifth grades for 2019-2020 compare to the 2018-2019 and 2017-2018 midyear benchmark scores for general education and special education students?

Benchmark Scores

Benchmark tests are given in reading and math three times per year. Once after the first quarter of the school year, at the midyear of the school year, and after the third quarter. The SOL test takes the place of a fourth quarter benchmark in reading and in math. These quarterly tests are given on the computer and replicate the format of the Standards of Learning tests. The benchmark tests incorporate the content and material taught during the entire school year. The tests are scored on a 100-point scale. Mastery of content equates to points. Teachers report that at the midyear benchmark point of the school year 75% of the content has been taught. Midyear benchmark tests are given towards the end of January. Because of this, students can be expected to score up to a 75 on the midyear benchmark tests. This is important when looking at the midyear benchmark test results as even though the test is on the 100-point scale, because only 75% of the content has been taught, the highest score anticipated by this researcher would be a 75. Using this as a guide and looking at the time devoted to instruction during each month, Table 17 shows the month, the percent of content taught by the end of the month, the equivalent benchmark points, and the number of days of instruction devoted to teaching that content. The information in Table 17 was gathered from the scope and sequence documents from the third, fourth, and fifth grade reading and math pacing guides.

Table 17

Percentage of Content Taught

Month	% of Content Taught	Benchmark Points Equivalent	Days of New Instruction
September	10%	10	10
October	20%	20	23
November	15%	15	20
December	10%	10	10
January	20%	20	23
February	10%	10	15
March	15%	15	20
April	Review		15
May	SOL testing		0

Note: SOL stands for Standards of Learning.

Using the information in the curriculum pacing guides, it is possible to approximate how much of the content is taught each month. Both the content percentages and the benchmark points are on the 100 points scale. Meaning the percentage of content taught each month equates to the same number of benchmark points. Using Table 17, one can see that benchmark content is equivalent to points on the benchmark tests. Some months contain more instructional days and, thus, more content is taught, while other months contain fewer instructional days. For example, during September, less content is taught because teachers are orienting students to routines and procedures as well as everyone getting to know each other. Out of the 17 school days in September, the equivalent of 10 days were devoted to instruction. Using the pacing guide for these approximations, 136 instructional days divided by 100 benchmark points equated to each benchmark point representing 1.36 days of instruction. When looking at the mean scores on the benchmark tests, it would be helpful to put the scores in the context of each instructional day equating to .73 of a point or one benchmark point equals 1.36 instructional days.

Reading and math midyear benchmark scores in the co-taught and general education classes in third, fourth, and fifth grades for 2019-2020 were compared to the 2018-2019 and 2017-2018 midyear benchmark scores in several ways. The scores of special education students

taught in the co-taught classroom were compared to the scores of special education students in the two years prior to the implementation of co-teaching. General education student scores across all three years were studied. Finally, the scores of general education students who are taught in the co-teaching classroom were compared to the scores from the two years prior to co-teaching.

Special Education Student Scores. Table 18 depicts the mid-year reading and math benchmark summaries from the years 2017-2018, 2018-2019, and 2019-2020. Table 18 is organized into two sections: reading and math benchmark scores of SPED students.

A few of the mean reading benchmark scores of special education students stood out. In the case of fourth grade reading, there was a large jump from year 1 to year 2. The mean score rose 31 points, or the equivalent of over 2 months of content or 42.2 days of instruction. Fifth grade reading special education scores gained 24.4 points from year 2 to year 3. This is the equivalent of 33.2 instructional days. However, it is important to note that following the cohorts of students across time, rather than comparing year to year, there is often less of a leap in scores. For example, fourth grade reading in the year 17-18 reported a mean score of 51. When this same group of students tested in 18-19, their mean score was a 53.5. This is a much smaller difference then if two different fifth grade groups were compared. For instance, if fifth grade reading in 18-19 is compared to fifth grade reading in 19-20, there is a 24.4-point gain; however, comparing these two sets of scores is comparing two completely different groups of students. It is important to make the same care with the math benchmark scores. The scores of 17-18 fourth grade students were 52, when these students moved to fifth grade, there score mean was 50. This represents a 2-point difference. Whereas, if fourth grade math data for 17-18 is compared to fourth grade data for 18-19, then the scores of two different student groups are being compared at 52 versus 84.

The summary in Table 18 shows no clear patterns in the benchmark data of special education students in reading or math. There is no improvement in mean test scores during the co-teaching year with the exception of fifth grade reading. Another important finding in this table is the large standard deviation for some of the groups (i.e., 17-18 third-grade reading) and the relatively small standard deviation in others (i.e., 18-19 fourth-grade reading). The large standard deviations indicate that there was considerable variability within some of the special education groupings. The small sample sizes and considerable variability of some of the groups makes statistical analysis of the data inadvisable. Therefore, it is difficult to draw any generalizations from looking at the summary statistics.

Table 18

Special Education Students' Reading and Mathematics Benchmark Scores

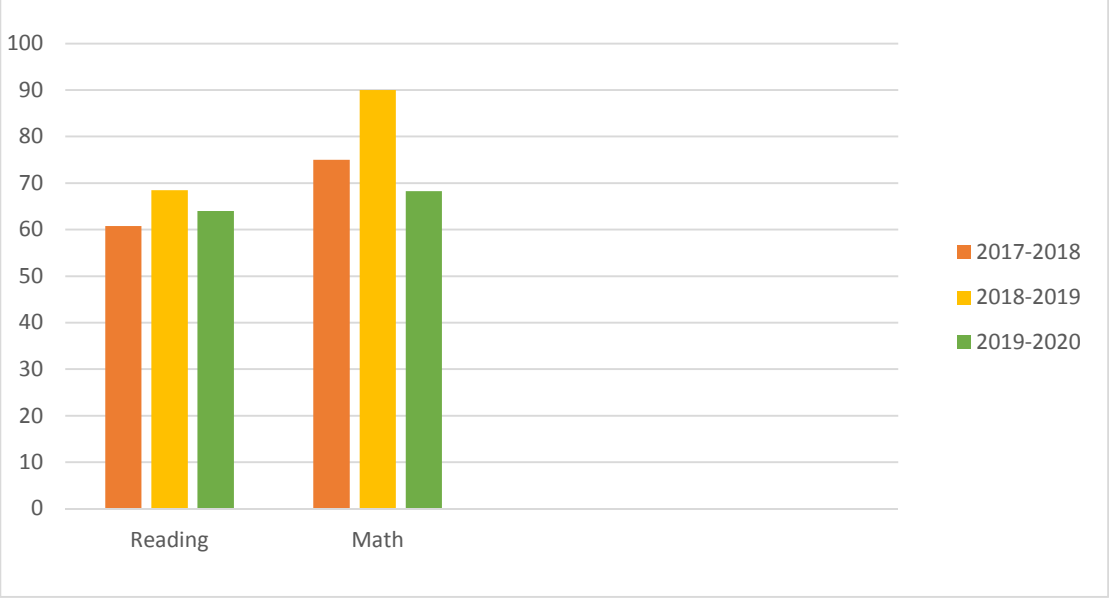
Content	Grade	Year	*N*	*M*	*SD*
Reading	3				
		17-18	6	60.8	31.2
		18-19	4	68.5	12.4
		19-20	6	64	14.4
	4				
		17-18	12	51	33.1
		18-19	6	82	6.4
		19-20	5	79	10
	5				
		17-18	6	67.5	7.6
		18-19	13	53.5	29.85
		19-20	7	77.9	10.4
Mathematics	3				
		17-18	6	75	37.14
		18-19	4	90	12.3
		19-20	6	68.3	7.2
	4				
		17-18	12	52	35
		18-19	8	84	9.2
		19-20	5	82	17.3
	5				
		17-18	6	73.7	13.7
		18-19	13	50	32.15
		19-20	7	71.7	14.54

Note. The table has been color coded with the same groups of students over the 3-year period colored with an identical color.

Figure 7 presents a graphical representation of the benchmark performances on reading and mathematics respectively. When examining the third-grade special education students' mean data in graph form, it is visually apparent that the year with co-teaching was not the year the special education students scored the highest. The year before the implementation of the co-teaching model, the third grade means of student scores were the highest of the 3 years. Reading scores were relatively consistent over the 3-year spread with means of 60.8, 68.5, and 64. Math scores for third graders had a greater range from a mean of 68.3 in Year 3, the co-teaching year, down from a mean of 90 in the year 2018-2019, the year prior to the introduction of co-teaching.

Figure 7

Third Grade Special Education Student Data

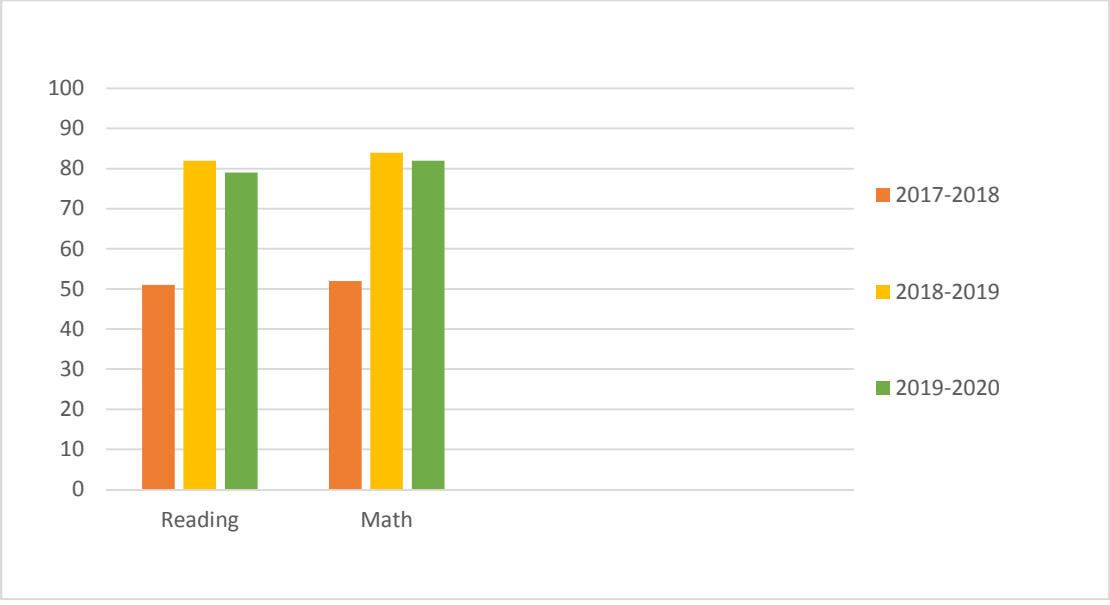


When studying the fourth-grade special education students' data in bar graph form (Figure 8), it is visually apparent that the co-teaching model of special education services appears to have very little impact on the student achievement of fourth grade students in reading.

In fact, the large jump in mean scores was from Year 1 with a mean score of 51 to Year 2 with a mean score of 82, with an increase of 31 points. This seems to signify that groups of students are different each year and thus have different scores. The co-teaching year the mean score moved down to 79. As is the case with fourth grade special education math students, there is a drop-in scores between the 2018-2019 year without co-teaching and the 2019-2020 year with co-teaching. The math benchmark scores for fourth graders took on much the same pattern as the reading benchmarks. Year 2017-2018 produced a mean math score of 52, the mean math benchmark score moved up 32 points to an 84 during this year prior to co-teaching. The year with co-teaching experienced a slight decline in scores to 82. An aspect that becomes clear when looking at the bar graph figure is that there was a tremendous amount of growth from Year 1 compared to Years 2 and 3 in both reading and math benchmark scores. Thus, the biggest difference in scores had nothing to do with the implementation of the co-teaching intervention.

Figure 8

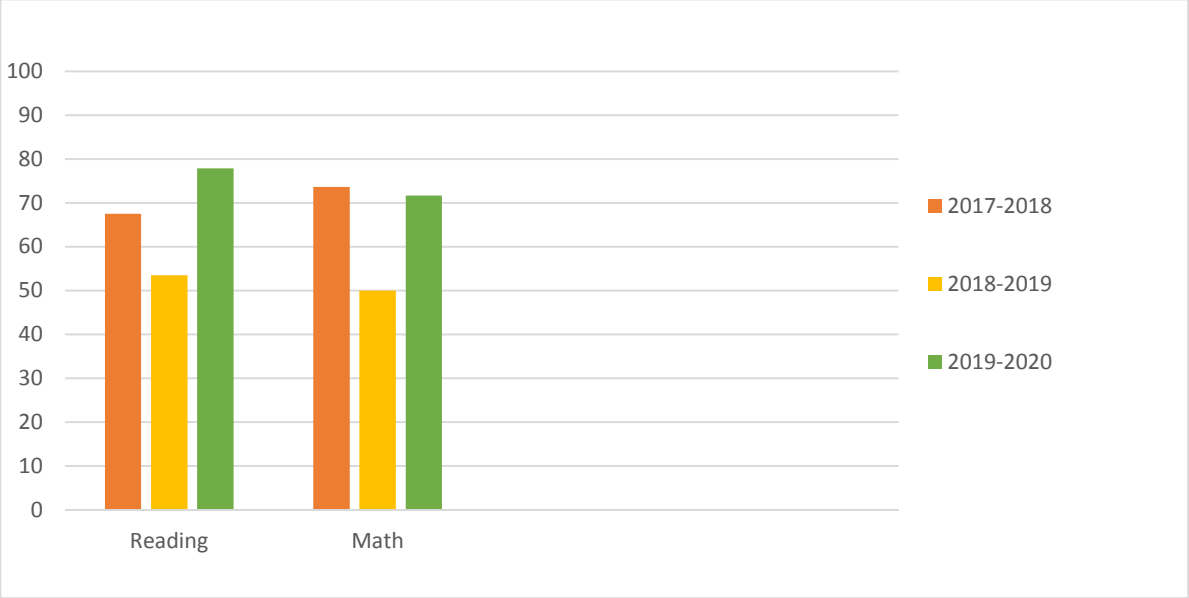
Fourth Grade Special Education Student Data



When looking at the fifth-grade special education students' data in bar graph form (Figure 9), it is noticeable that in the year of the co-teaching model of special education services the mean score of fifth grade reading increased by 24 points. Fifth grade math benchmark scores were 73.7 in year one, 50 in Year 2, and 71.7 in Year 3, the co-teaching year. There is a 2-point difference in the means from Year 1 to Year 3 the co-teaching year, with Year 3 being 2 points lower.

Figure 9

Fifth Grade Special Education Student Data



General Education Student Scores. Students who learned in the general education classroom, and not under the co-teaching model, have their benchmark data represented in Table 17. Table 17 depicts the midyear reading and math benchmark summaries from the years 2017-2018, 2018-2019, and 2019-2020. The summary table shows that every benchmark score mean for every year is above the anticipated high score of 75. Another important finding in this table is the ranges of the means across the 3 years are relatively small. In fact, using the Percentage of

Content Taught, Table 17, there is no change between means from year to year that would equate to a difference of instructional days in the double digits. The large standard deviations indicate that there was considerable variability with some of the general education groupings. This was also true of the special education benchmark data.

It is difficult to draw any generalizations from looking at the summary statistics. Generally, all of these scores are excellent. They range from 77 to 92 across grade levels and subject areas. These midyear benchmark scores look more like end of year scores. These mean benchmark test scores are more closely knit than the corresponding scores for special education students. However, it is important to remember that each cohort of students is very different, this is apparent when looking at Figure 9. Figure 9 shows differences between the years in both Reading and Math; but the figure shows that the same three groups of students scored very much the same in both Reading and Math.

Table 19

General Education Students Reading and Math Benchmark Scores

Content	Grade	Year	*N*	*M*	*SD*
Reading	3				
		17-18	38	82	11.2
		18-19	44	88	8.8
		19-20	56	79	11
	4				
		17-18	39	88	11.3
		18-19	44	91	7.9
		19-20	45	83.5	10.5
	5				
		17-18	52	77	9.9
		18-19	59	81	11.6
		19-20	45	85.3	8.1
Mathematics	3				
		17-18	39	88	7
		18-19	43	92	7.4
		19-20	56	90	8.4
	4				
		17-18	52	86	7
		18-19	38	88.5	9.5
		19-20	45	90	8.4
	5				
		17-18	52	78	14
		18-19	59	81.6	11.2
		19-20	45	84.6	12

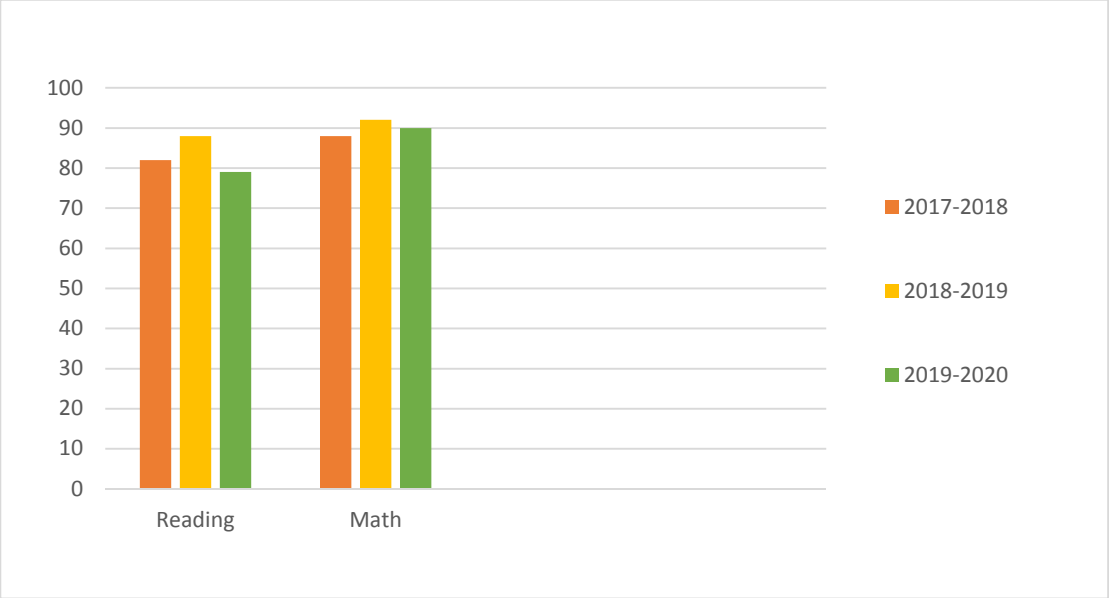
Figure 10 presents a graph representation of the benchmark performances on reading and mathematics. When examining the third-grade general education students' mean data in graph form, it is visually apparent that there is very little change in the scores of general education students over the 3-year period. There is minimal deviation when comparing the reading and math means of the 3 years. Both reading and math scores increase from year 1 to year 2 and then both decrease from year 2 to year 3. Scores of general education students in the third grade appear constant over this span of time. Reading with mean scores of 82, 88, and 79 and math with mean scores of 88, 92, and 90. Considering that approximately three-fourths of the content

has been taught at the midyear point, these scores are extraordinary as they are all higher than the anticipated maximum score of 75.

There is a reason the scores of general education students are more consistent than the scores of special education students. There are far fewer variables within the general education population from year to year than those of the special education student population. The learning needs of special education students varies from group to group and individual student to student.

Figure 10

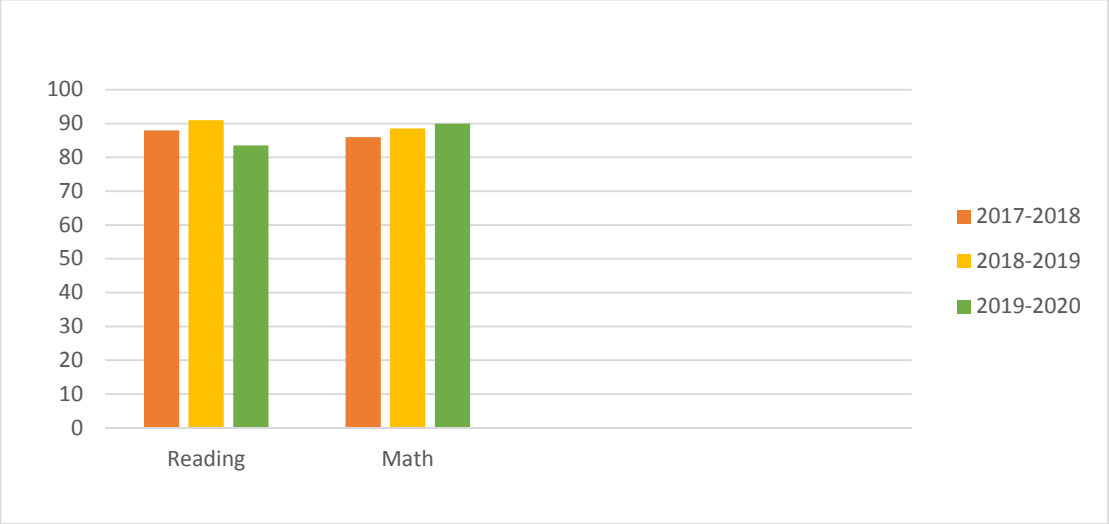
Third Grade Reading and Math General Education Student Data



Reading benchmark data for fourth grade students increased slightly from year 1 to year 2; whereas, from year 2 to year 3, the mean score decreased by 7.5 points. The fourth-grade math benchmark scores increased slightly over all three years of study, from 86, to 88.5, to 90, respectively. All six scores across the 3 years had a small range. The range for fourth-grade reading was 6.5 points and the range for fourth-grade math was a mere 4 points. There is very little changeability between the 3 years, one year with co-teaching and the two years without co-teaching.

Figure 11

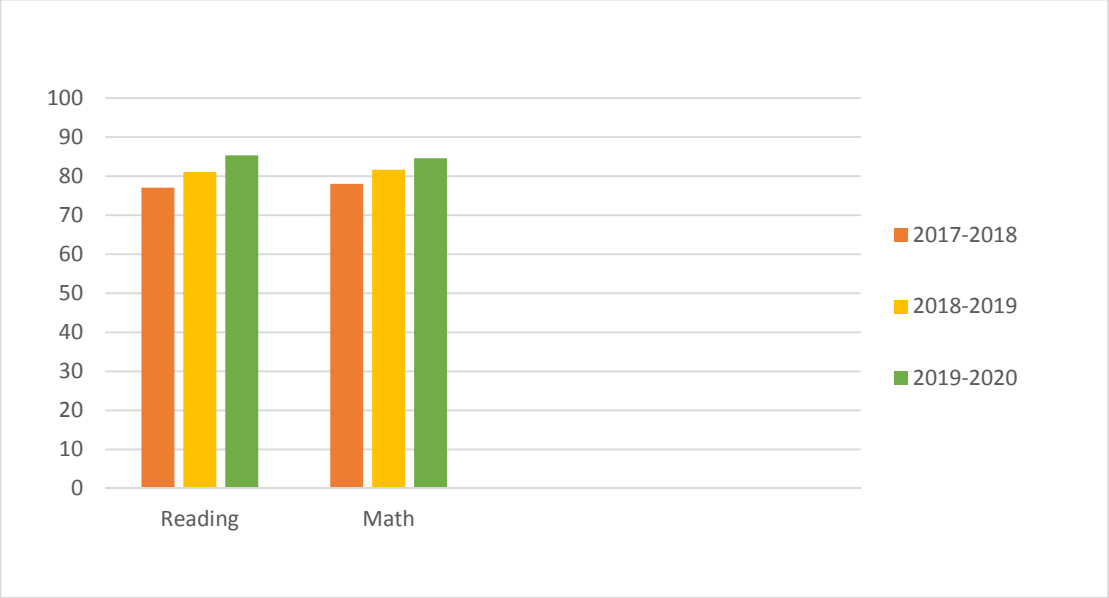
Fourth Grade Reading and Math General Education Student Data



Fifth grade scores of general education students from the past 3 years were well above the anticipated maximum mean of 75. Both reading and math benchmarks are trending in a positive direction at a steady minimal rate of improvement. The fifth-grade scores for all 3 years were strong and did not show much variability from year to year.

Figure 12

Fifth Grade Reading and Math General Education Student Data



General Education Student Scores in the Co-Teaching Classroom. In addition to special education students, in all co-taught classrooms at STES, the majority of learners are general education students. Table 20contains the mean benchmark scores of general education students who were taught in a co-taught setting during the 2019-2020 school year compared to the general education mean benchmark scores of students who were taught in the general education setting during the 2019-2020 school year. Table 20ontains the scores from the 2019-2020 only and provides the basis for a comparison between the two classes with general education students and the one class that contains both general education students and special education students who were taught in the co-teaching environment.

Table 20

General Education Students in the Co-Teaching Classroom Reading and Math Scores

Content	Grade	Year	*N*	*M*	*SD*
Reading	3				
		19-20	21	81	10
		19-20	20	79	13
		19-20	15	83	11
	4				
		19-20	17	83	14.5
		19-20	16	86	7.6
		19-20	12	80.5	8.9
	5				
		19-20	18	81	8.1
		19-20	17	86	7.8
		19-20	10	88	9.7
Mathematics	3				
		19-20	21	91	3
		19-20	20	91	9
		19-20	15	87	15
	4				
		19-20	17	91	2.18
		19-20	17	90.3	6.2
		19-20	12	87.5	7.2
	5				
		19-20	18	82	16
		19-20	17	86	11
		19-20	10	87	9

Note. The third row for each of the six grade levels above is the general education students who learned in the co-taught classroom. This row is highlighted in light green for emphasis.

The 2019-2020 data for general education students shows very little difference between the means of the three grade level classes during the co-teaching year despite the fact that one of the groups of students is taught by two teachers. The third-grade mean scores on the reading and math benchmark have a range of four for both sets; 81, 79, and 83 for reading and 91, 91, and 87

for math. This equates to a difference of 2.72. instructional days between 17-18 and 18-19 third grade reading and 5.44 instructional days of difference between 18-19 third-grade reading and that of 19-20. The standard deviations of the two sets of scores were 10, 13, and 11, with 11 being the co-taught class and a greater spread with the math benchmark standard deviations of 3, 9, and 15 for the co-taught year.

The fifth-grade reading benchmark means for 2019-2020 were 81, 86, and 88. The mean of 88 was the highest of the three classes and that was the mean score for the general education students in the co-teaching environment. The potential instructional days of difference for fifth-grade reading between year 1 and year 2 is 6.8 days and between year 2 and 3 the difference is only 2.72 instructional days. The standard deviations for the three groups of students were very similar with 8.1, 7.8. and 9.7, with a spread between them of less than 2. The mean scores for fifth grade math are 82, 86, and 87, again the mean of the co-taught general education students was slightly higher than the other two classes. The difference in means for math scores in 17-18 and 18-19 is 5.44 days and the difference between 18-19 and 19-20 was one point or 1.36 days. The standard deviations for these three groups were 16, 11, and 9. For the three grade levels and the two different subject areas there were three sets of scores where the co-taught general education students scores were higher and three sets where the co-taught general education students scores were lower. The co-taught reading group had higher mean benchmark scores in third grade and fifth grade and the lowest score in fourth-grade reading. The math benchmark mean scores were lowest in the co-taught classrooms in both the third and fourth grade, while the fifth-grade co-taught score was higher than the two classes without co-teaching.

Figure 13 and Figure 14 presents a graph representation of the benchmark performances on reading and mathematics, respectively. The two classes of general education students in each

grade level are labeled Gen Ed Class 1 and Gen Ed Class 2. The general education students who were taught by two teachers in the co-teaching environment are labeled Gen Ed CT Class.

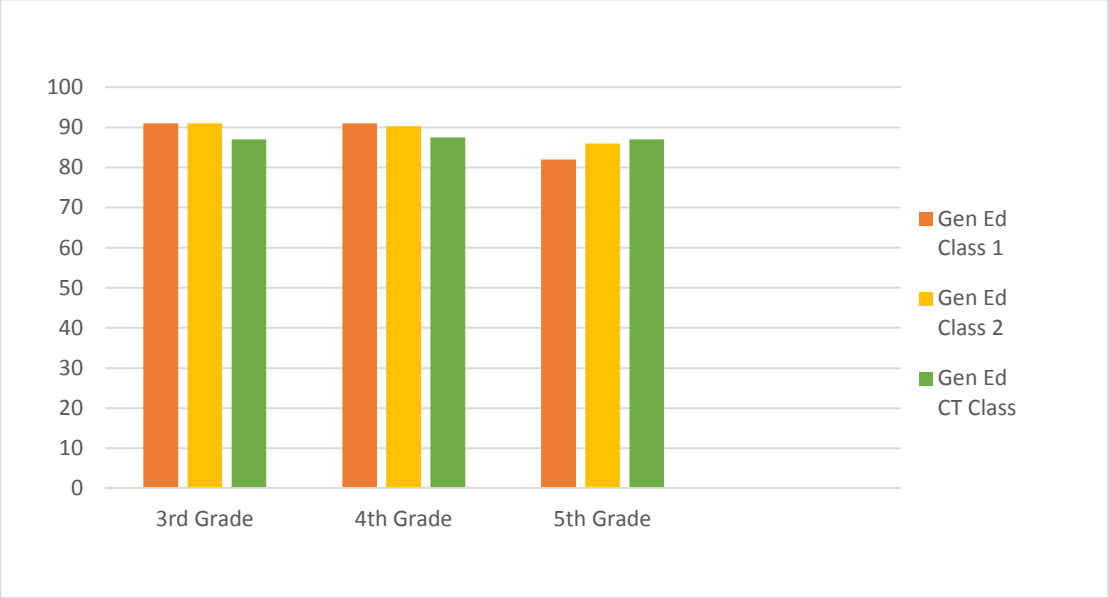
When examining the third-grade special education students' mean data in graph form, it is visually apparent that the co-teaching model of special education services appears to have no positive impact on the student achievement of third grade students in reading or math. There is minimal deviation when comparing the reading means of the 2 years prior to co-teaching and the year with co-teaching. There is a downward deviation in year 2 of the third-grade benchmark scores; however, year one without co-teaching and year 3 of co-teaching have comparable means.

Figure 13

Reading Benchmark Scores: General Ed vs. Co-Taught Classroom

Figure 14

Math Benchmark Scores: General Ed vs. Co-Taught Classroom



During the interviews, teachers maintained that students grow and learn in the co-teaching environment (Participants F & G). One teacher reported that students showed growth on their assessments and went on to say that "when you are in the classroom and seeing the co-teaching, you can see that it is working" (Participant G). The fifth-grade team stated "I feel like the students actually got it when we worked together" (Participant M) and "these students had every opportunity for success because of co-teaching" (Participant J). One of the teachers had an interesting take on achievement saying, "sometimes you do not see the gains you would like to see, but you have to remember that some would have achieved less without co-teaching" (Participant F).

All eight of the co-teachers touted the benefits of the co-teaching model, but Figure 14 shows very little difference in test scores between general education students who are taught in the general education classroom and general education students who are taught in the co-teaching environment.

Evaluation Research Question 3

To what degree does the School Wide Information System (SWIS) for behavior management data in the specific categories of defiance and disruption, differ between special education and general education students instructed in non-co-teaching classrooms and co-teaching classrooms for the first 100 days during the 2017-2018 and 2018-2019 school years compared to the 2019-2020 school year? Note: The same time frame was used for all 3 years to allow for comparability with the COVID disruption period beginning on March 13 in 2019-2020.

Behavior Data

The PBIS contains a program called SWIS for behavior management data. For the purposes of this study behavior data in the specific categories of defiance and disruption were studied over the course of the past 3 years. Special education and general education students instructed in non-co-teaching classrooms and co-teaching classrooms for the first 100 days of school during the 2017-2018 and 2018-2019 school years were compared to the 2019-2020 school year? *Note:* The same time frame will be used for all 3 years to allow for comparability with the COVID disruption period beginning on March 13 in 2019-2020.

Student behavior data is broken down by grade level and the behavior data for special education students is highlighted. For the purposes of this study, the categories of defiance and disruption were extracted from the total behavior report data. While collecting the data, the researcher saw that defiance and disruption were checked in tandem on the behavior reports. These two categories being checked together when a student misbehaves makes perfect sense: if a student is being defiant, that creates a huge disruption to the class and teaching and learning. For this reason, the numbers below are behavior reports where disruption and/or defiance is checked by the teacher when writing up a behavior report for submission.

Student behavior infraction data are displayed in Table 21. There are three classes per grade level. The general education students in all three classes are combined in the table for each of the three years studied. Special education students' data are represented in the first column of every year. Both general education and special education students are in the table rows based on their grade level. The number listed across the row is the number of behavior write ups that were incurred for that group, while the number in parenthesis is the number of total students in that group. First and second grade teachers filled out minimal behavior infraction reports for their students. The same is true for the third grade from the past two years. Kindergarten had few behavior reports written, until the year with co-teaching, when behavior reports rose to 41. Fourth- and fifth-grade teachers write more behavior reports than the lower grade teachers.

Table 21

Behavior Infraction Counts of Special Education and General Education Students

SWIS Infractions	2017-2018		2018-2019		2019-2020 Co-teaching Year	
SPED Students	SPED	GENED	SPED	GENED	SPED	GENED
Kindergarten	4 (5)	2 (51)	2 (5)	3 (46)	41 (7)	0 (49)
First	0 (5)	2 (55)	1 (5)	1 (46)	0 (6)	0 (47)
Second	1 (4)	11 (48)	2 (5)	5 (59)	4 (6)	0 (45)
Third	20 (6)	6 (38)	3 (4)	9 (43)	4 (6)	3 (56)
Fourth	10 (12)	4 (54)	64 (6)	31 (38)	6 (5)	9 (45)
Fifth	37 (6)	1 (52)	2 (10)	3 (59)	12 (7)	29 (45)
Total	72 (38)	26 (298)	74 (35)	52 (291)	67 (37)	41 (287)

Note. Number before parenthesis is the number of behavior infractions. Number in parenthesis is the count of students. SPED stands for special education students and GENED stands for general education students.

When looking at the totals of behavior reports across the 3-year time span, it is noticeable that there are far more behavior reports written for special education students then there are for

general education students, even though the general education students are far greater in number. This is a consistent trend across the three-year time span.

Behavior infraction incidences per special education student as well as general education student are presented in Table 20. Table 20 shows how many behavior infractions are attributed to each member or the general education or special education population for the 17-18, 18-19, and 19-20 school years.

Table 22

Behavior Infraction Incidence per Student of Special Education and General Education Students

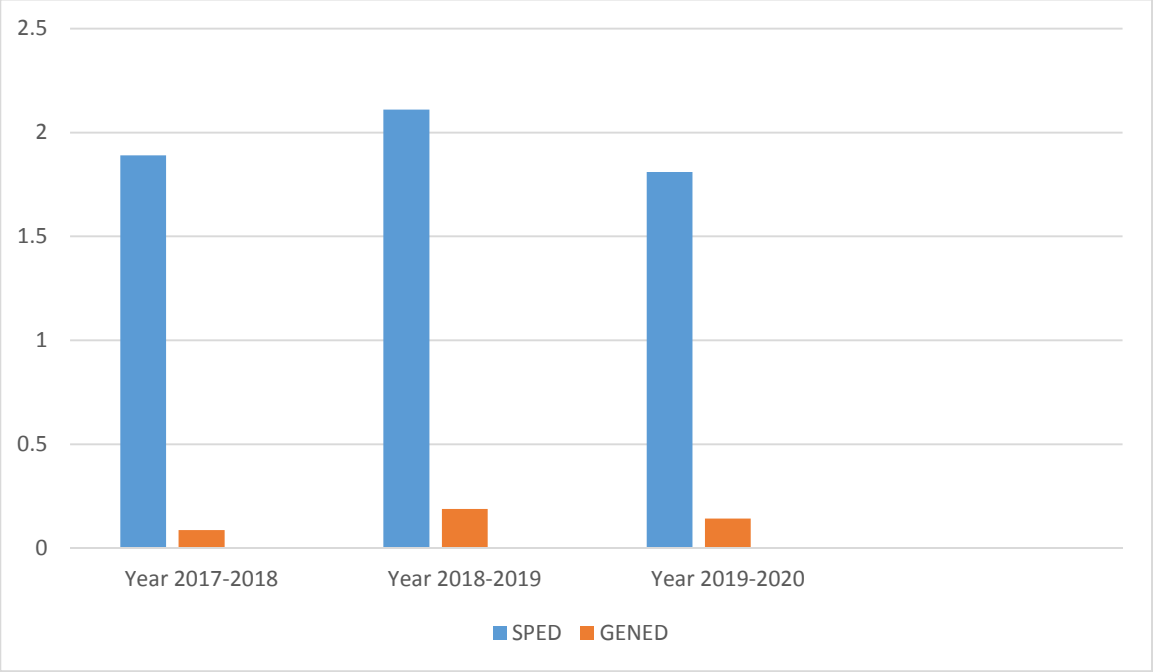
SWIS Infractions	2017-2018		2018-2019		2019-2020 Co-teaching Year	
SPED Students	SPED	GENED	SPED	GENED	SPED	GENED
Kindergarten	.800	.036	.400	.065	5.860	0.000
First	0.000	.036	.200	.022	0.000	0.000
Second	.250	.23	.400	.085	.666	0.000
Third	3.330	.158	.750	.210	.666	.054
Fourth	.830	.074	10.600	.820	1.300	.200
Fifth	6.170	.019	.200	.051	1.710	.644
Total	1.890	.087	2.110	.189	1.810	.143

Note. The numbers in this table represent the number of behavior infractions attributed to each member of the special education or general education population for the specific year.

The behavior infraction data were then graphed in Figure 15 by the number of infractions per child for the 3 years studied. The first column for each year is the number of infractions for each sped student and the second column is the number of infractions per each general education student.

Figure 15

Behavior Infractions Per Child



Note. The figure above shows the number of behavior infractions attributed to each special education or general education student across the 3-year span of time with the third year being the co-teaching year.

Figure 15 shows the disparity of behavior reporting between special education students and general education students. During the 17-18 school year, the average number of behavior reports per sped student was 1.89, with the first-grade special education students having zero behavior write ups and the third grade averaging 3.33 behavior reports per sped student and the fifth grade with 6.17 write ups per sped student. The 18-19 school year brought about 74 behavior reports for the 35 special education students and 52 behavior reports for all 291 of the general education students. Year 3 continued with the tendency of special education students generating a much higher proportion of behavior reports with 67 write ups for 37 special education students and 41 write ups for 287 general education students.

Teachers indicated that special education students had more behavior write ups for two reasons. One, many of the special education students struggle with behavior norms and expectations. Special educations students have a wide range of diagnoses and many of their behavior infractions could be manifestations of their disabilities (Participants C & G). Two, because there are two teachers in the room with the co-teaching model, one of the teachers can stop and fill out the behavior paperwork, while the other teacher continues with the class (Participant C). However, there are two teachers in the co-teaching classroom in first grade and the first-grade team said,

> We do not write up behaviors, we just help the students to correct their behaviors. This is really important for our sped students to understand. We do not want to punish them, we just want them to understand what is normal behavior and what is not. (Participant D)

The fifth-grade team said that they work with students to correct behaviors, but that when it gets in the way of the learning, "we have to get your help" (Participant M).

Upon further inspection, the students who were defiant and disruptive in the kindergarten classroom (41 behavior write ups among seven special education students) all had diagnosis consistent with defiance. One student had a diagnosis of oppositional defiant disorder, and another had a diagnosis of severe attention deficit hyperactivity disorder (ADHD). A third student had a diagnosis of conduct disorder. As is the case with these issues, defiance and disruption would be typical behaviors. After reading through the notes on the behavior write ups, it became obvious that the teachers were documenting these behaviors because these students needed support, and so did their teachers. It would appear as though the kindergarten behavior reports are high during this year, not because of factors related to co-teaching, but because of the specific students in these two kindergarten classes and their particular characteristics.

The general education student data for the years 2017-2018, 2018-2019, and 2019-2020 shows very little variation. The exception to this is year 2 in fourth grade and year 3 in fifth grade where behavior reports drop off. Our faculty and staff worked very hard with this particular group of students. We made referrals to a program for students who have a parent who are incarcerated; we sent students to Dream Catchers a therapeutic horse stable; and we used strategies like contracts, behavior charts, reward systems, restorative practices, and mentorships to support these students. These are students who do not qualify for special education services.

There does not appear to be a pattern in the behavior data. The cohorts themselves over grade and time are inconsistent, and no conclusions can be drawn about the effects of the co-teaching classroom on behavior. One key finding that emerges from analysis of the behavior data is that there is a disproportionate amount of behavior reports written for special education students. With the co-teaching model in kindergarten last year, there were 41 behavior reports written for special education students. Second, in 2018-2019 there were many behavior reports written for fourth graders, 31 for general education students and 64 for special education students. Third, in the year 2018-2019, there were 64 behavior reports written for special education students; however, the next year, when these students were in fifth grade with two teachers in the classroom, the number was reduced to 23. This could be attributed to the numerous interventions and strategies put in place the previous year and it could also be in part due to the supportive nature of the co-teaching model. A definitive reason for this change was unable to be credited to any individual intervention.

Behavior reports were over the past three years with special education students in first and second grades. Kindergarten behavior reports were low the 2 years prior to co-teaching but were high at 41 behavior reports for defiance and disruption with two teachers in the classroom.

Behavior reports in third grade were high in 2017-2018 with 20 but declined to three in year 2and then four in year 3 with the implementation of co-teaching. Special education students in fourth grade collected ten behavior reports in year 1, 64 behavior reports in year 2, and six in year 3, the co-teaching year. fifth grade behavior reports were high in year 1, with 37, and then went down to two in 2018-2019, and inclined in year four under the co-teaching model with 12.

The behavior infractions represented in the table and charts are for the first 100 days of school for the 3 years of this study. The highest number of infractions of disruption and defiance during the co-teaching year were in kindergarten with a total of 41. Forty-one seems like a high number; however, 41 infractions in 100 days equates to two infractions per week. Two behavior infractions per week in kindergarten is not a high number.

Two teachers summarized their feelings by discussing how nice it was to have support and reinforcement with expectations and routines in the co-teaching classroom (Participants G & M). Two other teachers talked about how the behavior of some of the special education students can be a manifestation of the student's disabilities and can disrupt the teaching and learning process in the classroom (Participants B & G). One teacher saw no difference and said, "I can't say I saw any difference in student behavior with two teachers in the classroom" (Participants F).

Evaluation Research Question 4

What changes occurred with the implementation of co-teaching during the COVID disruption period beginning on March 13, 2020, through January 2021?

Changes to Implementation of Co-Teaching

The implementation of co-teaching during the COVID disruption period from March 13, 2020, through January 31, 2021, moved from in-person to virtual, then from virtual to the hybrid model. Co-teaching shifted from two teachers working with students, to one teacher working

with students, back to two teachers working with students. School went from being a place to being a space, including zoom, instructional videos, and google classroom. Instruction changed from being differentiated with the implementation of instructional strategies embedded in the co-teaching models to instruction becoming linear. Students went from being actively engaged collaborators, to learning on their own. Teachers moved from being partners, to working in isolation.

Beginning March 13, 2020, and ending May 15, 2020, STES offered only virtual learning because schools were ordered closed. From May 18, 2020, through June 18, 2020, STES had a professional learning month. Professional learning sessions about google classroom, Zoom, and social emotional learning were offered as workshops were planned to help teachers prepare for virtual learning continuing in the fall. Over the summer, teams of STES teachers worked to prepare for virtual learning, as well as preparing for pending hybrid learning. Teachers who were usually off for the summer, worked to put plans in place so that the coming months would be less daunting. August 24, 2020, through September 3, 2020, teachers worked together to finalize plans for virtual learning as well as the hybrid model. Everything was meticulously planned out. From September 8, 2020, to October 2, 2020, STES was virtual learning only. Beginning on October 5, 2020, and lasting through January 2021, STES was in the hybrid model, while still offering virtual learning through Virtual Academy.

Evaluation Research Question 4 Sub-question A. *In what ways did co-teaching survive during the COVID disruption period and how did the co-teaching practices change?*

Survival of Co-Teaching. When school suddenly and unexpectedly moved to all virtual in spring of 2020, many aspects of the co-teaching model changed. The main development in co-teaching during this time was that the special educators stopped teaching their whole classes with

their co-teacher. In the interviews, the teachers reported a shift to accommodating assignments and activities, while the general education teachers continued to teach on Zoom and make instructional videos. A large part of virtual schooling was Zoom meetings (Participants B, D, & G).

There are multiple reasons that teachers used Zooms during virtual only school last spring. First, they wanted to continue contact and maintain community with their students. "We were just dying to see their faces and know they were okay" (Participant D). Second, they used Zoom to instruct students (Participant C). Third, the second-grade special educator reported that Zoom was a vehicle to work with students on practice activities after the lesson (Participant G). The eight teachers interviewed reported that Zoom meetings took place with co-teachers in the following ways:

1) Whole group with one co-teacher.
2) Whole group with both co-teachers (with one teacher observing).
3) Small group with one co-teacher.
4) Small group with both co-teachers (with one teacher observing).
5) Individual with one co-teacher.

This metamorphosis from teachers working together to instruct students through active co-teaching methods shifted to teachers working independently with students or with one teacher leading a lesson and the other teacher observing the teacher and students (Participants B, D, & F). This represented a fundamental shift from using best practices to actively engage students in the learning process to a teacher delivering content; this is the opposite of co-teaching.

The eight co-teachers talked a great deal about communication between teachers when school went from in person to totally virtual. The teachers describe constant cycles of

communication using group texts, emails, calls, and FaceTime. For example, the first-grade team said they had a group text that went on all day long every single day. “Hundreds of texts were going back and forth every day” (Participant D). Not only did this text exchange include the first-grade co-teaching pair, but also included the other two first grade teachers as well as a student teacher. The main purpose of the texts was to exchange ideas about what they were doing with their students and how they could divide the content and share the responsibilities of educating these students virtually across the grade level (Participants D & E). The first-grade co-teaching pair planned together constantly during the regular school year. The second-grade team stated they never planned together, but when the COVID disruption occurred, they described talking on the phone to each other multiple times a day to plan out who was working with which students on what learning objective (Participants F & G). The teachers said that they were talking all the time because everything was new.

There were new routines and procedures, a totally new system, new calendars and scheduling, and new technology (Participants A, B, D, E, F, G, J & M). In the beginning of the quarantine, the kindergarten team, including the kindergarten co-teaching pair interviewed for this evaluation, planned one whole group Zoom meeting per day for the whole class, one small group zoom per day for a group of three to five students, and one individual zoom. They soon discovered that this was too much to plan and employ. After the first month of virtual learning, they shifted to one whole group zoom per week and each student having one small group and one individual meeting with the teacher per week. Meanwhile all five teachers worked to make instructional videos to directly deliver content virtually (Participants A & B). Additionally, each class had a Google Classroom platform that was updated daily with reading, activities, websites,

assignments, and assignments that should be completed independently each day (Participants D & E).

The teachers reported a variety of challenges when school went to the virtual only model. One challenge was that because of the age of elementary students, they were dependent on parents to facilitate them being active on google classroom and in the Zooms (Participant D). Teachers were relying on parents to make sure students were on time to Zoom meetings and were attentive, participatory, and well behaved during the lesson (Participants A, D, E, & F). Teachers described continuous disruptions when working with their students on Zoom. The teachers told about younger siblings interrupting the lessons, students showing their pets to the zoom camera, students disappearing and hiding during their zoom sessions, students under the covers in their beds; and one student jumping up and down on the trampoline, while holding their laptop for the lesson (Participants E & F). Elementary students are not independent learners (Participant J). Parents became partners in the teaching and learning during this time of virtual only schooling and the teachers were reliant on parents to keep their children connected to school (Participants D & E).

A second challenge was that not all students had computers or access to the internet (Participant F). The school system began purchasing Chromebooks and hotspots for distribution to students, but that did not happen right away. The teachers described how difficult it was to move forward with some students while being completely disconnected from others (Participants D, E, F, & G).

Third, the teachers remembered how difficult it was to learn google classroom under pressure (Participants B & M). Some teachers at STES had already begun using Google Classroom, while others had zero experience with online learning platforms. Four teachers were

proficient with Google Classroom, and they quickly organized tutorials, support sessions, and one on one individualized instruction to help their fellow teachers create their Google Classrooms and begin to set up the virtual learning experiences for their students. This was a time of tremendous technological growth for all faculty and staff.

In answering questions about virtual only, the co-teachers reported that virtual in the fall was much improved from the spring (Participants A, B, D, E, F, G, J, M). The teachers gave these reasons for an improved virtual learning in the fall: professional learning on Google Classroom over the summer (Participants F & J), the month of May 15, 2019, through June 15, 2019, to prepare for fall (Participants A & B), a chance to acquire technological equipment for virtual learning like document cameras and cell phone arms (Participants F & G), and time to plan new procedures and expectations for virtual learning (Participants J & M).

The fall was a much smoother virtual experience for teachers and students. The students had the equipment and access they needed and teachers worked most of the summer to make sure they were ready for virtual only learning in the fall. Teachers and students had the chance to start the new year feeling competent with their new set of computer and technology skills. The faculty and students had experience with Zoom and Google Classroom, and both groups had their practice from the spring.

During the time of virtual-only learning in spring 2020 and September 2020, co-teaching was not implemented with fidelity. All four sets of co-teachers spoke in their interviews about co-teaching coming to "an end," "a complete stop," and "being forced to go in a different direction" (Participants B, D, E, F, G, & M). Co-teaching was not implemented with fidelity during this time because it was not implemented at all. In contrast to the time of virtual learning, when the hybrid model began in October 2020, co-teaching resumed in a way that teachers report

was even better than during the regular school year (Participants D, E, F & G). This was because there was a special educator and a general educator in the classroom all day long with the students requiring specialized services. This was possible during the hybrid model because special education students in one of the sped kindergarten classes, second grade, and fourth grade were scheduled to come to school on Mondays and Thursdays, while special education students in the other kindergarten classroom with special education students, as well as grades three and five students who required special education services, were scheduled to come to school on Tuesdays and Friday. As a result of this scheduling, the teachers who had previously been divided among classes and grade levels could now be with their students all day long on the days they were in school with the hybrid model.

As the in-person hybrid model of instruction resumed at STES on October 5, 2020, so did co-teaching. During the hybrid model, 40% of the elementary students attended school on Mondays and Thursdays and 40% of the students came to school on Tuesdays and Fridays. Wednesdays were devoted to virtual learners, who were approximately 20% of the student population.

After not having students in the school for six months, all eight of these teachers reported that they were super excited for the hybrid model. The kindergarten team members both said that the hybrid model was awesome and that having half the students at a time was a great way to get to know the students and to accomplish twice as much with zero behavior issues. The first-grade co-teaching pair described seeing students grow by leaps and bounds during the period of the hybrid model. The second-grade team said that hybrid was wonderful and the students and teachers were so excited to be back in school. The fifth-grade team expressed that one of the best

things about the hybrid model was getting to intensely work with small groups of students and personalize the instruction for the particular group.

The four co-teaching pairs agreed that one of the best aspects of hybrid learning was that the schedule was arranged so that the special educators could work with their collaborative partners and their special education students all day long on the days that those students were in school (Participants A, D, F, & M). Also, when implementing co-teaching in the hybrid model, the teachers had the opportunity to work with very small groups of students and could address the students particular learning needs (Participants A, E, G, & J). Additionally, they could observe the students learning and growing in a more personalized manner due to the smaller classes and even smaller groups in the co-taught classrooms (Participants B, F, & M).

Despite having the students back in the building and learning, challenges remained. One challenge was keeping up with the virtual academy learners, that is those students whose parents chose to continue with the all-virtual option. The second-grade general educator said that "it was extremely difficult to keep up with the virtual students and two groups of in-person students." The second-grade special educator reported that it was extremely difficult to keep the general education students and special education students moving through the learning on the days when they were not in school. "It was a constant juggling act with three different balls in the air" (Participant F).

The consensus of the four co-teaching pairs interviewed for this evaluation was that co-teaching did not continue during the time of virtual only schooling. Co-teaching resumed when the hybrid model was implemented. "Hybrid made it possible for all four of us to work the co-teaching model because we had different students on different days" (Participants B, F, & G).

Evaluation Research Question 4 Sub-Question B. *Based on co-teaching experiences during the COVID disruption period, what lessons were learned by the co-teaching teams that can inform the implementation of co-teaching in the future?*

Lessons Learned About Co-Teaching During COVID. The four co-teaching pairs noted several lessons that were learned during the COVID-19 disruption that can be applied to education moving forward. First, the teachers stated: make the most of your time and plan a tight scope and sequence to ensure students have plenty of opportunities to learn (Participants A & M). Second, the kindergarten co-teaching team emphasized that it was evident many of their kindergarten students had not had preschool or complete preschool opportunities the previous year (Participants A & B). Third, the social component of school is extremely valuable (Participants A, D, E, & G). Fourth, small group instruction is highly impactful (Participants F, G, J, & M). The second-grade team pointed out that as we return to some degree of normalcy, to look for opportunities for students to work with teachers in small groups. A co-teaching model has the potential to support this initiative.

Teachers had additional ideas about lessons learned during COVID. Those lessons were co-teaching benefits all learners (Participants E & G), there should be one SPED teacher per grade level (Participants A, D, E, F, G, & J), you have to want to be a part of a co-teaching partnership (Participants D, E, F, & G), common planning time is crucial (Participants A, B, D, E, F, G, J, & M), co-teaching matches the expertise of the special educator with the content knowledge of the general educator (Participants A, B, D, & E), and that when assigning special educators that administrators need to consider the needs of students versus the number of students on the caseload (Participants F, G, & J). These are interesting points, but the researcher

does not believe these are lessons solely learned from the time of the COVID disruption. These are lessons re-emphasized and brought into the spotlight by a crisis.

When the teachers were asked about the lessons they learned, each teacher interviewed made statements related to the importance of parents being learning partners, working with administrators who plan for co-teaching, and having highly qualified teacher's assistants available to work with students.

The teachers talked about social skills, love of all learners, the de-stigmatization of special education services through co-teaching, and the importance of support personnel, as well as the support of administrators as being crucial points of why co-teaching should continue to be implemented. The co-teachers interviewed talked at length about the social advantages of the co-teaching model. The special educators all discussed how the students identified as needing special education services are "never singled out anymore, the kids do not feel like they are being singled out anymore" (Participant F). Special education students have a renewed confidence that stems from a feeling of belonging (Participants E & G).

When students are able to stay inside their home classroom to learn, the results are a stronger community (Participants D, E, F, G, & J). General education students provide the special education students with models of appropriate social behaviors (Participants E & F). The teachers believe that it is good for all the students to have exposure to different types of kids and to build friendships with peers who are different than themselves (Participants F, G, & J). "The kids help each other find their voice and develop really cool friendships" (Participant F). When students feel strongly about their community, there is no bullying and the students naturally help each other (Participants D, E, F, & G). "We do our best to make everyone be seen as equal and everyone ends up being very accepting of each other" (Participant G).

Two of the co-teaching pairs expressed identical sentiments and reported that the general education teacher loves special education students, and the special education teacher loves general education students (Participants D, E, F, & G). I noted that three of the co-teaching pairs used “my kids” when describing all of the students in the class, while one of the co-teaching pairs used “my kids” when the general education teacher referred to the general education students and when the special educator referred to the special education students. All four of the general education co-teachers told the interviewer that the general education students love the special educator (Participants A, D, F, & J).

All eight of these teachers love teaching and love their students and share ownership of the teaching and learning process that occurs in the co-taught classrooms. Diverse instructional viewpoints benefit all of the learners in the classroom (Participants F & G). Students have the opportunity to connect with a teacher and have a greater chance of a teacher-student instructional and/or personality match (Participants D & E). One teacher summed it up by saying “all students have two teachers and two teachers have all students” (Participant G).

The 2019-2020 school year was the first year of implementation for the co-teaching model and thus it was the first year that parents became familiar with the co-teaching classroom. It surprised and delighted the teachers that for the 2020-2021 school year, parents with general education students made requests for their students to be placed in the co-teaching class (Participant B, E, G, & J).

In previous years, the special education students were cluster grouped in one of the general education classes. Mainly for the purpose of convenience for the special educator to be able to pull the students out for specialized instruction. However, in a single year, the co-teaching model destigmatized special education to the point where parents at every grade level

were requesting that their typically developing and achieving children be placed alongside of the students receiving special services, “the room with the two teachers” (Participant D).

The consensus of the co-teaching pairs is that having the support of two highly qualified teaching assists is a tremendous value when implementing the co-teaching model (Participant D, G, J & M). “We have great [Teacher’s Assistants] who work opposite our SPED teachers to work the collaborative model” (Participant F). “We are extremely fortunate that one of our teacher’s assistants is a certified elementary teacher and the other has her bachelor’s degree in Child Psychology” (Participant A).

Before the researcher began to ask the prepared interview questions, one of the co-teachers shouted, “this is what I am passionate about—co-teaching” (Participant G). All eight teachers, spoke favorably about co-teaching and their experience with co-teaching. “Co-teaching is amazing when you do it the right way; the way we do it” (Participant F).

“We need the resources and schedule to make our knowledge work for the kids” (Participant F). One of the co-teaching pairs used the interview as a time to ask me to please look at the needs of students versus numbers when creating caseloads and placing teachers (Participant G). “We need admin to support us by working the schedule, providing us with support, giving us the personnel we need, and making sure we have the space to work the co-teaching model the way it was meant” (Participant F).

CHAPTER 5

SUMMARY OF FINDINGS, DISCUSSION, AND RECOMMENDATIONS

Over the past few decades, co-teaching has become a popular service model to meet the needs of students who are identified to receive special education services in the regular classroom. However, research on the effectiveness of co-teaching is extremely slim. The purpose of this dissertation study was to evaluate the co-teaching program at Small Town Elementary School (STES). Both quantitative and qualitative data were collected and results were analyzed and described. This chapter provides a summary of major findings, discussion of implications for policy and practice, and recommendations for future research.

Summary of Major Findings

Program Evaluation Question 1

Was a co-teaching model of special education services in the general education classroom implemented with fidelity based on the program design and training?

Program Design, Training, and Implementation. Six of the eight co-teachers interviewed attended the co-teaching conference at JMU. The two pairs where both members attended the co-teaching conference demonstrated a higher level of mastery of co-teaching concepts during the interviews, while the two pairs where only member of the pair attended the training had less knowledge of the program design of co-teaching. Additionally, the co-teaching pairs who attended the conference together began to process and plan during their time together. The six teachers who attended the conference came home with free books and instructional

resources. Also, these teachers returned to school and began to plan a professional learning for the entire faculty. “At the JMU training we learned all about the six methods of co-teaching and we came back and showed all the teachers how to implement them” (Participants D & E).

Decision Making Processes of Co-Teaching Pairs. One of the co-teaching pairs stated that they plan together constantly, while the other three pairs confessed that they never plan together. Parallel teaching, alternative teaching, and station teaching were used consistently by three of the co-teaching pairs. Parallel teaching was used when the teachers wanted to teach the same content to a smaller group of students. Alternative teaching was used by the teachers when one group was ready to move on and another group of students needed the concept retaught or to practice a specific skill. Station teaching gave each of the teachers the responsibility for teaching a small group of students during one of the stations. One teach, one observe was used by three of the pairs, but strictly for the purposes of collecting data for BIPs, IEPs, or if there was a specific academic concern. Team teaching was implemented by two pairs, the pairs where both co-teaching partners attended the co-teaching conference. One pair used one teach, one assist as their dominant method; however, the other three co-teaching teams did not use it because they do not believe the method is effective. The co-teaching pair who planned together constantly admitted that they change things up continuously, always switching and improving upon their methods. The other three teams did not plan to use any method ahead of time, all of their planning was completely spontaneous.

Planning for High Yield Strategies. An important point of discussion was made by three sets of the co-teaching pairs. Three of the co-teaching pairs talked about how parallel, station, and alternative teacher are vehicles to deliver quality instruction and high impact strategies to students. When asked why they used a particular method, at least one member of

three of the co-teaching pairs talked about the instructional strategies used during the implementation of the co-teaching methods, specifically used during alternative, parallel, or station teaching (Participants D, F, & M). The teachers brought up repeatedly that when they are implementing alternative, parallel, and station teaching that the teaching and learning strategies they use with their groups are considered best practices (Participants D, E, F, G, J, & M). Within the co-teaching methods, the teachers are using the most effective strategies, including the strategies for reading that the reading specialist shares regularly (Participants D, E, F, & G). "We are constantly mixing kids up, swapping kids out, and moving kids around" (Participants M & D). The second-grade general educator stated, "one of the most important things to remember about why we are a successful co-teaching team is that when we are in our co-teaching formats, we use sound instructional strategies and are constantly focused on teaching and learning." The first-grade team pointed out that it is not about those four methods of team, alternative, station, and parallel teaching, but is rather about those methods being a vehicle for best practices and sound instructional strategies. Examples of strong instructional strategies that were told to the researcher are problem solving, direct instruction, concept mapping, questioning, and cooperative learning (Participants D, E, F, and G).

Program Evaluation Question 2

How will reading and math benchmark scores in co-taught and general education classes in third, fourth, and fifth grades for 2019-2020 compare to the 2018-2019 and 2017-2018 mid-year benchmark scores for general education and special education students?

Special Education Students' Scores. It is difficult to draw any generalizations from looking at the special education students' reading and math midyear benchmark scores. The co-taught and general education classes in third, fourth, and fifth grades for 2019-2020 were compared to the 2018-2019 and 2017-2018 midyear benchmark scores in several ways. Attempts to identify progress in achievement were inconsistent and inconclusive. The low numbers of students in each grade, as well as the statistically low numbers of students identified as needing special education services, make statistical analysis inadvisable. When describing the differences in the mean benchmark scores of special education students during the years before co-teaching and with co-teaching, it is difficult to describe any positive or negative relationship.

The teachers interviewed pointed out how very different each cohort of students may be. For example, a group of special education students, who have mild learning disabilities, is very different from a group of students, who have more severe and diverse disabilities. Because of this, when comparing a single grade level across 3 years' time, it is important to note that the comparison is between three different groups of students.

The co-teachers maintained that another important consideration when looking at growth is that any group has the potential to grow. One of the co-teachers pointed out that it is not about comparing the special education students to general education students, it is about seeing each individual student grow. For example, when looking at third-grade reading benchmark mean scores, year 1 with a mean of 61 and year 2 with a mean of 67, when both of these years were before co-teaching, is numerically similar to the mean of 64 during the year when the co-teaching intervention was present. Looking at this data, it appears that co-teaching is not an effective intervention. But when the pretest data for these six third-grade students is compared to the midyear benchmark data of these students, a tremendous amount of growth can be seen, this

is evident in Table 22. Data from this evaluation do not show that students who learn in a co-taught classroom learn more than students taught in a general education classroom or learn more than students pulled out of the class for specialized instruction. The point remains that students taught by a qualified teacher, who uses high yield instructional practices, have the potential to learn and demonstrate growth.

Table 23

Co-Teaching Benchmark Scores, Grade 3, 2019-2020

	Pretest	Midyear	Growth
Student 1	22	71	49
Student 2	25	71	46
Student 3	19	62	43
Student 4	19	47	28
Student 5	33	77	44
Student 6	0	56	56

Note. Numbers represent the six special education students in the third grade in 2019-2020. The pretest column are the scores these students earned before instruction began and the second column is the score students earned on the midyear benchmark. The third column is the amount of points the students grew from the pretest to the midyear benchmark in the co-teaching environment in third grade. The data in this table represent a mean growth per student of 44 points.

General Education Student Scores. General education student benchmark scores have been consistent in third grade through fifth grade over the past 3 years in both reading and math. The one exception to this was the difference in fourth grade reading benchmark scores between year 1 and year 2 compared to the reading benchmark scores in year 3.

In addition to special education students learning in the co-taught classroom, there were also general education students learning in the co-taught classroom. In fact, in all co-taught classrooms at STES, most learners are general education students. General education students learning in the co-taught classroom out scored their peers in the general education classroom in fourth-grade reading, fifth-grade reading, and fifth-grade math. While students in the general education classroom scored higher than their general education classmates who learn in the co-taught setting on the midyear benchmark in third grade reading and math, as well as fourth-grade reading. Out of the six sets of scores, general education students in the general education setting were higher in three sets, while general education students in the co-taught classroom had the higher scores in the other three sets. When the means of the two sets of data were calculated, the mean of the co-teaching general education students' benchmark scores for math and reading was 86. The mean of the general education students benchmark in math and reading was also 86.

There was no difference in the scores between general education students who are taught in the general education classroom to the student scores of general education students taught in the co-taught classroom. The data show that there was no difference in the scores of general educations students who were co-taught from students who are in the regular general education classroom.

Program Evaluation Question 3

To what degree does the School Wide Information System (SWIS) for behavior management data in the specific categories of defiance and disruption, differ between special education and general education students instructed in non-co-teaching classrooms and co-teaching classrooms for the first 100 days during the 2017-2018 and 2018-2019 school years compared to the 2019-2020 school year? *Note.* The same time frame was used for all 3 years to allow for comparability with the COVID disruption period beginning on March 13 in 2019-2020.

Reported Behavior Infractions. Historically, kindergarten students do not get written up for behavior infractions as kindergarten is a time to learn about behavior expectations and social norms. Infractions were very low with special education students in kindergarten until year three with co-teaching. During the year with co-teaching, special education students collected 41 behavior write ups, while general education students had zero write ups. Zero behavior infractions for general education students compared to 41 for special education students was both surprising and disturbing. I was astounded to learn that only students identified as needing special education received a kindergarten behavior report causing me to question whether these students' behaviors were a manifestation of their disabilities. Upon following up with the teachers, all students who received a behavior report had a diagnosis which includes defiant behavior. Also, it was noteworthy that half of the behavior reports were filled out by the special education co-teacher and half by the general education co-teacher. When asked about this, it was said "whoever has time to fill the form out, does it!" (Participant B). The teachers seemed to suggest that when there was only one teacher in the room, it was more difficult to fill out the behavior report. But, when there were two teachers in the room, one of the teachers could take the time to fill out the paperwork.

There were minimal behavior reports written for first, second, or third grade students. Numbers of behavior reports increased for fourth and fifth grade students. Nevertheless, it is important to note that STES is not overwhelmed with disruptive and defiant students. All things considered, the behavior infractions and subsequent reporting were numerically low. However, the data showed that there was a highly disproportionate number of special education students who were written up for behavior infractions. Additionally, the data show that co-teaching does not impact the behavior of students.

Program Evaluation Question 4

What changes occurred with the implementation of co-teaching during the COVID disruption period beginning March 13, 2020, through January 2021?

Adapting Co-Teaching During COVID. Many changes occurred with the implementation of co-teaching during the COVID disruption period from March 13, 2020, through January 31, 2021. Beginning March 13, 2020, and ending May 15, 2020, STES offered only virtual learning because schools were ordered closed. From May 18, 2020, through June 18, 2020, STES had a professional learning month. Professional learning sessions about google classroom, zoom, and social emotional learning were offered as workshops were planned to help teachers prepare for virtual learning continuing in the fall. Over the summer, teams of STES teachers worked to prepare for virtual learning, as well as preparing for pending hybrid learning. Teachers who were usually off for the summer, worked to put plans in place so that the coming months would be less daunting. August 24, 2020, through September 3, 2020, teachers worked together to finalize designs for virtual learning as well as the hybrid model. Everything was meticulously planned out. From September 8, 2020, to October 2, 2020, STES was virtual

learning only. Beginning on October 5, 2020, and lasting through January 2021, STES was in the hybrid model, while still offering a virtual learning only option through Virtual Academy.

Co-teaching came to a complete stop when school moved to virtual only on March 13, 2020. There was no co-teaching. All teachers scrambled to communicate with students, parents, and each other. Instruction moved to google classroom, instructional videos, and zoom. When the hybrid model began on October 5, 2020, co-teaching resumed. Because students were only attending school two days a week for in person instruction, administration created a schedule that would allow the special educators to be in the general education classroom with their students all day long. The teachers interviewed reported that they loved the hybrid model and believe the students enjoyed hybrid as well. Core teachers were working with their co-teachers and their small groups of SPED students all day every day these students were at school.

Changes in Co-Teaching During COVID

Virtual Only Spring 2020. When school suddenly and unexpectedly moved to all virtual in spring of 2020, many aspects of the co-teaching model changed. The main revolution in co-teaching during this time was that the special educators stopped teaching their whole classes. These teachers shifted to accommodating assignments and activities, while the general education teachers continued to teach on zoom and make instructional videos. A large part of virtual schooling was zoom meetings.

***Zoom Meetings*.** There are multiple reasons that teachers used Zoom meetings during virtual only school last spring. First, they wanted to continue contact and maintain community with their students. Second, they used Zoom to instruct students. Third, Zoom was a vehicle to work with students on practice activities after the lesson. Zooms took place with whole groups,

small groups, and individual students. The co-teachers were on separate Zoom meetings or the general education teacher was leading the Zoom and the special educator was observing.

Communication. The eight co-teachers talked a great deal about communication between teachers when school went from in person to totally virtual. The teachers describe constant cycles of communication using group texts, emails, calls, and FaceTime. The teachers said that they were talking all the time because everything was new. There were new routines and procedures, a totally new system, new calendars and scheduling, and new technology (Participants A, B, D, E, F, G, J & M).

Challenges of Virtual Only. The teachers reported a variety of challenges when school went to the virtual only model. One challenge was that because of the age of elementary students, they were dependent on parents to facilitate their children being active on Google Classroom and Zoom (Participant D). Elementary students are not independent learners (Participant J). A second challenge was that not all students had computers or access to the internet (Participant F). The school system began purchasing Chromebooks and hotspots for distribution to students, but that did not happen right away. The teachers described how difficult it was to move forward with some students, while being completely disconnected from others (Participants D, E, F, & G). Third, the teachers remembered how challenging it was to learn google classroom under pressure (Participants B & M).

Virtual Only September 2020. In answering questions about virtual only, the co-teachers reported that virtual in the fall was much improved from the spring (Participants A, B, D, E, F, G, J, M). The teachers gave these reasons for an improved virtual learning in the fall: professional learning on google classroom over the summer (Participants F & J), the month of May 15, 2019 through June 15, 2019 to prepare for fall (Participants A & B), a chance to acquire

technological equipment for virtual learning like document cameras and cell phone arms (Participants F & G), and time to plan new procedures and expectations for virtual learning (Participants J & M).

Hybrid Learning through January 2021. As in-person instruction resumed at STES on October 5, 2020, so did co-teaching. During the hybrid model, 40% of the elementary students attended school on Mondays and Thursdays and 40% of the students came to school on Tuesdays and Fridays. Wednesdays were devoted to virtual learners, who were approximately 20% of the student population.

After not having students in the school for 6 months, all eight of these teachers reported that they were super excited for the hybrid model. The kindergarten team agreed that the hybrid model was awesome and that having half the students at a time was a great way to get to know the students and to accomplish twice as much per day academically with zero behavior issues. The first-grade co-teaching pair described seeing students grow "by leaps and bounds" during the hybrid model. The second-grade team said that hybrid was wonderful and the students and teachers were so excited to be back in school. The fifth-grade team expressed that one of the best things about the hybrid model was getting to intensely work with small groups of students.

The four co-teaching pairs agreed that one of the best aspects of hybrid learning was that the schedule was arranged so that the special educators could work with their collaborative partners and their special education students all day long on the days that those students were in school (Participants A, D, F, & M). Also, when implementing co-teaching in the hybrid model, the teachers had the opportunity to work with very small groups of students and could address the students particular learning needs (Participants A, E, G, & J). Additionally, they reported that they could observe the students learning and growing all day long (Participants B, F, & M).

Despite having the students back in the building and learning, challenges remained. One challenge was keeping up with the virtual learners while implementing the hybrid model for in-person students. The second-grade general educator said that "it was extremely difficult to keep up with the virtual students and two groups of in-person students." The second-grade special educator reported that it was extremely difficult to keep both the general education students and special education students moving through the learning on the days when they were not in school.

Lessons Learned. The four co-teaching pairs noted several lessons that were learned during the COVID-19 disruption that can be applied to education moving forward. First, the teachers stated: make the most of your time and plan a tight scope and sequence to ensure students have plenty of opportunities to learn (Participants A & M). "COVID taught us to take advantage of any teaching opportunities we have with students" (Participant D). Second, the kindergarten co-teaching team emphasized that it was evident many of their kindergarten students had not had preschool or complete preschool opportunities the previous year (Participants A & B). Deficits in learning and social skills were evident. Third, the social component of school is extremely valuable for students and for teachers (Participants A, D, E, & G). Because of quarantining and social distancing, students had to be retaught how to play together. Fourth, small group instruction is highly impactful (Participants F, G, J, & M). The second-grade team pointed out that as we return to some degree of normalcy, to look for opportunities for students to work with teachers in small groups. The co-teaching model has the potential to support this initiative.

Teachers had additional ideas about lessons learned during COVID. Those lessons were co-teaching benefits all learners (Participants E & G), there should be one SPED teacher per

grade level (Participants A, D, E, F, G, & J), you have to want to be a part of a co-teaching partnership for it to be successful (Participants D, E, F, & G), common planning time is crucial (Participants A, B, D, E, F, G, J, & M), co-teaching matches the expertise of the special educator with the content knowledge of the general educator (Participants A, B, D, & E), and that when assigning special educators that administrators need to consider the needs of students versus the number of students on the caseload (Participants F, G, & J). These are interesting points, but these are not lessons solely learned from the time of the COVID disruption. These are statements that could apply to any school year.

This study has produced several implications for policy and practice at STES. Table 24lists the findings and related recommendations.

Table 24

Findings and Recommendations

Findings	Related Recommendations	Supporting Literature
Training and professional learning is integral when implementing a program with fidelity.	If co-teaching is continued at STES, all co-teachers need additional and specific training in co-teaching.	Chitiyo, 2017; S. C. Cook & McDuffie-Landrum, 2018; Murawski & Swanson, 2001; Shamberger & Friend, 2013
Co-teaching does not impact special education or general education student achievement scores positively or negatively.	Achievement scores do not support the co-teaching model. But is achievement synonymous with learning? Achievement is not a reason to continue with the co-teaching model. If the positive attributes of the co-teaching model supports continuing with co-teaching, then co-teaching should be considered regardless of achievement scores. The lack of achievement benefits needs to be discussed among stakeholders, particularly the teachers who work with special education students.	Banerji & Dailey, 1995; Weiss & Bringham, 2000; Welch, 2000
Student behavior is not impacted by co-teaching; however, SPED students are overrepresented in the SWIS data.	Student behavior is not a reason to continue with the co-teaching model. But, it is apparent that the staff needs professional development on behavior manifestations in different disability categories and strategies to help these students reach behavior expectations.	Hang & Rabren, 2009; Harbort et al., 2007; Sweigart & Landrum, 2015
There is value in implementing a co-teaching model that makes stakeholders feel good and increases efficacy.	Improved social skills, friendships, and community for students. Teachers feel supported, secure, and passionate. These are good things for this school. When teachers feel good about their work and do not feel isolated, their level of efficacy goes up. If teachers support this model, it should be continued. Continued discussions need to take place with the special education administrators and teachers.	Conderman, 2011; Friend et al., 2010; Odom et al., 2006; Pancsofar & Petroff, 2013
Common planning, thoughtful scheduling, and focusing caseloads impact students and teachers positively.	To support the co-teaching model and teaching and learning in general, thoughtful decision making, planning by administrators is a priority. Administrators need to be on board and consistent and they embrace co-teaching in theory AND in practice.	A void in the co-teaching literature.
Some methods of co-teaching impact learning more than others because of what high yield learning strategies and best practices occur within the method. Examples: small groups, individualized instruction, collaboration, questioning, etc.	Good teaching has the greatest impact on learning. It is not the co-teaching method, but what is within the method that makes the difference. We need to talk about this as a faculty and review high yield and differentiation strategies.	A void in the co-teaching literature.

Discussion of Findings

Choice of Model and Implementation

Co-teaching partners report that they used a combination of approaches, and they have preferences for which methods work best for them and their students. Logistics, experiences with the methods, and instructional goals were contributing factors as to whether the collaborative partnership choose one model over the other (Friend, 2019). This was true with the teachers interviewed, as each co-teaching pair had a different preferred method.

There was no research identified about which models of co-teaching were most effective. This could be in part because of the difficulty with conducting large scale, standardized research on co-teaching because of the various definitions of co-teaching and co-teaching partnerships, making it difficult to compare settings. Studies suggest that co-teaching teams do not use the various models of co-teaching, but rather find one model they are comfortable with and stick to that method (S. C. Cook & McDuffie-Landrum, 2018). This was not the case with the teachers interviewed. Two of the co-teaching pairs reported using three or more methods per day. All four teams used three or more methods per week.

After reading at length about the six methods, it became apparent that two of the methods do not require co-planning, content mastery, or philosophical match between the two teachers. Those two methods were one teach, one observe and one teach, one assist. The other four models require co-planning/or the same teaching philosophies, content mastery, and a partnership in order to be effective. Those methods were parallel teaching, station teaching, alternative teaching, and team teaching. These teachers reported that for the most part, they do not plan together; however, three of the co-teaching pairs implemented parallel, alternative, and station

teaching. Additionally, these teachers point to using high yield and best practices during parallel, alternative, station, and team teaching as a dominant factor on impacting teaching and learning.

Convenience and lack of time for communication, development, and planning was a plausible reason for *one teach, one assist* to be the predominant method, although the research states this method should be used infrequently due to lack of positive contributions to student learning (Friend, 2019). Six teachers interviewed for this study did not prefer the method of *one teach, one assist* and refused to use this method, while one pair chose it as the dominant method.

Benefits of Co-teaching

The predominant finding regarding the benefits of co-teaching was that there is a belief among teachers at STES that co-teaching is beneficial. The teachers interviewed for this evaluation believe that the co-teaching model is the best model for student and teacher success, and this comes out strongly in the qualitative data of this study. However, the quantitative data produced as a result of this evaluation showed that the co-teaching experience does not lead to any consistent gains in student achievement. Because of this juxtaposition, the qualitative results contradict the quantitative results. In summary, the teachers believe that co-teaching is effective, but there is no evidence that co-teaching has any effect on student achievement.

As described in the literature on co-teaching, the main *potential* benefit of a co-taught classroom is improved academic performance for students with special needs, struggling students, and general education students. The literature about co-teaching claims that improved student achievement should be an outcome of co-teaching; however, the empirical research data on co-teaching does not unequivocally support that claim. The teachers interviewed for this evaluation stated that improving academic achievement for all through on-the spot-remediation and opportunities for more individualized instruction occurs through more teacher interaction.

They maintain that improved performance by struggling students, who are not identified as needing special education services, but who do struggle with learning targets, is a potential outcome of the co-teaching model. The teachers interviewed believe this, though the data and results of this study directly contradicts the beliefs of these co-teachers. The teachers interviewed talked about student growth and improved performance with co-teaching; however, the benchmark data was inconclusive regarding the effect of the intervention of co-teaching on student achievement on special education students or general education students taught in the co-taught classroom. This evaluation produced no evidence that co-teaching contributes to better student achievement.

The co-teachers at STES maintained that collaborative partnerships among educators and meeting the needs of all student learners in the least restrictive environment were two of the benefits of co-teaching. All teachers interviewed described strong partnerships with their co-teacher and these teachers love the supportive and collegial atmosphere that comes with co-teaching.

The eight co-teachers interviewed named numerous secondary benefits for both general education students and special education students in the co-taught general education classroom. The teachers interviewed talked about the secondary benefits of the co-teaching method. Those benefits to special education students were friendships between diverse students, reduced stigma associated with SPED, and a variety of instructional styles that have the capacity to match to student learning type. These teachers observed the aforementioned positive side effects of the co-teaching method and reported their observations during the qualitative interviews; however, there is no measurable quantitative data to support their views.

Teachers interviewed reported that there were advantages to co-teaching that specifically benefit the students identified as having special education needs. Teachers named a strong sense of community and belonging, social skills, and opportunities for on-the-spot remediation as advantages for special education students learning in the co-taught classroom. These specific pluses were not measured in this evaluation; however, these were factors repeated in the interviews with co-teachers. Community, improved social skills, and opportunities for remediation were also written about in the literature as reasons that co-teaching creates a positive environment for students identified as needing special education services (Blednick & Wilson, 2011; Friend & Pope, 2005; Hang & Rabren, 2009).

Collaborative Partnerships and Successful Teams

One undeniable component of the co-teaching model was the prospective for general and special education teachers to work collaboratively in the inclusive classroom setting to teach students with academic difficulty and disabilities. The professional relationship between the general education and special education teacher with the four teaching pairs interviewed was very strong. Indeed, the professional relationship between the two educators was one factor which teachers believed determined the success of the co-teaching model, where both teachers were on equal footing and share equal responsibility. The co-teaching model combines the strengths of the special educator, an expert on individual learning differences and adaptive curriculum, and the general educator, an expert on delivering the curriculum (Friend, 2019). The irony of the teachers' discussions of their relationships was that only one of the co-teaching pairs reported creating a setting where they are truly collaborative partners and on equal footing with the learners in their classroom (Participants E & F).

The four co-teaching pairs indicated that the collaboration between general education and special education teachers was an important contributor to student success. The teachers interviewed at STES do not consistently follow through with their co-teaching practices and methods, but they feel they do. These teachers believe that their relationship and collaborative work in the classroom impacts student learning and achievement, though no evidence of the co-teaching model improving student achievement was found in the process of conducting this study. The findings of this evaluation of the co-teaching model do not support the assertion that co-teaching contributed positively to student achievement success. This study finds that implementing the co-teaching model does not improve student achievement.

Despite the fact that the teachers reported strong partnerships, these teachers often described an imbalance of power in the teaching relationship. Two of the general educators described their co-teachers as a "helper" and "jumping in to do whatever is needed." Three of the teams reported that there was no common planning, meaning that the special educators entered the learning environment with no knowledge about what the objectives, content, or instruction was planned for the day.

In three of the four partnerships, the special educator is the more passive partner. This realization leads to more questions than answers. Does the general educator want to maintain an imbalance of power? Does the special educator prefer a subordinate role? Does the general educator want to maintain control of the instruction? Does the special educator choose to be out of the classroom setting? Though these teachers reported that they have strong collaborative relationships, after careful examination of the interview data, the majority of these educators reported the inverse and describe relationships where the two people get along but are not in a true partnership.

Meeting the Needs of Students

Co-teachers maintained that co-teaching combines the strengths of the two teachers to empower all the learners in the room. The teachers at STES expressed feeling empowered by the co-teaching model. They claim that opportunities for small group instruction, individualized instruction, and the re-teaching of concepts to students who may be struggling, whether they be general or special education students. They maintained that co-teaching was more effective than addressing student needs through pulling them out of their regular classrooms and general education classrooms that do not adhere to the co-teaching model. All eight teachers reported enjoying the supportive environment of the co-teaching model, but this study produced no evidence that co-teaching was better for students.

One of the main points some authors made was co-teaching provides students with identified special needs and disabilities access to the general education curriculum and teacher, while providing the required accommodations from the students' IEPs. One of the co-teachers questioned that "even with little difference in achievement, isn't the general education classroom not the best place for SPED students to be learning?" (Participant E). In other words, co-teaching had little impact on student achievement, but isn't it the right thing? In many cases, the teachers' answers reflected that co-teaching makes them feel good and also makes the students feel good. However, the purpose of school was not to feel good, the purpose of school is for teachers to teach and students to learn.

Cost Benefit Analysis. The primary purpose of implementing the co-teaching model of special education services is to improve the achievement of students in need of special education supports. The results of this study show that student achievement did not improve during co-teaching when compared to non-co-teaching. At this juncture it is important to scrutinize whether

the cost of having two teachers working with the same students in the same classroom is truly the best use of school resources.

Secondary Benefits for All Learners

Social acceptance and friendships were touted as meaningful outcomes for students with disabilities in inclusive settings, as well as general education students in these mixed ability classrooms. Two of the teachers described friendships between students who never would have had access to each other before co-teaching (Participant E & G). No research could be found supporting these assertions; nevertheless, ideas about friendships between different groups of students was written about in the literature about co-teaching (Griffin & Shevlin, 2011; Harpell & Andrews, 2010; Odom et al., 2006; Walther-Thomas, 1997).

Secondary Benefits for Students Identified as Needing Specialized Services

Reduced stigma as a full member in the classroom, increased confidence, and higher expectations for learning were additional benefits of the co-teaching model (Participants B & E). Special education students' being educated in the co-taught general education classroom had full membership in a regular education. Membership in the regular classroom made special education students full members of the regular community which gave them increasing confidence (Participants D & E).

Common Challenges Faced by Co-Teachers

There were many challenges faced by teachers working with the co-teaching model. These challenges included lack of a common planning time and a lack of professional communication between the two teachers. The teachers interviewed for this study said common planning time and SPED teachers being spread too thin were challenges that need the attention of administrators.

Implications for Policy and Practice

This program evaluation of the co-teaching service model of special education led to several recommendations for future consideration. This chapter detailed the recommendations within the areas of program design, training, and implementation; decision making processes of co-teachers; achievement of general education students and special education students taught in the co-teaching setting; defiance and disruption in the co-taught environment; and moving forward with lessons learned about co-teaching.

Recommendation 1

If co-teaching is continued at STES, all co-teachers need additional and specific training in co-teaching. Training and professional learning is integral when implementing a program with fidelity. All teachers working within the co-teaching model need to have the same foundation of knowledge on philosophies of co-teaching, methods of co-teaching, and implementation of co-teaching, including the high yield strategies and best practices that occur when implementing parallel teaching, alternative teaching, station teaching, and team teaching.

Recommendation 2

Improved student behavior is not a reason to continue with the co-teaching model. But, it is apparent that the staff needs professional development on behavior manifestations in the different disability categories. Small Town Elementary School administration needs to work with school division special education leadership to plan profession learning experiences that better prepare special educators and general educators to teach and work with all students. Specific work needs to be done to give teachers the tools to help students work towards behavior goals and behavior conducive to the learning environment.

Recommendation 3

To support the co-teaching model and teaching and learning in general, thoughtful decision making, and planning by administrators is a priority. Administrators need to be on board and consistent as they embrace co-teaching in theory and in practice. Common planning, thoughtful scheduling, and focusing caseloads impact students and teachers positively. Administration should be supportive philosophically and in theory, but also in the day-to-day details of school operation. Administration at STES and anywhere wishing to support teachers and students, need to thoughtfully plan schedules and caseloads for reflect administrative support in practice. Administrators and school leadership must weigh the cost versus the benefit of staffing the co-teaching model.

Recommendation 4

During the co-teaching interviews, teachers made the point that it is not the co-teaching model that is effective. What is important is what happens within the model of co-teaching. Teachers described using high yield strategies and best practices within the co-teaching model. It would be helpful to review differentiation practices and high yield instructional strategies with all of the teachers as a reminder of how students best learn. The foundation of learning is high quality instruction. When teachers use high yield instructional strategies during their work with small groups within these models, co-teaching can be extremely effective.

Recommendation 5

Implementation of the co-teaching model at STES made an undeterminable impact on student achievement and behavior, but the teachers report feeling better about having two teachers in the classroom to provide services and support rather than pulling students out of the classroom. Some may see two teachers in the classroom as a waste of personnel and resources;

however, special educators are employed by STES to teach and support special education students and they can accomplish this inside the general education classroom or in a pull-out setting. Whereby, we need to continue to have regular conversations about co-teachings benefits and drawbacks. As a faculty, we should keep the dialogue open about the practices that are most beneficial to students as well as teachers.

Recommendations for Future Research

There is little research on the importance of common planning, thoughtful scheduling, and focused caseloads in the literature on co-teaching. These are factors that have a strong impact on co-teaching and teaching in general. There are several factors that influence the decisions made by administrators: licensure requirements, underfunding, and understaffing. It would be helpful to have researchers study problems and solutions, as well as make recommendations.

Some methods of co-teaching impact learning more than others because of the high yield strategies that happen within the method. This researcher could find no research on what happens within the methods of parallel teaching, alternative teaching, station teaching, and team teaching. However, in interviews with teachers, the teachers discussed seeing learning results as an effect of strategies used within the methods. High yield strategies include: identifying similarities and differences, cooperative learning, reinforcing effort and providing recognition, providing consistent feedback, questioning, formative evaluation, active learning, discussion, reciprocal teaching, problem solving, and direct instruction (Aquino, 2017; Hattie, 2008 Varlas, 2002). More research on what happens when implementing the methods that positively impacts student achievement is needed.

Additionally, there is very little research on the effect of co-teaching on student achievement. Literature on co-teaching is more plentiful, but research on the effectiveness of this model of serving special education students is practically non-existent. It is surprising that with so little evidence to support the positive impact of co-teaching on student achievement that it is such a widely implemented model. More scholarly research is needed on the topic of co-teaching.

Summary

The inclusive model of service delivery for special education students, co-teaching in the regular classroom, does not seem to impact students' achievement or student behavior at STES. The co-teaching model was implemented over the course of the last school year, including the time of the COVID-19 disruption, and during this time co-teaching looked and felt different.

The co-teaching training at JMU during the summer of 2019 provided an informative and bonding learning experience for those who attended. The attendees received three days of workshop learning, along with free co-teaching books, and a magnitude of resources. The STES teachers who were present returned to STES and prepared a professional learning experience for the entire faculty. Also, these teachers worked through the summer to plan their implementation of the model.

All six methods of co-teaching were implemented by the co-teachers at STES. Three pairs used parallel and alternative teaching, three pairs used one teach, one observe and station teaching, and two of the pairs used team teaching. Only the kindergarten team used one teach, one assist. However, the teachers reported that it is not the methods, but what happens during the implementation of the methods, that appears to make the difference in the learning that occurs.

It is difficult to draw generalizations when studying both the reading and math benchmark scores. No generalizations can be drawn from looking at the data of special education or general education students. The data does not reflect any significant impact from the co-teaching model.

When examining behavior trends, there is a disproportionate amount of behavior reports written for special education students. It is difficult to identify any trends when examining the behavior data for general education students and special education students between the two years prior to co-teaching and the co-teaching year. The data suggests that co-teaching does not impact the behavior of special education or general education students.

School, education, and co-teaching changed drastically when COVID-19 disrupted the learning process. Virtual learning took the place of in person learning. Zoom meetings took over teachers' schedules and Google Classroom dominated teacher time. Teachers entered a constant cycle of communication with one another and student awaited Chromebooks and hotspots. On October 5, 2020, students were divided into two teams and were in school 2 days a week, while learning virtually the other 3 days in the hybrid model. Co-teaching resumed with special education students, and general education students in the co-taught classroom, 2 days a week.

Co-teaching provides equal access to education for all students. Many laws were put in place to assure equality for special education students. Co-teaching allows special education students to learn in an inclusive environment with their general education peers (Friend, 2019; Hang & Rabren, 2009). Achievement gains for special education students would be a primary goal; however, absent of achievement scores, there are other reasons that co-teaching may be positive for students. Those reasons include reduced stigma for special education students, diverse peer groups, the opportunity to work with small groups, the chance to work with all types

of students, on the spot remediation, and a supportive community environment for students and teachers.

This program evaluation was undertaken to explore the effectiveness and fidelity of the co-teaching model at STES and the relationship between co-teaching and student achievement and behavior. Co-teaching had no positive effect on achievement or behavior, but as one of the teachers interviewed pointed out "both could have been worse without the two teachers" (Participant G). Additionally, co-teachers stated that perhaps achievement and learning are two different things and that the co-teaching model leads to learning. Achievement scores are high at STES for both SPED and general education students, and behavior infractions are low. There is no achievement or behavior problem at this school. Teachers are teaching. Students are learning. According to the teachers, co-teaching looks and feels like the right thing to do, and they have requested that we continue using the co-teaching model of special education service delivery. A decision about co-teaching moving forward has yet to be made.

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Appendix A

Letter of Invitation to Participate in Research

Co-teaching: An Interview

February 25, 2021

Dear Mrs. XXXXXX:

I am following up on my letter to invite you to participate in a research study. I am an executive doctoral student at The College of William and Mary and am studying Educational Policy, Planning, and Leadership. My dissertation chairs are Dr. James Stronge and Dr. Thomas Ward, both are professors at The College of William and Mary.

The purpose of this study is to examine the impact of the special education co-teaching model on student achievement in math and reading in kindergarten through fifth grade. You are eligible to participate in this study because you a co-teacher at Small Town Elementary School. I ask that you and your co-teacher participate in an interview with me. This interview should take approximately 45 minutes, unless you would like to talk for longer. The questions will be about your model and methods of co-teaching and about co-teaching during the COVID-19 disruption. Your responses will be kept confidential.

Your participation in this study is completely voluntary. If you choose to participate you may choose to discontinue participation at any time and you may choose any of the interview questions that you do not wish to answer. Feel free to contact me at aphauser@email.wm.edu or 804-725-0244, if you have questions. Enclosed is the consent form for you to review and sign. Please return it to me at your earliest convenience. After receiving it, I will be in touch to schedule your interview.

Sincerely,

Amy P. Hauser

Education Department College of William & Mary
Protocol #: StudentIRB-2021-xx-xx-xxxxx

Appendix B

CONSENT FORM
THE IMPACT OF THE SPECIAL EDUCATION CO-TEACHING MODEL ON STUDENT ACHIEVEMENT IN MATH AND READING IN KINDERGARTEN THROUGH FIFTH GRADE

The College of William and Mary

This is to certify that I, _____, have been given the following information with respect to my participation in this study:

This research study concerns the achievements of students taught in the co-taught classroom, the impact of the co-teaching model on student behavior, and teachers' experiences with training, choosing a method for co-teaching, and their experiences with co-teaching during the COVID-19 disruption.

Presentations and manuscripts may result from the analysis of these data. Information gathered through this study may benefit and inform others on the impact of the special education co-teaching model of on student achievement in math and reading in kindergarten through fifth grade. As a participant in this study I will be asked to There are no anticipated risks or benefits to participating other than those encountered in daily life. There are no known benefits of participating in the study. However, my participation in this research will contribute to the development of our understanding of co-teaching. The researcher is conducting this study as part her doctoral dissertation at the College of William and Mary.

My data will be anonymous. My data will not be associated with my name, nor will it be coded so that my responses may be linked to my name in any way. Participation in this study is voluntary. I am free to withdraw at any time without penalty or loss of benefits. I may choose to skip any question. Participants will not be compensated for their participation. I am aware that I must be at least 18 years of age to participate in this project. Participation may be terminated by the experimenter if it is deemed that the participant is unable to perform the tasks presented.

If you have any questions or concerns about this research, you may contact the principal investigator, aphauser @email.wm.edu, 804-725-0244; my dissertation chair, Dr. James Stronge, 757-221-2339, jhstro@wm.edu; or my dissertation co-chair, Dr. Thomas Ward, who is also the chair of the Education Internal Review Committee (EDIRC), 757-221-2358, tjward@wm.edu.

I am aware that I may report dissatisfactions with any aspect of this study to Dr. Tom Ward, the Chair of the Protection of Human Subjects Committee, by telephone (757-221-2358) or email (jward@wm.edu). I agree to participate in this study and have read all the information provided on this form. My signature below confirms that my participation in this project is voluntary and that I have received a copy of this consent form.

Please read the following statements and indicate your permissions below.

I understand that my involvement in this study is purposeful in that permissions and consent will be obtained only for those included in the narrative.

I understand that I may be asked to voluntarily read portions of the narrative that are associated with my involvement in the researcher's experience as they are composed. Additionally, I may be asked to offer feedback on the written representation using specific guidelines prepared by the researcher.

I further understand that the researcher will hold my information in strict confidence and that no comments will be attributed to me by name without my specific permission. I have the option to provide a pseudonym of my choice, but I also recognize there is a possibility of identification given the nature of the study.

I recognize that my participation is voluntary and that I can withdraw my participation in this study at any time or decline to give permission in a particular instance. Any artifacts provided or created during the course of the study may become part of the permanent research files unless otherwise requested.

By signing below, I give consent that my involvement and interactions may be included in the study.

Participant _____ Date_____

Pseudonym (if desired) _____

Researcher _____ Date _____

Appendix C

Interview Questions and Protocol

Title of Study: The Impact of the Special Education Co-teaching Model on Student Achievement in Math and Reading in Kindergarten through Fifth Grade
Time of Interview:
Date:
Place: Interviews will be conducted via zoom after school hours from a location of participants choosing.
Interviewer: Amy Page Hauser
Interviewee:
Position of Interviewee:
Interviewee:
Position of Interviewee:

[Log on to zoom on my laptop. Launch our interview meeting. Make sure meeting is recording. Verify video is working properly on all three devices. Test audio. Make sure everyone can hear each other.]

Good morning/good afternoon!

You were selected for participation in this study because you are a co-teaching pair in the research setting. You received a letter asking for your participation and I appreciate your response. Then prior to this interview you were sent an introductory letter and two consent forms (one for you to keep and one for you to sign and return to me prior to this interview). I have your consent forms, so let's get started.

I want to thank you for taking the time to participate in my research study. This interview should take approximately 45 minutes. I will be recording the interview via zoom so that I can focus on

you instead of taking notes. Before we get started, I want to assure you that your identity will be kept confidential.

Purpose of the Study

The focus of this study is to evaluate the co-teaching model of special education service delivery that we implemented in our school last school year. Last year was a unique year. Our school year started out as a traditional year implementing the co-teaching model in our classrooms. Then, our school year was interrupted due to COVID-19 and last spring we moved to educating students virtually. This fall we implemented the hybrid model. My questions today will be about our co-teaching journey, from beginning to present. There are no wrong answers today. I am interested in your experience with co-teaching over the past year and a half. We will start by discussing co-teaching training.

Do you have any questions? [Answer whatever questions they may ask.] Okay, let's get started.

[Note: the researcher will ask follow up questions like "Tell me more," "How did that work?" and "Could you explain that?"

Warm Up Questions

- Good morning/good afternoon!
- Please introduce yourselves and give me your pseudonyms
- What grade do you teach together?

Interview Questions Derived from Research Question One

[Training/Professional Learning]

1) In the summer of 2019, there was a training on co-teaching at JMU. What new information did you receive as a result of your participation in the training?
2) I remember you showing me the books you bought at the JMU conference. Refresh my memory, did the cohort who attended the conference have a book study?

3) Then you presented to the faculty before school started. Why was that important to you? How did you plan for your presentation? Tell me about the content of your presentation?

[Co-teaching during a Typical School Year]

4) How did you plan to implement what you learned in your classroom and in our school?
5) As you know, there are 6 types of co-teaching: one teach, one observe; one teach, one assist; parallel teaching; station teaching; alternative teaching; team teaching. Which of these did you implement and why did you select them?
6) You used [You did not use] one teach, one assist. How did it work? When did you use it? [why didn't you use this method?]. Why did you use it?
7) You used [You did not use] parallel teaching. How did it work? When did you use it? [why didn't you use this method?]. When did you use it?
8) You used [You did not use] station teaching. How did it work? When did you use it? [why didn't you use this method?]. When did you use it?
9) You used [You did not use] alternative teaching. How did it work? When did you use it? [why didn't you use this method?]. When did you use it?
10) You used [You did not use] team teaching. How did it work? When did you use it? [why didn't you use this method?]. When did you use it?
11) You used [You did not use] one teach, one observe. How did it work? When did you use it? [why didn't you use this method?]. When did you use it?
12) Did you change the configuration of your classroom in order to accommodate two teachers? How did you plan to make the room a shared space?
13) Did you have to rearrange the classroom space to accommodate the models of co-teaching that you most frequently used?

14) In what ways did you and your co-teacher plan together?

15) How often did you plan together?

16) How did you decide which methods of co-teaching to use?

17) Were there specific features of a selected model that led to your decision on a particular co-teaching methods of instruction for a particular lesson?

18) Can you give me an example of how you planned to use a specific method?

19) How did you assess the effectiveness of the co-teaching method you chose to implement?

20) Did you ever change methods to get better results or student engagement, and did you get better results?

21) Which methods were most effective with specific groups of students? Special education students? General education students? How do you know these methods were effective with those student groups?

22) Can you rank your top three most effective co-teaching methods and describe why these methods are more effective than the others?

23) Of those co-teaching models that you did not implement, can you tell me what led to your decision not to implement them?

Interview Questions Derived from Research Question Four

[Co-teaching when Schools Went to Virtual Only Instruction after closing for COVID-19]

24) Last March 13th, school changed from in-school education to virtual schooling. How did you implement co-teaching during the spring of the COVID disruption?

25) Were you able to plan together during this time?

26) How did you go about this kind of virtual planning?

27) Can you describe co-teaching instruction during virtual teaching last spring?

28) What did you learn about co-teaching last spring when you suddenly moved to virtual learning only?

29) Was there anything that you learned that should impact co-teaching moving forward?

30) [This fall you continued to teach virtually and we also began the hybrid model of in school instruction.] What did co-teaching look like in the fall in your virtual classroom? Tell me about your google classroom and your zoom sessions?

31) How do you know your virtual instruction has been effective?

32) Can you give me a couple of examples?

33) Can you give an example of something that didn't work well and how you addressed it?

[Co-teaching when Schools continued Virtually as well as in person with the Hybrid Model]

34) Tell me about your experience co-teaching with the hybrid model this fall?

35) Was your instruction effective during this time? How do you know?

36) Tell me about the challenges?

37) During the fall, you were responsible for teaching two different groups of hybrid students as well as teaching virtual academy students. How has the planning process been during the hybrid model?

38) Give me an example of something that worked really well this fall?

39) What did not go well?

40) Are your students achieving? Special Ed.? Gen. Ed.?

41) Tell me what you learned this fall that should impact co-teaching moving forward?

Closing Question

- Is there anything else that you want to share with me about co-teaching, virtual co-teaching or co-teaching in a hybrid setting?

Closing Remarks

Thank you for taking the time to provide answers to my questions. As a reminder, your responses will remain confidential. I will be making a presentation of this data later in the year and I hope you will come and hear the results!

VITA

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