PLANNING, INSTRUCTIONAL, AND REFLECTIVE PRACTICES OF
ELEMENTARY CO-TEACHERS

by

Janet Bertoni Josephson

A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Education

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ABSTRACT

Co-teaching is an inclusive approach to special education service delivery that involves two teachers who are responsible for planning, instructing, and reflecting on the learning of a shared group of students. Planning, instruction, and reflection are practices known together as the *cycle of teaching* (Tyler, 1949). Co-teaching research has largely focused on the perceptions of teachers, administrators, and families and the academic and social outcomes for students. There is little research on how co-teachers co-plan, co-instruct, and co-reflect. This multiple-case study described the planning, instructional, and reflection practices of two co-teaching teams. Data sources included semi-structured interviews, classroom observations, and planning and reflection documents of 2 teams of co-teachers. Data were analyzed using theoretical models of how solo-teachers engage in the cycle of teaching (Schumm & Vaughn, 1992; Tyler, 1949). Qualitative analysis of data determined that special education and general education co-teachers have different expectations for co-planning. Additionally, general education teachers take the lead in co-planning. Frequent co-planning allowed the special education co-teacher to play an active role in co-instruction. Co-teachers found it difficult to propose instructional improvements during co-reflection. The implications of these findings are discussed as well as directions for future research. 

*Keywords*: co-teaching, co-planning, co-instruction, co-reflection, cycle of teaching
Chapter 1

INTRODUCTION

Special education in the United States has undergone many changes as a result of legal mandates and research on evidence-based instructional practices. The majority of students with disabilities were once educated in segregated settings, special schools or classes, in settings that were separate from their peers without disabilities. Segregated placement for students with mild to moderate disabilities has become less common as schools have been held accountable for ensuring that students are educated in the least restrictive environment (LRE) with the general education classroom considered as the default placement. The practice of educating students with disabilities in general education classrooms and providing special education services to students within that classroom is called inclusion. In some models of inclusion, all students with disabilities are educated in general education classrooms. In other models of inclusion, the decision to include students with disabilities in the general education classroom is based on the needs of each individual student. The amount of time spent in the inclusive classroom can depend on the individual needs of the student, with some students receiving all of their specialized support within the general education class, and others receiving support services outside the general education classroom.
Education researchers have studied a variety of inclusive models of teaching students with disabilities, such as consultation with indirect services and resource room pull-out programs. Co-teaching, an instructional practice in which a general education teacher and special education teacher jointly provide instruction, is another approach to inclusion. Existing research has provided some evidence of the benefits of co-teaching with insufficient detail about the ways in which co-teachers engage in planning, instruction, and reflection.

There is inconclusive information about the social and academic outcomes of students with disabilities who are placed in co-taught elementary school classes (e.g. Affleck, Madge, Adams, & Lowenbraun, 1988; Jenkins, Jewell, Leicester, Jenkins, & Troutner, 1991; Klingner, Vaughn, Hughes, Schumm, & Elbaum, 1998). In addition, very little is known about the types of planning, instructional, and reflective practices that co-teaching teams use. Research describes the instructional methods and strategies that influence positive academic outcomes in students with disabilities in solo-taught classrooms (e.g. peer-assisted learning strategies, strategy instruction, and modeling), but the methods and strategies used in co-teaching are rarely reported. Detailed accounts of the behaviors that co-teachers exhibit during co-planning and co-reflection are necessary to move the field of co-teaching research forward as well as to inform the training of pre-service teachers and ongoing improvements to evaluation of the co-teaching model in schools.
Problem Statement

An important issue in special education research and practice is the cycle of co-teaching. Co-teachers are responsible for students who have unique learning needs. According to a report from the U.S. Department of Education’s National Center for Education Statistics (2013), nearly 95% of students with disabilities were served in regular schools in 2010; segregated schools and classrooms for these students are becoming rare. Researchers acknowledge strengths and limitations of the co-teaching approach (e.g. Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010; Thousand, Villa, & Nevin, 2006), but little is known about the specific instructional practices that teachers take in a co-taught classroom, as well as the types of students who benefit from this practice the most.

Many recommendations have been made about how co-teaching should look. Several researchers (Friend & Cook, 2010; Murawski & Lochner, 2011; Zigmond, 2003) have posited that instruction in a co-taught classroom should not mirror the instruction of a solo-taught classroom; the presence of the special education teacher should be clear. For example, these researchers recommend that both teachers actively engage with the students according to their strengths and training. Activities should be modified to fit students’ social and learning goals. Instruction should not take the *one size fits all* approach of one lesson being taught to the entire class. Rather, both teachers should have uniquely defined roles within the classroom.

There is a variety of co-teaching models to implement (Cook & Friend, 1995; Thousand et al., 2006; Vaughn, Schumm, & Arguelles, 1997; Walther-Thomas,
Korinek, McLaughlin, & Williams, 2000), with each model featuring its own student grouping arrangement and suggested teacher roles. Researchers (Kloo & Zigmond, 2008; Murawski & Lochner, 2011; Volonino & Zigmond, 2007; Weiss, 2004) have observed that special education teachers often assume the role of an assistant and their role in planning, instruction, and assessment is unclear. An assumption is often made that, by placing a special education teacher in the general education classroom, a variety of instructional practices will result and that both teachers will be actively engaged in providing high quality instruction to all students, including students with disabilities. However, instruction in co-taught classes can lack the specific instructional methods and strategies that distinguish special education from general education (Mastropieri et al., 2005).

The instructional approaches used by co-teachers are rarely reported in the research (Murawski & Swanson, 2001; Weiss & Brigham, 2000; Welch et al., 1999) making it difficult to identify successful practices. It is difficult to say whether or not co-teaching is taking place in the reported research due to this lack of specificity about teacher behaviors. Weiss and Brigham (2000) noted several problems within the co-teaching research including the lack of specificity of teacher behavior during the act of co-teaching.

Several findings in co-teaching research are common across studies. In general, teachers appreciate the sharing of skills and ideas in a co-teaching classroom (Kloo & Zigmond, 2008; Salend et al., 1997; Thousand et al., 2006; Walther-Thomas, 1997). Although many studies report that teachers appreciate the shared expertise of
co-teaching partnerships, teachers also express their apprehension about including students with disabilities in their classes due to insufficient co-teaching training opportunities (Buell, Hallam, Gamel-McCormick, & Scheer, 1999; Minke, Bear, Deemer, & Griffin, 1996).

Co-teaching research has also focused on the ways in which co-teaching can eliminate the discontinuity of the resource room model (Bear & Proctor, 1990; Rea, McLaughlin, & Walther-Thomas, 2002). The concern with the resource room model is that it can take time away from instruction in the general education classroom (as students move to and from classrooms). Students who receive instruction in the resource room experience transitions that can disrupt the flow of instruction for all students in the classroom. Students may also be provided with instruction that is different from that provided in the general education classroom (e.g., a different instructional approach for reading). Different instruction can lead to difficulty when connecting both types of instructional programs.

The co-teaching model can benefit students by eliminating the stigmatization that takes place when students with disabilities leave their classroom for additional support (Bear & Proctor, 1990; Rea et al., 2002). Students with and without disabilities are not distinguishable and often unaware of which students have disabilities. By decreasing the student-teacher ratio, co-teachers can focus on making individualized adaptations, building stronger relationships with parents, and holding all students to higher standards as student progress is closely monitored by two

Very few studies of co-teaching have included student-level data that examine the effectiveness of the model. Standardized, norm-referenced achievement test scores have been included in previous research to report students’ academic growth in both literacy and math (e.g., Affleck et al., 1988; Klingner et al., 1998), although these assessments cover a broad range of academic skills. A focus on co-teaching within a specific subject area (e.g., math) across multiple classes can allow instructional practices to be recorded and described in greater detail.

A challenge to the adoption and continued implementation of co-teaching models of inclusive education is the required resources. Co-teaching requires two paid teachers per classroom or lesson, which is more expensive than a solo-taught classroom. An alternative model is the resource room model in which one special education teacher serves students with disabilities from several solo-taught classrooms, thus providing support to more students than in the case of a single co-teaching classroom. This can have several implications including a larger caseload for the special education teacher which can compromise the level of support provided to students with disabilities (Vaughn & Schumm, 1995). The effects of a large caseload and this widespread support of students can mean generalized support.

Co-teaching allows one special education teacher to focus on a small group of students within one class for all or a part of the school day. In the full-time co-teaching model, a classroom of diverse learners is staffed by one special education teacher and
one general education teacher. In the part-time co-teaching model, a special education teacher joins the general education classroom to co-teach for a portion of the day. The delivery of students’ special education services in a general education classroom also provides an opportunity to provide support for students without disabilities.

In sum, the co-teaching service delivery model can offer students with disabilities many benefits, but it is necessary to explore the specific behaviors that co-teachers engage in to determine effective and ineffective co-teaching practices. Understanding how co-teachers plan for instruction, how they execute a lesson, how they distribute their instructional roles, and the factors that they reflect upon after instruction is necessary. Without an understanding of the behaviors that co-teachers engage in before, during, and after instruction, moving the field of co-teaching research forward has been difficult. A more thorough understanding of the behaviors observed and how they connect to practice in co-teaching can provide the field of pre-service teacher education with evidence of successful co-teacher practices in addition to providing information for the professional development of in-service teachers.

Purpose of the Study

The purpose of this study was to describe the planning, instructional, and reflective practices of two co-teaching teams. Qualitative case study methodology (Merriam, 1998) was used to provide rich description of the planning and instructional practices that occur within two co-taught classes. Data obtained from semi-structured interviews, reflection journals, and observations of planning and instructional periods provided a detailed description of co-teachers’ planning and instructional practices. An
understanding of the co-teaching culture of the school in the study was developed by interviewing the school administrator and surveying all co-teaching teams. Two teaching teams were observed during planning and instruction and documents, including reflective journals, were analyzed. The findings describe the behaviors observed and how they connect to practice in co-teaching.

The following section of this chapter includes a description of (a) the rationale for the current study, (b) the needs of students with disabilities, (c) an overview of the historical adoption of co-teaching, and (d) a brief description of theories of teacher efficacy. The research questions and the definition of terms follow.

Rationale

In the early years of special education, the primary role of a special education teacher was to educate students with disabilities in segregated schools and classrooms. With the movement towards inclusive instruction for students with disabilities, the roles and responsibilities of special education teachers have changed (Vannest, Hagan-Burke, Parker, & Soares, 2011). Co-teaching is a distinct model of special education service delivery unlike other models within the continuum of services because it includes two teachers. With the adoption of several federal education policies which encourage inclusive practices (IDEA, 1997; IDEIA, 2004) co-teaching is becoming a more common practice. An examination of the instruction in a co-taught classroom can provide education researchers with information about the structure of co-teaching settings and the effect of instructional decisions on student outcomes. Prior research on the specific models of co-teaching used in co-taught classrooms has provided little
information about the specific instructional practices that take place in these co-taught settings (see a review by Welch, 2000).

The following sections will review the needs of students with disabilities and describe the historical adoption of the co-teaching model. The chapter will close with a brief description of solo-teaching as it relates to co-teaching.

The Needs of Students with Disabilities

Students with a wide range of disabilities are increasingly present in general education classrooms (U.S. Department of Education, National Center for Education Statistics, 2013). The Individuals with Disabilities Education Improvement Act (IDEIA) recognizes 14 different disability classifications, which include autism, deaf-blindness, deafness, developmental delay, emotional disturbance, hearing impairment, intellectual disability, multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment including blindness. High-incidence disabilities, those disabilities that are most frequent and most likely to require special education services to be delivered in a general education school, include speech and language impairment, specific learning disability, other health impairment, emotional disturbance, and intellectual disability. The needs of students that result from their disabilities may require specific instructional approaches and supports for them to be successful socially and academically.

Students with disabilities have varied needs, some of which can be met effectively in an inclusive classroom. The inclusion of students with learning
disabilities and behavior disorders in general education classrooms is a common practice (Walsh, 2012). Vaughn and Schumm (1995), however, argue against the inclusion of some students with disabilities in the general education classroom. They argue that students with disabilities often require individualized curriculum that can be difficult to deliver in a typical general education setting. They stress the importance of considering a multitude of placements for students with disabilities, but acknowledge that the needs of many students with high-incidence disabilities may be met responsibly in inclusive classes.

When students with disabilities are included in general education settings, it is important that their individual needs be met. Haager et al., (1995) found that general education teachers who taught without a co-teacher and were regarded as effective at teaching students with learning and behavior needs rarely planned to meet students’ individual needs. Consideration of individual needs was often done without forethought in the classes observed. In addition, teachers in the study expected students with disabilities to keep pace with their general education peers.

The addition of a special education teacher to the inclusive settings described above can allow for pre-planning to meet students’ individual social and learning needs. Changes to content structure, the pacing, and other considerations can be made when a special education teacher is in the inclusive classroom. However, there can be great variability in the instructional and planning practices in a co-teaching classroom. Understanding the specific content-level and student-level considerations that co-
teachers discuss during planning is something that has not been widely studied in co-teaching research.

The special education teacher in a co-taught classroom can make the necessary instructional modifications and presentation accommodations to meet the needs of the students with disabilities who are included in the class (Friend et al., 2010). The expertise of the special education teacher can also allow for the implementation of specialized instructional practices that differ from the practices of the general education teacher. Co-taught classes have the potential to meet the needs of students with disabilities by providing these supports when co-teachers work collaboratively (Gately & Gately, Jr., 2001). A detailed description of these practices is necessary to make improvements to co-teaching practice.

The following section will discuss the historical adoption of co-teaching. A brief history of several seminal court cases and resultant regulations will be discussed in terms of their influence on today’s practice of co-teaching.

**Historical Adoption of Co-teaching**

Co-teaching is a fairly recent practice in the history of special education. Students with disabilities have not always been educated alongside their peers without disabilities. The current practice of including students with disabilities is the result of decades of court rulings and legal mandates. Prior to these court rulings, many students with disabilities were denied the services that were necessary in meeting their needs. In the 1950s, students in the United States were segregated in schools based on race and disability status. Students with significant disabilities were taught in separate
schools and institutions if they were provided with specialized education at all. In 1954, racial school segregation was ruled unconstitutional (see Brown vs. The Board of Education of Topeka, Kansas, 1954). Yet, segregation of students with disabilities continued into the 1960s. Dunn (1968) questioned if these segregated classes were the most appropriate means for educating students with disabilities. Dunn’s seminal paper was the impetus for special education researchers to begin questioning the value of these segregated classes (Kavale & Forness, 2000).

During the 1970s, students with disabilities continued to be underserved in their schools or denied appropriate services altogether (Martin, Martin, & Terman, 1996; Vaughn & Schumm, 1995). Court rulings in cases including Pennsylvania Association for Retarded Children (PARC) vs. Commonwealth of Pennsylvania (1972) and Mills v. Board of Education (1972) deemed it unconstitutional to deny enrollment to students with disabilities in their neighborhood school districts. Section 504 of the Vocational Rehabilitation Act of 1973 stated that discrimination on the basis of a disability within an organization that received federal funds was prohibited. School districts in receipt of funds were mandated to provide Free Appropriate Public Education (FAPE) to students whose disabilities limited one or more of their major life activities such as, among other life activities, walking, learning, communicating, or concentrating. The supports that students needed were provided by an appropriate service provider within the school.

Initial efforts of mainstreaming placed students with disabilities into general education classrooms, but often without the appropriate supports. Students with
disabilities were physically included in classes with their general education peers, although their academic progress in such classes was often limited. By the mid-1970s, many states had passed laws outlining their responsibility to provide a FAPE to children with disabilities (Martin et al., 1996). In 1975, the United States Congress passed the Education for all Handicapped Children Act (EHA, now the Individuals with Disabilities Education Improvement Act [IDEA], 1990, 1992, 1997, 2004). EHA required that all students receive a FAPE and called for the placement of students with disabilities in classes with peers without disabilities to the maximum extent possible. Soon after, the Regular Education Initiative raised concerns about the progress of students with mild to moderate disabilities (Kavale & Forness, 2000) as they were mainstreamed.

In 1990, the EHA was reauthorized as IDEA. IDEA included requirements for the provision of supplementary aids and services, defined as accommodations and/or modifications made to the curriculum or the manner in which the curriculum was presented to students with disabilities. In 1997, the requirement to provide students with disabilities access to general education curriculum was incorporated into IDEA. At that time, IDEA also required students with disabilities to participate in state and district testing under this reauthorization. The 2001 reauthorization of the Elementary and Secondary Education Act (ESEA) was known as the No Child Left Behind Act (NCLB). Teacher quality and accountability became focal points in education. Focused largely on setting high standards with the goal of improving student performance on high-stakes assessments, NCLB held school districts accountable for
the academic progress of all students, including those students with disabilities. Students with disabilities were expected to have access to general education curriculum and demonstrate the same level of adequate yearly progress as their peers without disabilities, which caused great concern for families and educators.

In 2004, the Individuals with Disabilities Education Improvement Act (IDEIA) placed more accountability at the local level to ensure that schools were providing adequate scientifically-based interventions to students who struggled academically so as to limit the number of special education referrals. Up to 15% of IDEA funds could be used to support schools’ interventions for students not identified with a disability, and special education teachers began to also provide support and instruction to students at risk (who may not be identified with disabilities). Many states adopted the Response to Intervention model (RTI) to identify students with learning disabilities on the basis of poor response to increasingly intensive interventions (e.g., Zirkel & Krohn, 2008). Students are screened, and interventions in small group and individual supports are provided to identify students who are at risk for disability identification. These services were provided by specialists such as literacy or math coaches, special education teachers, or related service providers. RTI led to additional collaboration between general education teachers and specialists. Special education teachers began to work more closely with general education teachers as academic expectations for students with disabilities increased (Friend et al., 2010). It became more important to provide students with disabilities access to the general education curriculum, while planning supports for
them within their general education classroom. Additionally, specialists were able to provide support to all students within the classroom, not just the students with identified disabilities.

Education for students with disabilities has undergone many changes. What was once a focus on the placement of students with disabilities has evolved into a focus on the progress of these students in inclusive settings. The changes in special education from the 1950s to current practices are important to recognize as the changes illustrate the broad scope of issues to be considered. Special education has developed a collaborative nature, leading to co-taught classes across grade levels.

**Summary**

The needs of students with disabilities are varied. The needs of some students with disabilities can be met in an inclusive classroom with appropriate support. LRE is the result of a history of seminal court cases and subsequent regulations. Inclusion resulted from the movement for LRE. Co-teaching is one example of a practice that is used to support inclusion of students with disabilities in general education classrooms. Still a relatively new practice in special education service delivery, co-teaching has yet to be described in terms of the roles that both teachers play in planning, instruction, and reflection. In the following section a brief overview of the existing theoretical models on solo teacher planning, instruction, and reflection will be discussed as they relate to co-teaching. Chapter Two will elaborate on these ideas in greater detail.
The Need for a Theoretical Model for Co-teaching

Co-teaching practice is a distinct model of service delivery, different from other models within the continuum of special education services. Given its distinct identity, co-teaching should be analyzed by education researchers through its own theoretical model. There is currently no theoretical model that illustrates how co-teachers engage in this cycle of planning, instructing, and reflecting. Teaching, a process that is comprised of more than instruction alone, involves a cycle of events that include planning, instruction, and reflection. Much of the current literature on teacher cognition tends to describe planning, instruction, and reflection in isolation rather than as a holistic process or cycle (Hall & Smith, 2006).

Planning and instructional practices between co-teachers should differ from the planning and instructional practice of solo teachers (Friend & Cook, 2010; Murawski & Lochner, 2011; Zigmond, 2003). With the addition of a second teacher, the dynamic between co-teachers influences how they plan and instruct their students. As planning and instructional practice are likely different in a co-taught classroom, observations of co-teaching should take these differences into account.

In sum, special education has evolved through time. From instruction in segregated classrooms to inclusive classrooms and more specifically co-teaching, the educational placement of students with disabilities has changed. There is a need to study the specific planning, instructional, and reflective practices of the teachers of these students in order to enhance the current understanding of co-teaching. The study will describe the planning, instructional, and reflective practices of two co-teaching
teams through qualitative inquiry. This study could inform a theoretical model for the planning, instructional, and reflective practices of co-teaching teams. Additionally, this study could have implications for pre-service and in-service teacher education as well as implications for the implementation of co-teaching.

**Research Questions**

The study is designed to answer the following research questions.

1. What roles do co-teachers play during co-planning and what are the processes that they engage in?
2. What roles do co-teachers play during co-instruction and what are the processes that they engage in?
3. What roles do co-teachers play during co-reflection and what are the processes that they engage in?

**Definition of Terms**

**Case study.** A case study is an in-depth description and analysis of a phenomenon within its natural context. A case can be represented by a single person, a group, or a community (Merriam, 1988).

**Collaboration.** A partnership that includes shared responsibility, resources, and accountability towards mutually established goals (Friend & Cook, 2010)

**Co-instruction.** When two teachers engage in instruction, it is called co-instruction. Co-instruction can include dialogue between co-teachers.

**Co-planning.** Co-planning refers to the process by which co-teachers engage in the preparation of lessons prior to implementation. Teachers identify and prepare
for the relevant learning objectives, learning activities, teaching strategies, and evaluation strategies of the instruction.

Co-teaching. A model of inclusion whereby a general education teacher and a special education teacher teach the general education curriculum to all students while implementing Individualized Education Programs (IEPs) for those students with disabilities. In co-teaching, the teaching partners are jointly responsible for instructional planning, delivery and implementation, assessment, and management (Nevin et al., 2008). In education research co-teaching is also referred to as team teaching, co-instruction, collaborative teaching, and teaming.

Full inclusion. A setting in which all students are educated in a general education setting by a general education teacher and students with disabilities are enrolled in age-appropriate classes for the full school day (Idol, 2006).

Informal co-planning. When co-teachers engage in informal conversations about lesson content, student needs, and teacher roles during classroom instruction, it is an example of informal co-planning.

Instructional practices. Instructional practices include the implementation of teaching strategies/techniques and instructional grouping. Instructional practices also include the ways in which instructional content is delivered to students.

Least restrictive environment. Students with disabilities are educated with children without disabilities to the greatest extent appropriate for the individual student. The removal of students with disabilities from such an environment is done
only when satisfactory education in a general education classroom cannot be achieved (IDEIA, 2004).

Planning practices. Planning practices include the preparation of units, chapter, or individual lessons prior to implementation. Planning can include the identification of learning objectives, the selection of learning activities, as well as outlining of teaching and evaluation strategies. When two teachers engage in planning, it is called co-planning.

Reflective practices. Reflective practices (also called reflection) refer to the analysis and consideration of teaching effectiveness. Reflection can occur during instruction and after instruction (Beamish, Bryer, & Davies, 2006). When two teachers engage in reflection, it is called co-reflection.

Student outcomes. Student outcomes are the academic results that are collected after instruction. Student outcome data can be obtained through formal and informal assessments. Examples of such assessments include exit tickets, quizzes, tests, students’ oral responses to questions, observations of student-to-student and student-to-teacher dialogue, and questions asked by students during instruction.
Chapter 2

REVIEW OF THE LITERATURE

This chapter begins with a brief introduction to the current topics in co-teaching research as well as a discussion of the models of co-teaching. A discussion of the theoretical model guiding the study is followed by the review of the literature on the planning, instructional, and reflective practices of solo-teachers.

Introduction

The adoption of an inclusive approach to teaching students with disabilities has received much attention in educational literature. Currently, there is an emphasis on providing students with disabilities access to the general education curriculum and holding them accountable for demonstrating progress comparable to their peers without disabilities on high-stakes testing (NCLB, 2001). Additionally, there is an emphasis on educating students with disabilities in the least restrictive environment. A student’s least restrictive environment (LRE) refers to a placement in which the student is educated alongside peers without disabilities to the greatest extent possible. Additionally, a student’s LRE provides them the opportunity to access general education curriculum with the supports necessary.

Because of the inclusion of students with disabilities in general education classrooms and the education of these students within the general education curriculum, student support teams (e.g., multi-disciplinary teams, IEP teams) have
identified ways to collaborate in order for their students to demonstrate adequate yearly progress (Friend & Cook, 2010). Schools may enact many models of special education service delivery while education researchers attempt to determine which models produce the most positive results for students with disabilities.

One approach to inclusion is co-teaching. Co-teaching implementation can vary widely across grade levels, schools, and subject areas, often due to the varying schedules of students across grades (Wischnowski, Salmon, & Eaton, 2004). Co-taught elementary classrooms typically feature two full time teachers dedicated to the room for the entire school day (e.g., Bear & Proctor, 1990), although in some models a special education teacher co-teaches within a grade level for a portion of the school day (e.g., Klingner et al., 1998; Self, Benning, Marston, & Magnusson, 1991). In secondary school settings, co-teaching can take place when one teacher works with the general education teacher during select subject periods, such as biology or world history (Murawski, 2006). With such variation in the implementation of co-teaching, it is important that researchers describe the setting in detail.

An issue in co-teaching research is the definition dilemma (Welch, 2000). Special education is a complicated field where teachers play many teaching roles across many settings throughout the day. These teaching roles and settings encompass a wide range of terminologies which are often misapplied to other settings. The terms collaborate, inclusion/inclusive and co-teaching are often used in vague and overlapping ways making the evaluation and generalization of findings difficult in the existing research base. Another aspect of the definition dilemma pertains to the
multitude of ways in which student grouping arrangements are discussed in the existing research. The level of detail provided in co-teaching research as it relates to the specific setting of co-teaching is highly important in order to understand the ways in which students are grouped and the roles the co-teachers assume.

After a brief explanation of the most common definitions for the various models of co-teaching, the theoretical model guiding the study is outlined. The chapter concludes with a review of the research on co-teaching including teacher and family perceptions, student outcomes as a result of the co-teaching model, factors that influence the efficacy of the model, and a discussion of the limitations of the existing research.

**Co-teaching Models**

When two teachers work together in one classroom, there are different roles of each teacher and the students can be grouped in several different ways during co-taught lessons. Cook and Friend (1995) identified five basic models of co-teaching (see Table 2.1).

In general, these are the commonly accepted co-teaching models. Co-teachers take on defined lead and supporting roles in the one teach/one assist model. Parallel teaching, station teaching, alternative teaching, and team teaching make these lead and support roles less obvious by allowing both teachers to be equally engaged in instructional roles.
### Table 2.1

**Co-teaching Models**

<table>
<thead>
<tr>
<th>Model name</th>
<th>Role of Teacher A</th>
<th>Role of Teacher B</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>One teach, one assist</td>
<td>Provide whole-class instruction</td>
<td>Monitor overall student engagement</td>
<td>Teacher B monitors student behavior, participation or provide individual prompts to student to maintain their focus while Teacher A delivers instruction</td>
</tr>
<tr>
<td>Station teaching</td>
<td>Directs one learning station</td>
<td>Directions one learning station</td>
<td>Students rotate through learning stations, sometimes working at a station without teacher support.</td>
</tr>
<tr>
<td>Parallel teaching</td>
<td>Instructs one heterogeneous group</td>
<td>Instructs one heterogeneous group</td>
<td>The class is divided allowing for a lower student-to-teacher ratio. The content being taught is the same in each group.</td>
</tr>
<tr>
<td>Alternative teaching</td>
<td>Delivers instruction to the whole class</td>
<td>Delivers additional support/instruction to a smaller group of learners</td>
<td>Teacher A works with 2 students who are academically struggling/advanced while Teacher B leads the rest of the whole group. Content being taught may differ.</td>
</tr>
<tr>
<td>Team teaching</td>
<td>Simultaneous delivery of instruction, monitoring of student engagement; teachers take turns</td>
<td>Simultaneous delivery of instruction, monitoring of student engagement; teachers take turns</td>
<td>Teachers work together to present content, respond to students, and manage the classroom.</td>
</tr>
</tbody>
</table>
These basic models have been described, and in some cases relabeled, by other education researchers. Some education researchers have noted alternative approaches to the one teach/one assist model (Vaughn, Schumm, & Arguelles, 1997; Walther-Thomas et al., 2000) as well as the parallel teaching model (Thousand et al., 2006). Vaughn and colleagues (1997) describe the same structure of station, parallel, alternative, and team teaching as Cook and Friend (1995), but use different definitions. Vaughn et al., (1997) provide further explication of the one teach/one assist model as the assisting teacher works with individual students, pairs, or small groups as the lead teacher focuses on the larger majority of the class. Walther-Thomas and colleagues (2000) refer to the one teach/one assist model as interactive teaching in which the teachers take turns acting in the lead and support roles over five or ten minute increments.

Furthermore, Thousand and colleagues (2006) have detailed eight variations of the parallel teaching approach, outlining the specific roles that both teachers can assume. These roles range from having each teacher work with a different group of students in a split class design (i.e. two heterogeneous groups of equal size) to having one teacher work with the majority of the class while the other works with a group of students who are advanced or struggling in the supplementary instruction design. Sands, Kozleski, and French (2000) divide the co-teaching models into four categories: tag team, speak and add, speak and chart, and duet. The tag team approach is most like Cook and Friend’s (1995) model of team teaching. The speak and add model and the speak and chart model are similar to one teach/one assist, while the
duet model is most like parallel teaching. Despite the different terms used to describe the models of co-teaching, all of the models describe an active role for each teacher in a co-teaching arrangement.

Although all of these models illustrate the same idea of two teachers taking active roles through a variety of instructional delivery designs, the lack of a common theoretical model and vocabulary makes it difficult to interpret findings in co-teaching research. In addition, the current literature that describes co-teaching in classroom settings does not describe the specific teacher behaviors that are taking place within each co-teaching model. This is problematic when models such as one teach/one assist and parallel teaching can have many variations in practice.

The existing literature that describes the models of co-teaching indicates that deciding teacher roles should be part of the planning process. However, little is detailed about how planning should occur or vary across teachers. Thus, planning in general education and solo teaching models are reviewed. In the following section, a discussion of the theoretical model is explained in terms of how solo teachers engage in the practices of planning, instruction, and reflection. Considerations for how these practices may look in a co-teaching setting are discussed. After describing the theoretical model that grounds this study, a review of the existing research on co-teaching is discussed.
Theoretical Models of Solo Teaching

The theoretical model guiding this study is based upon ideas in the literature about the components of teaching in a solo-taught classroom. The components of teaching include planning, instruction, and reflection (Tyler, 1949). Concepts in this theoretical model have also been drawn from pre-service teacher education literature because that body of literature presents an illustration of what should occur in classrooms during planning, instruction, and reflection. After presenting concepts evident in the literature regarding solo-taught planning, instruction, and reflection, the ways in which the components of teaching for co-taught classrooms may be different is explored.

**Cycle of teaching.** Planning, instruction, and reflection are important behaviors that teachers demonstrate on a regular basis; however, these three components are often studied in isolation rather than as an interconnected cycle of events (Hall & Smith, 2006). As such, the terms planning, instruction, and reflection will be referred to as the cycle of teaching (Tyler, 1949) to indicate the cyclical fashion in which they occur. Figure 2.1 illustrates this cycle.

Tyler (1949) suggests that planning leads directly to instruction, which then leads to reflection and a repetition of the cycle. He suggests that each step of the planning, instruction, and reflection process informs the next. Co-teachers likely engage in the components of planning, instruction, and reflection in different ways than teachers in solo-taught classes due to unique factors that should be considered when two individuals engage in these components as a team. The components of
teaching in co-teaching literature are more commonly known as co-planning, co-instructing/co-teaching and co-assessing/co-reflection (Murawski & Lochner, 2011). Each of these concepts (planning, instruction, and reflection) will be discussed in the sections that follow.

![Cycle of teaching (Tyler, 1949)](image)

**Planning.** The first of the components in the cycle of teaching is planning. Planning for instruction is a complicated process when teachers must consider the yearly curricular goals, semester/term goals, and unit goals. Planning is the most critical step in the cycle of teaching (Noonan, McCormick, & Heck, 2003). Studies of teacher planning have concluded that teachers engage in several types of planning, including yearly planning, term planning, unit planning, weekly planning, and daily
planning (Borko, Livingston, & Shavelson, 1990; Yinger, 1980). Borko et al. (1990) suggest several benefits of teacher planning including a greater level of preparation for instruction and they suggest that planning allows teachers to anticipate problems.

Noonan and colleagues (2003) studied cooperating teachers who were partnered with pre-service teachers and noted that teacher planning activities included framing the purpose of instruction, gathering materials, engaging in the content to understand it well, and considering how to keep students engaged throughout instruction. In addition, planning can include the development of behavioral supports to increase the level of engagement of students who exhibit the need for such support (Yinger, 1980).

Zahorik (1970) published the first empirical study of teacher behavior in relation to planning. He reported that teacher planning actually limited teachers’ sensitivities to students. Six teachers in this study were given a lesson plan for an upcoming lesson on credit cards. They were instructed to add to the plan as needed to best fit the needs of their students. Six other teachers were not provided with a plan; instead they were told to teach a lesson on credit cards without any time for preparation. After analyzing the transcripts of the teacher observations in this study, Zahorik (1970) found that the participants who were supplied with a plan followed it quite rigidly and asked students to expand on their ideas less often than the teachers who were not supplied with a plan. These findings suggest that solo teacher planning may actually decrease the teacher’s ability to engage students in developing their ideas further.
Researchers have made recommendations about what teachers should consider when they plan. Stuart and Rinaldi (2009) recommend that planning include considerations made for grouping students and identifying their individual content needs. Yinger (1980) also suggested that teachers plan for developing routines within the activities that take place in their classes. In their discussion of pre-service teacher education, Hiebert, Morris, Berk, and Jansen (2007) recommend that pre-service teachers engage in identifying clear learning goals during the planning stage. They argue that pre-service teachers should be prepared to examine planning in terms of their desired student outcomes and use specific language of the subject matter to articulate these learning goals.

Several models have emerged from studies of teacher planning and recommendations about teacher planning. This variation in planning models suggests that teachers may not plan in uniform ways. Early theoretical models of teacher planning are linear in their design and focus on teacher behaviors. Tyler (1949) outlined a model of teacher planning which emphasized four steps for effective planning (see Figure 2.2). According to this model, teachers first specify the learning objectives for their students. After doing so, learning activities are selected. These activities are then organized in a way that will permit students to master the learning objectives. Once the activities are chosen and organized, the evaluation procedure is determined. Tyler’s (1949) model of teacher planning has been used to describe many forms of teacher planning, from yearly planning to daily planning (Yinger, 1980).
Tyler suggests that teachers first specify the learning objectives for their students. This is called an objectives-first approach to planning. Others have suggested that teachers do not begin the planning stage by thinking about objectives; they posit that teachers first consider learning activities and the objectives emerge through these objectives (Eisner, 1967). As depicted in Figure 2.3, objectives for learning are actually selected after the activities for learning have been determined. Eisner argues that without prior selection of learning activities, learning objectives cannot be predetermined. He also argues that evaluation procedures take place during the learning activities. As students engage in these activities, they learn about a topic and they master various learning objectives. Eisner’s model includes three of the same teacher planning elements featured in Tyler’s model, but in a different order, suggesting that learning objectives are a final consideration in teacher planning. This is particularly interesting considering that recent curricular material and national standards establish the learning objectives for students.
In her study of teacher planning, McCutcheon (1980) posits that teachers do not plan lessons according to the objectives-first model suggested by Tyler (1949). McCutcheon identifies two forms of planning that teachers engage in: physical planning in a plan book and mental planning. Physical plans include a list of activities, page numbers, and reminders for upcoming lessons. Physical plans in a teacher plan book were equated to a grocery list by one study participant. A focus on short-term planning in the plan book suggests that long-term planning is already established in curricular materials. McCutcheon (1980) found mental planning to be quite common among the teacher participants in this study. Mental planning, particularly for experienced teachers, includes reflecting on the activities that were successful in the past and thinking about upcoming lessons outside of the professional planning period. Mandated curricula often provide the activities and materials for teaching, therefore the reliance on written planning may be lessened (McCutcheon, 1980).
A more recent model of teacher planning is the Flow of the Planning Process Model (Schumm & Vaughn, 1992). This model (see Figure 2.4) identifies the relationship between the planning that goes on before, during, and after instruction (preplanning, interactive planning, and postplanning) with particular attention to factors that influence planning. Unlike previous models that are linear in design and indicate that teacher planning occurs only before instruction (Eisner, 1967; Tyler, 1949), the Flow of Planning Process model considers planning to be an ongoing activity that occurs throughout the processes of instruction and reflection.

Schumm and Vaughn’s model (1992) considers teacher-related factors such as teacher attitudes and beliefs, their knowledge and skills, and their overall confidence and motivation. Schumm and Vaughn (1992) also note several environmental factors
that can influence the planning process, such as issues of accountability and content coverage. These environmental factors often weigh heavily on teachers’ decision-making about planning. This model also considers the student factors that influence teacher planning such as students’ motivation and behavior and students’ interest in the subject matter. Schumm and Vaughn’s (1992) model places greater emphasis on the factors that influence teachers’ planning practices. Planning, or the preparation prior to instruction, is referred to as preplanning. Schumm and Vaughn (1992) posit that decisions about planning do occur during instruction; therefore instruction is referred to as interactive planning. Tyler’s reflection stage is known as postplanning in Schumm and Vaughn’s (1992) model to highlight the follow-up planning that occurs after teaching.

Haager and colleagues (1995) applied the flow of the planning process model (Schumm & Vaughn, 1992) to their study on general education teacher planning for special education students who were integrated into general education content area classes. They found that teachers at the elementary level often considered how to meet individual student needs during pre-planning. Additionally, during the interactive planning stage, teachers checked the on-task behaviors of students with disabilities frequently, but rarely checked for student progress at this stage of the lesson. Postplanning often resulted in teachers considering whole-class performance rather than the individual performance of students with disabilities.

Research on co-planning. Research on planning, such as that described, focuses on solo teachers. The literature on planning in co-teaching models is
somewhat limited. Co-teaching is a relatively new topic in special education research and existing literature has primarily focused on how to make co-teaching work. Little is known about the specific planning practices of co-teachers. Bryant and Land (1998) suggest that co-teachers consider the content goals, the needs of their learners, and how to teach effectively with two teachers. Regular co-planning meetings and shared teaching responsibilities are also recommended. It is possible that co-planning shares many features of solo-planning. For example, it is likely that co-teachers plan daily lessons with unit and yearly goals in mind. It is also likely that they identify learning goals for their students and that co-teachers group their students according to these goals.

Co-planning may differ from the planning in a solo-taught classroom with the presence of two teachers in a co-taught classroom. Perhaps the most obvious difference between solo- and co-planning is the different skills, beliefs, and values they may bring to the co-planning component of teaching. General education teachers tend to be most experienced with the curriculum content (Gately & Gately, Jr., 2001; Murawski & Lochner, 2011). As content experts, general education teachers may suggest the structure of the lesson and the types of activities that would work best with the given content. Special education teachers may have more experience with the process of learning and be more skilled at making the curriculum accessible to students based on strategy instruction, the creation of modified learning goals, and adapting materials as necessary (Murawski & Lochner, 2011). In addition, special
education teachers are responsible for the monitoring of students’ IEP goals. Classroom responsibilities are likely shared between the two teachers (Friend, 2007).

Davis, Dieker, Pearl, and Kirkpatrick (2012) studied the lesson plans of middle school co-teachers in a yearlong professional development course. Participants in their study were provided with a co-planning template that allowed co-teaching teams to indicate the model of co-teaching to be used, the types of academic and behavioral modifications that would be made and the use of technology support. Lesson plans were evaluated \( (n = 155) \) across all content areas. These co-planned lessons showed limited evidence of academic accommodations being made regularly as well as ongoing use of low-tech technology support such as flashcards and highlighters. Surprisingly, 29% of the collected lesson plans did not indicate a model of co-teaching, so teacher roles were unclear in these written plans. Additionally, 83% of the plans had no academic modifications or accommodations. These results raise the question of whether or not the special education teacher was engaged in instructional behaviors during teaching.

With two teachers in the classroom, their behaviors and responsibilities (roles) during instruction need to be outlined during planning (Davis et al., 2012). The consideration of teacher roles in co-teaching extends the ideas of Yinger (1980) and Hiebert et al., (2007). Planning for teaching roles can include several activities. Some of these activities are identifying who is responsible for the specific aspects of content delivery and who will be responsible for monitoring behavior and attention. Other activities include identifying who will provide additional support and the types of
support that will be provided to students. Having two teachers in the classroom can allow for a variety of student grouping arrangements, which can also be considered during co-planning. Grouping arrangements in co-taught classes have been described in detail in the existing literature (e.g., Cook & Friend, 1995; Thousand et al., 2006), and co-teachers often consider their options for student grouping when establishing the activities and learning goals during co-planning. Depending on the grouping arrangement that is selected, it is important that co-teachers discuss time limitations for each activity within the unit or lesson so that all students are prepared for transitions when they occur. In sum, co-planning is a multi-step process that includes discussion of teacher roles and responsibilities, content coverage, and student grouping arrangement. Each teacher in a co-teaching relationship has his or her own unique strengths and can contribute greatly to the co-planning process.

**Instruction.** The second component in the cycle of teaching is instruction. Instructional practices can include content delivery, the specific activities that students engage in to access the content, addressing student questions and providing feedback to students. While instructing solo teachers consider the effectiveness of their instruction by responding to students and making adjustments to their instruction (Yinger, 1980). Borko and colleagues (1990) refer to these adjustments as *interactive decision making*. When teachers make an observation during instruction, one of three decisions can result (Hall & Smith, 2006). Teachers may follow their original plan, make adaptations to the plan based on a contingency plan that had been previously
considered, or make unplanned changes to instruction based on their observations (see Figure 2.5).

![Diagram of decision-making during instruction](image)

**Figure 2.5 Decision-making during instruction (Hall & Smith, 2006)**

During interactive decision making, teachers decide if immediate or delayed action is needed when a particular situation arises. For example, when a student gives an incorrect response to an explicit question, the teacher can determine if this requires immediate or delayed correction or if instruction should move on without correction (Borko et al., 1990). Interactive decision making can lead to making changes to the plan as needed based on student feedback in the form of responses or questions. Hiebert and colleagues (2007) stress the importance of observing what students learn rather than focusing on what the teacher does during teaching. Making adaptations
based on student learning is essential during the instruction component. Teachers of solo-taught classes assume the full responsibility for carrying out the planned lesson while simultaneously adjusting it based upon student needs.

**Research on co-instruction.** Co-teachers monitor the effectiveness of the lesson during teaching, and they can also communicate openly in order to coordinate their actions. Monitoring and communication can ensure that issues of meeting student needs and content coverage do not become obstacles. Co-teachers who are comfortable enough with each other to rephrase their partner’s ideas, repeat important items that may have been unclear, and redirect students who need assistance demonstrate the communication skills needed for successful co-instruction (Kloo & Zigmond, 2008). Gately and Gately, Jr. (2001) describe the development of the co-teaching relationship, noting that it can begin as a guarded relationship that leads to more interactive communication in the compromising stage with the final stage being the collaborating stage in which the teachers have open communication. When studying co-instruction, it is important to understand how the teachers communicate and their teaching experience (both as teachers in a co-teaching model or experience as a team).

Addressing student needs is another aspect of co-instruction that requires coordination. Depending on the grouping arrangement of the students, it is possible that co-teachers can respond to student needs without interrupting the flow of instruction. For example, when teaching the whole class, one co-teacher may notice the confusion of several students. Without stopping the flow of content delivery or the
instructional activity, the co-teacher can intervene to provide immediate clarification. Students can also have behavioral needs, calling for clearly established rules and consistent routines for behavior management during co-instruction (Gately & Gately, Jr., 2001). With two teachers, management of individualized behavior plans can occur more regularly if teachers communicate about this responsibility. The addition of a co-teacher also allows for frequent behavior monitoring of the whole class.

During instruction, co-teachers may have pre-determined roles and responsibilities. Coordinating these teacher roles during co-instruction is necessary to ensure equivalent or appropriate content coverage. Some co-teaching situations allow for different student grouping arrangements (see Table 2.1). Parallel teaching, for example, is a model during which each co-teacher provides instruction to half of the class in a heterogeneous group delivering the content and sequence of activities in the same manner. Co-teachers in this model deliver the same content to their respective groups and provide similar content support during learning activities. In sum, co-instruction requires that co-teachers communicate about their decisions. Co-teachers can then carry out their specified roles and responsibilities so that instruction can be adjusted as needed for all students.

**Reflection.** The third component in the cycle of teaching is reflection. The term *reflection* has a variety of meanings to those individuals involved in education (Hall & Smith, 2006). Most researchers agree that during reflection, teachers examine student learning outcomes and identify whether or not the learning objectives were reached. Teachers also analyze their instruction while considering its effectiveness.
Reflection can happen when teachers review student work samples, make notes to themselves, engage in conversations with colleagues and supervisors, or observe video recorded lessons. Reflection can happen during professional preparation periods or in various off-site locations and can take many forms such as written notes or verbal discussions. The connection between reflection and teaching was first recognized by John Dewey (1933). He noted two particular forms of teacher action: routine and reflective action. Schön (1983, 1987) further elaborated on reflection by distinguishing between reflection-in-action and reflection-on-action. Reflection-in-action is the process of analyzing while teaching; reflection-on-action occurs after teaching is completed. Schön (1983) noted the value of both practices. They allow teachers to consider alternative responses to routinized practices. The idea that reflection can occur during and after instruction challenges the plan-instruct-reflect cycle of teaching proposed by Tyler (1949). According to some scholars, (e.g., Fendler, 2003; Van, 1995) reflection is a cycle in itself that involves identifying a problem situation and then making a plan of change. Once the plan of change is developed, the teacher experiments and reviews the plan, making a new plan of change if necessary.

Although there are varying definitions and descriptions of reflection, many teacher education departments emphasize the importance of developing reflective practices (Fendler, 2003). Several models of reflection have been proposed in the pre-service teacher research (see Etscheidt, Curran, & Sawyer, 2012 for a review). It has been recommended that teachers reflect upon the effects of instruction on student learning and use this information to propose improvements to teaching (Hiebert et al.,
Hall and Smith (2006) note several areas of disconnect between recommended practices and the actual practices of teacher education programs. They note that many teacher education programs encourage students to follow their planned lessons, thus limiting reflection-in-action. Additionally post-lesson reflection is emphasized with feedback about alternatives left for post-instruction. They recommend that supervising observers encourage pre-service teachers to respond to atypical situations that arise, despite the order of events as described in the lesson plan. A greater effort towards reflection-in-action will provide pre-service teachers with the ability to brainstorm alternative solutions to problems that arise when they work as in-service teachers (Hall & Smith, 2006).

Teacher reflection is often studied by analyzing teachers’ written reflections. Marcos, Sanchez, and Tillema (2008) examined what teachers consider in their written reflections, their own judgments of their actions, and how these reflections attempt to explain what happened during instruction. Teachers reflect upon ways in which they can change their instruction in the future, including considering ways in which they can re-teach the concepts at a later time (Tsangaridou & O'Sullivan, 1997).

**Research on co-reflection.** In co-teaching, reflection may differ in several important ways. Both teachers may have different perspectives, values, concerns, problems, and goals (Marcos et al., 2008) which could make reflection a difficult process. Co-teacher reflection can lead to changing the student grouping arrangements, re-evaluating the learning objectives for students or groups of students, or evaluating the instructional roles of the co-teaching team. In addition, these shared
reflections can allow co-teachers to view their teaching from the perspective of someone other than themselves, perhaps leading to new discoveries about their practice (Friend, 2007). Reflecting as a team also provides opportunities for both teachers to acquire new skills for working with students with disabilities (Walther-Thomas, 1997).

In sum, reflection can occur at various times of the day and in various locations. Some teachers engage in reflection as they review student work samples and converse with colleagues, while others may reflect in written form. No matter what mode of reflection teachers engage in, the goal is to analyze one's teaching so that student learning outcomes can be improved.

Understanding the cycle of co-teaching is important due to the different skills and concerns that each teacher brings into the relationship. Although there is existing literature about the cycle of teaching for solo teachers, there is scarce evidence of the cycle of co-teaching. The field of co-teaching research can move forward after identifying the specific planning, instructional, and reflective practices that are connected to positive student outcomes.

In the next section, a review of the current literature in co-teaching outcomes is presented. After describing the search procedure, several benefits of the model will be discussed. Additionally, concerns of families and educators related to co-teaching will be discussed. Studies that focus on student outcomes are reviewed followed by a description of the limitations in the existing research and the implications of the existing findings.
Review of Literature

A review of the literature on co-teaching benefits, concerns, and student outcomes was conducted. The following section describes the method used to search literature and reviews and meta-analyses in the areas of benefits of co-teaching, concerns about co-teaching, students’ academic and non-academic outcomes, and the factors that influence the effectiveness of co-teaching. Results of the search will be discussed in the following section of this chapter with an emphasis on the gaps in the existing literature on co-teaching.

Search Procedure

The literature contained in this review was obtained through a search of multiple databases. The databases selected for this search were Education Resources Information Center (ERIC), Journal Storage (JSTOR), and PsycINFO. This search was performed to locate both qualitative and quantitative studies of co-teaching in elementary-level classrooms. Search terms included co-teaching, collaboration, cooperative teaching, team teaching, inclusion, observation, and outcomes. These terms were combined in various ways to locate literature. There was no limit placed on the years of publication because the co-teaching model is a relatively recent approach to instruction.

A manual search was also conducted of the journals Remedial and Special Education, Teacher Education and Special Education, and Exceptional Children to supplement the results found during the electronic database search. Furthermore, an
ancestral search was performed; the reference lists of articles were reviewed for additional studies.

**Inclusion criteria.** Articles had to meet several criteria to be included in this review of literature. Selected articles had to be published in peer-reviewed journals. Descriptive and experimental studies had to focus on kindergarten to sixth grades. Studies about secondary school students or teachers were excluded from this review, although studies that included both elementary and secondary students and teachers were included to gather as many studies of elementary co-teaching settings and perspectives as possible. Descriptive studies pertaining to family and educator beliefs and perceptions included co-taught settings and inclusive solo-taught settings. Experimental studies were included if they examined either academic or social outcomes of students who were co-taught for any portion of the school day.

**Results of the Literature Review**

Several recurring themes from the literature are explored in the following sections. First, common teacher, family, and researcher perspectives on co-teaching within the literature will be presented. After a discussion of those perspectives, a review of the academic and non-academic outcomes of students in co-taught classes will be presented. The literature review will conclude with a discussion of the factors that contribute to the success, or lack thereof, of co-teaching. The final section of the chapter will close with an overview of suggested future directions for the co-teaching research.
The Benefits of Co-teaching in the Literature

There are several recurring themes about the benefits of co-teaching, such as shared expertise, job satisfaction, the elimination of stigmatization and discontinuity in programming, the decreased student-to-teacher ratio, and positive outcomes for all students. Each of these themes is described in greater detail in the following sections.

Shared expertise. One reported benefit of co-teaching is shared expertise in the classroom. Co-teaching is one instructional practice that can combine the general education teacher’s content area expertise with the specialized skills of a special education teacher. Teachers often express their concerns with including students with disabilities in their classes due to lack of training (Buell et al., 1999; Minke et al., 1996). Buell and colleagues (1999) surveyed teachers and examined the factors that contributed to teachers’ perceived abilities to influence the progress of students with diverse needs in inclusive settings. General education teachers reported that they needed the greatest support adapting the curriculum, managing problematic behavior, and providing individualized support. Special education teachers reported greater confidence in these areas, which suggests that pairing the two may be one means of sharing expertise. The findings from this survey indicate that the addition of a special education teacher to a general education classroom can be one way in which the general education teacher can develop these skills.

Researchers have also reported teachers alternating roles depending on their comfort level with the content or the necessary adaptations (Mastropieri et al., 2005). It has also been suggested that co-teaching allows special educators to teach their
general education partner about instructional modifications and other aspects of special education delivery, while general education teachers can share their content area expertise (Kloo & Zigmond, 2008; Thousand et al., 2006).

**Teacher satisfaction.** Six of the reviewed studies investigated teachers’ satisfaction with the co-teaching approach. Teachers have reported that the education profession can be isolating with limited opportunities for supportive conversations (Salend et al., 1997; Walther-Thomas, 1997). Co-teaching allows for more frequent professional conversations and an imbedded support system. Early studies of co-teaching (referred to as “team teaching” in these early studies) indicated that teachers’ attitudes about their job were more positive in the co-taught classes than in the solo-taught classes (Jackson, 1964; Rhodes, 1971). Although these early studies did not describe student characteristics, they pinpointed one of the positive aspects of co-teaching. Walther-Thomas (1997) found that teachers felt professionally satisfied with co-teaching as a result of their students’ success. Teachers also reported satisfaction with sharing their ideas with a colleague on an ongoing basis through co-teaching. Several co-teaching teams noted that there was increased school wide collaboration as a result of the co-teaching initiative in their schools. In addition, teachers often report satisfaction with their own teaching that results from working intensely with a partner in a co-teaching relationship (Austin, 2001; Welch, 2000). The findings of reported job satisfaction in co-teaching suggest that it is important that the professional relationship of co-teachers be evaluated. Reporting on the specific planning,
instructional, and reflective practices of the co-teaching team could help explain the cycle of co-teaching that leads to teacher satisfaction.

**Decrease the student-teacher ratio.** In three of the reviewed studies, participants acknowledged that co-teaching can decrease the student-teacher ratio. In addition to a lower teacher-to-student ratio, the heterogeneous mix of students suggests that students with disabilities may be held to higher standards (Bear & Proctor, 1990). Some researchers (Nevin et al., 2008; Nilholm & Alm, 2010) have found strong evidence of individualized adaptations and accommodations in observed co-taught lessons and speculated this was due to the teachers’ shared responsibilities. They noted the increased teacher presence in the co-taught classroom and its effect on lessening the wait time for students in need of assistance. Nilholm and Alm (2010) also noted that relationships with parents strengthened when two teachers shared instructional responsibilities; the availability of two teachers allowed for more frequent parent meetings.

In sum, the perceived benefits of co-teaching include shared expertise, teacher satisfaction, and a decreased student-teacher ratio. In the following sections, the concerns of teachers and families are described.

**Concerns of Schools and Families**

Despite the perceived benefits of co-teaching, many families, educators, and researchers have reported concerns about co-teaching. Many general education teachers and administrators have shared concerns about inclusive practices. Principals with less experience with students with disabilities are less likely to support the
inclusion of those students, particularly if the disability is considered more significant (Praisner, 2003). A research synthesis of general education teachers’ perceptions indicated that teachers tend to approve or disapprove of the inclusion of students with disabilities depending on the specific characteristics of the disability (Scruggs & Mastropieri, 1996). Students with emotional disturbance, for example, can have unpredictable reactions to classroom scenarios. They can display aggressive behaviors or persistent anxiety. Teachers and administration may feel that these students are not as easily educated in a general education classroom as a student with a learning disability, for example, who has difficulty understanding and completing assignments and needs support in learning. Additionally, many educators prefer the resource room model over co-teaching because they believe that the only way students with disabilities can learn effectively is to provide special education services outside of their classroom (Idol, 2006).

Teachers report their apprehension with sharing classroom space with another professional in a co-teaching situation (Salend et al., 1997). A general education teacher who becomes a partner in a co-teaching relationship may feel that she is sharing her room with a stranger. The special education co-teacher may feel that he is intruding on someone else’s territory. Ideally co-teachers consider the classroom to be a shared space belonging to both teachers.

Some families are concerned that their child without a disability participates in an inclusion classroom. Families with children without disabilities have reported their concern that their children may not get the challenging curriculum that they deserve
due to the additional monitoring needed for those students with disabilities (Sharpe, York, & Knight, 1994). Families with students without disabilities may be even more apprehensive about their child’s participation in a co-teaching classroom, where the prevalence of students with educational needs is significantly higher than in a traditional classroom. Parents have reported concerns that general education students would lose valuable learning opportunities because of the accommodations for the special education students in a co-taught class (Sharpe et al., 1994).

Families of students in solo-taught inclusive classroom have expressed concerns similar to families of students in co-taught classes. A sample of families surveyed about their attitudes regarding their children without disabilities being taught in inclusive classrooms with students with disabilities showed that 22% of families felt that their child received less attention from their classroom teacher (Peck et al., 2004). Some of those families also recognized that inclusion had many social benefits, while others expressed their dissatisfaction with the behaviors exhibited by the students with disabilities.

The concerns that families, teachers, and administrators may have about co-teaching are likely to influence the observed co-teaching practices. The class composition would likely influence the planning, instructional, and reflective practices of the co-teachers. Being aware of family, teacher, and administrator concerns can help researchers identify how these beliefs shape observable co-teaching practices.

In sum, concerns about co-teaching reported in the literature can depend on the characteristics of the diagnosed disability. Teachers are concerned about sharing
classroom space with colleagues, the availability of shared planning time, administrative support, and adequate professional development related to co-teaching (Walther-Thomas, 1997). Families are concerned that students without disabilities may receive less teacher attention (Peck et al., 2004) or that they may not be appropriately challenged (Sharpe et al., 1994). After a discussion of student outcome studies, factors influencing the co-teaching partnership (e.g. time for co-planning, administrative support, and professional development opportunities) will be discussed.

**Academic Outcomes in Co-taught Classes**

The co-teaching literature has focused on the academic outcomes of students in co-taught settings. Co-teaching has been shown to have generally positive effects on students. In some studies, co-teaching has been a part-time model and in other studies, co-teaching has been a full-time model. Appendix A summarizes the outcome studies reviewed in this chapter.

**Part-time co-teaching models.** As discussed previously, co-teaching can occur in many different settings. In addition, schools may have specific names for their adapted co-teaching practice. Due to a lack of proper pre-service training, not all general education classrooms were ready to teach special education students on a full-time basis when co-teaching practices emerged (Sharpe et al., 1994). Several early models of co-teaching, described below, provided inconclusive evidence of the success of the model.

A school district in Washington worked to integrate elementary-age students with disabilities into their general education classrooms in the 1980s (Affleck et al.,
The model used by this school district was called the Integrated Classroom Model (ICM) and it featured classes of approximately 24 students, one third of whom were students with disabilities. These co-taught classes were taught by teachers who had particular experience with adapting the general education curriculum to the needs of students with disabilities and these teachers were supported by a part-time instructional aide who also served as a co-teacher. Affleck and colleagues (1988) compared the achievement test scores of students with disabilities in the co-taught classes to the scores of students who received their services in the resource room model to find that there were no significant differences in their scores. The researchers noted that these findings indicated that the co-teaching model (ICM) was at least as effective for students as the resource room model.

It has been argued that providing special education services in the resource room setting interrupts the flow of the day for students and can make skills generalization difficult for students to apply to their general education classwork (Adamson, Cox, & Schuller, 1989). A school district in Utah made changes to their resource room programming to include push-in sessions for students with disabilities. In this district, special education service providers assisted with the planning and instructional design for students with disabilities in their general education classes. These consultation/collaboration sessions, known as C-groups, also allowed specialists to model specific interventions. These interventions were designed for students with disabilities and taught to the general education teachers. Over four years, the number of students who were provided special education services in the pull-out resource
room was reduced by 42%, and students with disabilities spent more time in their general education classes. By providing special education services in the general education classroom for part of the school day, students with disabilities were able to generalize new skills to the general education classroom while being fully integrated with their peers without disabilities.

Similar to the Utah consultation/collaboration model, Schulte, Osborne, and McKinney (1990) compared a consultation model that included limited direct services to three other models of support for students with learning disabilities. Students in first through fourth grades were randomly assigned to one of four conditions based on their IEP: consultation with indirect services, consultation with direct services in the general education classroom, resource room for one period daily, or resource room for two periods daily. The consultation model with direct services was most similar to the co-teaching approach as the specialist planned with the general education teacher and provided modified instruction in the general education classroom for two to three periods per week. The students in the consultation with direct services model made greater gains in reading, language, and math than those students who received resource room services daily. This finding suggests that the instructional management between specialists and general education teachers can have positive effects on students with disabilities, although a description of what the collaboration entailed was not provided.

Zigmond and Baker (1990, 1994) described the achievement effects of a co-teaching initiative in one school district known as Mainstream Experiences for
Learning Disabled Students, or Project MELD. Students with learning disabilities made the transition from a pull-out resource room or self-contained model to this part-time inclusion model which featured special education and general education teacher collaboration and co-teaching. Although the results of achievement test scores, curriculum based measurement (CBM) data, and report card grades did not indicate that the MELD model hindered the progress of students; gains were not evident (Zigmond & Baker, 1990). In fact, Zigmond and Baker (1990) reported that the final report card grades of the 13 students in MELD were lower than the grades these students received while receiving resource room or self-contained support during the previous year. A case study of one student from the MELD model (1994) revealed that the achievement outcomes in co-teaching did not lead to better outcomes than in his previous pull-out resource room program.

In the late 1980s, an elementary school district in Minneapolis introduced the Cooperative Teaching Project (Self et al., 1991). This initiative had two purposes. First, the school district wanted to provide special education teachers the opportunity to use their skills with all learners who struggled while training general education teachers with new strategies in the area of reading instruction. Second, the school district wanted to reduce gaps in reading achievement among students with disabilities and their peers without disabilities. Students in first through third grade who scored below the 25th percentile on a district-designed reading measure were placed in the cooperative intervention. Students were then assigned to homogeneous ability groupings within the cooperative intervention. Students were referred to special
education only if they did not show growth after two interventions from the push-in special education teacher who provided interventions to these students in the general education classroom.

General education and special education teachers who participated in the cooperative intervention met twice per month to discuss lesson plans and student progress. Additionally, the principal reviewed their plans. Progress monitoring for reading fluency took place weekly, and the cooperative intervention was administered for 25 minutes per day within the general education classroom. Data were collected for 28 students for three years. Students who participated in the in-class model of service delivery were able to stay in their classroom for the entire school day. Additionally, students in the in-class condition increased their reading fluency on a curriculum-based measurement (CBM) by an average of two words per minute per week compared to their non-co-taught peers. This study was instrumental in highlighting the positive outcomes of an in-class service delivery model, if only for a short class period. The specific details about teacher behaviors as related to planning, instruction, and reflection were not addressed in this research.

The academic effects of a similar model of in-class service delivery were studied by Jenkins and colleagues (1991) in comparison to the effects of pull-out resource room supports in a second school. Students with disabilities received their literacy support in their general education classroom in a part-time in-class service delivery model similar to an alternative teaching co-teaching model. Several achievement tests and curriculum-based measures were evaluated and compared
across the fall and spring of one academic year. There were no significant differences between the outcomes of students in the in-class service model compared to the students in the comparison pull-out resource room model. The details of the in-class model (such as planning practices, instructional practices, and reflection) were not described in the study, making it difficult to identify the particular aspect of the model that could be changed for future studies to demonstrate student progress.

Jenkins and colleagues (1994) later examined this in-class service delivery model in combination with other interventions (peer tutoring and supplementary phonics instruction) using heterogeneous ability grouping for reading instruction. Special education teachers and reading specialists planned with general education teachers and provided intervention in literacy within the general education classroom to those students needing the additional support. They found that students who received reading instruction in the heterogeneous setting with in-class services showed more positive growth in select areas of reading and written expression when compared to peers with disabilities in the control school which used ability-based groups for instruction. In addition, students with disabilities in the in-class service delivery model showed greater annual gains in vocabulary, reading comprehension, and total reading when compared to their peers in the ability-based groups. The authors initially hypothesized that instructing students with disabilities together in ability-based groups for reading instruction would hinder their progress. The results of this year-long study affirmed their hypothesis as the findings favored heterogeneous groupings with push-in specialist support.
Klingner et al., (1998) found co-teaching to have beneficial academic outcomes. A group of 114 students in third through sixth grades, including 25 students with learning disabilities, participated in co-teaching. Four general education teachers participated in co-teaching with the support of two special education teachers who co-taught in these classes for one instructional block daily. Co-teachers participated in a yearlong professional development program geared towards four research-based literacy interventions taking place every nine weeks. Teachers who co-taught also met once a month for two hours to problem solve and share implementation ideas. Students with learning disabilities in co-taught classes made more significant gains than their low- to average-achieving peers in literacy.

In the final study of part-time implementation of co-teaching, special education and general education teachers in one school district in Quebec implemented co-teaching during reading, writing, and math instruction across selected third grade classrooms (Saint-Laurent et al., 1998). The control group classes were general education classrooms that were solo-taught. Students with disabilities in these classes were supported in a resource room model. District achievement exams were administered and analyzed in a pretest-posttest design. Students who participated in the co-taught group made greater academic progress than those in the control group. In particular, writing scores were significantly higher for students in the co-teaching condition than in the control group. However, students with disabilities showed no significant differences in math or reading posttest measures between the experimental and control groups.
In sum, one option for co-teaching is that the special education teacher is present for only part of the school day. Findings from these studies were generally in favor of part-time co-teaching models. The following section describes full-time co-teaching outcome studies.

**Full-time co-teaching models.** Several studies investigated full-time co-teaching models. One of the first full-day co-teaching models to include a special education teacher and a general education teacher was the Team Approach to Mastery (TAM) model introduced in 1975. As TAM was a new instructional model in the school district, general education students were randomly selected to spend one year in a class alongside special education students and a full time special education and general education teacher. Bear and Proctor (1990) conducted a pretest-posttest control group study of third grade students in the TAM model. Students in the TAM classes included students with disabilities and students without disabilities. Students included in the control group were students with disabilities and students without disabilities. The TAM students with disabilities were identified as having either a learning disability or an emotional disturbance. Students without disabilities were randomly placed in the TAM class for a period of one year. The students with disabilities in the control group were educated in the resource room. This group included students with learning disabilities and students with emotional disturbance.

Results from the analysis show that those students with disabilities in the TAM classes made one-year gains on the Comprehensive Tests of Basic Skills (CTBS), a standardized, norm-referenced achievement test. Students with disabilities in TAM
classrooms also outperformed their peers with disabilities who were educated in resource rooms (control condition) on the CTBS. This finding demonstrates that students with disabilities who participated in co-taught classes made more significant gains in reading, math, and total language than their peers with disabilities in the resource room setting.

In the late 1970s to the early 1980s, an inclusive approach called the Adaptive Learning Environments Model (ALEM) was introduced to one school district as a means for including students with disabilities. The ALEM model combined consultation and co-teaching. Special education teachers consulted with general education teachers while also supporting students with disabilities in the general education classroom for the full school day. Students with disabilities who were taught in the ALEM model continued to receive their special education services through the resource room model that was previously the main practice within the district. Wang and Birch (1984) compared achievement test scores of students in both the ALEM and the non-ALEM settings over several years and found that students with disabilities who participated in the ALEM setting made greater gains in reading and comparable gains in math when compared to similar peers with disabilities in the non-ALEM setting. This is significant, particularly because the student-to-teacher ratio in the ALEM setting was higher than the student-to-teacher ratio in the resource room setting.

Record reviews. Existing literature on co-teaching contains a number of studies which used record review methodology. Record reviews have several
advantages including a relatively low cost and they are also less intrusive than other forms of experimental design (Fink, 2008). Record reviews have several limitations including the problem that researchers may be unaware of how the data itself was collected. A post hoc record review calls for the analysis of artifacts that were not collected by the researchers themselves. In addition, researchers conducting record reviews are provided with limited variables to study and the circumstances under which the variables were measured (e.g. achievement scores in math) are often unclear.

Hang and Rabren (2009) conducted a record review study to investigate the effectiveness of co-teaching by analyzing student records in seven schools (four elementary, one middle school, one junior high school, and one high school). The study included 58 students with disabilities. The most common disabilities in the sample were specific learning disabilities and other health impairment. After a yearlong co-teaching initiative and evaluation of Stanford Achievement Test scores before and after co-teaching, no significant academic differences were found between their pre- and post- academic scores after being in the co-teaching class. Students with learning disabilities made significant gains in reading and math as compared to the year before they were co-taught.

In another record review study, Sharpe and colleagues (1994) reviewed academic records of 141 students from one school over three years in an effort to see if an inclusive environment would have negative effects on students without disabilities. Five students with disabilities were included in the inclusive setting in the
second year after being in a self-contained class the year prior; however the disability classifications were not detailed. During Year 1, none of the students in the study participated in inclusion. During Year 2, the school implemented an inclusion program (although details about training, planning, and other features of effective co-teaching were not indicated). Student data were collected over three time points (pre-inclusion, during inclusion, and post-inclusion) using the Science Research Associates (SRA) Assessment Survey, Houghton-Mifflin reading series assessments, report card grades (which were converted to numerical ratings), and behavior ratings (also converted to numerical values). Posttest data indicated that scores of students who participated in inclusion were no different before and after inclusion.

**Case studies.** Existing literature on co-teaching contains a number of studies which used case study methodology. Teachers in co-teaching models can experience confusion about their specific roles if the special education teacher does not assume an equal role to the general education teacher (Hang & Rabren, 2009). With this confusion and lack of equal roles, combined with the individual differences in schools, the effectiveness of teaching teams can vary widely. Looping, the practice of having teachers continue to the next grade with students, may be one way in which co-teachers can spend enough time together to achieve the collaborating component of co-teaching. Having time to learn about each other’s work and communication styles can help teachers move towards open communication and a high level of comfort with each other.
In a case study, the potential positive effects of looping were explored as a way to allow the co-teacher relationship to develop over time and positively influence student outcomes (Nevin et al., 2008). The researchers analyzed state achievement test scores of a class of fourth graders in a co-taught classroom. Within this class, 63% of the students had previously participated in the co-taught third grade classroom, while the remaining 37% of students came from a general education classroom with one teacher. The researchers compared year-to-year test progress between those students who had prior co-teaching experience (those who looped with their co-teachers) and those who did not. The results indicated that nearly all students from the previous co-teaching environment earned scores as high as or higher than students who had not previously participated in co-teaching. The results of this study provide evidence in support of this co-teaching model.

**Summary of the research on full-time co-teaching models.** In sum, full-time co-teaching has been shown to enhance students’ academic outcomes. In several studies, students with disabilities have made more progress in co-taught settings than in their previous resource room settings (Bear & Proctor, 1990; Hang & Rabren, 2009; Wang & Birch, 1984). Academic outcomes of co-teaching have been the focus of much research in special education; however, the research has limitations. The specific behaviors of the co-teachers, such as their planning, instructional, and reflective practices, are not reported. Without understanding the specific behaviors of the co-teachers during the full-day and part-time models described in the literature, it is difficult to identify how co-teaching can be improved.
Non-Academic Outcomes in Co-taught Classes

Co-teaching research has also described the social outcomes of students with disabilities in co-taught classes. Wang and Birch (1984) investigated the academic outcomes (described above) and the social outcomes of elementary school students in a consultation/co-teaching model. These outcomes were compared to the social outcomes of similar students in a pull-out resource room model of special education support. Students in the ALEM classes initiated interactions with their teachers more frequently than their non-ALEM peers and also displayed more frequent on-task behavior and more frequent engagement in instructional activities than their non-ALEM resource room peers. Although this model was a part-time form of co-teaching, it had a positive influence on the students’ social behaviors.

In their case study, Zigmond and Baker (1994) observed and interviewed a student with a learning disability who had previously received special education services via resource room support (academic outcomes described above). When this student, Randy, transitioned into Project MELD a year later he shared his feeling about his inclusion in the new model. Randy preferred receiving help in the MELD classroom rather than in the resource room setting. He also indicated that he felt more inclined to ask the special education teacher in the MELD classroom for support. The findings from this case study, although only revealing the perceived social outcomes for one student, seem to favor the inclusive co-teaching model.

Vaughn, Elbaum, Schumm, and Hughes (1998) evaluated the social outcomes of students in co-taught classes. Three classes used the co-teaching model and four
classes used a resource room (control) for students with disabilities. The research team studied 185 third through sixth grade students from seven classes to determine if students with disabilities will be better accepted and have more friends if placed in a full-time general education classroom. Data sources included peer evaluation, self-reported student data, and teacher reporting which they gathered through student inventories about their friendships and their sense of belonging. All students were surveyed. Questions asked students to mutually select each other as best friends and to select people they would like to play with during free time. However, the authors learned that students in the co-teaching classroom (whether they were diagnosed as learning disabled or low functioning non-identified) made more gains in establishing mutual friendships and had a higher sense of belonging as compared to their peers with learning disabilities in a resource room setting. This study is unique since few research studies have explored the social advantages of a co-taught classroom.

Teachers and families have reported that co-teaching eliminates stigmatization of students with disabilities and discontinuity in students’ educational programming (Adamson et al., 1989; Bear & Proctor, 1990). An advantage to the model is that students receive all instruction within one classroom, eliminating the discontinuity caused by placing students in resource room settings. The arrival and departure of students from the resource room interrupts the flow of instruction for all students (Adamson et al., 1989).

The inclusion of students with disabilities in a co-taught classroom gives them the opportunity to be engaged in the classroom activities for the entire day. Students
with disabilities experience the social benefits of developing close friendships with peers by receiving special education support services in their classroom (Vaughn et al., 1998). The perceived social benefits of co-teaching for students with disabilities deserve further research.

**Summary of the research on nonacademic outcomes.** In sum, co-teaching research indicates positive social outcomes for students in co-taught classrooms. Students in co-taught classes displayed more frequent on-task behavior than their peers in the resource model (Wang & Birch, 1984). Students expressed their preference in receiving support in co-taught classes (Zigmond & Baker, 1994) and they reported a greater feeling of friendship and belonging (Vaughn et al., 1998). Teachers felt that the co-taught model was less stigmatizing for students with disabilities and that it allowed an uninterrupted flow of instruction (Adamson et al., 1989; Bear & Proctor, 1990).

Research has shown that students in co-taught classrooms can experience positive academic and social outcomes as compared to their peers who receive special education services in a resource room. Beyond a student’s placement in a co-taught classroom, there may be other factors that influence these outcomes. These other factors are considered below.

**Issues that Influence the Success of Co-Teaching**

Findings in the co-teaching literature have indicated several factors which can influence the success of co-teaching. Teacher training, voluntary participation in co-teaching, open communication time for co-planning, and a supportive administration
all have a positive influence on co-teaching. Each of these support structures will be explained in the sections that follow.

**The importance of teacher training.** The availability of ongoing teacher training (Magiera & Zigmond, 2005; Walther-Thomas, 1997) is necessary for meaningful co-teaching relationships. Several studies reported that co-teaching teams did not receive adequate professional development opportunities (Magiera & Zigmond, 2005; Nevin et al., 2008; Rea et al., 2002; Walther-Thomas, 1997). Generic staff development programs geared towards solo-taught classrooms are inadequate for teachers in co-taught classes due to the importance of co-planning and co-instructing. According to Idol (2006), staff development, if it includes on-site visits to other schools where co-teaching is taking place, can be equally valuable for co-teaching teams. Klingner and colleagues (1998) found that when co-teachers from various school levels participated in workshops targeting research-based reading interventions and met once a month for problem solving meetings, students with learning disabilities made greater academic gains than they had in previous years. Staff development specific to teachers in co-teaching classes should be provided.

**The influence of voluntary co-teaching partnerships.** Several studies indicate that teachers who volunteer to co-teach demonstrate better communication. This can enhance student relationships in the classroom because teachers who request or volunteer to work together are more likely to get along professionally. Minke and colleagues (1996) surveyed 493 special and general education teachers who taught in general education settings, resource room settings, and a full-day co-teaching model.
Responses received from 320 teachers (a 65% response rate) illustrated that co-teaching and general education teachers valued administrative flexibility and sensitivity when determining co-teaching partners. On several occasions, this relationship was even compared to a marriage in the open-ended teacher responses.

Tobin’s (2005) action research supported positive outcomes due to voluntary relationships. As both a participant and an observer in this role, she co-taught a sixth grade English class which included three students with learning disabilities. However, she used several co-teaching models as their relationship evolved. She and her co-teacher began with the one teach/one assist model. As teacher trust grew they moved towards a model similar to parallel teaching (although it was not explicitly called this in the paper). The author observed that students with learning disabilities experienced less frustration with higher-level tasks with the addition of a co-teacher. When asked about feeling frustrated with work, one student said “they [the teaching team] just come around anyway after about five minutes” (p. 797). Although Tobin’s co-teaching partnership was voluntary, her claims may be somewhat confounded for two reasons. Firstly, member-checking took place with her co-teacher over the four-month study. Secondly, she acted as a participant-researcher, which may have resulted in various biases.

Salend and colleagues (1997) noted additional evidence in support of voluntary selection into a co-teaching situation. Two teachers assigned to a kindergarten classroom had previously worked together and approached their principal about implementing a co-teaching classroom in the school. Over the school year, the
teachers were interviewed and their dialogue journal entries were analyzed. Both teachers cited their concerns (as evidenced in journal excerpts) about this new step in their teaching relationship, but also noted their respect for their individual skills and their ability to confront differences. They felt that they were able to confront differences comfortably, which resulted in a positive sense of community in their classroom. That these teachers had selected each other as partners likely influenced the degree to which they communicated openly with each other.

Nilholm and Alm (2010) studied a co-taught fifth grade classroom in Sweden in which the co-teachers had voluntarily looped with their class. As described above, these teachers worked with one group of students over two or more consecutive years. Data were collected for two school years (fifth to sixth grade) through interviews, classroom observations, and national test results. Observations of the communication between the teachers were deemed positive by the researchers. Student interviews and friendship surveys indicated that children were generally happy and had friends to engage with during breaks. Although the authors attributed the students’ feelings of adequacy to the positive relationship modeled by their teachers, observational data noted that many of the special education students in the classroom were taught individually, so they were not fully included in the daily lessons of the classroom. Children reported feelings of satisfaction which may have been a result of having not experienced other classroom scenarios after being with the same teachers for two or more years. Furthermore, the results of the national test were not discussed in the
paper, thus limiting the knowledge of how this positive teacher relationship can influence academics.

In summary, positive co-teacher interactions can lead to positive student interactions in a co-taught class. Factors such as voluntary decisions to establish co-teaching partnerships and a prior positive relationship between teachers can contribute to positive co-teacher interactions. Additionally, when teachers and students work together for several years at a time, their relationships can grow. These positive relationships can positively influence the way in which students view themselves in a co-taught class.

**Communication.** It is important that co-teaching teams have open communication whereby they can share positive and constructive feedback openly (Noonan et al., 2003). There is evidence that the relationship between teachers influences the choices they make in the classroom (Minke et al., 1996). A high level of trust and respect for a co-teaching partner can give co-teachers more flexibility during instruction. When planned activities need to be changed, teachers who trust one another are more likely to make these changes.

Hang and Rabren (2009) observed and surveyed teachers in seven schools, four of which were elementary schools. The participants were 45 first- to tenth-grade teachers (31 general education teachers and 14 special education teachers). These teachers co-taught up to four subject areas: literacy, math, science, and social studies. The special and general education teachers had conflicting beliefs about their roles and responsibility levels in the classroom, perhaps demonstrating a lack of communication
(Hang & Rabren, 2009). For example, 90% of general education teachers in the study felt that they were primarily responsible for monitoring student behavior, while 93% of the special education teachers felt that they were responsible for monitoring student behavior. Furthermore, general education teachers were less confident in the ability of a co-taught class to meet the needs of a student with a disability.

These studies illustrate the importance of open communication between co-teachers. Discussing roles in instruction, sharing ideas for instructional implementation, and understanding co-teachers’ individual and shared responsibilities are all aspects of open communication that co-teachers should work towards (Noonan et al., 2003).

**The need for co-planning time.** Co-planning time, or shared planning, is necessary to discuss student progress, alternative teaching approaches, and other areas of concern. An early study comparing the length and content of collaborative planning time of teachers in part-time push-in co teaching settings and pull-out resource room settings indicated that teachers who co-taught spent more of their collaborative planning time discussing instructional strategies (Meyers, Gelzheiser, & Yelich, 1991). Teams who worked together in a pull-out resource room model spent the majority of their co-planning time discussing the academic needs and progress of students (Meyers et al., 1991). In addition, the amount of time spent co-planning was higher for teachers who co-taught compared to those who used the pull-out resource room model. Co-teachers in the push-in model noted that their instructional repertoire improved as a result of these co-planning sessions, whereas those in the pull-out
resource room model noted an increased understanding of learning disabilities. These findings may suggest that the quality and content of the co-planning sessions for the push-in teachers had a direct influence on their ability to effectively teach students with disabilities.

Welch (2000) used a pretest-posttest design in which four teachers at two schools in the same district participated in 12 hours of video-based co-teaching training modules. One aspect of this study was planning time. The students of these teachers took a pretest based on a school-wide fluency and comprehension program prior to the implementation of the co-teaching model. Co-teaching took place during one trimester in both schools and teachers kept logs of their planning sessions and the models of co-teaching implemented in the classroom. After evaluating their planning logs, it was noted the teachers at School A spent twice as much uncompensated time as a team at School B who did not engage in uncompensated planning time. Those teachers at School B planned only during their paid planning periods. After a posttest was administered from the same school-wide program, results showed that students at School B made higher percentage gains in their reading skills than students at School A. Co-teachers noted that they needed more planning time outside of their daily preparation period (Welch, 2000). Welch (2000) posits that teachers may have used the additional uncompensated time for discussions unrelated to planning, suggesting the importance of in-school planning time.

Tobin (2005) identified co-planning time as an indicator for positive academic outcomes for students. The teacher-participants in this study felt that they never
reached the highest level of collaboration due to insufficient co-planning time. In another study of several classrooms, one elementary co-teaching team (Mastropieri et al., 2005) noted that their lack of common planning time was not ideal and they often sought out time before and after school to plan together. Walther-Thomas (1997) found that the scheduling of co-planning time was difficult for co-teachers, particularly at the elementary school level. Some special education teachers felt that their large caseloads made it difficult to co-plan with each general education teacher.

Special education teachers who co-taught with multiple elementary school teachers (i.e., a part-time model) during the school day reported needing at least one hour to co-plan with each teacher per week (Walther-Thomas, 1997). There is a need for scheduled co-planning time in co-teaching settings. Special education co-teachers who work with multiple general education classrooms need equal co-planning time with each teacher in order to meet the needs of each student.

**Administrative support.** The importance of administrative support is a recurring theme in co-teaching literature. Without the support and understanding of administration, co-teaching can be a difficult endeavor. Principals who act as advocates for co-teaching generate excitement about the practice (Praisner, 2003; Walther-Thomas, 1997). Their enthusiasm for inclusive practice has been shown to affect the success of the inclusive model (Walther-Thomas, 1997). In fact, teachers who perceive a lack of support for inclusion are less likely to make changes to their practice (Idol, 2006). Several factors can influence principals’ perceptions of inclusive practices such as their own teaching experience and their knowledge of special
education practices (Praisner, 2003). Several noted support structures such as scheduled co-planning sessions, in-service training, and allowances to modify classroom routines for co-teaching (Austin, 2001) require the support of the administration.

**Summary.** Co-teaching requires several support structures in order for it to yield successful student learning outcomes. The studies presented in this literature review indicated that teacher training and professional development can be an important component in successful co-teaching (Idol, 2006; Klingner et al., 1998; Magiera & Zigmond, 2005; Nevin et al., 2008; Rea et al., 2002; Walther-Thomas, 1997). There is increasing evidence that suggests that co-teaching partnerships should be assigned via voluntary selection (Bear & Proctor, 1990; Minke et al., 1996; Salend et al., 1997; Tobin, 2005) and that co-teaching teams should communicate on a regular basis through reflection and co-planning (Hang & Rabren, 2009; Minke et al., 1996; Noonan et al., 2003; Tobin, 2005; Walther-Thomas, 1997; Welch, 2000). Many of these support structures can be supported by administrators (Idol, 2006; Praisner, 2003; Walther-Thomas, 1997).

**Chapter Summary**

The existing co-teaching research has identified benefits for teachers and students. Additionally, research has identified several concerns from families and teachers. Despite these concerns, co-teaching has been shown to have positive outcomes for students with and without disabilities. The sections that follow will
summarize these benefits, concerns, and outcomes. Finally, the limitations of the co-teaching literature will be discussed.

The existing co-teaching research has identified several benefits to teachers. Teachers report that they benefit from the shared expertise that can occur when special education and general education teachers work closely together. Teachers have also reported increased job satisfaction. The isolation of solo-teaching is much less evident when teachers are joined by a co-teacher with whom they can share their ideas and challenges. The flow of instruction is uninterrupted when students can receive their special education services in the classroom (Bear & Proctor, 1990).

There is also evidence of the benefits of co-teaching for students. A lower student-teacher ratio in co-teaching suggests that students can get more support from their teachers than they could in a solo-taught classroom. Students with disabilities in co-teaching settings display more frequent on-task behavior as well as more frequent engagement in instructional activities than their peers in a resource room setting (Wang & Birch, 1984). Students may also prefer to receive help in a co-taught classroom than in a resource room (Zigmond, 2003). There is also evidence that students with disabilities in co-taught classes have a greater sense of belonging and more mutual friendships compared to their peers who are taught in a resource room setting. It has been suggested that students in co-taught classes do not experience the stigmatization of being different in a co-taught classroom (Rea et al., 2002). Rather than leaving the classroom for resource room services, students with disabilities receive their services within the general education co-taught classroom. By belonging
to one classroom for the full school day, scheduling for students in full-time co-
teaching classes is uninterrupted by transitions to other classes (Bear & Proctor, 1990).

Several studies have indicated that schools and families have concerns about co-teaching. Studies that investigated administrator perspectives suggested that their belief in inclusive practices such as co-teaching can depend largely upon their own experiences in special education and their own beliefs about the needs of students with disabilities (Praisner, 2003). For example, principals may feel that students with speech and language impairments can have their needs met in co-taught classes, unlike students with autism who are perceived as needing more support. Administrator support is a key indicator of the success of a co-teaching program; therefore their beliefs about co-teaching are important (Idol, 2006; Praisner, 2003; Walther-Thomas, 1997).

Teachers have expressed their concerns about co-teaching as well. Co-teaching requires a shared physical space or classroom (Cook & Friend, 1995). Many general education teachers are hesitant to share their space with special education teachers, while special education teachers can have hesitations about sharing someone else’s classroom (Gately & Gately, Jr., 2001).

Families of students without disabilities worry that their children will no longer receive attention from their teacher. There is an assumption that teachers will spend more time remediating behavioral problems in co-taught classes that include students with disabilities. Families of students without disabilities also worry that their students will not be appropriately challenged. Although the literature reviewed did not
examine the degree to which teachers engage with students without disabilities, the studies that examined the academic outcomes of these students reported favorable results.

Studies of part-time co-teaching programs are generally favorable. Although students in the ICM model of co-teaching were co-taught by an instructional assistant, they made similar gains to their peers in the resource room setting (Affleck et al., 1988). Students receiving limited daily in-class literacy support from a co-teacher made more significant reading fluency gains than their peers in the resource room (Self et al., 1991). Other part-time co-teaching initiatives produced similar student outcomes as students in co-teaching showed greater gains than their resource room peers in the areas of reading, writing, and language skills (Jenkins et al., 1994; Klingner et al., 1998; Saint-Laurent, et al., 1998).

Studies that examined consultation models combined with part-time in-service models of co-teaching were shown to have inconclusive results. Students made greater gains in reading, math, and language in one consultation/co-teaching model as compared to their resource room peers (Schulte et al., 1990) although these gains were not evident in students who participated in the MELD model (Zigmond & Baker, 1990). When comparing student outcomes in a co-teaching literacy support model to the outcomes of students in a resource room model, no significant differences were observed (Jenkins et al., 1991).

Although several studies reported positive student outcomes in the areas of reading, writing, and language (Jenkins et al., 1994; Nevin et al., 2008; Self et al.,
1991; Wang & Birch, 1984), the reviewed studies did not indicate that a part-time co-teaching model can have a positive influence on students’ mathematics achievement. Mathematics achievement scores for students in one co-taught setting were compared to scores of those students in a resource room setting (Saint-Laurent, et al., 1998). No significant differences were observed between the two groups. Further research in math instruction at the elementary level may be needed because most studies focused on reading and literacy.

Several full-time co-teaching settings were investigated in the reviewed literature. Similar to the results of studies of part-time co-teaching, the studies of full-time co-teaching were inconclusive. Students in TAM (Bear & Proctor, 1990) and ALEM (Wang & Birch, 1984) models outperformed their resource room peers on achievement measures. Students who looped with their teachers in a co-taught classroom outperformed peers who had not participated in a co-teaching model previously (Nevin et al., 2008). In addition, a review of student records before and after co-teaching indicated that students with disabilities made more significant gains in reading and math in a co-teaching setting as compared to when they were in pull-out resource room settings (Hang & Rabren, 2009).

Although most studies indicated that co-teaching had a greater positive effect on student outcomes, two studies of the full-time co-teaching model produced contrary evidence. A record review of students’ achievement scores, curriculum-based tests, and report card grades indicated that students who participated in a co-teaching model (paraprofessional as co-teacher) scored no differently in co-teaching than they had in
their previous solo-taught classroom without a paraprofessional (Sharpe et al., 1994). Furthermore, achievement tests scores were compared before and after a co-teaching initiative and showed no significant academic differences (Hang & Rabren, 2009). A discussion of the limitations in the reviewed literature is presented below.

**Limitations in Co-Teaching Literature**

The literature on co-teaching research poses several methodological and conceptual issues. Much of the co-teaching research has a quasi-experimental design. Because it is not always feasible to randomly assign students to treatment and control conditions, researchers who investigate co-teaching often rely on pre-existing instructional models in schools. This reliance on pre-existing instructional models is particularly relevant when participants are students with disabilities. The educational placement of students with disabilities is determined by the characteristics of their disability, their present levels of performance, and the recommendation of the student’s IEP team. Student placement is recorded in the student’s IEP and is determined in team meetings and with the consent of family members. The teaching practices often cannot be manipulated by researchers, and insufficient sample sizes and short experimental periods make it difficult to make generalizations about the findings.

Because of the logistical issues with assigning students to control and treatment conditions, it can be difficult to make a causal connection in co-teaching research. It can be difficult to get a matched control group because of the processes by
which students are placed into classes, and longitudinal studies can be problematic due to student and teacher attrition.

Case study design is applied to many studies of co-teaching. Although case studies provide a detailed description of a particular context, their findings are not generalizable because of the specificity of their context. Factors such as teacher quality, teacher preparedness and administrative support are crucial in identifying the efficacy of the co-teaching practice. Kennedy (2010) argues that education researchers should describe the situational characteristics which teachers face, noting that these have a great influence on teacher quality. She argues that too often education researchers focus on the teacher characteristics (training, beliefs, etc.), leaving out situational characteristics such as their teaching schedule, professional obligations, and available resources. In addition, self-reported data unsupported by researcher observations cause one to question the reliability of the findings, as in the case of many qualitative survey studies. Research that includes a balance of self-reported data and researcher observations can serve to triangulate the findings and make conclusions and recommendations.

More information is needed on the specific student characteristics in co-teaching research. Although two students may display characteristics of a disability in different ways, reporting the diagnosed disabilities within the participant samples is one way to help teachers match specific co-teaching concepts to specific student needs. For example, it is possible that students with emotional disturbance may show appropriate on-task behavior during parallel teaching due to a lower student-teacher
ratio. Students with learning disabilities who are reading at a grade level significantly lower than their peers may experience more success and on-task behavior in an alternative teaching configuration. In addition to reporting students’ disabilities in research, the inclusion of relevant information about how particular students learn as reported by teachers and families may be helpful. For example, a parent or teacher may share that her student is best able to focus when seated away from other students. The inclusion of information about a student’s academic and social goals is also useful in connecting observed teacher behaviors to student responses. Future research in co-teaching should explain these student characteristics in addition to the grouping configurations being used in the classroom, for example, in order to make these connections clearer to researchers, educators, professional development programs, and pre-service education departments.

The influence of co-teaching on students’ academic and nonacademic outcomes has been inconclusive. There are many students in schools, with and without disabilities, who need to improve their academic and social skills. More information is needed to explain how co-teaching can be done in ways that improve these academic and nonacademic outcomes. Research is needed that focuses on how co-teaching can be improved as an instructional delivery model to benefit all students. Some of the existing co-teaching research describes the student grouping arrangements used in co-taught classes without identifying the specific teacher roles in these groups. Knowing what teachers are doing during co-teaching and how they engage with each other and
their students can illuminate the areas of co-teaching that need to be refined and the factors associated with success.

More information is needed about how co-teaching works, especially as it relates to the cycle of teaching. Most teachers in co-teaching settings receive little support or guidance on how to work together. Co-teachers also have very little time to co-plan. In order to make the co-teaching practice better, it is important to identify the specific co-planning practices of those teachers who are recognized as effective. Understanding how long they plan together, how much time they need for co-planning, the aspects of their classroom that they consider when planning, and the ways in which they use their co-planning time could provide evidence for effective co-planning practices. In addition, describing the behaviors that these co-teachers engage in and the aspects of teaching and learning that they reflect upon would provide evidence for pre-service teacher education programs as well as in-service professional development.

**Unanswered Questions**

Future research is needed to focus on the precise planning and instructional practices that can support student learning in a co-taught classroom. There is inconclusive evidence of the success of co-teaching with regard to student outcomes. A theoretical model for evaluating co-teaching to include the co-planning aspect that occurs prior to co-instruction is critical. The characteristics of students in co-taught classes are not something that can be controlled by researchers; however, researchers can use information about co-planning to gauge the teacher characteristics that have
the most positive student influences. The existing co-teaching research does not
describe the behaviors that co-teachers engage in during the cycle of co-teaching;
therefore it is difficult to make connections between teacher behavior and student
outcomes. Until research indicates what co-teachers consider during planning,
instruction, and reflection, it is difficult to make improvements to co-teaching practice.

In addition, although arguments for and against inclusion have been raised
(Vaughn & Schumm, 1995), it is important that researchers work to determine for
whom co-teaching produces positive outcomes. Although each student’s placement
should be considered individually as per IDEA requirements, it is possible that some
tentative generalizations can be made about the characteristics of students who can
benefit from instruction in the co-teaching model with regard to age, disability
classification, and other factors. Researchers need to work towards developing a
theoretical model for the cycle of co-teaching. In doing so, the specific behaviors of
the cycle can be improved in both professional development and pre-service teacher
education programs.
Chapter 3

METHOD

The purpose of this study is to describe the planning, instructional, and reflective practices of two co-teaching teams. This study is designed to answer three research questions. (1) What roles do co-teachers play during co-planning and what are the processes that they engage in? (2) What roles do co-teachers play during co-instruction and what are the processes that they engage in? (3) What roles do co-teachers play during co-reflection and what are the processes that they engage in? In this chapter, the methodology of the study will be described beginning with a rationale for the case study approach. A description of the data collection method including the context of the study, participant data, data sources, and data collection procedures will follow. Data analysis procedures then will be described. Issues of trustworthiness and anticipated results will be discussed, followed by limitations of the study.

Research design. The research questions for the current study were addressed using qualitative research methodology. Qualitative research is largely inductive, allowing the researcher to study a particular context or a particular group of people to develop a theory about the phenomenon under study (Merriam, 1998). The nature of qualitative methodology is not to demonstrate causality or explain whether or not a particular approach works (McDuffie & Scruggs, 2008), rather the methodology is suited to provide a rich description of how a particular phenomenon works and how
those involved navigate their way through this phenomenon. The qualitative tradition is most appropriate to the research questions in this study as it seeks to identify and describe the patterns of behavior that take place within the organization of co-teaching. In the spirit of qualitative inquiry, the natural environment of these two co-taught classes was observed with minimal disruption beyond the researcher’s presence in the classroom (Merriam, 1998).

The study employed a qualitative multiple-case study design (Merriam, 1988). A multiple-case study design can provide the level of deep description of co-teacher communication that is scarcely present in the existing co-teaching literature. The multiple-case study design (Merriam, 1988) can provide a rich description of the exchanges between co-teachers to understand how they align with existing theoretical models of how planning, instruction, and reflection are carried out in solo-taught classes.

The decision to include two teams of co-teachers in this design was made to describe similar and different teacher practices and allows for additional evidence of the cycle of co-teaching. By analyzing evidence of co-teaching practices from two co-taught classrooms, there was the possibility that similar teacher behaviors would be observed across classes. Additionally, the multiple-case study design allows for cross-case analysis. These observed practices can have implications for understanding how the cycle of co-teaching may occur among co-teachers.

Quality indicators for qualitative inquiry in special education (Brantlinger et al., 2005) were considered in the design of this research. The integrity of a qualitative
study depends on the degree to which the researcher is able to ensure credibility, dependability, and transferability (Merriam, 1998). The current study has procedures for including the quality indicators for special education qualitative research.

The following section describes the participants of the current study. The school, its model of co-teaching, and the criteria for teacher selection will also be discussed.

**Participants**

**Recruitment.** A criterion sampling procedure (Merriam, 1988) was used to select the co-teacher participants for this study. Co-teacher participants in the study included teams of teachers who co-taught daily. Certification in special education or elementary education was a requirement for co-teaching participants. Other teachers who co-taught (e.g., grade level partners, reading specialists, etc.) were not considered for this study. Due to the limited number of co-teachers in most schools, a criterion for teacher experience was not set.

Teachers were introduced to this study in a brief introductory meeting held at the school in late September. During this meeting, the teachers were presented with an outline of the study including the research questions and a timeline of the study. At the close of the meeting, teachers were given an opportunity to ask questions. Teachers were instructed to indicate voluntary participation to their principal. Within one week, four teachers from two pre-existing co-teaching teams indicated their willingness to participate in the study.
**Setting and context**. Sayworth Elementary School (called Sayworth from this point forward) is a public elementary school (kindergarten through fifth grade) in the mid-Atlantic region of the United States. Co-teaching occurs across grades and each special education teacher’s time is shared between several general education classrooms. In total, there are four special education teachers. Each special education teacher is responsible for providing services to students in a number of classrooms and in some instances several grade levels. General education teachers in third through fifth grades teach either math/science or literacy/social studies. More specifically, several third grade teachers teach math and science to their homerooms in the morning. In the afternoon, their students receive literacy and social studies instruction from another third grade teacher. This approach to subject specificity is new to Sayworth. The school principal chose to implement this method to allow teachers to focus more on a specific content area. His hope is to also develop subject-specific special education teachers when resources permit.

Sayworth is part of a small school district which includes one high school (serving grades 9-12), three middle schools (serving grades 6-8), eight elementary schools (serving grades K-5), and two special education schools. According to the state’s Department of Education, the school district enrolled 9,976 students in 2013-2014. Of that enrollment, 876 students were enrolled in Sayworth. According to the

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1 All names (school, principal, and teachers) are pseudonyms to ensure confidentiality.
school profile, enrollment in the school district and Sayworth is both racially and economically diverse (see Table 3.1).

Table 3.1

*Student Characteristics in School District and Sayworth*

<table>
<thead>
<tr>
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<th>School District</th>
<th>Sayworth</th>
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<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>43.8%</td>
<td>43.9%</td>
</tr>
<tr>
<td>American Indian</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Asian</td>
<td>2.9%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>0.1%</td>
<td>0%</td>
</tr>
<tr>
<td>Hawaiian/Latino</td>
<td>19.7%</td>
<td>8.1%</td>
</tr>
<tr>
<td>White</td>
<td>31.4%</td>
<td>38.5%</td>
</tr>
<tr>
<td>Multi-racial</td>
<td>2.0%</td>
<td>5.1%</td>
</tr>
<tr>
<td><strong>Other Student Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Language Learner</td>
<td>8.8%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Low Income(^1)</td>
<td>68.9%</td>
<td>57.0%</td>
</tr>
<tr>
<td>Special Education</td>
<td>12.4%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

Information gathered from an interview with the school principal (see Appendix B) and an online survey that was distributed to all co-teachers at Sayworth

\(^1\) Low income is determined by students’ free and reduced meal status.
(see Appendix C) provided a context for co-teaching within the school. The following sections provide additional information about the school principal, the teacher participants, the students, and the curriculum being implemented during this study.

**Principal.** Sayworth’s principal is Dr. Don Green. Dr. Green has experience in the field of education as a teacher in both parochial and public schools. He spent the majority of his teaching career as a sixth grade general education teacher. He holds a Bachelor’s degree in Political science, a Master’s degree in Elementary Education, and a Doctorate in Educational Leadership. Dr. Green’s experience in special education includes teaching science and social studies to small groups of students with disabilities as part of an inclusion approach earlier in his teaching career when he served as a general education teacher. He has also taken several graduate special education courses.

Dr. Green is serving his second year as principal of Sayworth. His transition into the position of principal was brought on by several concerns from district administrators. One concern was the previous imbalanced special education support provided in only three of the school’s six grade levels. The school’s three special education teachers worked for the full school day with a single general education teacher. In turn, students across the other three grades did not receive special education support. Since Dr. Green has become the principal, the school acquired an additional special education teacher. He implemented a co-teaching model in which special education teachers deliver special education services to students in all grades.
Dr. Green described the current school year as a year of transition. Several teachers are accustomed to having a special education teacher in their class for the full day, as in previous years under former school leadership. Other teachers are not accustomed to sharing a classroom with another teacher for portions of the school day. Some teachers expressed concern about having the responsibility of educating students with special needs in their classes with part-time special education teacher support.

**Teachers.** The participants are four teachers who co-teach math every afternoon (see Table 3.2). The first team includes Tara Yates, general education teacher (GE), and Jill Smith, special education teacher (SE). Tara has been teaching for 13 years as a general education teacher and she never co-taught before this school year. Prior to teaching, Tara had a career in research and development for nearly 20 years. Tara feels that she is fairly strict with her students and has extensive knowledge of the third grade math curriculum.

Jill is a first-year special education teacher (SE) with previous experience in co-teaching as part of her student teaching field placement. She holds a Bachelor’s degree in Elementary and Special Education. Jill spends her entire school day supporting students with disabilities in third grade. She works in Tara’s homeroom in the afternoon and spends her mornings with a literacy teacher who is also new to the school. As a new teacher, Jill participates in the mentor program. Tara serves as Jill’s general education teacher mentor at Sayworth.
Table 3.2

**Co-teacher Participant Demographics**

<table>
<thead>
<tr>
<th>Team</th>
<th>Participant</th>
<th>General Education or Special Education</th>
<th>Highest Level of Education Completed</th>
<th>Total Years of Experience</th>
<th>Years of Co-teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tara Yates</td>
<td>GE</td>
<td>Master’s degree</td>
<td>13 years</td>
<td>&lt;1 year</td>
</tr>
<tr>
<td></td>
<td>Jill Smith</td>
<td>SE</td>
<td>Bachelor’s degree</td>
<td>&lt;1 year</td>
<td>&lt;1 year</td>
</tr>
<tr>
<td>2</td>
<td>Steve Daly</td>
<td>GE</td>
<td>Bachelor’s degree</td>
<td>7 years</td>
<td>&lt;1 year</td>
</tr>
<tr>
<td></td>
<td>Kim Rogers</td>
<td>SE</td>
<td>Bachelor’s degree</td>
<td>1 ½ years</td>
<td>1 ½ years</td>
</tr>
</tbody>
</table>

*Note:* GE= General education teacher; SE= Special education teacher

The second team includes Steve Daly and Kim Rogers. Steve is a third grade general education teacher (GE) and he has been teaching for seven years at Sayworth. He holds a Bachelor’s degree in Elementary Education and is pursuing a Master’s degree in Instructional Technology. This year is Steve’s first experience in the co-teaching model.

Kim is the special education co-teacher (SE) who works with Steve. Kim has taught for a year and a half in a full-day co-teaching class in another state where she served as the general education teacher. This year is her first experience as a special education teacher. Kim holds a Bachelor’s degree in Elementary and Special Education. Kim spends her morning supporting fifth grade students with disabilities in
their math and literacy classes. Because this particular co-teaching arrangement was new to all study participants, Dr. Green could not evaluate the teachers’ effectiveness as co-teaching teams when asked at the beginning of the study.

**Students.** There are approximately 22 students in both third grade math classes. The principal and teachers noted that the students at Sayworth frequently relocate to other areas with their families; therefore student enrollment fluctuated throughout the study. Throughout the observation period, there were between 19 and 22 students present in the classroom.

The class taught by Tara (GE) and Jill (SE) contained three students with identified special education needs. Jill reported that two of her students were diagnosed with an autism spectrum disorder. Self-regulation and social skills were common IEP goals for these two students, as they can complete the grade-level math work with accuracy with sufficient prompting and support. A third male student was diagnosed with a learning disability and his IEP goals pertained to overall comprehension of written material and self-regulation.

The class taught by Steve (GE) and Kim (SE) contained four students with identified special education needs. Although the four students were diagnosed with learning disabilities, their academic performance varied greatly. Two students required special education support for 40-79% of the school day and they demonstrated difficulty completing grade-level math work. The other two students identified with learning disabilities had been making progress on the grade-level curriculum and the
support they required was less extensive. All students had IEP goals linked to mathematics computation and problem solving.

**Math instruction.** The participants in this study co-taught on a daily basis during their afternoon math block. The curriculum implemented in the two co-taught classes was the *Investigations in Number, Data, and Space* curriculum (TERC, 2008), called *Investigations* from this point forward. The *Investigations* curriculum features resources including transparencies, software, interactive whiteboard activities, a differentiation and intervention handbook, a student activity book, a student math handbook, and an extensive manipulatives kit. The *Investigations* curriculum also contains letters to families outlining the upcoming activities and learning goals within each new unit.

The third grade curriculum is comprised of nine units. Sayworth teachers have created a pacing guide that allows for full coverage of the curriculum by the end of the school year. Each unit contains several investigations or related mathematical concepts. Each investigation is comprised of several hour-long lessons. Each lesson features activities, whole class discussion, and workshop opportunities to be completed in groups, pairs or individually. Assessment and homework are also included in each investigation.

Throughout the observation period at Sayworth, Unit Three: Collections and Travel Stories was the main academic focus in math. This unit included concepts such as place value to thousands, addition and subtraction strategies, and word problem solving. The teacher’s guide features several activities for student learning with
recommendations as to whether the activities are best designed for whole group, partner, or individual work. Suggested teacher dialogue can be seen in blue font throughout the guide. There is also an online teacher resource site available where teachers can select additional activities for their students. Student curriculum materials include a hardcover math guide and a softcover math workbook. The hardcover guide is used as a reference on rare occasion; the softcover student math workbook is a more commonly used resource in this study.

Tara (GE) and Jill (SE) implemented other activities outside of the curriculum during daily math lessons. Two of these activities included a daily word problem, known as the Problem of the Day (POD) and a four-question daily math review known as Math 4 Today. Tara and Jill indicated that these activities supplemented the Investigations curriculum by giving students access to concepts on state and district-wide exams. They also indicated that these activities bridged some curricular gaps between the Investigations curriculum and the CCSS.

Steve (GE) and Kim (SE) also supplemented the materials provided in the Investigations curriculum. Kim conducted differentiated small-group instruction for students with identified special education needs. She used a variety of commercially-produced and teacher-created materials for these small-group lessons, sometimes including students without identified special education needs. Additionally, Steve and Kim’s students used a variety of adaptive learning programs which were accessed on classroom laptop computers. These programs tracked student progress and allowed the teachers to supplement the core instruction to better align with the CCSS.
Data Sources and Data Collection Procedures

The following sections will describe the specific data sources that were used in this study and the procedures for collecting each data source. Data collected in this study included responses from a brief online survey, a principal interview, teacher interviews, field notes, analysis of co-planning documents, observation of co-instruction, and teachers’ reflective journals. Multiple data sources are necessary for triangulation of the data to gain a deep understanding of the co-teaching cycle (Merriam, 1998). By comparing data collected during teacher interviews to other data sources, triangulation of the data was possible. A timeline of the data collection for this study can be found in Appendix D.

Research question-data source alignment. This section summarizes how the data collected was appropriate to the research questions by listing each question and then describing the data sources aligned to the question (see Table 3.3). Each data source will be discussed in greater detail in the subsequent sections. Appendix E contains several tables which illustrate the alignment between interview questions and research questions for this study.

Principal interview. The school’s principal was interviewed to provide context about co-teaching as it occurs in the school (see Appendix B). The purpose of the interview was to gain a deeper understanding of how co-teaching occurs at Sayworth. This interview was conducted after school in early October and lasted approximately 37 minutes. Questions about his experience in education, the history of co-teaching at the school, and the training and evaluation of co-teachers were asked.

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He reviewed the interview transcript when it was completed and requested that a portion of the interview be deleted as it contained sensitive information about the teacher participants.

Table 3.3

*Research question-data source alignment*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1: What roles do co-teachers play during co-planning and what are the processes that they engage in?</td>
<td>Teacher interviews, Co-planning documents, Field notes, Ongoing meetings with co-teaching teams</td>
</tr>
<tr>
<td>RQ2: What roles do co-teachers play during co-instruction and what are the processes that they engage in?</td>
<td>Teacher interviews, Observations and recordings of co-instruction, Field notes, Ongoing meetings with co-teaching teams</td>
</tr>
<tr>
<td>RQ3: What roles do co-teachers play during co-reflection and what are the processes that they engage in?</td>
<td>Teacher interviews, Field notes, Review of reflective journals, Ongoing meetings with co-teaching teams</td>
</tr>
</tbody>
</table>

**Co-teaching survey.** The purpose of the survey (see Appendix C) was to gather information about co-teaching practices throughout the school. Additionally, the survey was designed to obtain information about the certification status of the co-teachers in the school and their experience in teaching and co-teaching. Additionally, the survey included items that asked co-teachers to describe the types of supports that
are in place. Co-teachers were also asked to describe their own planning, instruction, and reflection practices.

The survey was sent electronically to 14 teachers; ten of these teachers were general education teachers who co-taught with a special education co-teacher and the remaining four teachers were the special education teachers. An initial email with an embedded link to the survey was sent to teachers in late September. Because of a low response rate, follow-up emails were sent to teachers again in early October and January as data collection was completed in the school.

The survey was completed individually. Seven teachers responded to the online survey (50%). Of those seven respondents, three were co-teaching participants in the current study. Because the data captured in the online survey was also captured in interviews with the participants, only the information provided by the three non-participants is reported. The inclusion of these responses is important as they come from teachers who have been at Sayworth throughout the co-teaching transition.

**Teacher interviews.** The selected co-teaching teams participated in two semi-structured interviews prior to classroom observations. The first interview was an individual interview (see Appendix F). The purpose of the individual interview was to develop a rapport so that the teachers would feel comfortable participating in classroom observations throughout the study. Additionally, the interview questions were designed to assist in learning more about each co-teacher’s background and experiences.
The individual interviews were scheduled with teachers before or after school in mid-October. The individual interview was completed in 15-37 minutes per participant. The interviews were audio-recorded, and a full transcript was shared with each participant after their interview.

Because the teachers work as teams, a second interview was conducted with each co-teaching team (see Appendix G). One purpose of the team interviews was to provide a context for co-teaching as it works in their classes as well as to explore the dynamic between the co-teachers of each co-teaching team. The second purpose of the team interview was to confirm data gathered during the individual interviews.

**Classroom observations and document collection.** The purpose of the classroom observations was to describe what occurs when co-teachers plan, instruct, and reflect as partners. All observations were audio recorded and transcribed. Teachers were invited to review all completed transcripts. In addition, various documents were collected throughout the study to provide evidence of co-planning and co-reflection. The following sections provide more detail on the significance of the data gathered during co-planning, co-instruction, and co-reflection.

**Co-planning observations.** All four teachers noted that common planning time was provided to the third grade math team every Thursday at noon. Because the weekly planning sessions were for the entire third grade math department, it was agreed that these weekly co-planning sessions would be recorded and transcribed, omitting the input from non-participants present at these sessions. Additionally, Dr. Green had offered paid planning time for co-teaching teams outside of normal school
When asked if the participating teachers would take advantage of this, they all indicated that they would.

The purpose of observing the co-planning sessions was to describe the types of behaviors that teachers engage in while co-planning. It was anticipated that these co-planning sessions would be observed, audio-recorded, and transcribed; however, after arriving to the school at noon on several Thursdays for the third grade math co-planning time, it was evident that the teachers had other tasks to attend to. This common planning period was often used for other school-related activities such as IEP meetings or catching up on assessment-related paperwork. A reliance on shared planning documents as evidence of the co-planning process became necessary.

**Co-planning documents.** Co-planning documents, such as written lesson plans, were requested from co-teaching teams throughout the entire observation period. The purpose of these documents was to triangulate data obtained through teacher interviews and observations. In addition, these documents provided evidence of co-planning outside of observation.

**Co-instruction observations.** The purpose of observing co-instruction was to describe the processes that teachers engage in while co-instructing. Classroom observations took place during the second marking period beginning on October 28 and ending on January 10. During this span of 11 weeks, co-teachers were observed for periods of 16-90 minutes. The length of the observation period varied from the actual allotted time for math instruction due to the simultaneous scheduling of co-teaching between the two classes and other schedule interruptions. For example, Jill
(SE) and Tara (GE) taught math together from 1:15 to 3:00 pm daily, while Kim (SE) and Steve (GE) taught math together from 2:00 to 3:00 pm daily. Because of this, most observations began in Tara and Jill’s classroom. Due to the concurrent math co-teaching taking place in both classes, I often had to leave Tara’s class before the lesson ended in order to capture co-teaching in Steve’s room. In order to randomize the observations, several math sessions were spent solely with Tara and Jill, while several others were spent solely with Steve and Kim. This allowed multiple observations of the full math lesson from beginning to end. Multiple observations allowed for the most realistic observations of co-teaching, as the two teams were never guaranteed an observation at a particular time. The observation schedule was not so regular that they had come to expect an observation every day at the same time.

I made sure to be a consistent, but unobtrusive, presence in the classroom each day throughout the study (Merriam, 1998). On several occasions (particularly as family-teacher conference week and holiday assemblies took place) the observation schedule was interrupted. When a general education or special education co-teacher was absent, the lesson was not observed and I transitioned to the next classroom for a longer observation period.

**Field notes.** Field notes were recorded throughout every observation. Field notes also included key teacher dialogue to aid in aligning the field notes with the dialogue correctly. In addition to recording the instructional activities that took place, the roles of each teacher, and the verbal and nonverbal communication between co-teachers, field notes also consisted of written reactions to the observation as well as
my comments about emerging analytic categories and other insights. Comments were also used to record questions for follow-up during member check sessions.

Field notes (Merriam, 1998) provided sufficient detail to generate a rich description of the observations that took place in the event that audio recording equipment malfunctioned. Field notes were dated and included all aspects of teacher communication and teacher behavior. I situated myself in the classroom so that I was able to oversee the interactions between the co-teachers and hear the communication they exchange. Field notes were recorded daily.

**Observation of co-reflection through reflective journals.** The purpose of observing co-reflection was to describe co-reflection. Co-reflection was captured in reflective journals that were hand-written by the co-teachers throughout the study (see Appendix H). Teams were asked to complete reflective journals prompts at least two times per week throughout the observation period. This allowed for some flexibility in terms of how teachers chose to use their time, but it also provided evidence of each team’s co-reflection. Because of the variation in the ways in which teacher may reflect, a binder with reflective journal prompts was placed in both co-teaching classes. As reflective journal entries were completed, copies were made and all original journal entries were returned to the binders. These entries were reviewed and analyzed, and follow-up questions were asked for clarification when needed.

**Student work samples.** The purpose of requesting the work samples was to provide evidence of co-teaching in terms of student outcome data and teachers’ reflective feedback to students. The type of work samples used was left to the
discretion of the co-teaching teams. When students completed a work sample of interest, a copy was requested with student names removed. Throughout the observation period, students completed many work samples in the form of classwork, projects, and assessments. The work samples that teachers used to measure student learning were requested after teachers scored them and provided feedback. Steve and Tara provided one set of test scores for the culminating assessment for the place value unit. Steve also provided one set of scores for a district-wide cumulative assessment. Throughout the observation period, several blank work samples were provided as examples of the tasks students were asked to complete, although work samples containing student responses and teacher feedback were not acquired.

**Meetings with co-teaching teams.** Regularly scheduled meetings with the study participants, known as member checks (Merriam, 1998), were an important data source in this study. Qualitative data analysis relies on member checking to inform the researcher’s perceptions of emerging themes. Member checks also aid in the generation of new ideas and can result in a greater understanding of how the participant perceives the phenomenon under study. The purpose of these meetings was to seek clarification, if needed, and to obtain further teacher input about the decisions made during the co-teaching cycle.

A member-check meeting was scheduled with each participant monthly. Three sessions took place in all. In mid-November, the co-teacher participants met together as partners for a member-check session. In mid-December and mid-January, teachers participated in member-checks individually as data collection concluded. The reason
to meet with co-teachers individually in December and January was to explore similarities and differences in co-teachers’ perceptions about their roles. All interviews and classroom observations were recorded and transcribed. Co-teachers were asked to clarify or further explain portions of interview and observation transcripts. Tara was the only teacher to make edits to two transcripts, mainly because she felt she had gone off-topic in several instances and wished to provide more focused responses.

Each meeting lasted between 15 and 60 minutes depending on how much detail teachers provided and how much additional probing was made. Meetings took place at times selected by each teacher, typically during a professional planning period or immediately after school.

**Informed Consent Procedures**

Institutional Review Board (IRB) approval was granted (see Appendix I). Fifteen surrounding school districts were contacted via email and telephone. School district personnel assisted in securing Sayworth as a research site in mid-September of 2013. Special education students were assigned to particular classes within each grade at Sayworth. It was these particular general education classrooms that had support from a special education teacher for a period of time in the morning or in the afternoon. Because full-day co-teaching models were not available in the school districts that were contacted for this study, it was determined that Sayworth’s model of co-teaching would allow for a description of a common approach to co-teaching.
Consent was requested of the school principal, the teachers who completed the online survey, and the four participating co-teachers. Families were notified of the purpose of the research. All IRB protocols were followed.

**Data Analysis Procedures**

The following sections describe the data analysis procedures. Qualitative analysis using the constant-comparison analysis procedure (Merriam, 1998) was implemented. After discussing the data analysis management software, an overview of the coding procedures will be discussed. Initial codes are discussed in relation to the theoretical model that guides this study. In addition, new code generation and analysis procedures for coding of the data are discussed. The procedures for ensuring internal and external reliability are then discussed. This section ends with an overview of the coding and data analysis procedures according to each research question for this study.

**Data analysis management.** The data management software program NVivo was used for data analysis. According to QSR International (2013), NVivo is a software program for qualitative and mixed methods research. It allows for the organization and analysis of multiple data sources.

**Coding procedures.** Prior to analyzing any data, a number of a priori codes had been generated from the literature review and theoretical model guiding this study (see Table 3.4). When considering the main categories of co-planning, co-instruction, and co-reflection, several initial codes resulted. These initial codes pertained mainly to the anticipated activities that co-teachers engage in during co-teaching.
Data analysis. The constant-comparison method of data analysis was used (Merriam, 1998) as data for the current study was collected. Data were reviewed as it was transcribed (interviews, observations) and as it was collected (reflective journal prompts, lesson plans). Notes containing my reactions and connections to the theoretical model were kept in the margins of transcripts and field notes. Particularly powerful observations or quotations were highlighted for additional review. It was noted that several of the a priori codes were not observed in the data set. For example, data gathered from reflective journal prompts and member checks with the co-teachers did not reveal information about reflecting on past experience, so this code was deleted. In the spirit of the constant-comparison method, the merging and deleting of codes continued throughout ongoing reviews of the data.

Notes kept in an audit trail (Merriam, 1998) indicated how the codes were added, shifted, or collapsed as data were added to the analysis. Many of the a priori codes (see Table 3.4) were collapsed into larger sub-categories and larger categories as data were reviewed several times. For example, the a priori codes providing corrective feedback and providing affirmative feedback merged to become the code provide instructional feedback under the sub-category of teacher role in the category of co-instruction.
Table 3.4

*A Priori Codes Generated From Theoretical Model (Schumm & Vaughn, 1992)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-Planning</td>
<td>The preparation of instruction prior to implementation</td>
<td>Identification of learning objectives (daily, weekly, term)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection of learning activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection of teaching strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Planning/selection of grouping strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discussion of/planning teacher roles for instruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discussion of student needs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discussion/ planning for evaluation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection of instructional materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identifying problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posing solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Making adaptations to materials, assessments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Role of general /special education teacher in planning</td>
</tr>
<tr>
<td>Co-Instruction</td>
<td>The implementation of teaching strategies and student grouping arrangements</td>
<td>Instructional grouping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Role of special education teacher</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Role of general education teacher</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Responding to questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing corrective feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing affirmative feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communicating/consulting with co-teacher</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Making changes to instructional plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Redirect students</td>
</tr>
<tr>
<td>Co-Reflection</td>
<td>The analysis of teaching effectiveness and student learning</td>
<td>Suggesting change for the future</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Examine student outcomes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discussion of whether or not learning objectives were met</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critique actions of/decisions made by co-teacher</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-critique</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reflecting on past experience</td>
</tr>
</tbody>
</table>

**Internal reliability.** Ten percent of all collected data were randomly selected for dual-coding. This exercise served to ensure internal reliability of the coding scheme prior to review with a second coder. Dual-coding was completed in a test-retest approach. I coded one set of transcripts, allowed a time lapse of one week in between, and then recoded the transcripts a second time. If two excerpts were coded
differently on two attempts, the excerpts were reviewed once again and definitions of the codes were revisited as needed.

Once the coding scheme was finalized, peer debriefing with the co-teacher participants and a university faculty member took place to ensure clarity and accuracy of the codes. The final coding scheme was established once it was determined that these codes were both all-inclusive and mutually exclusive relative to the data collected. In the final version of the codebook, data were coded according to whether they focused on co-planning, co-instruction, or co-reflection (see Figure 3.1). By coding the teacher’s focus in each of these activities as well as the context of co-planning, co-instruction, or co-reflection, the roles and processes of each case (co-teaching pair) were more apparent in the analysis.

**Inter-rater reliability.** After all data were coded according to the final codebook, a second coder was asked to code the data in order to establish trustworthiness. The second coder is a graduate student in the School of Education with prior coursework in qualitative research methods and experience coding qualitative data in a study unrelated to this dissertation study. The second coder had an earlier career in special education and is familiar with the colloquialisms that were prevalent in the transcripts and field notes.

The second coder and I met to discuss the coding scheme. The second coder was taught the coding scheme and practiced coding several transcripts during a negotiated coding exercise (Lampert & Ervin-Tripp, 1993). Some coding disagreements by the second coder occurred because of her unfamiliarity with the
observation setting. During negotiated coding, we coded our transcript excerpts individually and then met to discuss any differences. Most differences resulted in agreement after discussion.

Figure 3.1 Coding levels for co-planning, co-instruction, and co-reflection
After the negotiated coding exercise, the second coder independently coded 10% of all transcripts and reflection journals. The coding sample for the inter-reliability process was determined by randomly selecting two classroom observation transcripts from each co-taught classroom. The observations were selected from the first and second half of the observation period. One co-reflection journal from each co-teaching team was also randomly selected. In total, the second coder was asked to code four randomly selected classroom observations and two co-reflection journals. She coded these documents using the comments feature of a word processing program and her codes were later transferred into the NVivo software program in order to calculate the Kappa coefficient for inter-rater reliability. According to Landis and Koch (1977), Kappa coefficient values between 0.40 and 0.59 are considered moderate, those between 0.60 and 0.79 are considered substantial, and those above 0.80 are considered outstanding. Table 3.5 illustrates the Kappa coefficient by code for reflection logs and classroom observations. Agreement between coders was 85% or higher for each code within each data set. Agreement was calculated through NVivo by determining the percentage of the content where both coders agreed on the same code or no code.

The following sections will discuss the procedures for analysis of data for each research question. After discussing the analysis procedures, researcher assumptions and perspective will be discussed. Finally role management and trustworthiness will be discussed.
Table 3.5

*Inter-rater Reliability Kappa Coefficients*

<table>
<thead>
<tr>
<th>Code</th>
<th>Kappa Coefficient</th>
<th>Percent Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propose improvement (reflection)</td>
<td>1.0</td>
<td>97%</td>
</tr>
<tr>
<td>Unrelated issue (reflection)</td>
<td>1.0</td>
<td>100%</td>
</tr>
<tr>
<td>Content or timing issue (reflection)</td>
<td>0.80</td>
<td>97%</td>
</tr>
<tr>
<td>Student performance (reflection)</td>
<td>0.72</td>
<td>87%</td>
</tr>
<tr>
<td>Teacher performance (reflection)</td>
<td>0.51</td>
<td>85%</td>
</tr>
<tr>
<td>Teacher-to-teacher communication (observation)</td>
<td>0.86</td>
<td>99%</td>
</tr>
<tr>
<td>Assess knowledge (observation)</td>
<td>0.81</td>
<td>96%</td>
</tr>
<tr>
<td>Monitor (observation)</td>
<td>0.68</td>
<td>99%</td>
</tr>
<tr>
<td>Provide behavioral feedback (observation)</td>
<td>0.55</td>
<td>96%</td>
</tr>
<tr>
<td>Provide instructional feedback (observation)</td>
<td>0.53</td>
<td>91%</td>
</tr>
<tr>
<td>Support (observation)</td>
<td>0.40</td>
<td>97%</td>
</tr>
<tr>
<td>Delivery of instruction (observation)</td>
<td>0.38</td>
<td>85%</td>
</tr>
</tbody>
</table>

*Co-planning roles and processes data coding procedure.* Data analyzed to answer this research question included teacher interviews, co-planning documents, field notes, and ongoing meetings with co-teaching teams (member checks). Planning data were coded on two levels. First, the focus of the plan or planning session was
coded. Second, planning data were coded as taking place in a formal or informal context. These two levels of coding are described in greater detail in the following paragraphs.

The focus of the planning was coded as either being related to student needs or related to content coverage. Planning for student needs included addressing the ways in which students’ academic, social, or behavioral needs would be met during the lesson. Because of this, it was fairly common that the general education teacher would informally plan with the special education co-teacher upon her arrival to the classroom each afternoon. This informal planning ranged from discussing the lesson content, outlining activities for the lesson, suggesting grouping arrangements, or no communication at all.

**Co-instruction roles and processes coding procedure.** Data analyzed to answer this research question included teacher interviews, observations and recordings of co-instruction, field notes, and ongoing meetings with co-teaching teams (member checks). Data related to co-instruction were coded on two levels. First, the teacher action was coded to identify what it was that the teacher was doing at a particular moment. Second, the context of instruction was coded. These two levels of coding are described in greater detail in the following paragraphs.

Because the context of instruction varied throughout each classroom observation period, context-level codes were assigned for each portion of the classroom observation. For example, if the class transitioned from whole group to large group and then back to whole group, that particular observation was coded as
whole class, large group, whole class. Large excerpts of each observation were coded according to the context, or grouping arrangement, of the class during that portion of the lesson.

**Co-reflection roles and processes data coding procedure.** The third research question asks about the teacher roles and processes during co-reflection. Data analyzed to answer this research question included teacher interviews, field notes, reflective journals, and ongoing meetings with co-teaching teams (member checks). Data relevant to co-reflection were coded on two levels. First, data were coded according to when they thought about an aspect of the lesson. Second, data were coded according to the focus of their reflection. These two levels of coding are described in greater detail in the following paragraphs.

Teachers completed reflective journals which allowed them to annotate their reflection-in-action, or the things they considered during math instruction. Teachers also used these reflective journals to record their post-math-instruction reflections, or reflection-on-action. The key difference between these two codes is that reflection-on-action was something that was considered after the math lesson. Teacher reflections were also coded according to their focus such as their own performance or the performance of their students. In general, teachers completed these reflective journals immediately after co-teaching, so they are believed to accurately capture teachers’ thoughts.
Researcher Assumptions and Perspective

Issues of objectivity and subjectivity are a prevalent concern in qualitative research. I acknowledge my personal position and my own perspectives with regard to the present study. I am a graduate student in the School of Education at a research university in the mid-Atlantic region. Prior to this, I served as a public school teacher in New York City and Philadelphia for nine years. I was the special education teacher in a co-taught classroom for two years and I served as a resource room teacher for two years. I have taught children in kindergarten through eighth grades. During my years as a co-teacher, I was comfortable being evaluated by my co-teacher. I welcomed the ideas of others as they offered a new perspective on my teaching and assessment of my students. I also had an established relationship with my co-teacher such that we were able to deliver constructive criticism and correction when it was necessary. For example, when inaccurate content was presented to students by my co-teacher, I felt it my professional duty to give a correction.

I have also conducted staff development sessions and worked with new teachers enrolled in an alternative teacher certification Master’s degree program. In addition to my role as a graduate student, I also teach undergraduate and graduate coursework on effective teaching methods for students with disabilities, including models of co-teaching and other collaborative approaches. I have served as a student teaching supervisor and I have assumed responsibility for evaluating the progress of teaching candidates at the university. I am aware of the critical lens through which I sometimes view teaching and co-teaching partnerships.
Based on my experience as a co-teacher, staff developer, student teaching supervisor, and university course instructor, I understand the complexities of teaching within the confines of mandated curricula and district policy limitations. I assume that teachers understand the educational needs of their students, particularly students with disabilities. This assumption is based on the notion that teachers are professionally obligated to do what is best for their students, and failure to do so will be handled appropriately by school administrators.

I view co-teaching as one way in which a group of students with and without disabilities can have their needs most effectively met within their classroom. I also acknowledge that the collaboration between the co-teachers is an essential characteristic and will likely influence the overall success of student outcomes. As teachers become comfortable with sharing ideas with each other and providing each other with feedback, their teaching improves over time. I believe that if students are responsibly included in a co-teaching classroom led by highly compatible co-teachers who communicate regularly, all students can experience academic and social success.

**Role Management**

Throughout the study, I managed my role as researcher by reminding participants of the purpose of the study and the associated data collection methods of the study. At times it was difficult to manage my role as I also wanted to build rapport with the participants so that they would feel comfortable with my presence in their classes and so that they would openly share their ideas with me. I understood that my presence as a researcher may have influenced the quality of co-planning.
conversations, co-instructional methods used, and co-reflective dialogue. More specifically, teaching teams may have felt obliged to demonstrate their instructional repertoire throughout the observations, although this may not be an actual depiction of instructional practice within their classes.

There were several instances when a participant requested my expertise on an issue of content. For example, during a measurement lesson, Steve asked for my assistance in identifying a meter and a yard. There were also instances when a participant asked for my assistance in handling an issue within the co-teaching partnership. For example, Jill had asked me for advice on how to better manage her role during math.

Because I wanted to be sure that my presence did not influence the behavior of participants, something known as the Hawthorne Effect (Roethlisberger & Dickson, 1939), I asked questions about my observations during member checks. For example, I asked Kim if Steve typically taught multiple groups of students before she arrived for co-teaching or if this was something unique to my visits to the classroom. She confirmed that Steve’s instruction of multiple groups at one time was typical. It seems that my frequent presence in these classes from October to January had little influence on the participants. They indicated that my observations captured typical events of their co-taught classes.

**Trustworthiness**

Merriam (1998) addresses the issue of trustworthiness in qualitative research by stating three criteria for consideration: credibility, dependability, and
transferability. Definitions of each of these criteria and the ways in which the researcher ensured trustworthiness are highlighted in Table 3.6 and discussed below.

Table 3.6

*Accountability for Trustworthiness in the Study*

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Definition</th>
<th>Consideration in the Current Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Ensuring that the researcher presents participants’ thoughts, feelings, and actions accurately</td>
<td>Acknowledge researcher bias Repeated engagement in the context of the study Triangulate multiple data sources Discuss contrary findings Member checks Use of peer debriefing and a second coder</td>
</tr>
<tr>
<td>Dependability</td>
<td>Tracking the processes of data collection and interpretation</td>
<td>Audit trail Engage a second coder as a formative tool Use of peer debriefing</td>
</tr>
<tr>
<td>Transferability</td>
<td>The ability to present a study in such a way that readers can determine its application to other contexts</td>
<td>Rich description of context and procedures</td>
</tr>
</tbody>
</table>

**Credibility.** A qualitative researcher must present work that is credible by ensuring that the participants’ thoughts, feelings, and actions are represented accurately to the reader (Merriam, 1998). I have openly acknowledged my perspective and assumptions. By spending a significant amount of time in the two co-taught classes, I reached data saturation. Continued data collection produced little new information and the same behaviors became evident over time. Credibility is also
established with the triangulation of data sources (interview data, observational data, and work sample document review). Member checks with the co-teaching teams occurred throughout the study. Contrary findings that went against emerging ideas were discussed and explored. In addition, peer debriefing took place with members within and outside of the dissertation committee on an ongoing basis to ensure accuracy in codes and emerging themes in the data.

**Dependability.** Dependability is ensured by tracking the processes of data collection and interpretation in the form of an audit trail (Merriam, 1998). As new codes were established, or as codes merged or were deleted, a record of these changes and the events that prompted the change was kept. The coding scheme was reviewed through peer debriefing with several faculty members. In order to assist with the reliability of the coding scheme, a second coder (an advanced graduate student) coded a portion of classroom observation transcripts and field notes.

**Transferability.** Transferability is the ability to present a study in such a way that readers can determine its application to other contexts (Merriam, 1998). In order for readers to determine this, I have provided rich description of the context of the study, the sample, and the data collected. In addition, details about the procedures for collecting data were described in detail in addition to the coding scheme.

**Chapter Summary**

I used a multiple-case study design to explore the roles that each co-teacher plays during planning, instruction and reflection, as well as the practices that the teachers engage in. Data were collected in the form of observations, interviews, and
document analysis to create a rich description of the processes that these two co-teaching teams engaged in daily throughout the marking period of observation.
Chapter 4

RESULTS

The purpose of this study was to describe the roles of four third grade math co-teachers and the processes that they engage in during co-teaching, co-instruction, and co-reflection. This chapter presents six claims obtained through analysis of interviews, member checks, document review, survey, and classroom observation data. Each claim is presented as it relates to the teachers’ roles during co-teaching or the process that co-teachers engage in. The data supports the following claims in response to the first research question:

1. Role: General education teachers had the lead role in the co-planning process at Sayworth.

2. Process: Different expectations of co-planning contribute to different levels of engagement in the co-planning process.

The data supports the following claims in response to the second research question:

3. Role: Co-teachers’ roles in co-instruction are influenced by the manner in which co-teachers actively engage in co-planning.

4. Process: Co-planning occurs at varying degrees during the co-instruction process at Sayworth.

The data supports the following claims in response to the third research question:
5. **Role:** Tara and Jill reflected on teaching and learning as individuals. Steve and Kim reflected on teaching and learning as a team.

6. **Process:** During reflection, both teams of co-teachers struggled to propose improvements to future teaching; however, Steve and Kim focused their reflection on student performance and teacher performance.

The following sections will discuss each claim in greater detail after a brief explanation of the perspectives of the school’s principal. Specific examples in support of each claim are also included within the discussion. Quotations from the participants are included to portray the perspectives of each teacher and to capture the complexities within co-teaching. Although planning, instruction, and reflection exist as an interrelated cycle (Schumm & Vaughn, 1992), each will be discussed separately for organizational purposes. Claims will be organized and discussed by co-teaching pair.

**The Perspective of the Principal**

Sayworth’s principal, Dr. Green, shared his perspectives on the co-teaching program at Sayworth. He explained the school’s shift from a full-day model of co-teaching in three grades to a part-time model across all grades in the school. He said that the previous distribution of special education services was inadequate, as several grades did not have a special education teacher. He shared his view that “if someone has a specific need, we have an obligation to provide them with some sort of support.” He encountered several challenges when the part-time co-teaching model was introduced. In particular, he shared Tara’s initial hesitation with the model. She had worked as a solo teacher for 13 years, and she was not accustomed to sharing
instruction with another teacher. Throughout the study, Dr. Green made several visits to Tara and Jill’s classroom to monitor the progress of that partnership and to provide feedback to the co-teachers. He said that some teachers and families expressed disappointment in the shift. They believed that he had attempted to destroy the co-teaching model.

Dr. Green showed his support of the co-teaching model at Sayworth throughout this study. For example, he sent new co-teaching teams to a three-day co-teaching staff development seminar. He suggested hiring substitute teachers for half-days to allow co-teachers time to co-plan and he also offered co-teachers additional compensated co-planning time after school. Dr. Green showed sensitivity to the feelings of teachers who were accustomed to co-teaching for the full school day as in previous years. He arranged co-teaching partnerships so that veteran co-teaching teams worked together for a portion of the school day under the new part-time model. He also provided co-teachers an opportunity to receive feedback from co-teaching consultants at several points throughout the school year.

Although he was very supportive of the co-teaching model, Dr. Green also discussed the challenges associated with Sayworth’s co-teaching model. Noting that several of the school’s special education teachers were new teachers, he said, “I don’t want the students or the parents or the teachers to view it as I’m the teacher and here is my assistant.” Despite the perceived challenges of veteran or novice status, he felt that the newer teachers could learn a lot from their more experienced co-teaching partners. Dr. Green explained that the school’s model of co-teaching enabled general
education teachers to become subject experts by teaching only two subjects per day, yet he noted the challenges faced by special education teachers who taught across multiple grade levels and subject areas.

The following sections will discuss the data that supports the claims associated with the study’s research questions. First the claims about the process of co-planning at Sayworth are discussed. Next the claims about co-instruction will be discussed, followed by claims about co-reflection at Sayworth.

Co-Planning

The first set of claims pertains to the co-planning roles and process. Study participants were asked about co-planning in interviews, member check sessions, and an online survey. Specifically, all co-teachers at Sayworth were asked when co-planning for math occurred between the special education and general education co-teachers. Participants were also asked to describe what occurred during these co-planning sessions and to describe what co-planning looked like in terms of their individual roles and participation in this process.

The math planning process at Sayworth. Professional planning time was built into the school schedule so that all third grade math teachers were without students from 12:00 to 12:45 daily. Thursdays were dedicated to math team meetings. During these meetings the three third grade general education math teachers and the two special education co-teachers met to discuss the upcoming curriculum units.

According to the data collected during joint interviews, math unit lesson plans (see Appendix J) were typically developed by one teacher from the math team and
then shared electronically through email with the other teachers. General education teachers took turns developing and disseminating these unit plans based on the materials provided in the *Investigations* curriculum. These teacher-generated plans were typically completed electronically and featured the same elements. The plan included an essential question, activating strategy, vocabulary, CCSS alignment, teaching strategies (I do, we do, you do), and a summarizing strategy. Teachers often made decisions about what to include in their unit plans due to scheduling restrictions and the breadth of the *Investigations* curriculum. They also made an effort to align the curriculum units with statewide and district-wide testing programs. Ensuring adequate content coverage prior to these exams was important to the teachers.

Although the *Investigations* curriculum has been in use at Sayworth for several years, planning time is used to align the curricular guides with CCSS. The goal of those general education teachers responsible for planning math instruction was to select the activities from the *Investigations* curriculum that best meet the demands of the CCSS. At times, the content of the *Investigations* curriculum was misaligned with the CCSS. Both Tara and Steve supplemented the curriculum with other activities to ensure full coverage of the CCSS. Tara explained that the supplementary resources she used were “Common Core-aligned and they [were] filling in a lot of gaps in our curriculum.” Steve and Kim explained how they selected activities from “books that are aligned with the Common Core” in order to prepare their students because “next year they’ll be taking the test, the Common Core aligned test.” Furthermore, teachers shared that they felt that aligning the *Investigations* curriculum with the CCSS created
a challenging experience for students and teachers. For example, Jill explained that the additional activities were “a forward look of things that are going to be on the standard test, but we haven’t hit [these concepts yet] in the curriculum.” As a result, she noticed that these supplemental activities were sometimes time-consuming or frustrating for the students and teachers.

Teachers used these lesson plans in both the solo-taught and the co-taught third grade math classes. Teachers were permitted to adapt the lessons as needed based on their own teaching styles and the needs of their students. Lesson plans and planning calendars did not indicate that consideration was made for the addition of a special education teacher or special education students in the co-taught classes. It is difficult to know how decisions about instruction were made. The lesson plans were brief and tended to focus on the materials and examples to be used during instruction. These plans make it difficult to determine the specific instructional decisions made before and during instruction.

During the trimester spent at Sayworth, no co-planning of the teacher teams was observed. When I arrived to Sayworth every Thursday at 12:00, teachers engaged in other activities. During my observations at Sayworth, teachers did not co-plan as a math team on a Thursday afternoon. This may be because math planning, earmarked for a particular weekly meeting time, was actually structured as an isolated activity completed by one teacher per unit and then disseminated among the third grade team via email. When teachers were asked during interviews why the planning meetings were not taking place, they indicated that schedules had changed or that there were
other school-related tasks to complete during that time. Furthermore, the teachers indicated in interviews and member check sessions that they did not commit to additional compensated time for co-planning with their general education or special education co-teacher.

In fact, the co-teacher participants noted in their interviews that co-planning did not happen with their co-teaching partners, and I noted this in my observations as well. According to Kim in a personal interview, most co-planning between co-teachers was completed through brief verbal exchanges as the special education teachers arrived in the general education classrooms. Tara provided me with a detailed pacing guide for the third grade math unit of study. This pacing guide listed the *Investigations* units and the months/weeks during which each lesson would be taught. Steve supplied a copy of the planning calendar that he and Kim shared. In the space allocated for each school day, Steve wrote the lesson number that would be taught that day. For example, in the October 18 calendar box he wrote *Session 1.8.*

**Summary of math planning at Sayworth.** Formal co-teacher planning sessions were rare. Although general education teachers met regularly to plan for math instruction, special education teachers were responsible for collaborating with multiple teachers and often could not attend the co-planning meetings. All teachers noted the challenges associated with aligning the *Investigations* curriculum to the newly adopted CCSS. Special education teachers relied on shared plans developed by individual teachers.
Different expectations of co-planning: Case 1, Tara and Jill. Case 1 includes Tara (GE) and Jill (SE). The data gathered from interviews, member checks, and personal communication during this study suggests that Tara and Jill had different expectations of co-planning. Although formal co-planning was not observed as planned in this study, both teachers commented on co-planning in individual interviews as well as during joint interviews with their co-teacher. In addition, observations of informal co-planning took place during classroom observations in both classes. Tara co-taught her afternoon math class with Jill.

Tara and Jill were asked throughout the study to explain their expectations of co-planning and also what took place during co-planning with the other third grade team members. Table 4.1 summarizes Tara and Jill’s expectations of co-planning. Tara described co-planning as an opportunity to identify the content to teach and when to teach it. Jill described a more detail-oriented co-planning with opportunity to align content to students’ IEP goals.

For Tara, the purpose of co-planning within the context of the grade team meetings was to outline the lessons and activities to be completed throughout each unit. Tara emphasized what lessons would be taught and when they would be taught. Tara’s focus on content coverage aligns with the current climate at Sayworth as general education teachers work to align their curriculum guides with the newly-adopted CCSS. In a joint interview, Tara noted that “the actual lesson and how we are going to approach it together” was something that was not part of co-planning for her and Jill because they were not given time for this activity. She said that she tried to
keep her co-teacher in mind when co-planning, although her statement does not necessarily indicate that this was a priority for Tara. Tara considered what Jill could do during the co-taught math lessons, although both teachers noted that specific roles were not established in advance of instruction.

Table 4.1

Expectations of Co-planning: Case 1, Tara and Jill

<table>
<thead>
<tr>
<th>Tara, General Education Teacher</th>
<th>Jill, Special Education Teacher</th>
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<tbody>
<tr>
<td>[Co-planning is a time to discuss] what will be done, what units, when we’ll be teaching the unit, the lessons in the unit, that type of thing. But as far as the actual lesson and how we are going to approach it together, we have to work that out on our own and we’re not given the time to do that. (Personal interview)</td>
<td>The purpose of co-planning with Tara is to be able to give me a forward look as to where we were going with lessons. I need to know exactly what I’m going to do, what the kids might say and how I’m going to respond. I’ve gotta [sic] have it all out. We’re [special education teachers] very detail-oriented people. (Personal interview.)</td>
</tr>
<tr>
<td>Today she shared with me how she feels more comfortable when she has a plan, and with us doing this [co-planning] on the fly so much, a lot of times it’s going to be an issue. I try to keep in mind since I might have someone [Jill] in the afternoon, well, what can she do? (Personal interview)</td>
<td>I would love to sit down and say this is our week….this is when I am fitting the IEP goals in…this is what we need to do…this is how I want to differentiate it. I would love that. I think it would give me more ownership. I feel like I’m very disconnected. Unless we’ve put out what we have to do, there’s a struggle between two teachers. There’s a struggle of who is going to lead. (Personal interview)</td>
</tr>
</tbody>
</table>

Jill had a different expectation for co-planning. Jill felt that the purpose of co-planning time was to work together to develop detailed lesson plans. She felt that discussion of teacher actions, student responses, and teacher reactions were important to the success of the lesson. Jill felt it was also important to discuss ways to
accommodate students with disabilities during the co-planning sessions. Jill said, “Unless we’ve put out what we have to do, there’s a struggle between two teachers.” Jill seemed to indicate here that she believed that one additional purpose of co-planning was to establish teacher roles for instruction in order to avoid an imbalance.

Tara and Jill had different expectations for co-planning. These differences may be due to their levels of teaching experience, or due to their own beliefs and expectations of student learning as a result of their general education or special education teacher status. Tara taught the math lesson in the morning without special education support from Jill. Jill reflected on the different expectations of co-planning and said, “I believe that the teacher [who] is planning is planning to teach the lesson twice without special education support in half the day.” Jill believed that co-planning did not occur between her and her co-teacher because Tara was prepared to teach the math lesson every morning without Jill’s support. Jill then linked this to a possible cause for the lack of specificity and consideration of students with disabilities during the co-planning sessions and in the actual lesson plan documents. Tara had also indicated throughout the study that Jill spent far more time in a literacy classroom, sometimes not attending the afternoon math class. This was also observed on several occasions when Jill either did not come to math class or when she came to class after instruction had begun. Jill attributed this to the extensive needs of her students in activities involving reading and writing in her morning placement.

**Teachers’ co-planning roles at Sayworth: Case 1, Tara and Jill.** Because co-planning sessions were not observed during the study, participants were asked to
describe what occurred during those sessions. They were also encouraged to describe
their roles during co-planning. Tara and Jill shared similar accounts of what occurred
during co-planning sessions, although the degree to which each teacher engaged in co-
planning differed (see Table 4.2).

Table 4.2

Co-Planning at Sayworth: Case 1, Tara and Jill

<table>
<thead>
<tr>
<th>Tara</th>
<th>Jill</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have our lesson plans that we’re updating from the prior year to what we need them to have with the Common Core Standards, and addressing the pacing guide and what we’re going to teach, when to implement it all, making sure the concepts are taught by certain times. I’m interjecting with the timeframe, with what I’ve used, what has worked well, etc. We share as a team the various things, and we break it down into who is going to work on this part of it so that no one is overextended doing the brunt of anything. That’s more or less how the meetings go.</td>
<td>As a team [we] decide things and Tara and I will tweak those things or we will say, “You’re going to plan this lesson and you’re going to plan this lesson.” A lot of it is hashed out for us. She sends the emails sometimes about what lesson it’s going to be. There’s never any clear-cut co-planning. We do go over what she’s going to be covering and from there, when we get to that point, then I step in. No specifics for it, but the last few days have been, “This is what we’re going to be doing. This is who is going to be planning lessons…”</td>
</tr>
<tr>
<td>It weighs more heavily on us and so we’re going to make sure that it gets done. I supplied [Jill] with the information, lessons/materials and did the things needed to help her to do the lessons.</td>
<td>[I] sit and listen and think about how this impacts my particular group of students that I have that obligation to work with. I usually am trying to advocate for the students that I have. I’ve tried many times to step in and say, “Hey how about this?” And they’re like, “No that’s fine.”</td>
</tr>
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</table>

Tara and Jill noted that co-planning time was used to identify upcoming
lessons as well as the sequence in which they would be taught. Because Tara had
previous teaching experience in the third grade, she played an active role in the co-
planning sessions as she shared approaches to content that had worked for her in the past. Tara also spoke of the process of updating lessons from previous years to align with the newly adopted CCSS.

Jill indicated that her attempts to act as a more active member of the co-planning sessions had been dismissed by the general education teachers in the past. She had suggested alternative activities for students with disabilities, which the general education teachers dismissed. Jill had the sense that co-planning was dominated by the general education teachers: “It’s more one-way. Here are the things for the day.” During one interview, Jill described her role during planning as “just sit and listen.”

Tara felt that there was a greater burden of accountability on the general education teacher. Communication about lessons tended to be uni-directional, coming from the general education teacher, perhaps due to this presumed greater accountability for student learning or CCSS alignment. Tara supplied Jill with information about the upcoming lessons through email.

When comparing Tara and Jill’s expectations of co-planning to the description of what co-planning entailed at Sayworth, Tara’s expectations of co-planning were met. Tara expected that teachers would identify the lessons to teach within each unit and align these to the pacing calendar.

Figure 4.1 illustrates the divergence between what Jill had expected from co-planning and what actually happened during co-planning. Jill had expected co-planning to include the specific roles of each co-teacher as well as conversations about
the needs of individual students. She did not expect co-planning to be a broad overview of content coverage, nor did she expect lessons to be planned by individual teachers and then disseminated among the teachers.

In sum, Tara’s expectations for co-planning were met. As a result, she played a lead role in the co-planning process as she added her own insight to planning sessions. Jill’s expectations for co-planning were not met through co-planning sessions. Because Jill’s expectations for co-planning were not met, she did not engage as an active contributor during co-planning.

Different expectations of co-planning: Case 2, Steve and Kim. Steve (GE), a teacher of seven years, co-taught his afternoon math class with Kim (SE), a teacher
with nearly two years of teaching experience in another school. Like Tara and Jill, Steve and Kim did not co-plan with the third grade math team during observations at the school. Steve and Kim were asked to explain their expectations of co-planning and also what took place during co-planning with the other third grade team members. Table 4.3 summarizes their expectations of co-planning. Steve emphasized addressing what needs to be taught during co-planning, while Kim placed emphasis on the materials and resources she could use to reinforce or supplement instruction. Kim’s expectations of co-planning included details of lesson procedures and dialogue.

Table 4.3

<table>
<thead>
<tr>
<th>Steve, General Education Teacher</th>
<th>Kim, Special Education Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>It’s all laid out for us. Follow the pacing guide…what needs to be taught…what we’re going to hit on…what doesn’t need to be emphasized as much.</td>
<td>I’m so used to the [full day] co-teaching model. My previous co-teacher and I would sit down every day afterschool and we’d plan for tomorrow… plan throughout the weekend…I would want us [Steve and I] to plan together. It’s more about how can we [special education teachers] get more materials or resources to support that lesson. How are you going to deliver this lesson? What are you going to say? What are you going to do?</td>
</tr>
</tbody>
</table>

Similar to what Tara spoke about in her expectations of co-planning, Steve also stressed the pacing of lessons. It was important that all third grade teachers be teaching the same lesson on any given day, according to Steve. He also mentioned that during co-planning, he expected to identify what needed to be taught and what concepts
needed less emphasis during the instructional unit. Steve, an experienced teacher, found the focus of planning to be on what the teachers would *do*, rather than on what the students would *learn*. For Steve, co-planning was a time to delineate the content for each unit and to discuss the pacing of the unit and how it would align with the CCSS.

Kim spoke about her expectations for co-planning as they related to her previous co-teaching experiences in New York. Her expectation of co-planning was that it was a time for her and Steve to discuss ways in which she could support the lessons with alternative resources or materials. Additionally, Kim emphasized details of the lesson that she expected to be reviewed during co-planning such as the specific teacher dialogue, teacher actions, and teaching methods. Kim also later referenced the “different ways that students learn” and said that not all teachers would teach a lesson the same way, so attention to detail of the process and the learning goals was something she expected to discuss during co-planning.

Kim and Steve had different expectations for co-planning within the third grade math co-planning sessions. Steve expected co-planning sessions to contain an overview of upcoming content and the pacing of the upcoming lessons. Kim expected more from these sessions based partially on her previous co-planning experiences. She expected co-planning sessions to include opportunities to discuss precise details relevant to the delivery of lessons and the specific supports she could provide. The next section will discuss Steve and Kim’s accounts of what occurred during co-planning sessions as well as the roles that each teacher played during co-planning.
Teachers’ co-planning roles at Sayworth: Case 2, Steve and Kim. Steve and Kim shared accounts of what occurred during co-planning sessions. Their accounts of co-planning were similar to the accounts shared by Tara and Jill. Steve and Kim’s roles during these sessions were quite different from one another (see Table 4.4).

Table 4.4

Co-Planning at Sayworth: Case 2, Steve and Kim

<table>
<thead>
<tr>
<th>Steve, General Education Teacher</th>
<th>Kim, Special Education Teacher</th>
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<tbody>
<tr>
<td>We sit down as a math group [grade level] and plan on when we are going to be doing our certain tests, planning certain lessons, how long the lessons as going to take. Discuss that, if anybody has any input. Usually Kim and I will sit down, well we’re already together, but we’ll talk just between us and say, “What would you be doing? What group do you want to pull? How do you want to split the class?” But still, the other teachers [look] at us like “This is our planning period.” Our planning periods have been taken up with other things. Finding time to plan is pretty hard but with us, it’s a little tough.</td>
<td>Co-planning exists very rarely. We plan as a [grade] team on Thursdays at 12:00 and then during that planning, he’ll probably say, “Hey, do you want to do this? I’ll do this part and you say that part” because we have a math scripted program. So that’s our co-planning. On top of that I do another lesson to meet their IEP goals as well. I am trying to think about how I can incorporate those lessons with their IEP goals. So I try to find a way to adapt those lessons to the IEP goals, so it’s kind of a burden on me and I have to plan a separate different lesson. We just brainstorm what we are planning each day but not really going into detail about how we are implementing it.</td>
</tr>
</tbody>
</table>

Steve and Kim agreed that co-planning was a rare occurrence within the third grade math team, and certainly an even rarer occurrence between Steve and Kim as co-teachers. They also agreed that they managed to make some time for conversation with each other about more specific instructional roles during these team co-planning
meetings. The tone of Kim’s voice indicated disappointment when she cited the
delineation of dialogue as the evidence of co-planning between her and Steve. Kim
stated in an interview that co-planning sessions did not involve conversations about
the implementation of lessons. Although they did try to make time to talk together
about their individual roles during co-planning meetings, Steve noted that the other
teachers in their presence were not very amenable to their side conversations. “But
still, the other teachers were looking at us, like this is our planning period” he shared.
It seems that the climate in the grade level meetings was not welcoming of Steve and
Kim’s collaboration during such meetings.

In another interview, Kim indicated that she often felt unsure of her role in the
classroom. She said, “There’s plenty of times, I would say 95% of the times, when I
go into the classroom and I have no idea what they’re doing. She also indicated that
the plans she and Steve developed were designed for one solo teacher, not for a co-
teaching team. One way in which Kim was able to have a specific role in instruction
was to develop her own lesson plans for the students with disabilities. She admitted
that it was somewhat of a burden for her to plan these additional lessons, but the
curriculum expectations did not always align with the current skill levels of her
students.

When comparing Steve’s expectations of co-planning with what actually
occurred during co-planning, there is much alignment (see Figure 4.2). Steve expected
content and pacing to be the focal point of co-planning sessions. Steve’s descriptions
of co-planning as well as the chart he referenced indicated that co-planning did include
an overview of content and pacing as well as some opportunities for him and Kim to
determine their speaking roles during instruction. Although he did not cite
opportunities to engage with Kim during co-planning as an expectation, he noted that
they often discussed their individual roles as they related to the suggested activities
and script in the teacher’s guides (see italicized text in Figure 4.2).

![Diagram](image)

**Figure 4.2: Convergence of expectations and actuality of co-planning: Steve**

The discussion of individual teacher roles during Steve and Kim’s co-planning
sessions was unique in contrast to the lack of this discussion between Tara and Jill. On
several occasions, Steve mentioned the significance of co-planning with his special
education co-teacher. During an interview with his co-teacher, Steve made a
connection between co-planning and effective co-teaching. He cited a particularly
successful lesson in which he and Kim had used a chart to indicate their individual roles during a math lesson. Steve described this chart which indicated what the general education teacher would do during the lesson and what the special education teacher would do. Steve said in his interview that this chart took minutes to complete but produced a well-organized lesson for the students. Steve valued having time to plan with his co-teacher.

In the case of Steve and Kim, other moments of informal co-planning were captured throughout the study. Informal conversations about lesson content, student needs, and teacher roles were observed during classroom instruction and, thus, are referred to as informal co-planning. Informal co-planning occurred more frequently between Steve and Kim than Tara and Jill. Kim spoke about catching Steve in the hallways before school to discuss what she had planned for the students. Additionally, Kim and Steve often communicated with each other about instructional plans during instruction. Jill and Tara were also observed, albeit less frequently, engaging in conversations about instructional plans during instruction. Further discussion of the informal planning that took place during instruction will be discussed in a later section.

As in the divergence between expectation and reality of co-planning for Jill (SE), Kim also experienced co-planning that differed from her expectations (see Figure 4.3). Kim had expectations of ongoing, almost daily communication with her co-teacher. She had hoped for co-planning sessions to include details about upcoming lessons so that she could determine the most appropriate supplemental resources. The
reality of co-planning for Kim was that it was not a regularly occurring process. In fact, it was an isolating process in which she found herself planning her own lessons. Kim did not experience co-planning in the way that she had envisioned it; therefore, she did not engage in a lead role during reported co-planning sessions.

Figure 4.3: Divergence of expectations and actuality of co-planning: Kim

Special education teachers and general education teachers in this study had different expectations of co-planning. Special education teachers, who were also teachers with less experience, expected co-planning time with their general education co-teachers to occur on a regular basis. All participants indicated that co-planning occurred within the context of the third grade math team’s weekly meetings, although Steve and Kim did manage to find other opportunities to co-plan on an informal basis. Special education teachers also expected that co-planning would allow for a discussion
of specific lesson details including ideas for modifying the curriculum lessons and addressing IEP goals to meet the needs of students with disabilities. The actuality of co-planning was not what special education co-teachers had expected, and they were less engaged in the co-planning processes at Sayworth.

General education teachers’ expectations for co-planning aligned more closely with the realities of co-planning, and they reportedly engaged actively in the process of co-planning. General education teachers expected co-planning sessions to focus on the content to be taught and the timelines for teaching it. Tara and Steve had no expectations for using this time to plan the details specific to their co-teaching situations, although Steve did try to address specific teacher roles with Kim during the grade level planning sessions.

**Summary of results on co-planning.** General education teachers played a lead role in planning third grade math lessons. General education teachers planned the instructional units and shared these plans with special education co-teachers. The absence of detailed role-specific co-planning sessions left the special education teachers with a feeling of uncertainty during co-instruction.

Special education and general education teachers in this study had different expectations for co-planning. Special education teachers expected co-planning to be an activity that involved co-teaching pairs having a discussion about the roles of each teacher during instruction and the adaptations and additional resources that could be implemented. These expectations of co-planning did not come to fruition as co-planning occurred in the context of grade-level meetings, although these meetings
were not observed during my study. Because teachers had different expectations of co-planning, they engaged in the co-planning process in different ways. Co-planning at Sayworth consisted of a discussion of the content to teach and when to teach it with rare consideration for individual teacher roles and supplemental instruction. Co-instruction will be discussed in the following section.

**Co-Instruction**

The second set of claims pertains to the co-instruction process. Data collected in this study suggests that teachers’ engagement in co-instruction is influenced by the manner in which co-teachers actively engage in co-planning. Additionally, informal co-planning occurs at varying degrees during the co-instruction process at Sayworth. Before discussing each of these claims as they relate to the second research question, a description of co-instruction within each co-taught classroom will be provided.

**A description of co-instruction: Case 1, Tara and Jill.** Tara and Jill were observed 20 times (904 min) throughout the second marking period of the academic school year. Observations ranged from 33 to 90 minutes in length depending on scheduling changes. Jill tended to arrive in Tara’s classroom with the students as they returned from recess, although she arrived after instruction began on four occasions. Jill often brought with her a small notebook and a pen. Jill typically walked around the room as students were seated while Tara gave oral instructions to the students. Tara left out lesson plan materials for Jill to review upon arrival in the class. At times, Jill collected homework as students arrived in class or assisted students who had difficulty getting settled in the classroom.
Tara and Jill’s classroom was usually characterized by whole class instruction during these observations. Students collected their material bins from the front of the classroom and walked these items to their desks. Two daily routines took place in this classroom: a daily review sheet and a word problem of the day. As students completed these two warm-up activities, Tara and Jill circulated the room offering assistance when necessary. The warm-up exercises were reviewed for the whole class; initially a student led this review, but as the year progressed the review was led by the teachers. On several days, these two activities lasted for the full duration of the observation.

Following the review activities, students typically arranged themselves around a large carpet for whole-class instruction. Whole-class instruction was led by Tara throughout each observation. During whole-class instruction, Jill provided behavioral support in the form of reminders and redirections, distributed materials, or supported her co-teacher by advancing slides in presentations or interjecting with her observations of student progress. For example, Jill would share that most students had completed the task, or that several students were experiencing difficulty with an example. Tara and Jill did not engage in ongoing discussion of roles and it was fairly common to see Jill in an unspecified role in the classroom. For example, she was often seen walking around the room with her hands in her pockets, engaging minimally with students. At times, students engaged in partner-talk at the rug as they shared their thinking aloud with another student next to them. Students demonstrated difficulty engaging with their partners as evidenced by their minor quarrels and teachers’ corrective behavioral feedback. Students in Tara and Jill’s math class were seen only
working as a whole class unit, with the exception of the times during which an assessment was administered. In those instances, students worked individually (Observation 1, 10, 15, and 18). Small group (2-5 students) and large group instruction (6+ students) was not observed. This classroom was characterized by whole-class instruction throughout each observation.

**Reservations about co-teaching and co-teacher: Case 1, Tara and Jill.** Both the school principal and Tara herself indicated that Tara was wary of the part-time co-teaching model for the 2013-2014 school year. Tara noted in her individual interview that she was unsure about co-teaching and agreed to it after conducting her own research online. In their individual interviews, Tara and Dr. Green spoke of Tara’s excitement about co-teaching after attending the three-day professional development session.

Throughout the study, Tara and Jill expressed their concerns about their partnership. These concerns may have influenced the roles and responsibilities of Tara and Jill. Tara faced the challenges of working with a new teacher in a co-teaching model that was also new to her. During her first individual interview, Tara indicated that she did not want to place too much responsibility on Jill as a new teacher. Jill had a different perspective on her role in the co-teaching partnership. Jill noted that she felt less knowledgeable as a new teacher, but also indicated that she wanted to be more involved in the partnership. During an interview, Jill expressed her frustration with serving as an unused resource. In early November, Jill began to wonder if Tara was hoping to portray co-teaching as ineffective. In one personal communication she said,
“I am getting the vibe that she [Tara] is hoping that it will come off as co-teaching not working. I feel as though there are a lot of excuses being made as to why co-teaching isn't being effectively used.”

**Informal co-planning: Case 1, Tara and Jill.** Informal co-planning was not a frequent occurrence in Tara and Jill’s classroom. Classroom observations and interviews with the participants revealed several instances where Tara and Jill attempted to co-plan informally for their next instructional steps. Table 4.5 contains a summary of the co-planning communication that was observed during classroom instruction between Jill and Tara. Tara and Jill informally co-planned at least once during 20% of all observed lessons.

Additionally, several other conversations between Tara and Jill were observed throughout the study. For example, Jill shared her student performance observations with Tara, Jill and Tara discussed student seating arrangements, and Tara gave instructions to Jill as to what papers to hand out to the students. These examples, however, are not considered informal co-planning conversations because the conversation did not pertain to math planning.

The informal co-planning discussions between Tara and Jill resulted in Jill feeling poorly equipped to teach the concept and the need for Tara to reteach concepts. In several of these exchanges, Tara briefly explained to Jill the *concept* to teach with relatively short notice. Co-planning was uni-directional as Tara delivered information to Jill on short notice before having to step out of the classroom, for example. This approach to co-planning during the instruction of students did not allow Jill the time
she needed to think through the content, how to approach it with the students, and how to address the content when students did not initially understand it.

Table 4.5

Informal Co-Planning: Case 1, Tara and Jill

<table>
<thead>
<tr>
<th>Observation</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson 5</td>
<td>Tara and Jill shared a brief exchange at the computer while Tara led whole class instruction. Tara explained the “number of the day” problem to Jill. “Create an expression that shows the number 247 using combinations of 100.” When Jill presented this problem to the students after Tara left the classroom, the students expressed their confusion verbally. Upon her return to the classroom, Tara interjected. Jill had asked students to complete a similar task with a smaller number but the students continued to experience confusion. Jill noted to the students that the problem was not very straightforward, and Tara responded that she felt it was very straightforward.</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>As students watched a video about mental math calculation, Tara explained the next content piece to Jill. Jill was overheard saying “No, I got it.” Tara left the room and Jill continued the lesson. The content for the lesson included decomposing large numbers by expanded form versus decomposing numbers into other smaller combinations. Jill had difficulty with the vocabulary of the content and the students shared that they were confused. When Tara returned to the class, she retaught that portion of the lesson.</td>
</tr>
<tr>
<td>Lesson 8</td>
<td>Student M was having difficulty with the concept of rounding but the others seemed to understand based on their correct responses. Jill told Tara that she would work with Student M individually. Tara continued to call to Student M for responses to her whole-class questions as she worked with Jill individually. Jill told Student M to return to the whole group because it was too difficult to listen to two teachers at once. Tara then urged Jill to continue working with Student M, supplying her with several worksheets, but Jill returned the student to the whole group.</td>
</tr>
<tr>
<td>Lesson 11</td>
<td>As the students were completing their warm-up activities at their desks, Jill and Tara were overheard having a conversation about their plans to parallel teach a later portion of the lesson. This did not occur during the 45 minute observation. Follow-up with both teachers indicated that they ran out of time and did not parallel teach that day.</td>
</tr>
<tr>
<td>Lesson 13</td>
<td>During the arrival of students, Tara asked Jill to lead the whole-class review of the warm-up activities. As Jill led this activity, Tara asked her to increase her pace. Eventually Tara noted that they had no more time. Tara ended the review and assumed the role of lead teacher.</td>
</tr>
</tbody>
</table>
Jill’s attempt to work individually with one student during Lesson 8 was not something she tried again. Jill explained in a personal communication that she had selected specific supplemental materials for this student because the student struggled with the concept of rounding. Being supplied by Tara with the materials the student already found difficult seemed, to Jill, to be counterproductive.

In sum, the uni-directional approach to co-planning between Tara and Jill did not allow Jill the time to consider the content to teach and the manner in which to teach it in Tara’s absence. Students indicated their confusion and instructional time was lost when Tara had to reteach the content upon her return to the classroom. In many ways, Jill was not an equal partner in the co-teaching partnership. Jill admitted that these informal co-planning conversations made her feel like a substitute teacher as she was asked to teach on short notice when Tara could not be in the room. When both teachers were present, Jill felt like an assistant with an unspecified duty. She noted that the students viewed her as a paraprofessional since her duties of handing out papers and filling an instructional role during Tara’s absence were roles typically assigned to paraprofessionals at Sayworth. Jill shared that the students in math class said she was “kind of like a teacher…[she] teaches sometimes, but only to some people.” When students had questions, they directed their questions to Tara, even if she was assisting another student at the time. It was common to see Jill in a non-instructional or unspecified role within the co-taught math classroom. For example, Jill was frequently observed walking around the room with her hands in her pockets.
Perhaps the uni-directional approach to co-planning session contributed to the unequal partnership as displayed in Tara and Jill’s co-instruction. Jill’s engagement in co-instruction was influenced by the lack of co-planning with her co-teacher.

**A description of co-instruction: Case 2, Steve and Kim.** Steve and Kim were observed 19 times (898 minutes) throughout the second marking period of the academic school year. Observations ranged from 16 to 80 minutes in length depending on scheduling changes. Kim arrived in Steve’s class partway through the math block at the same time every day. She typically brought with her a bin with various math aids to use during small group instruction. There were several small tables throughout the classroom where Kim would leave her items or work with small groups of students. Each time Kim entered the classroom, she was greeted by several students. Steve typically greeted her, explained what had been taught before she arrived in the classroom, and discussed with her the next steps for the lesson. They also used these brief moments to inform each other of any important information relevant to the students. For example, on one occasion Steve informed Kim that he had worked with a small group of students with disabilities for 30 minutes prior to her arrival to class. He provided her with a brief overview of how they performed during their time in a small group. These conversations, which served as informal co-planning, took place throughout the duration of the classroom observation period.

The classroom climate in Steve and Kim’s class was positive and allowed for informal co-planning opportunities. Students adhered to classroom rules even when their teachers were engaged in a conversation together. Steve acknowledged Kim in
his instructions to students and often encouraged students to get help from the two teachers in the classroom. Students in this classroom engaged in partner work in groups of two as well as table-work in groups of four students. Students spoke respectfully to each other and showed patience with each other as evidenced by their use of guided questioning techniques with their partners and tablemates. For example, one student used encouraging words and reminders of the problem solving process to guide his partner, a student with a disability. The classroom climate was different than the classroom climate in Tara and Jill’s classroom as a result of the positive interactions between Steve, Kim, and their students.

Steve and Kim’s classroom was characterized by a combination of whole class instruction, large group instruction (six or more students, but not the whole class), small group instruction (two to five students), and individual instruction. The instructional grouping arrangement in this classroom varied on a daily basis as lessons were differentiated to meet the needs of students. On days when Steve’s class was observed before Kim’s arrival, he arranged the room into large ability-based groups and taught them simultaneously. On other occasions, Steve taught a lesson to the whole class and then worked with a small group of students at a small table in the classroom while the other students worked independently. When both teachers were in the classroom, students often worked with their tablemates before coming together as a whole class to summarize the lesson. Steve led the whole-class instruction. Kim supported whole-class instruction by restating key points, taking notes on easel paper, or providing behavioral and instructional feedback to students. As students worked in
large or small groups, both teachers assumed responsibility for a portion of the students by providing feedback and monitoring progress. Steve and Kim were observed on many occasions informally co-planning their next instructional steps. They were observed talking to each other about the pacing of the rest of the lesson or the best way to divide the students for further support.

Technology integration was evident in this classroom. Students worked on their laptop computers on a daily basis to complete exit tickets using an online assessment tool. Students also practiced math skills on several adaptive learning programs. Computer use was an integral part of the daily activities to supplement the Investigations curriculum. As students worked independently at their laptop computers, Kim worked with students with disabilities on their IEP goals either at a small worktable or across the hall in her classroom if they requested to work in a quieter space.

**Support of co-teaching and co-teacher: Case 2, Steve and Kim.** The data collected in this study depicts the supportive attitude displayed by both Steve and Kim regarding their co-teaching relationship. During our first interview, Steve spoke to me about the three-day co-teaching workshop he had attended with Kim and how it “really opened up [his] eyes” to a new approach. He wanted co-instruction in his classroom to look similar to that which he had observed during a professional development video. He said, “The professional development that we went to was awesome. I love the idea of co-teaching. I think it’s great for the kids. Parents love the idea.” He noted that Kim preferred to conduct small group instruction in his
classroom, adding that it was also her classroom. Kim also felt that the classroom was a shared space. She said, “Steve makes small comments like, ‘Ms. R. and my classroom’ or, ‘Come to me and Ms. R.’ Just simple things like that establish the classroom as belonging to both of us.”

In later interviews, Steve spoke about his appreciation for Kim’s expertise and having an additional teacher in the afternoon math class. Steve understood the importance of Kim’s daily small group instruction during class math lessons. He made certain to discuss the timing of these lessons and the students to be involved in these lessons on a regular basis. Steve did not voice a concern about the differences in teaching experience, although Kim had less teaching experience than Steve.

Informal co-planning: Case 2, Steve and Kim. Data collected during classroom observations supports the claim that Steve and Kim’s engagement in co-instruction was influenced by the manner in which they engaged in co-planning. Steve and Kim referenced informal co-planning throughout the study. They both reported instances where they would discuss the lesson in the hallway before school or during a transition period, although these instances were not observed. Kim co-taught in several other classrooms in the third and fifth grades, so she and Steve were more limited in terms of their shared available time. Despite their limited formal co-planning time, they were frequently observed informally co-planning during instruction (see Table 4.6). Steve and Kim co-planned informally on at least one occasion in 63% of their observed lessons. Additionally, several other conversations between Steve and Kim were observed throughout the study. For example, Steve and Kim greeted each other.
daily upon her arrival to the classroom. Steve supported Kim’s decisions when particular students displayed undesirable behaviors or used an inappropriate tone towards students or teachers (Observations 9 and 15). They took turns explaining new or difficult concepts in different ways to the students.

Table 4.6

*Informal Co-Planning: Case 2, Steve and Kim*

<table>
<thead>
<tr>
<th>Observation</th>
<th>Context</th>
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<tbody>
<tr>
<td>Lesson 1</td>
<td>As the students worked independently on adaptive learning programs on laptop computers, Steve explained to Kim his plans to split the class in half for parallel instruction later in the lesson. The two went on to talk a bit about some of the ideas proposed to them in a recent staff development session. As parallel instruction began, both Kim and Steve talked openly about their next instructional steps, where students were experiencing difficulty, and next steps for the following lesson.</td>
</tr>
<tr>
<td>Lesson 2</td>
<td>During a whole-class lesson, Kim and Steve engaged in a discussion about how to challenge particular students who volunteered to participate in the lesson at the SMARTboard. As students were released from the lesson to get their computers, Kim and Steve discussed the lesson she had planned for a small group of students and they discussed the best time for her to teach that lesson during the math class.</td>
</tr>
<tr>
<td>Lesson 3</td>
<td>When Kim arrived in the class, Steve asked her about her small group instruction for the day. They compromised on when the lesson would take place during math class and shared their thoughts as to which students might benefit from Kim’s lesson. A second informal co-planning conversation occurred later on when Kim mentioned an additional strategy for adding 3-digit numbers. Steve had difficulty explaining this method to the class, so Kim took over as lead instructor for a few moments to explain to the class.</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>Co-teaching consultants visited Steve and Kim’s classroom during their fourth observed lesson. As students completed an exit ticket, Steve asked Kim if she would reteach the content to students who demonstrated difficulty. They shared several informal conversations throughout class as Steve assigned students to work with Kim and as she released them to their seats while updating Steve on their progress.</td>
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Table 4.6 cont.

Lesson 6  During this observation, Steve asked Kim to provide additional support to several students who had difficulty during the whole-class problem-solving lesson. As Kim worked with a small group of students, Steve checked in on their progress and asked Kim for estimates of how much more time she needed. He also shared with her that he had worked with the small group of students with disabilities prior to her arriving to class.

Lesson 7  As Kim arrived to class, students were working in pairs on a word problem. Steve explained the problem and how students had been progressing thus far. Steve and Kim decided that she would continue to check student work and provide small-group support as needed for the remainder of the class period.

Lesson 10 Kim and Steve informally co-planned during the midpoint of this tenth observation. As Kim worked individually with one student, Steve briefly discussed with her their plans for the rest of the class.

Lesson 11  This was an assessment period. Kim and Steve talked briefly to discuss the accommodations that the students required and they also discussed which students would work with each teacher for the test.

Lesson 12  As Steve was teaching a whole-class lesson about the ways to use a number line to help in solving addition problems, Kim arrived to the classroom. Steve identified several students who would benefit from a small-group approach and Kim discussed some ideas she had for working with them. Kim took several students to a small worktable in the classroom for additional support.

Lesson 13 Students worked independently on a workbook exercise while Steve and Kim monitored progress. Twice Steve and Kim discussed with each other what they were noticing about students’ performance.

Lesson 17 This was an assessment period. Kim and Steve talked briefly to discuss the accommodations that the students required and they also discussed which students would work with each teacher for the test.

Lesson 18 During this lesson, students completed the assessment from the previous day. Steve and Kim discuss the division of students. Later, when the test is completed by all students, Kim and Steve share a conversation about a particular student’s excellent test score.
Informal co-planning discussions allowed each teacher to be actively engaged in the lesson. For example, when Steve informed Kim that he had led a small group lesson with the students with disabilities prior to Kim’s arrival to class, she was prepared to help other students in a small group who may have experienced difficulties. Additionally, the informal co-planning discussions allowed the teachers to identify student needs while planning for their next instructional steps. Steve and Kim openly shared their observations of student progress with each other. Each of the informal co-planning episodes in Table 4.6 involved the sharing of ideas from both Steve and Kim. The co-planning discussions between Steve and Kim were easy to capture as they tended to occur in front of the students.

Steve typically taught a whole-class lesson prior to Kim’s arrival in class. By using online exit tickets, Steve was able to present Kim with informal assessment data to help discuss student needs as she arrived in math class daily. Because Kim arrived in class in the middle of math instruction daily, these conversations were important in helping her identify how her expertise would be of use during the latter half of math class. When assessment data had not been collected, Steve and Kim made observations, shared their findings, and discussed a plan for small-group intervention. In contrast to Jill, it was rare to see Kim in a non-instructional role during math co-teaching. Steve’s support of co-teaching and the degree to which he and Kim co-planned during co-instruction provided an opportunity for active engagement of both teachers during co-instruction.
Summary of results of co-instruction. Teachers were observed in many instructional roles. They delivered instructional content in the form of verbal or visual presentations. At times, teachers assessed student progress by posing questions. Behavioral and instructional feedback was provided to students verbally and in the form of token reward systems. Teachers often shared verbal exchanges with each other during instruction, and at other times they monitored students or supported their co-teacher by managing materials or technology.

The informal co-planning conversations that co-teachers in this study engaged in during instruction varied greatly. The infrequent co-planning between Tara and Jill did not provide an opportunity for Jill to have an active role in co-instruction. Tara tended to deliver infrequent instructions to Jill as to what concepts to teach in her absence. Tara had been hesitant to implement co-teaching in her afternoon math class. These hesitations about co-teaching combined with the infrequent uni-directional informal co-planning sessions did not allow Jill to expand her role in instruction. As a result, Jill fumbled through the few lead instructional opportunities she was given. Jill observed instruction most other times, managing students’ behavior when necessary.

Steve and Kim tended to participate equally in informal co-planning conversations. These conversations were fairly regular, occurring in 63% of the lessons observed for this study. Steve and the students warmly greeted Kim upon entering the classroom daily. She was debriefed as to what had occurred prior to her arrival, and instructional roles were discussed and acted upon throughout math instruction. Steve was sensitive to the fact that the students with disabilities required
daily small group intervention. At times Steve delivered this instruction, while it was more common for him to discuss with Kim the best opportunity for her to lead these lessons during the math block. Although Kim did serve in a supportive role in many lessons, her role as a support was always specific to the needs of the students. For example, she took easel notes on the lesson as presented by Steve in a particularly complex lesson on place value decomposition. Steve and Kim informally co-planned on a regular basis, allowing Kim to have an active role in daily math instruction. The frequent co-planning conversations between Steve and Kim allowed for multiple student grouping arrangements during instruction. This enabled Kim to assess the needs of all students in the classroom, not only the students with disabilities, and to design lessons to meet their individual needs. Kim was able to support all students in the classroom because she knew the content being taught, she had discussed her role during instruction with Steve, and she had prepared IEP-specific intervention lessons for selected students.

**Co-Reflection**

The third set of claims addresses teachers’ co-reflection. Data collected in this study indicates that Tara and Jill reflected on teaching and learning as individuals. Steve and Kim reflected on teaching and learning as a team. Co-reflection observations did not take place in terms of formal meetings at Sayworth, but co-reflection was captured in the form of reflective journals. Teachers noted that opportunities for co-reflection were rare due to the fragmented schedules of the special education co-teachers. They often shared ideas in the hallway as they passed each
other, or when they had time to talk during the lunch hour. Teachers commented on student performance, lesson content and pacing, and issues that were not directly related to the students or content of math class. At times, teachers also reflected on their own performance as co-teachers or as individual teachers. In some instances, teachers suggested improvements for future lessons.

When prompted to reflect together by completing reflection logs, co-teachers were hesitant to propose changes during shared reflection time. Tara and Jill, who co-planned infrequently, focused their reflection on issues of content coverage and timing or pacing issues. Steve and Kim, co-teachers who co-planned regularly during co-instruction, focused their reflection on student performance and teacher performance.

The following sections address co-reflection by co-teaching team.

**Co-Reflection: Case 1, Tara and Jill.** In their individual and joint interviews, Tara and Jill admitted that finding time to reflect was difficult. Because the special education teachers co-taught with multiple general education teachers, there was rarely an opportunity immediately after math instruction when Tara and Jill could reflect on the lesson that had just been taught. Jill added that reflection was often an opportunity for Tara to point out what had worked well in the lesson; Jill felt like she was not an active contributor to these reflective conversations.

Tara and Jill completed reflective journals after five observed lessons of their choosing. It was interesting that they recorded their individual reflections on each shared reflection log. For example, in one reflective journal, Jill noted that she was thinking about student performance on the upcoming assessment during instruction.
Tara, on the other hand, was thinking about time constraints and completing the entire lesson. Reflective journals indicated that Tara and Jill’s thoughts before, during, and after a lesson were often on different topics and raised different concerns.

Table 4.7 presents the frequency of themes that Tara and Jill reflected upon in their reflective journals. Tara and Jill’s reflections most frequently focused on content coverage and pacing. Tara, in particular, spoke about her concerns of adequate content coverage in the co-teaching model during interviews. This concern was also articulated in her responses in the reflective journals. She said, in interviews and in reflective journals, that her solo-taught morning math class was able to move more quickly and cover a greater amount of content as compared to her afternoon co-taught class. Jill often thought about issues unrelated to math teaching and learning in her portion of the reflective journals. For example, on one occasion a student’s behavioral episode in another classroom was on her mind during math instruction.

Table 4.7

*Themes Occurring in Co-reflection Journals: Case 1, Tara and Jill*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of Occurrences</th>
<th>Percent of total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content and timing</td>
<td>17</td>
<td>41%</td>
</tr>
<tr>
<td>Student performance</td>
<td>11</td>
<td>27%</td>
</tr>
<tr>
<td>Teacher performance</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td>Issue unrelated to math teaching and learning</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Propose an improvement to instruction</td>
<td>4</td>
<td>10%</td>
</tr>
</tbody>
</table>
The theme of least occurrence was that of proposing improvements to instruction. Both Tara and Jill indicated that they were uncomfortable pointing out needed improvements to one another. Jill said, “It wasn’t a ‘we both feel’ kind of environment, so….It is very indicative of the environment that we have.” Jill and Tara shared privately their thoughts with me during interviews, but the nature of their co-teaching partnership seemed to not foster a dialogue about making improvements. Jill said, “I was trying not to point out things (sensitive issues). I’m not that kind of person, so it was hard for me to do. I would think, ‘Wow, I wish we didn’t do 60 minutes of whole-group so I could do something.’” Jill’s ideas had been dismissed in the past, so she tended to keep her ideas to herself. Tara noted that she was more accustomed to reflecting on her own but that listening to her partner’s thoughts often made her consider other aspects of the lesson they had taught together. Tara shared, “Usually, in past years by teaching solo, I’ve just done reflections on myself…. I know that a couple of times, when a comment was given before me [by my co-teacher], my mind went in a different place.”

**Co-Reflection: Case 2, Steve and Kim.** Steve and Kim completed four reflective journals based on lessons observed throughout the study. In their early interviews, Steve noted that they tended to co-reflect if something negative occurred during instruction such as, “Oh, we totally bombed [that lesson]…what can we do about it or how can we change it up?” Similar to the other co-teaching partnership, Steve and Kim had difficulty finding time to co-reflect given the amount of time Kim spent co-teaching with other general education teachers. Kim and Steve noted that
their limited time together was focused on upcoming lessons rather than on past lessons.

They discussed each prompt as a pair and merged their thoughts into a single response per prompt. Steve said they chose to give a single merged response for each prompt because “well, it’s co-teaching!” He found the co-reflection time valuable because “you can see how you teach and how someone else interprets you.” Kim, too, found this time valuable. She noted that they were not the types of teachers who would typically reflect together in this way. She continued, “We never really talk about it after a lesson, so it was nice to hear what he had to say about these lessons.”

Table 4.8 presents the themes that Steve and Kim reflected on in their journals. Steve and Kim most frequently reflected upon the academic performance of their students. For example, before one lesson, Steve and Kim considered the degree to which the students who struggled to make progress would comprehend the new content to be introduced in the lesson. Steve and Kim did not respond to the reflection prompts in a way that indicated any concerns for pacing or content coverage, nor did they discuss issues that were unrelated to math teaching and learning.

Table 4.8

<table>
<thead>
<tr>
<th>Theme</th>
<th>Number of Occurrences</th>
<th>Percent of total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student performance</td>
<td>7</td>
<td>58%</td>
</tr>
<tr>
<td>Teacher performance</td>
<td>4</td>
<td>33%</td>
</tr>
<tr>
<td>Propose an improvement to instruction</td>
<td>1</td>
<td>8%</td>
</tr>
</tbody>
</table>
As in the case of Tara and Jill, Steve and Kim rarely proposed solutions for future lessons in their reflective journals. During follow-up interviews and member checks, Steve and Kim noted their mutual respect for each other and their gradual development as a co-teaching partnership. They both said that this respect for each other made it difficult for them to propose solutions for future lessons in the presence of their co-teacher. Kim mentioned, “I think you have these ideas in your head, but you don’t know if it is appropriate to say. You just don’t want to hurt their feelings.” Steve said, “I would like to propose more improvements for the kids,” adding that he wanted to remain sensitive about his suggestions.

**Summary of co-reflection.** The co-teachers in this study tended not to reflect on a regular basis. Co-teachers found it difficult to propose improvements to instruction while completing co-reflection journals despite how they engaged with each other during co-planning and co-instruction. The completion of co-reflection journals also differed between the two pairs of co-teachers in this study.

Tara and Jill’s co-teaching partnership did not include ongoing communication. Jill posited that because they were not accustomed to two-way dialogue, their co-reflection journals were completed individually on a shared form. Reflections most frequently noted Tara’s concerns for content coverage and the overall pacing of the lesson. Ten percent of all responses on the co-reflection journals proposed a solution to future math instruction.

Throughout the study, Steve and Kim’s co-teaching partnership included ongoing communication. This was also the case in their co-reflection journals. They
worked as a partnership to present a single response to each prompt. They were hesitant to openly propose improvements to future lessons for fear of hurting each other’s feelings. Their concern for student performance and teacher performance in their journals was also evident in their daily instruction and in the conversations they shared as they informally co-planned. The frequency of Steve and Kim’s informal co-planning conversations seemed to lead them to complete the co-reflection journals as a partnership. They tended to consider the same issues in their reflections and were able to settle on a single response for each prompt.

**Factors that influenced the co-teaching cycle at Sayworth.** The participating co-teachers and survey respondents indicated several factors that contributed to their perceived co-teaching difficulties. Although identifying these factors was not the primary focus of this study, the obstacles were shared on a recurring basis during interviews, observations, and other personal communications. This information provided a deeper understanding of co-teaching at Sayworth. Furthermore, these factors likely contributed to what was observed during co-instruction. Teachers noted that conflicting schedules contributed to the lack of co-teacher co-planning sessions. Teachers felt that there were limitations of the school’s part-time co-teaching model, and they also shared specific beliefs about the effectiveness of the math *Investigations* curriculum. These factors, which were mentioned by each of the participants on multiple occasions during interviews, personal communication, and observations, will be described briefly in the following sections.
Scheduling conflicts. Participants mentioned the difficulties they experienced when aligning the CCSS to the *Investigations* curriculum, something that Dr. Green acknowledged as a challenge. “I also think it’s really hard this year because we’re pushing the Common Core [State Standards] which is extremely challenging--completely different than what we’ve done before,” he said. He acknowledged the pressures that the new assessment program put on the teachers at Sayworth as they tried to plan lessons that would best meet the demands of the CCSS.

Both Tara and Jill had indicated in their individual interviews that they had time to co-plan within their regularly scheduled math team planning sessions. In a joint interview Tara explained that she and Jill were not provided time to co-plan as a co-teaching partnership. Jill also said that much of their co-planning together was “on the fly as [she] walked into the room.” In this exchange, Jill identified that co-planning was taking place upon arrival in Tara’s classroom. The teachers explained that other responsibilities such as professional development days, IEP meetings, and other obligations had not permitted additional co-planning sessions beyond their first attempt at a Friday morning meeting together.

Steve and Kim discussed a similar problem with scheduling conflicts during their joint interview. Because Kim worked with two grade levels, her preparation periods did not always align with Steve’s schedule. Kim indicated several times that she was very willing to co-plan with Steve before or after school, but Steve indicated that his preference was to work during school hours. Steve and Kim added that IEP
meetings often prevented them from co-planning as did other school-wide schedule changes.

The scheduling conflicts that both co-teaching pairs discussed correlate with my observations because I was not able to capture co-planning at Sayworth. When I expected to observe co-planning, teachers used these reasons to explain why planning did not occur on a particular day. In addition, the lack of co-planning time influenced the co-teachers’ roles during co-instruction.

**Limitations of part-time co-teaching.** The co-teachers in this study felt that part-time co-teaching was not an ideal instructional model and they mentioned several perceived limitations. All four participants suggested that part-time co-teaching was not co-teaching as it was meant to be enacted according to literature they read online and a workshop that they attended. They identified the part-time co-teaching model as a major contributing factor as to why they did not co-plan in pairs. General education teachers felt that having to share the special education teacher with other general education teachers (sometimes with other grade levels) made securing co-planning time very difficult. During an interview together, Tara and Jill discussed how their co-teaching situation was different. Referring to a 3-day workshop that they had attended on co-teaching at the beginning of the year, Tara said:

> Ours is a different model than [the other teachers who attended the workshop]. They have two teachers in the same room all day with the same students. *That’s* co-teaching.
Later, Tara added that research she had done online indicated that co-teaching was a full-day program, so she felt that her situation with Jill was not truly co-teaching. In this exchange, Tara and Jill also suggested that co-planning for co-instruction could result in lost time. Throughout the observation period, Jill arrived to class after instruction began on 4 of 20 observations. She was absent on several occasions as well. Tara said she was sometimes unaware if Jill may be needed in another classroom during afternoon math instruction or if she would be called to a training opportunity. Tara felt that planning for Jill’s involvement might not be the best use of their limited time together because of the uncertainty of her presence in the co-taught math class.

Tara and Jill also compared their model of co-teaching to the model that had been presented in the three-day training session and in much of the literature on co-teaching that Tara had consulted previously. They said that they felt like the minority in a room of co-teaching partners who co-taught together for the full school day. Tara and Jill had concluded that their co-teaching relationship was not truly co-teaching.

Steve and Kim mentioned differences between their co-teaching model and the co-teaching model that was introduced to them in the three-day training session. In a personal interview, Steve posited that co-teaching was “two people in the classroom all day, whereas we just have two-hour push-in time.” Kim agreed with Steve and said that her previous experiences in a full-day model led her to believe that “co-teaching is all-day co-teaching.”
Other Sayworth co-teachers who completed the online survey also viewed part-time co-teaching as an obstacle to co-planning time. One special education teacher noted that co-planning time with her general education co-teachers was not provided. She said that she received lesson plans from her general education co-teachers and worked to make modifications for students as needed. A second respondent, a general education co-teacher, noted that she planned all classroom lessons and her special education co-teacher would “just support what I am teaching” when she arrived to class. This general education teacher also said that the part-time model of co-teaching was ineffective. She said that her co-teacher “co-teaches with four teachers in the building...it is not possible for her to [co-plan] with all of the teachers.”

A third survey respondent reported that co-planning time was provided to her and her special education co-teacher. She had previously co-taught for the full day with her special education co-teacher; however, her responses indicated that they had an established routine. This respondent said that, “when the proper model of co-teaching (gen. ed and spec. ed. teachers are together all day long) is supported by all (school level admin. and district) it is widely successful.” Although this general education teacher found time during the school day to plan with her part-time special education co-teacher, her responses resonated with Tara, Jill, Steve, and Kim. There seemed to be overall agreement that a full-day approach to co-teaching would be more beneficial to teachers and students.
**Perceived challenges of the math curriculum.** Although all four participants felt that the *Investigations* curriculum was challenging for the students at times, Jill and Kim expressed stronger opinions. Jill said several times throughout the study that she did not support a scripted curriculum. She noted that the *Investigations* approach to teaching math was not something she was personally comfortable with, thus her expectation for detailed lesson plans to help her navigate. Jill also felt that her contributions or suggestions during co-planning time with the grade team were not valued, so she took on the role of listener during these meetings.

Kim noted that there was a gap between the current skill set of the students with disabilities and the expectations of the *Investigations* curriculum. In several interviews, she also expressed concern about the way in which the curriculum moved forward every day regardless of how well students understood a new concept. She felt that although she often noticed students’ inaccuracies, the lesson plans were already generated and the emphasis was to move forward the next day.

Participants, including several survey respondents, indicated that scheduling conflicts and the organization of the part-time co-teaching model were obstacles to co-teaching. Additionally, Jill and Kim felt that the curriculum emphasized skills for which the students with disabilities were not equipped to learn. Jill expressed discomfort with the overall math *Investigations* program approach and Kim felt that the curriculum advanced too quickly for many students. Their feelings about the appropriateness of the curriculum for students with disabilities may have influenced the roles that Jill and Kim played during co-teaching.
The need for a clear vision of co-teaching. Teachers did not feel that the school had a clear vision for the co-teaching initiative at Sayworth. One pair of co-teachers shared, “I think there’s just a mixed idea about the co-teaching… they’re [school administrators] pushing towards it, but still kind of finding their way.” Another pair said that the part-time model was new to the school and they were hoping for clearer guidance on how to make it work. “It’s [part-time co-teaching] still new to them, so yeah we figure it out,” another teacher shared.

Chapter Summary

This chapter described several claims as supported by the data collected in this study. Interview and observational data collected in this study suggests that general education teachers lead the co-planning process at Sayworth. Special education co-teachers and general education co-teachers had different expectations for co-planning and their engagement in the co-planning process differed. General education teachers played a lead role in co-planning as they tended to organize and align the content to be taught within the pacing of each instructional unit. Special education teachers had expected more detailed conversations to take place during co-planning. For example, they expected conversations relevant to their unique co-taught classes and the roles of the two teachers in these classes. Because planning is the first step in the cycle of teaching (Tyler, 1949) and co-teachers had different expectations for co-planning, it seems that co-planning may have influenced the types of co-instruction and co-reflection that were observed.
The frequency and content of informal co-planning between Tara and Jill likely influenced the observed and reported roles during co-planning, co-instruction, and co-reflection. Tara and Jill informally co-planned during 20% of all observations. Jill’s efforts to teach in Tara’s absence indicated a need for more preparation as Tara would end instruction promptly upon returning to the class or observe the need to reteach the content. Students expressed their confusion and Jill expressed her dissatisfaction with her own teaching. Co-planning seemed to only take place when Tara needed to leave the classroom. Jill felt out of place as a co-teacher in this classroom, and she and Tara did not engage in two-way conversation to arrive at a combined response to the co-reflection journal prompts. Instead, their responses indicated that they focused on very different ideas, often related to issues of content and timing.

Steve and Kim’s observed and reported roles during co-planning, co-instruction, and co-reflection were likely influenced by the frequency and content of their informal co-planning. Steve and Kim informally co-planned during 63% of all observations. Their informal co-planning resulted in co-instruction that led to student learning during in-class discussions and as reported by the teachers. By having specific duties during co-instruction, these two co-teachers were able to monitor student progress, report their findings to one another, and discuss their next steps for co-instruction. Additionally, Steve communicated with Kim regularly about the small group instruction she had planned and the students she planned to include in these
lessons. They engaged in co-reflection as a partnership, discussing each prompt and agreeing on a unified response.

In sum, special education teachers and general education teachers at Sayworth seemed to have different expectations for co-planning. These different expectations contributed to different levels of engagement in the co-planning process. The degree to which co-teachers engaged in co-planning influenced their involvement in the co-instruction process. By finding opportunities to informally discuss daily lessons, co-teachers had more opportunities to actively engage in co-instruction in a variety of lead and supportive roles. Furthermore, co-teachers who participated in informal co-planning reflected on instruction as a partnership. It remained difficult for co-teachers to propose improvements to instruction regardless of the degree to which they co-planned and their engagement in co-instruction.
Chapter 5

DISCUSSION

The purpose of this study was to identify the roles of elementary math co-teachers during co-planning, co-instruction, and co-reflection and the processes that they engage in. This study has important implications for theory and practice. These findings may provide guidance for future co-teaching research. This chapter begins with a discussion of the theoretical contributions of the study’s findings including a proposed theoretical model for the cycle of co-teaching. Next, implications for pre-service and in-service teacher education programs and a summary of the implications for the implementation of co-teaching will be discussed. The chapter will close with the limitations of this study and proposed future research.

The purpose of this study was to describe co-teachers’ roles during co-planning and the processes that they engage in while co-planning. In the existing co-teaching literature there is little evidence of the co-planning process that co-teachers engage in. Special education teachers often engage in an assistive role during co-planning. Results from existing literature and studies on co-teaching suggest that co-planning time be provided for co-teachers (Meyers et al., 1991; Tobin, 2005; Walther-Thomas, 1997; Welch, 2000); however the specific tasks and planning activities to be made during co-planning are not described.
In the current study, the teams of co-teachers engaged in co-planning in different ways. For both teams, teachers planned the lesson content and activities as part of the grade-level team meetings and shared the plans across all third grade teachers. As members of the grade-level teams Tara and Steve (GE) assumed responsibility for planning lessons and sharing them with their co-teachers Jill and Kim (SE). Across the two cases, there were differences in planning among the team members. Co-planning occurred infrequently between Tara and Jill. Tara led the five observed co-planning conversations in a uni-directional format; she delivered instructions to Jill prior to Jill assuming a lead role in Tara’s absence from the classroom. Steve and Kim, however, engaged in frequent co-planning during instruction. Kim created supplemental lessons to deliver to small groups of students. These lessons were complementary to the curriculum goals. In this study, special education teachers considered students’ IEP goals and available supplemental resources during planning, while general education teachers considered broader content goals, curriculum materials, and general evaluation procedures. It is possible that general education teachers prioritized their responsibilities for content delivery and teaching the class as a whole as a result of the increased pressures associated with the adoption of the CCSS. Planning for content coverage is a priority for general education teachers in education research (McCutcheon, 1980). Special education teachers prioritized their responsibilities for the needs of students with disabilities.

Teachers seemed to be working together to meet the demands of competing priorities. Dedicated planning time to adapt general education lessons to meet the
needs of students with disabilities as well as all students in the classroom seems necessary if both priorities are to be addressed. The informal co-planning observed between Steve and Kim allowed them to manage these competing priorities. Steve and Kim shared observations, discussed the instructional needs of the students, and problem-solved during these informal co-planning sessions. In doing so, they were able to exchange roles frequently as they maintained an active role in instruction. The informal co-planning observed between Tara and Jill did not allow them to manage competing priorities of content alignment and the needs of students with disabilities. Jill often felt unprepared to engage actively in instruction, while Tara felt pressure to increase content coverage to stay on pace with other third grade teachers.

A second purpose of this study was to describe co-teachers’ roles during co-instruction and the processes that they engage in while co-instructing. Little is known about the specific instructional practices of co-teaching teams, although there is abundant literature providing recommendations on the ways in which co-teachers can group students and the roles that each co-teacher can assume. In this study, the co-teaching teams engaged in co-instruction in different ways. Tara and Jill’s co-instruction was primarily led by the general education teacher. Jill typically observed instruction or issued behavioral corrections to individual students. Jill initiated individualized instruction on one occasion, although she did not have the support of her co-teacher. The one teach, one observe model of co-teaching in which Tara served as the lead teacher characterized co-instruction in Tara and Jill’s classroom.
Steve and Kim engaged in co-instruction in a different way. Steve and Kim often traded roles. Steve spent much of his time leading whole-class instruction, although he often worked with small groups of students who needed additional support. Steve and Kim’s instruction included a variety of instructional models. Steve and Kim also co-planned informally throughout instruction. They exchanged roles frequently and student grouping arrangements varied.

Collectively, both co-teaching teams implemented instructional strategies that are described in the literature. Across the cases, special education co-teachers shared observations of student progress with their general education co-teacher while general education teachers adapted the pacing of the lesson and delivered most instruction. The co-instructional practices observed in Tara and Jill’s classroom did not reflect best practices for meeting the needs of students with diverse academic and social needs (Ploessl, Rock, Schoenfeld, & Blanks, 2010). For example, the reliance on whole-class instruction did not include opportunities for differentiated instruction, one approach students with disabilities may have needed to be successful. The co-instructional practices observed in Steve and Kim’s classroom was better aligned with co-teaching best practices (Murawski & Lochner, 2011). Steve and Kim actively engaged with students, arranging the students into flexible groups as needed. Frequent communication between teachers during co-instruction allowed for both teachers to remain informed of student progress throughout the lesson.

The third purpose of this study was to describe co-teachers’ roles during co-reflection and the processes that they engage in while co-reflecting. Research on
teaching indicates that teachers engage in mental reflection with particular attention to reviewing teacher and student performance. Although reflection is part of the cycle of teaching, it is often studied in isolation from planning and instruction. In this study Tara and Jill reflected as individuals as they completed their reflection journals. Their responses indicated that they had different concerns before, during, and after instruction. Tara and Jill found it difficult to propose improvements during reflection. By engaging in co-reflection as individuals, Tara and Jill were not able to communicate about their personal preferences and styles, a key factor in a successful co-teaching relationship (Keefe, Moore, & Duff, 2004). Steve and Kim completed reflection journals together as a co-teaching team. Despite their difficulty proposing improvements to future instruction, Steve and Kim’s co-reflection included many aspects of productive co-reflection (Keefe et al., 2004; Ploessl et al., 2010). They discussed the lesson together after teaching it and arrived at a singular response to the journal prompts. They reflected on teacher performance and student performance in their reflections in relation to objective data.

Across the cycle of teaching, the two teams engaged in co-planning, co-instruction, and co-reflection in different ways. Issues such as scheduling, sufficient time to plan, comfort level with the curriculum, and opportunities to communicate had an impact on the way co-teaching was implemented within each classroom. These issues are similar to the issues identified in the literature about co-teaching (e.g., Noonan et al., 2003; Tobin, 2005; Walther-Thomas, 1997). How the teams were able to negotiate these issues and find solutions varied. Some activities, including
components of co-planning and co-instruction that supported collaborative instruction, are important additions to a model of planning that applies to co-teachers.

**Adapted Flow of Planning Process Model for Co-Teaching**

Based on the results of the current study in conjunction with existing literature and co-teaching research, I propose an alternative theoretical model to describe the components of planning, instruction, and reflection in an optimal co-teaching setting. Schumm and Vaughn (1992) describe the ways in which solo teachers are influenced by their own teacher-, environment-, and student-related factors. Previous research has cited the importance of communication between co-teachers (e.g. Hang & Rabren, 2009; Noonan et al., 2003). Figure 5.1 shows a proposed adaptation of Schumm and Vaughn’s model with consideration of both partners in a co-teaching arrangement. This model is based on the ways in which Steve and Kim engaged in co-teaching cycle. The figure is organized by teaching component (planning, instruction, and reflection). Teacher-related, environment-related, and student-related considerations are pluralized in this adapted model to illustrate the influence of two unique teachers with competing instructional demands and the inclusion of students with disabilities.

Existing theoretical models on the cycle of teaching apply to solo teachers (Eisner, 1967; Hall & Smith, 2006; Schumm & Vaughn, 1992; Tyler, 1949). The existing models do not take into account the unique characteristics of an instructional model that includes two teachers. The adapted model (See Figure 5.1) includes the expectations of co-planning as shared by the participants in this study. For example, special education teachers in this study wanted to discuss with their co-teachers the
alignment between the math curriculum and students’ IEP goals, so this is included within the model as *identify lesson objectives and evaluate their fit with IEP goals*.

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**Figure 5.1** *Adapted Schumm and Vaughn (1992) flow of planning process model for co-teaching*
Schumm and Vaughn (1992) note that a solo teacher monitors student progress and adapts a lesson as needed during instruction. The addition of a second teacher in co-teaching allows more opportunities for monitoring student progress, so opportunities to share observations of student progress during co-instruction are necessary. Because each teacher brings unique skills and beliefs to a co-taught classroom, co-reflection can provide an opportunity for the discussion of proposed instructional improvements and student progress.

In sum, the findings of this study suggest that Schumm and Vaughn’s theoretical model for solo teaching is less applicable to co-taught classrooms. The proposed adapted theoretical model articulates the considerations of co-teachers during planning, instruction, and reflection. Previous models for solo teaching do not directly apply to the co-taught classroom, in which two teachers work to meet curricular demands work with a diverse group of students. In the following section, implications for the implementation of co-teaching will be discussed.

**Implications for Implementation**

The results of this study have several implications for the implementation of co-teaching in schools. The existing literature and research on co-teaching indicates the importance of voluntary partnerships (Nilholm & Alm, 2010; Minke et al., 1996; Salend, et al., 1997; Tobin, 2005). If teachers are given the option of co-teaching and they are hesitant, school administration may wish to restructure co-teaching partnerships or provide ongoing training, observation, and feedback. The findings of this study align with previous findings about voluntary co-teaching partnerships. Tara
initially declined participation in the co-teaching model. Observations and interviews with Jill indicated that she felt unsure about her role in the co-teaching partnership, and at times she wondered if Tara preferred to teach as a solo teacher. Steve was excited about working with another professional, and he noted his appreciation for Kim’s expertise. The co-teaching partnership of Steve and Kim resulted in a pairing in which both teachers engaged in informal co-planning, co-instruction, and co-reflection. The two cases in this study provide further support of the importance of voluntary participation in the co-teaching model.

Existing literature emphasizes the importance of scheduled co-planning time for co-teachers (e.g., Walther-Thomas, 1997; Welch, 2000). Co-teachers who co-plan during assigned periods of the school day engage in co-planning in more productive ways than teachers who plan outside of the school day (Welch, 2000). Administration should consider the available co-planning time when enacting a co-teaching model in schools. Dr. Green also encouraged co-teachers to plan together outside of school hours in exchange for compensation. Dr. Green indicated willingness to hire substitute teachers to accommodate additional in-service co-planning time. This compensated planning time seemed not to be an effective means for encouraging co-planning as co-planning was not observed during established co-planning times. Teachers also indicated that they did not engage in compensated planning time outside of school hours. The availability of compensated planning time did not lead to an increase in co-planning between co-teachers.
Previous co-teaching research has indicated the need for adequate co-planning time for each co-teaching team. Teachers in this study reported that a single daily period of co-planning was not adequate when individuals co-taught with multiple teachers in multiple grade levels. Walther-Thomas (1997) notes that equal co-planning time with each co-teacher is important for meeting the needs of all students. Welch (2000) suggests that administrators may wish to designate specific times for special education co-teachers to plan with their general education co-teaching partners. Special education teachers in the current study reported the difficulties attributed to co-planning with several teachers across multiple subject areas and grade levels. Perhaps assigning special education co-teachers to particular grades or subjects can alleviate some of the difficulties of finding adequate co-planning time.

Lack of adequate teacher training has been cited as a concern in previous co-teaching literature (Magiera & Zigmond, 2005; Nevin et al., 2008; Rea et al., 2002; Walther-Thomas, 1997). This lack of teacher training continues to be a concern today despite the increase in inclusive and collaborative classrooms at a time of increased accountability for student learning. Professional development opportunities have been linked to positive student outcomes (Klingner et al., 1998) when co-teachers meet together to problem-solve as infrequently as once per month. The four co-teachers in the current study participated in a three-day workshop at the beginning of the school year. Each co-teacher reported their initial excitement with the ideas presented in the workshop. As the year progressed, observations of co-teaching indicated routine practices. For example, Jill routinely watched Tara’s instruction without having a
defined teaching role and Kim routinely provided a daily small-group intervention for students with further academic needs. Providing co-teachers with further opportunities to explore co-teaching in a professional setting at multiple points of the school year could strengthen their relationship. Additionally, these additional training and development opportunities could free co-teachers from what has become a routine, challenging them to implement new approaches to co-teaching in their classes.

The conclusions of this study indicate that educators may benefit from training opportunities that are specific to issues in collaboration. Tara and Steve were experienced solo teachers who were new to co-teaching; however, they adapted to co-teaching in different ways. Grade-level planning was a common planning process at Sayworth, although teachers engaged in this activity in isolation rather than collaboratively. Steve and Kim’s attempts to discuss ways to adapt lessons during grade-level planning sessions were not something that the other teachers welcomed. With the adoption of inclusive classes for students with disabilities, many teachers find it difficult to make changes to their teaching and planning practices. Teachers may be accustomed to planning, instructing, and reflecting on their own and they may find the need to adjust to sharing a classroom space with another professional. An emphasis on collaboration during planning, instruction, and reflection can assist in developing teamwork among the school staff.

**Implications for Teacher Education**

The results of this study have several implications for teacher education. Much of the pre-service and in-service teacher education research focuses on the solo teacher
(e.g., Hall & Smith, 2006; Marcos et al., 2008; Schumm & Vaughn, 1992). Murawski and Lochner (2011) provide suggestions for observing co-teaching, but the extant co-teaching literature lacks information about how to engage in co-planning, co-instruction, and co-reflection. The participants in this study did not recall specific aspects of their teacher training programs that prepared them for co-teaching. If students with disabilities continue to be educated in inclusive classrooms where co-teaching may occur for a portion of the school day, the teaching professionals must have adequate knowledge of how to engage in a co-teaching partnership.

One study of pre-service teacher education suggests that pre-service teachers are open to the idea of co-teaching (Arndt & Liles, 2010). Additionally, Arndt and Liles (2010) found that pre-service teachers felt that those pre-service teachers in a general education program held a different knowledge base than those pre-service teachers in the special education program. Pre-service general education teachers indicated that they placed less value on the role of the special education pre-service teacher. It is probable that the beliefs established during pre-service teacher education continue into in-service teaching. An emphasis on collaboration during pre-service teacher education could challenge such beliefs. Kamens (2007) argued the importance of providing pre-service teachers with an opportunity to learn how to negotiate with a co-teacher in a classroom. The proposed adapted model for co-teaching in Figure 5.1 can serve as a starting point for teaching pre-service teachers how to engage in co-teaching, with particular emphasis on co-planning. Attention to the unique skills of
special and general education teachers can result in instruction that meet the needs of all learners in diverse classrooms.

Summary of the implications of the findings. The findings in this study have implications for theory, implementation, and teacher education. An adapted theoretical model that identifies the specific teacher, environment, and student-related factors unique to a co-taught classroom may provide guidance for future co-teaching research. Several considerations should be made when implementing co-teaching. Results of this study indicate that teachers who voluntarily participate in co-teaching may engage in the processes of co-planning, co-instruction, and co-reflection as a partnership. Opportunities for in-school co-planning are necessary as co-teachers in the study did not engage in co-planning outside of the school day. An adequate opportunity for co-planning with each co-teacher is something to be considered when configuring the co-teaching teams. It may be advantageous for special education teachers to be assigned to specific grades or content areas to reduce the co-planning demands. Professional development opportunities that are specific to the needs of collaborative schools and the co-teaching model can provide teachers with a professional network and other resources for continued professional growth. Furthermore, the results can inform teacher education programs so that pre-service teachers can engage in coursework more relevant to the collaborative roles they may engage in as in-service teachers.

The following section addresses the limitations of this study. Limitations of the design of the study as well as the method will be discussed. Following discussion of limitations, ideas for future research will be presented.
Limitations

This study has several limitations. The participants in this study included new co-teaching teams. Teachers with prior experience in a co-teaching partnership were not selected for this study. Because there were four voluntary participants, a criterion for prior co-teaching experience was not set. Each co-teaching team included a special education teacher with less experience than her general education co-teacher. Tara, the teacher with the greatest amount of teaching experience (13 years), was accustomed to solo teaching. She was partnered with a new teacher, Jill. Steve solo taught for seven years. He was partnered with a special education teacher, Kim, who was accustomed to a full-day model of co-teaching. Kim was also new to Sayworth. These two factors limit the conclusions that can be made about how co-teachers engage in co-teaching in general.

There was limited time to observe the co-teaching teams. One marking term was permissible for all classroom observations so as not to interfere with statewide and district-wide testing. Despite attempts to avoid scheduling conflicts, numerous interruptions occurred in the form of teacher absences, staff development days, and weather-related school cancellations. It is possible that the co-teaching teams in this study were still developing as partnerships, a trajectory that may have continued beyond the duration of this study.

Beyond the limitations associated with the setting and participant characteristics, this study did not investigate the mental planning processes of the participants. Mental planning has been studied previously in education research.
(Borko et al., 1990; Hall & Smith, 2006). Finding a way to capture this mental planning either in a written journal form, daily debriefs, or audio-recorded journals would provide additional evidence of teacher planning processes. Additionally, indicators of teacher quality (e.g. subject matter knowledge and knowledge of teaching and learning) were not investigated in this study.

A primary concern in education research is student performance outcomes. Although this study had planned for the collection of student work samples, the structure of the curriculum was not one in which students produced multiple work samples throughout the marking period. As a result, student learning outcomes were not measured in this study. It would be important for future co-teaching research to collect several student work samples to connect the observed teacher behaviors to student learning outcomes. Designing a specific schedule and procedure for collecting work samples that is considered manageable by the teachers could provide additional data about student outcomes. The collection of work samples at the end of the academic year may also allow for the ongoing observation of co-teaching and the later connection to student outcomes.

A methodological limitation to this study is that co-teachers were not explicitly asked to define co-planning, co-instruction, and co-reflection. They were asked to describe what each of these activities may look like in their classes as well as their expectations for each of these activities, but teachers were not asked to provide explicit definitions. Understanding how teachers envision these concepts can provide
further insight as to the differences observed in special education and general education co-teachers.

The following section addresses proposed future research resulting from the current study’s limitations and the unanswered questions that remain.

**Future Research**

The results of this study indicate several areas for future research. Research on co-teaching in mathematics has been limited to secondary classrooms. This study included only third grade math co-teachers, one aspect of co-teaching which has not been previously studied in co-teaching research. Findings indicate that special education teachers tend to assume a supportive role due to the general education teacher’s reliance on whole class instruction in mathematics instruction (e.g., Magiera, Smith, Zigmond, & Gebauer, 2005). It is possible that the processes that the study participants engaged in and the roles that they played may be specific to their grade level and content area. In Sayworth, the math curriculum was pre-planned in the form of scripted teacher guidebooks; therefore teachers may have felt less inclined to make changes to the scripted program. Previous studies of part-time co-teaching did not explore mathematics co-teaching at the elementary level (e.g. Affleck et al., 1988; Saint-Laurent, et al., 1998; Zigmond & Baker, 1994), therefore this is a contribution of the current study and a concept for additional future research.

Future studies of co-teaching in other content areas are warranted. Co-teachers may enact co-teaching in different ways depending on the subject matter being taught and their comfort with the content area. The analysis of the roles of co-teachers who
are less bound to a prescribed curriculum as *Investigations* may illuminate to co-teaching roles and processes. Participants in this study noted that they were expected to teach the prescribed curriculum with little deviation. Schools in which co-teachers can select from a variety of curricular materials to meet the needs of students may enact co-teaching in very different ways; however, the likelihood of this level of teacher choice may not be readily available.

The findings of the current study call for future longitudinal studies on co-teaching. In studying co-teaching practices for a period longer than one trimester, changes in co-teachers’ roles can be identified. It would be equally important to explore the ways in which their planning, instructional, and reflective practices change over time, if at all. It may also be important to capture the mental planning that teachers engage in through written or video-recorded journaling, think-alouds, or bug-in-ear technology. Teachers engage in mental planning (Borko et al., 1990; Hall & Smith, 2006) and capturing this aspect of planning could contribute to a greater understanding of the entire co-planning process, particularly if these mental plans were shared between co-teachers.

It is possible that co-teachers with previous experience working together may collaborate in different ways than those co-teachers in new partnerships. The roles that co-teachers enacted and the processes that they engaged in may be indicative of their lack of prior experience with co-teaching in general and in working with their specific partner. Further co-teaching research should focus on experienced teams of co-teachers who have been positively evaluated as teaching teams by the school
administration. Studying experienced teams of co-teachers may allow the observation of processes that enhance co-teaching. Previous co-teaching literature (e.g. Gately & Gately, Jr., 2001) has indicated the importance of a positive relationship and a positive communication style between co-teachers. This can be difficult to achieve in the early stages of a co-teaching relationship. The selection of new co-teaching teams in this study is one contribution to co-teaching research worthy of future study.

It may be also be worthwhile to research the ways in which pre-service teacher education programs currently prepare their teaching candidates for co-teaching. Likewise, research on the types of training provided to in-service teachers may lead to more rigorous in-service professional development opportunities. With the emphasis on inclusive classrooms, it is important that general education and special education teachers receive adequate training so that they can work together effectively in co-taught settings. Understanding current practices can provide direction for future training options.

**Summary of the Study**

Co-teaching is one approach to special education service delivery for students with disabilities. Co-teaching research has focused largely on teachers’ administrators’ and families’ perceptions of co-teaching with little attention the specific practices of co-teachers. The purpose of this multiple-case study was to describe co-teachers’ roles and processes during co-planning, co-instruction, and co-reflection. Data sources included interviews, a survey, classroom observations, planning documents, and reflection journals. Qualitative analysis revealed several findings. General education
and special education teachers had different expectations for co-planning. General education teachers took a lead role in planning lessons and these lessons were often distributed to the special education teacher either before or during instruction. The ways in which co-teachers co-planned and the frequency with which they co-planned influenced the ways they engaged during co-instruction. For example, frequent co-planning allowed for both teachers to maintain an active role during instruction. Despite the degree to which co-teachers communicated before, during, and after teaching, they found it difficult to propose improvements to instruction in the presence of their co-teacher.

The findings of this study have implications for theory, the implementation of co-teaching, and teacher education. The adapted model for the co-teaching cycle provides some of the considerations to be made for pre-service and in-service teacher education. For example, the model provides examples of the competing priorities to be considered when a general education and a special education teacher work together. The results of this study support previous evidence suggesting that voluntary partnerships are most productive when selecting co-teaching teams. School administrators can assemble co-teaching teams in a way that allows for regular in-school co-planning and opportunities to become subject-specific teachers with fewer planning demands. Such arrangements can allow special education teachers to engage more productively with their co-teachers. Furthermore, teacher education programs should work towards preparing all pre-service teacher candidates for a collaborative classroom. Perhaps collaborative skills can be taught to encourage more productive
co-teaching partnerships. Although this single study does not provide a definitive description of the cycle of co-teaching, its findings are a critical first step in the continued exploration of the co-teaching model.
REFERENCES


*Brown vs. The Board of Education of Topeka, Kansas*, 347 U.S. 483 (U.S. Supreme Court May 17, 1954).


## Appendix A

### CO-TEACHING: SUMMARY OF OUTCOMES

<table>
<thead>
<tr>
<th>Citation</th>
<th>Inclusion model</th>
<th>Grade level</th>
<th>Outcome data</th>
<th>Measures</th>
<th>Direction of results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affleck, Madge, Adams, &amp; Lowenbraun (1988)</td>
<td>ICM: full-day inclusion with a part-time aide for co-teaching</td>
<td>1-6</td>
<td>Academic</td>
<td>Woodcock-Johnson Psycho-Educational Battery, California Achievement Test</td>
<td>Mixed</td>
</tr>
<tr>
<td>Jenkins, Jewell, Leicester, O’Connor, Jenkins, &amp; Troutner (1994)</td>
<td>Part-time in-class instructional support from specialists</td>
<td>K-6</td>
<td>Academic</td>
<td>Metropolitan Achievement Test, Basic Academic Skills Samples, Passage reading tests, Gates-MacGinitie Reading Test, Walker-McConnell Scale of Social Competence and School Adjustment</td>
<td>Positive</td>
</tr>
<tr>
<td>Jenkins, Jewell, Leicester, Jenkins, &amp; Troutner (1991)</td>
<td>Part-time in-class instructional support from specialists</td>
<td>1-6</td>
<td>Academic</td>
<td>Basic Academic Skills Samples, Passage reading tests, Gates-MacGinitie Reading Test, Woodcock-Johnson Psycho-Educational Battery, Walker-McConnell Scale, teacher ratings</td>
<td>Mixed</td>
</tr>
<tr>
<td>Klingner, Vaughn, Hughes, Schumm, and Elbaum (1998)</td>
<td>Co-teaching for 45-90 minutes daily</td>
<td>3-6</td>
<td>Academic</td>
<td>Basic Academic Skills Samples-Reading, Kaufman Test of Educational Achievement, Qualitative Reading Inventory, Mathematics Concepts and Applications Test</td>
<td>Mixed</td>
</tr>
<tr>
<td>Nevin, Cramer, Voigt, &amp; Salazar (2008)</td>
<td>Full-day co-teaching</td>
<td>4</td>
<td>Academic</td>
<td>Classroom observations, teacher interviews, standardized state test results</td>
<td>Positive</td>
</tr>
<tr>
<td>Nilholm &amp; Alm (2010)</td>
<td>Full-day co-teaching</td>
<td>5</td>
<td>Social</td>
<td>Teacher and student interviews, classroom observations</td>
<td>Mixed</td>
</tr>
<tr>
<td>Authors</td>
<td>Program/Project</td>
<td>Time</td>
<td>Area</td>
<td>Measures</td>
<td>Type</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------</td>
<td>------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Saint-Laurent, Dionne, Giasson, Royer, Simard, &amp; Pierard (1998)</td>
<td>PIER Program (part-time co-teaching with weekly consultation)</td>
<td>3</td>
<td>Academic</td>
<td>District test in reading, writing, and math</td>
<td>Mixed</td>
</tr>
<tr>
<td>Schulte, Osborne, &amp; McKinney (1990)</td>
<td>Part-time consultation with direct instruction</td>
<td>1-4</td>
<td>Academic</td>
<td>Woodcock-Johnson Test of Achievement, school district reading assessment, teacher questionnaires</td>
<td>Mixed</td>
</tr>
<tr>
<td>Self, Benning, Marston, &amp; Magnusson (1991)</td>
<td>CTP: 25 minutes of push-in literacy support daily</td>
<td>K-3</td>
<td>Academic</td>
<td>Curriculum-Based Measures</td>
<td>Positive</td>
</tr>
<tr>
<td>Sharpe, York, &amp; Knight (1994)</td>
<td>Students with disabilities were included in classrooms during Years 2-3 of this study</td>
<td>1-4</td>
<td>Academic</td>
<td>Science Research Associates Assessment Survey, Houghton Mifflin series tests, report card data</td>
<td>Mixed</td>
</tr>
<tr>
<td>Wang &amp; Birch (1984)</td>
<td>ALEM</td>
<td>1-3</td>
<td>Academic, Social</td>
<td>Student Behavior Observation Schedule, Stanford Achievement Test scores, Perceived Competence Scale for Children</td>
<td>Positive</td>
</tr>
<tr>
<td>Zigmond &amp; Baker (1990)</td>
<td>MELD program: Part-time special education co-teacher support</td>
<td>K-5</td>
<td>Academic</td>
<td>California Achievement Test scores, Curriculum-Based Measure data, final report card grades, classroom observation data</td>
<td>Mixed</td>
</tr>
<tr>
<td>Zigmond &amp; Baker (1994)</td>
<td>MELD program</td>
<td>4-5</td>
<td>Academic, Social</td>
<td>Achievement measures, classroom observation data, teacher and student interviews</td>
<td>Mixed</td>
</tr>
</tbody>
</table>

**Note:** ICM = Integrated Classroom Model; PIER = Program for Students at Educational Risk; CTP = Cooperative Teaching Project; ALEM = Adaptive Learning Environments Model; MELD = Mainstream Experiences for Learning Disabled
Appendix B

PRINCIPAL INTERVIEW PROTOCOL

1. Tell me your name, and experience in education.
   a. Degrees awarded and from where?
   b. Years as a general education teacher? Grades?
   c. Years as a special education teacher? Grades? Role as a special education teacher?

2. Tell me a bit about the history of co-teaching at this school.
   a. How long has the program existed?
   b. What prompted the full-day co-teaching model at this school?
   c. How has the co-teaching model in the school changed over the years?

3. Describe the training that co-teachers in this school receive. How often are trainings?
   a. Do you have any written documents about the co-teaching model at this school that I could review to better understand the context of co-teaching in this school?

4. How are co-teaching teams evaluated?
   a. Are they evaluated as teams or individually?
   b. Are there differences in how you evaluate co-teaching teams as compared to solo teachers?
   c. What criteria do you use to determine the quality of co-teaching?

5. How would you describe the ideal co-teaching dynamic?

6. Tell me about some of the effective co-teaching teams that you have at this school. What makes them effective?
Appendix C

ONLINE CO-TEACHER SURVEY

Please complete the following information. Information provided will be kept confidential with the researcher. This information will be analyzed to better understand what co-teaching means in this particular school.

Your name: ________________________________________________________________

Please indicate your response to each question.

1. What teacher certification(s) do you currently hold? Circle all that apply.
   a. Early Childhood (N-2)
   b. Elementary Education (K-6)
   c. Middle School Education (6-8)
   d. Reading Specialist (K-12)
   e. Special Education
   f. Other (TESOL, Guidance/Counseling, Supervision):

________________________________________________________________________

2. Do you currently serve as the special education (SE) or the general education
   (GE) teacher in your co-taught classroom?

3. How long have you worked as a teacher?

4. How long have you worked in a co-taught classroom?

5. What grade(s) do you currently teach?

6. Are you provided time for co-planning?

________________________________________________________________________

1 This survey was formatted into the Qualtrics® software program and distributed electronically.
a. If yes….
   i. How often do you and your partner co-plan?
   ii. What things do you talk about while co-planning?

b. If no…
   i. Please describe how you and your partner plan for instruction.

7. What do each of you do, you and your co-teacher, during a typical lesson while teaching a class?

8. Are there ways in which you would like to improve upon your experiences with co-teaching during a lesson?

9. After teaching a lesson, how do you and your co-teacher think about what went well and what can be improved?
   a. When does this normally take place? (ex: afterschool, during lunch, while teaching, etc.)
   b. Where does this normally take place? (ex: our classroom, at home, etc.)

10. How do you assess student learning?
    a. Please describe or provide a list of tools you use to support your work assessing students’ learning, if you use any particular tools.

11. Would you say that co-teaching is effective at this school? Why or why not?

12. Is there anything else you wish to share about co-teaching in this school?
### Appendix D

**TIMELINE OF THE STUDY**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
</table>
| February, 2013      | Proposal defense  
Completion of revisions  
Completion of IRB materials  
Completion of materials for admittance into school district/school site |
| February-September, 2013 | School district selected  
School site was selected  
School site teacher participants were selected |
| October, 2013       | Met with administration and teachers to introduce the project  
Conducted teacher interviews (1 per teacher, total of 4) and administrator interview  
Transcribed interviews, presented to participants for review  
Established coding scheme for interview data and began coding  
Sent home informational forms to families |
| October, 2013-January, 2014 | Data collection  
Observed co-planning, co-instruction, and co-reflection  
Transcribed data on a daily basis  
Conducted three member checks in November, December, and January |
| January-February, 2014 | Coded data from observational data collection  
Coded interview data [with second coder (cont.)]  
Consulted and coded data with a second coder  
Analyzed data |
### Appendix E

**PROTOCOL ALIGNMENT TABLES**

*Research Question-Administrator Interview Protocol Alignment*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Interview Protocol Question</th>
<th>Alignment Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1, 2, 3: What roles do co-teachers play during co-planning, co-instruction, and co-reflection and what are the processes that they engage in?</td>
<td>2a-c. Tell me a bit about the history of co-teaching at this school.</td>
<td>Teacher training may be indicative of the school’s philosophy of co-teaching. Training may also provide teachers with guidelines that need to be followed when co-teaching. Some patterns of teacher behavior may come from training, and others may be the result of teachers’ decisions.</td>
</tr>
<tr>
<td></td>
<td>3, 3a. Describe the training that co-teachers in this school receive. How often are trainings?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4a-c. How are co-teaching teams evaluated?</td>
<td>The ways in which school administration measures teaching effectiveness may influence the roles and responsibilities that teaching teams take on</td>
</tr>
<tr>
<td>Research Question</td>
<td>Interview Protocol Question</td>
<td>Alignment Explanation</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>RQ1. What roles do co-teachers play during co-planning and what are the processes that they engage in?</td>
<td>5. What are some of your academic goals for your students?</td>
<td>Description of teacher roles and responsibilities during co-planning, and the processes they engage in. An understanding of the goals teachers have for their students can also support the decisions they make during planning.</td>
</tr>
<tr>
<td></td>
<td>6. What are some of your social/behavioral goals for your students?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. In your survey, you said that you meet [however] often to co-plan. Is this level of frequency satisfactory for you? Why or why not?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Please think about a recent instance when you co-planned as co-teachers. Describe it for me.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. [Follow up on anything that came up in the survey about planning…]</td>
<td></td>
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<tr>
<td></td>
<td>11. What is the most significant benefit to co-teaching in your particular classroom?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. What is the most significant limitation to co-teaching in your particular classroom?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. If you could make one change to how co-teaching looks in your classroom right now, what would it be?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Think about a recent lesson that you co-taught. a. Describe what each of you (you and your co-teacher) did throughout that lesson. Walk me through it a bit.</td>
<td></td>
</tr>
<tr>
<td>RQ3. What roles do co-teachers play during co-reflection and what are the processes that they engage in?</td>
<td>15. [Follow up on anything that came up in the survey about co-teaching.]</td>
<td>Description of co-teachers’ roles and responsibilities during co-reflection, and the processes they engage in.</td>
</tr>
<tr>
<td></td>
<td>16. Please think about a recent instance when you co-reflect upon a lesson as co-teachers. Describe it for me. (subquestions a, b, c, d, e, f)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17. [Follow up on anything that came up in the survey about reflecting…]</td>
<td></td>
</tr>
<tr>
<td>Research Question</td>
<td>Interview Protocol Question</td>
<td>Alignment Explanation</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Building co-teaching contextual background</td>
<td>2. Do you feel supported by your school administration with your work in co-teaching? Why or why not? How does the administration support the co-teaching model? How could the administration support the co-teaching model more effectively?</td>
<td>These questions not only highlight more specific roles and responsibilities of the co-teachers, but these questions also provide information about the ways in which they handle challenge. Challenge may cause roles and responsibilities to shift at times.</td>
</tr>
<tr>
<td></td>
<td>3. Who do you go to when you have a question/challenge with co-teaching? Why?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Can you give an example of a question or challenge that you have faced about co-teaching, as a team?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. How did you pursue support with your question or challenge? Did you receive the support that you hoped to have? What was the result of your effort to seek support?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. What problems have you faced, if any, during your day-to-day interactions with each other or your students?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. How do you and your partner divide the workload?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. Tell me about any training that you have had specific to co-teaching.</td>
<td>Information about training can help explain how co-teachers share the workload. It is possible that having a deeper understanding of co-teaching may lead to additional roles and responsibilities between co-teachers.</td>
</tr>
<tr>
<td></td>
<td>a. Have you read any books or attended workshops on co-teaching?</td>
<td></td>
</tr>
<tr>
<td>RQ1. What roles do co-teachers play during co-planning and what are the processes that they engage in?</td>
<td>7. What is the purpose of co-planning for the two of you? Is it a high priority for you? Why or why not? (subquestions a, b, c, d, e, f)</td>
<td>In-depth understanding of the role of planning and their roles in planning.</td>
</tr>
<tr>
<td>RQ2. What roles do co-teachers play during co-instruction and what are the processes that they engage in?</td>
<td>8. What roles do you and your co-teacher play during instruction?</td>
<td>In-depth understanding of the role of instruction and their roles in instruction.</td>
</tr>
</tbody>
</table>
9. Do you make changes during instruction? (subquestions a, b, c)

RQ3. What roles do co-teachers play during co-reflection and what are the processes that they engage in?

10. What is the purpose of co-reflecting, for the two of you? Is it a high priority for you? Why or why not? (subquestions a-f)

In-depth understanding of the role of reflection for the co-teachers as well as their roles in reflection. It is possible that, because of their different goals for students, they may have different responses during reflection.
Appendix F

TEACHER INDIVIDUAL INTERVIEW PROTOCOL

1. Why did you decide to become a teacher?
   A. Where did you get certified to teach?
   B. What degrees have you earned?
   C. How many years have you been a teacher?

2. What is different about working in this school than in other schools you have worked in?

3. Tell me about your experience with co-teaching thus far.
   a. Voluntary or assigned?
   b. What do you like about co-teaching? Dislike?

4. What is your philosophy of discipline and classroom management?
   a. Do you and your co-teacher agree or disagree about these goals?
   b. If you disagree at all, how do you resolve conflicts?

5. What are some of your academic goals for your students?
   a. Do you and your co-teacher agree or disagree about these goals?
   b. If you disagree at all, how do you resolve conflicts?

6. What are some of your social/behavioral goals for your students?
   a. Do you and your co-teacher agree or disagree about these goals?
   b. If you disagree at all, how do you resolve conflicts?

CO-PLANNING

7. In your survey, you said that you meet [the length of time or number of days] often to co-plan. What do you think about the amount of planning that you engage in? Is it enough? Why or why not?

8. Please think about a recent instance when you co-planned as co-teachers.
Describe it for me.

a. How did your co-planning meeting get scheduled? (for example, did one of you initiate it or are these meetings regularly scheduled and routinized?) What happened during the meeting?

b. What was your focus or goal during this co-planning meeting? Did you have a foregrounded academic content goal, a social and behavioral goal? What were your goals for your students during this planning meeting? Did you have some other goal that was the focus of your planning?

c. How smoothly did your co-planning meeting go? Were there any conflicts or points of tension that needed to be resolved?

d. What were examples of decisions that you made during this planning meeting? How did you make these decisions? (By consensus or some other way?)

e. Are there any ways in which you would like to improve how you interact with your co-teacher around planning?

9. [Follow up on anything that came up in the survey about planning…]

CO-TEACHING

10. Can you describe what an ideal co-teaching lesson might look like during instruction?

   a. How close are you to enacting this image?
   b. What is helping you or hindering you from enacting this image?

11. What is the most significant benefit to co-teaching in your particular classroom?

12. What is the most significant limitation to co-teaching in your particular classroom?

13. If you could make one change to how co-teaching looks in your classroom right now, what would it be?

14. Think about a recent lesson that you co-taught.
a. Describe what each of you (you and your co-teacher) did throughout that lesson. Walk me through it a bit.

b. How smoothly did co-teaching go during this lesson? Were there any particularly smooth moments?

c. Were there any points of tension while co-teaching this lesson?

15. [Follow up on anything that came up in the survey about co-teaching.]

**CO-REFLECTING**

16. Please think about a recent instance when you co-reflected upon a lesson as co-teachers. Describe it for me.

a. How did your co-reflecting meeting get scheduled? (for example, did one of you initiate it or are these meetings regularly scheduled and routinized?) What happened during the meeting?

b. What was your focus or goal during this co-reflecting meeting? Did you have a foregrounded academic content focus, a social and behavioral focus? What focus for your students during this reflecting meeting? Did you have some other goal that was the focus of your reflecting?

c. How smoothly did your co-reflecting meeting go? Were there any conflicts or points of tension that needed to be resolved?

d. What were examples of decisions that you made related to either revisions to your lesson or plans for future teaching that you made during this reflecting meeting?

e. How did you make these decisions? (By consensus or some other way?)

i. What rationales or evidence did you use to come to these decisions?

ii. IF NO MENTION OF STUDENT LEARNING DATA OR EVIDENCE OF ASSESSMENT DATA, how often do you and your co-teacher use student learning data to make
revisions to your lesson or instructional decisions for future lessons while reflecting?

f. Are there any ways in which you would like to improve how you interact with your co-teacher around reflecting?

17. [Follow up on anything that came up in the survey about reflecting…]
Appendix G

CO-TEACHING TEAM INTERVIEW PROTOCOL

1. How long have you two co-taught together? How did you become a co-teaching team?

2. Do you feel supported by your school administration with your work in co-teaching? Why or why not? How does the administration support the co-teaching model? How could the administration support the co-teaching model more effectively?

3. Who do you go to when you have a question/challenge with co-teaching? Why?
   a. Can you give an example of a question or challenge that you have faced about co-teaching, as a team?
   b. How did you pursue support with your question or challenge? Did you receive the support that you hoped to have? What was the result of your effort to seek support?

4. What problems have you faced, if any, during your day-to-day interactions with each other or your students?

5. Tell me about your students with identified needs.
   a. Include disability classifications
   b. What do these students need? What can you do that is beneficial to their learning?

6. How do you and your partner divide the workload?

7. What is the purpose of co-planning for the two of you? Is it a high priority for you? Why or why not?
   a. Is co-planning time provided to you and your co-teacher? How
often?
b. What do you typically discuss in co-planning?
c. Do you ever have disagreements during co-planning? Can you give an example? How was the disagreement resolved?
d. What typically happens during co-planning sessions? What is your goal during this time?
e. What roles do you and your co-teacher play during co-planning?
f. Would you give me an example of a time when you recently co-planned? When and how did this meeting happen? What did you decide and how did you decide it?

8. What roles do you and your co-teacher play during instruction?
   a. What are your individual responsibilities?
   b. Do you ever have disagreements during co-instruction? Can you give an example? How was the disagreement resolved?

9. Do you make changes during instruction?
   a. Do you adhere to the planned lesson?
   b. What makes you change your instruction and how do you do this while engaged in instruction?
   c. Can you give an example of a time when you made a change during a lesson in the moment? Why did you make this change, for what reason? Did you check in with your co-teacher before making this change? Why or why not? How did you check in?

10. What is the purpose of co-reflecting, for the two of you? Is it a high priority for you? Why or why not?
    a. How often do you and your co-teacher reflect on student learning?
    b. What things do you typically discuss after a lesson?
    c. What mode of communication do you use most often to reflect with your co-teacher?
    d. What roles do you and your co-teacher play during co-reflection?
e. Do you ever have disagreements during co-reflection? Can you give an example? How was the disagreement resolved?

f. Can you share a time when you recently co-reflected together? When and how did this take place? What did you decide? How did you decide it?

11. Tell me about any training that you have had specific to co-teaching.

   a. Have you read any books or attended workshops on co-teaching?
Appendix H

REFLECTIVE JOURNAL PROMPT

Date: ____________________________  Teaching Team 1/ Teaching Team 2

1. What were you thinking about before today’s lesson?

2. What were you thinking about during today’s lesson?

3. What did you think about after the lesson?

4. Can you describe a choice that you made during instruction that either helped or hindered students’ learning?

5. Share any other thoughts about today’s lesson.

Initials of Teacher A:_________  Initials of Teacher B: ________
Appendix I

INSTITUTIONAL REVIEW BOARD APPROVAL LETTERS AND AMENDMENTS

DATE: March 24, 2013

TO: Janet Josephson
FROM: University of Delaware IRB

STUDY TITLE: [426600-1] Planning, Instruction, and Reflective Practices of Elementary Co-teachers

SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: March 24, 2013
EXPIRATION DATE: March 23, 2014
REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category # 7

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.
DATE: August 13, 2013

TO: Janet Josephson
FROM: University of Delaware IRB

STUDY TITLE: [426600-2] Planning, Instruction, and Reflective Practices of Elementary Co-teachers

SUBMISSION TYPE: Amendment/Modification
ACTION: APPROVED
APPROVAL DATE: August 13, 2013
EXPIRATION DATE: March 23, 2014
REVIEW TYPE: Expedited Review
REVIEW CATEGORY: Expedited review category # 7

Thank you for your submission of Amendment/Modification materials for this research study. The University of Delaware IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.
DATE: September 9, 2013

TO: Janet Josephson
FROM: University of Delaware IRB

STUDY TITLE: [426800-3] Planning, Instruction, and Reflective Practices of Elementary Co-teachers

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED

APPROVAL DATE: September 9, 2013

EXPIRATION DATE: March 23, 2014

REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category # 7

Thank you for your submission of Amendment/Modification materials for this research study. The University of Delaware IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

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Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.
## Appendix J

### SAMPLE LESSON PLAN

**Unit 3 Lesson 1.4 - How many 10’s**

<table>
<thead>
<tr>
<th>Lesson Essential Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does place value structure help me to understand numbers up to 1,000?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activating Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introducing the Class Collection</td>
</tr>
<tr>
<td>- Introduce how many tens - for example how many tens in 320 = 32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vocabulary</th>
<th>Common Core Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Landmark numbers</td>
<td>MP1, MP2, MP3, MP8,</td>
</tr>
<tr>
<td>- digit</td>
<td>3.OA.8, 3.OA.9, 3.NBT.2</td>
</tr>
<tr>
<td>- estimate</td>
<td></td>
</tr>
<tr>
<td>- round</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic Organizer</td>
</tr>
<tr>
<td>I do: SAB #10. Review with whole class how to find groups of ten in 345</td>
</tr>
<tr>
<td>We do : Student Pairs will work on SAB # 11 finding how tens</td>
</tr>
<tr>
<td>You do: Student pairs will locate landmark numbers from SAB # 10 and 11 in their 1,000 charts.</td>
</tr>
<tr>
<td>Summarizing:</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Student will answer questions dealing with finding how many tens are in a three digit number using socrative.</td>
</tr>
<tr>
<td>Students will individually answer how many tens are in 530, 714, 423.</td>
</tr>
<tr>
<td>Students who incorrectly answer questions will be pulled in small groups to have an intervention with me and Kim.</td>
</tr>
<tr>
<td><strong>Ticket Out:</strong> Students will be asked to regroup a number 6 jars of 100 and 57 singles.</td>
</tr>
</tbody>
</table>