

## ABSTRACT

Title of Document: EFFECTS OF A CO-TEACHING TEAMING PROGRAM ON THE INSTRUCTIONAL PRACTICES OF HIGH SCHOOL GENERAL AND SPECIAL EDUCATION TEACHERS

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Co-teaching is widely used as an option in the delivery of special education services to students with disabilities in accordance with their Individualized Education Programs (IEPs). Students with learning disabilities frequently struggle in learning specific content areas, a factor representing a significant challenge to providing instruction in the least restrictive environment. Co-teaching is an option that serves to foster an instructional environment in the general education classroom that is inclusive and supportive of students with disabilities and those who require specialized assistance. It holds the potential to effectively combine the talents and skills of both the general and special education teacher, thus maximizing their ability to effectively teach students who present the most significant instructional challenges.

The purpose of this study was to study the effects of a co-teaching program on the instructional practices of six high school teachers assigned to co-teach. A multiple probe

design targeting the teaming behaviors across three dyads of teachers was used. The participating teachers were trained using the Teaming Instructional Procedures Program developed by the author and based on the teaming approach as outlined in Friend (2007). The classes were digitally audio recorded during baseline, intervention, and maintenance conditions. The recordings were analyzed using time-sampling and a teaming behavior checklist to determine the occurrence of teaming behaviors by the special education teacher.

The Teaming Instructional Procedures Program positively impacted the teaming behaviors of the special educators. The occurrence of teaming behaviors increased for each dyad, with increases being sustained during maintenance probes. The educators found the training program useful and user friendly and indicated they would recommend the training to other co-teachers. Most teachers found the co-teaching teaming approach useful, if not ideal for every situation and reported improvements in student engagement and performance, with no reports of detrimental effects. Responses from students confirmed the majority enjoyed having two teachers in the room, and they believed their engagement and performance benefited from the situation. The Teaming Instructional Procedures Program proved to be a socially valid means of training teachers to employ a specific co-teaching approach. The results of this study provide evidence to justify the allocation of time and resources to the formal training of teachers entering a co-teaching situation and the need for the development of a more comprehensive training program addressing more approaches to co-teaching.

Effects of a Co-Teaching Teaming Program on the Instructional Practices  
of High School General and Special Education Teachers

by

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## DEDICATION

Everything I do is inspired by and dedicated to my family and close friends. In particular I thank my wife Marcy, and Barriett for introducing her to me.

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A dissertation is a living document for many thousands of hours. It is an experience that is lived and breathed by a doctoral student from the initial idea for a research topic through to the completion of the program. As this time approaches I find it difficult to find words fitting enough to express my appreciation of all those who made this possible, and supported and encouraged me every step of the way.

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## CHAPTER I

### **Introduction**

Research on co-teaching in inclusive classrooms has reported benefits for students with and without disabilities (Austin, 2001; Friend & Cook, 2001; Morocco & Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond, 2000; Scruggs, Mastropieri & McDuffie, 2007). However, for co-teaching to be beneficial, teachers need to have received adequate training, be voluntary participants in the co-teach situation, and develop a clear understanding of their roles and responsibilities in the inclusive classroom (Cook & Friend, 1998; Dieker & Murawski, 2003; Kamens, 2007; Morocco & Aguilar, 2002; Murawski & Dieker, 2004; Murawski & Dieker, 2008; Mastropieri et al., 2005; Pearl & Miller, 2007; Weiss, 2004; Wischnowski, Salmon & Eaton, 2004).

Friend (2007) outlined six possible approaches to co-teaching: one teaching, one observing; station teaching; parallel teaching; alternative teaching; one teaching, one assisting; and teaming. Teaming has been referred to as having “one brain in two bodies” (p.75) and involves situations in which both participating teachers are in front of the class and sharing the responsibility for instruction

### **Problem Statement**

The participating school system publishes a *Special Education Procedural Guide* in which collaborative teaching practices are addressed. Teaching in the general education setting with supplementary services is the first consideration when delivering special education services and supports, and guidelines are given for adapting, sharing, and enhancing instruction (p 87-89). Sharing instruction is broken down into eight different approaches to co-teaching: lead and support, duet teaming, speak and add, speak

and chart, skill grouping, station teaching, parallel teaching, and shadow teaching. In the Procedural Guide, each of the co-teaching teaming methods are described using one or two sentences, with no further references made in the text. Of these approaches, duet teaming aligned most closely with Friend's (2007) definition of teaming. Duet teaming describes a situation whereby both teachers "contribute equally to the same lesson objectives".

The co-teaching practices recommended in the Procedural Guide are not supported by an officially adopted instructional program. The need for effective collaboration between general and special educators is recognized but not developed. This was verified by administration from the participating school district. Teachers are placed in co-teaching situations to provide services to students with disabilities as outlined in their respective Individualized Education Programs (IEPs), however the absence of formalized training and support in co-teaching best practices places the responsibility of defining what co-teaching will look like on the shoulders of the teachers themselves.

### **Purpose of the Study**

The purpose of this study was to examine the effects of a co-teaching instructional program, which concentrated on the approach of teaming, on the specific observable teaming behaviors of the special educators from three dyads of teachers, each comprising one special educator and one general educator. To this end, *Co-Teach! A Handbook for Creating and Sustaining Effective Classroom Partnerships in Inclusive Schools* (Friend, 2007) was adapted and used in the instruction of the co-teaching dyads.

A second purpose of the study was to examine the attitudes and perceptions of students and teachers in the co-taught classrooms after the intervention. It was possible to determine the extent to which the participants perceived the intervention impacting the learning environment in the co-taught class.

### **Research Questions**

The following questions guided the study:

1. What are the effects of a Teaming Instructional Procedures Program on the co-teaching practices of high school special education teachers?
2. What are general and special education teachers' perceptions of the Teaming Instructional Procedures Program and teaming practices?
3. What are high school students' perceptions of teaming practices in their content courses?

### **Significance of the Study**

The findings of this study identified specific professional development needs of special and general education teachers. The findings can be used to validate the efficacy of using a teaming program and to further develop a more comprehensive teacher training program aimed at preparing both general and special education teachers for the co-taught classroom. The study also provided the general educators, special educators, and the students in co-taught classes the opportunity to comment upon their experiences. Their shared experiences of co-teaching after the instructional program intervention were useful in providing a measure of social validity.

Another significant characteristic of the implementation of the co-teaching program was the element of freedom of choice. This intervention provided the

participants with instruction in teaming as an instructional best practice and also offered them considerable latitude in deciding how they planned and collaborated within their team. This led to a situation in which each dyad of teachers was expected to operationalize the knowledge and skills they had acquired in markedly different ways.

The findings of the study are not only significant within the school complex in which the study took place, but applicable across the district and in similar districts within the participating school system, who adhere to the same procedural guidelines. The participating school is part of a large school system that educates students with parents serving in the military. Within the school system, schools are grouped into districts headed by superintendents (Participating School System, 2009). The intervention may be replicated in other secondary school settings and generalized to other grade levels and content areas in which general and special educators are assigned to co-teach.

### **Definition of Terms**

**Alternative teaching.** A co-teaching approach that targets specific students or groups of students for specialized attention. This approach involves one teacher taking responsibility for the large group, while the other works with smaller groups (Friend, 2007).

**Co-teaching.** An instructional practice involving two certified teachers or service providers contracted to share the instructional responsibility for a group of students in a single classroom. Ownership of and accountability for the class is shared, with the common goal of achieving specific content goals and objectives (Friend, 2007). It is associated with a broader philosophy of inclusion whereby special education services can

be delivered to students with disabilities in the general education classroom. There are different co-teaching approaches.

Duet teaming. A co-teaching approach in which the general educator and special educator contribute equally to the same lesson objectives (Participating School System, 2007).

Dyad. Two certified teachers who are assigned to co-teach class and share responsibility for instructional delivery.

Lead and support. A co-teaching approach in which the general educator is the focus of instruction, with the special educator providing support such as providing visuals and demonstrating concepts using manipulatives (Participating School System, 2005).

One teach, one drift. A co-teaching approach in which one teacher leads with the instruction. The second teacher offers unobtrusive assistance as required (Friend, 2007).

One teach-one observe. A co-teaching approach defined by Friend (2007) as one where teachers agree on the observational information required, and one teacher observes and records while the other leads with the instruction.

Parallel teaching. A co-teaching approach in which the class is divided and both teachers have full responsibility for providing the same instruction to a smaller group (Friend, 2007). The participating school system (2005) uses the same term to describe situations in which one teacher is responsible for a segment of instruction, and the other is responsible for leading the following distinct segment.

Shadow teaching. A co-teaching approach in which one educator leads the lesson, with the other teacher providing reinforcement and follow-up (Participating School System, 2005).

Skill grouping. A co-teaching approach in which the class is divided into groups. Some groups receive additional instruction, and other enrichment activities (Participating School System, 2005).

Social Validity. A measure or measures reflecting the social importance of the effects of an intervention.

Speak and add. A co-teaching approach in which one teacher leads, with the other adding definitions and clarifications in a supportive role (Participating School System, 2005).

Speak and chart. A co-teaching approach in which one teacher leads, with the other complementing the discussion providing charts, graphs, and outlines (Participating School System, 2005).

Station teaching. A co-teaching approach involving both teachers instructing smaller groups, however the content is also divided, with each teacher re-teaching the material to the student groups as they move from one station to the next (Participating School System, 2005; Friend, 2007).

Teaming. A co-teaching approach in which both teachers share the responsibility for delivering the main instruction to the whole group (Friend, 2007).



## CHAPTER II

### **Review of the Literature**

#### **Search Methods**

An initial search was conducted using the Education Research Complete (EBSCO) and ERIC databases, both of which were accessed via the research port of the University of Maryland. Combinations of the keywords “co-teaching”, “co teaching”, “special education”, and “middle school” yielded fewer results than anticipated although several pertinent articles detailed findings of research involving both middle school and high school educators. The search was subsequently expanded to concentrate on secondary educators, rather than the narrower category of middle school educators. “General educators”, “high school”, “middle school”, and “secondary” were added as keywords, and combinations of the selected keywords resulted in more studies, a total of eight relevant studies. An ancestral search of the reference lists of these studies resulted in another two studies. Appendix A provides an overview of the ten studies. All the studies investigated the co-teaching practices evident in various school settings. A variety of approaches were used to provide the descriptive data. Nine of the ten studies involve a combination of data collection methods.

Seven studies involved observing teachers who were co-teaching dyads comprising one special educator and one general educator (Dieker, 2001; Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond; Weiss & Lloyd 2002; Weiss & Lloyd 2003; Wischnowski, Salmon, & Eaton, 2004). The number of teachers participating in the studies ranged from 2 to 17. In three of the studies, both the special educator and general educator were observed as a dyad (Dieker,

2001; Magiera & Zigmond, 2005; 2002; Pearl & Miller, 2007). These studies focused on collecting data regarding the behaviors and interactions of the teachers as a co-teaching team in the classroom.

Only two of the studies relied solely on observation as a means for collecting data (Magiera & Zigmond, 2005; Pearl & Miller, 2007). Five studies used a combination of observations and interviews (Dieker, 2001; Morocco & Aguilar, 2002; Rice & Zigmond, 2000; Weiss & Lloyd, 2002; Weiss & Lloyd, 2003). Interviews were conducted to gather additional information to complement the information gathered in the observations. In all but one of these studies, the participating teachers were interviewed, however in one of the studies the administrators of the school were interviewed, as the school's vision and model of co-teaching was the main focus of the study (Morocco & Aguilar, 2002).

Wischnowski, Salmon, and Eaton (2004) used a combination of observations, interviews, surveys, IEP reviews, and an analysis of data relating to test cores, behavioral referrals and report cards. This study focused on the development of a district-wide approach to co-teaching and described the district's approach to evaluating their progress.

Tobin (2005) was a case study that relied on tape recordings of participant observations and interviews, and field notes of meetings. The aim was to describe ways in which students with learning disabilities were being supported by co-teachers in the 6<sup>th</sup> grade language arts classroom, and how three students identified with learning disabilities (LD) were accessing help in the inclusive setting. The remaining article, Austin (2001) used a survey and interviews to gather information covering a number of issues relating to co-teaching.

## **Purposes and Research Questions**

The 10 studies all had the purpose, at least to some extent, of describing how and why teachers were co-teaching, and what it looked like in practice. Most of the studies used observations and interviews to collect data. Four studies concentrated on simply describing how co-teaching was occurring in various settings (Austin, 2001; Pearl & Miller, 2007; Tobin, 2005; Weiss & Lloyd, 2003). They looked at the roles and responsibilities of the co-teachers and examined the different approaches in evidence. This included observing how students were grouped and the accommodations made (Pearl & Miller, 2007; Tobin, 2005) and a closer examination of factors such as the teachers' perceptions of co-teaching practices, and the reasons why teachers are co-teaching (Austin, 2001; Weiss & Lloyd, 2003).

Magiera and Zigmond (2005) collected observational data only in their comparative study, with the purpose of comparing the experiences of students with disabilities in co-taught and solo-taught secondary school classes. Their main aim was to observe the amount of interactions between the students with disabilities and the teachers and to study the behaviors of the students and teachers both together and in isolation during each observed class. Another aim was to describe the additive effects of co-teaching under normal conditions with no additional common preparation or planning time.

The purpose of Rice and Zigmond's (2000) comparative study was to make an international comparison of the features of co-teaching models as they are employed in American and Australian secondary schools. They concentrated on describing the roles and responsibilities of the special educator in the co-taught classroom and how their

specific skills are employed. They also asked teachers to what extent they felt they were responsible for and influential in shaping the co-teaching model in the classroom.

Weiss and Lloyd (2002) also carried out a comparative study, in which they observed and interviewed teachers for two main reasons. Firstly, they wanted to establish what the roles of the participants were in the co-taught secondary classroom. Secondly, they compared the roles, responsibilities, and actions of special education teachers in the co-taught setting and the special education classroom. Their aim was to establish to what extent the approach and actions of the special education teacher changed when they entered the general education classroom as a co-teacher.

The remaining studies focused on describing the characteristics of two distinct settings (Dieker, 2001; Wischnowski, Salmon & Eaton, 2004). Dieker (2001) set out to determine the characteristics of effective middle school and high school co-teaching teams for students with disabilities. The schools had been labeled by the district as being effective and the purpose of the study was to isolate factors and attribute them to the schools' success. Wischnowski, Salmon, and Eaton (2004) concentrated on the development and implementation of a district-wide co-teaching program. The authors used a variety of data-collection methods to describe and evaluate the approach used.

### **Sample/Participants**

All of the studies included participants who had some experience co-teaching, and all included at least one general educator and one special educator. Three of the studies focused on dyads of teachers in a situation in which a general and special educator were assigned to a co-taught class in which they shared the responsibility for instruction (Dieker, 2001; Magiera & Zigmond, 2005; Pearl & Miller, 2007). These studies relied on

observations and interviews and ranged in size from four dyads (Pearl & Miller, 2007) to nine dyads (Dieker, 2001) of participating teachers.

Other studies involved much larger numbers of participants and more complex combinations of data-collection methods. Austin (2001) interviewed and surveyed 139 participating teachers, the majority of whom were secondary teachers, from nine different school districts in one state. Wischnowski, Salmon, and Eaton's (2004) study involved a school district comprising more than 1, 000 students. Parents, students and teachers were involved in the study, which used a variety of methods of data collection.

Two studies involved observing and interviewing both special and general educators who had co-teaching experience, but were not being observed or interviewed as a teaching dyad (Morocco & Aguilar, 2002; Rice & Zigmond, 2000). Morocco and Aguilar (2002) observed three special educators who were working in co-taught classes and also interviewed the school administrators. Rice and Zigmond (2000) interviewed and observed 17 teachers who were currently co-teaching. They interviewed general and special educators, but not always both teachers from the co-teaching dyad.

Tobin's case study (2005) involved the researcher and a sixth grade language arts teacher, however also involved taped interviews with students, the teacher, and the assistant teacher. The remaining studies focused on special educators (Weiss & Lloyd, 2002; 2003). These studies both involved examining the roles of special educators in a rural school district who were currently co-teaching for part of the school day.

### **Design and Procedures**

Eight of the ten studies relied in part or in full on observations as a method for collecting descriptive data (Dieker, 2001; Magiera & Zigmond, 2005; Morocco &

Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond, 2000; Weiss & Lloyd, 2002, 2003; Wischnowski, Salmon & Eaton, 2004). Pearl and Miller (2007) exclusively used observations to gather data. Observers were trained using the Co-Teacher Roles and Responsibilities Index (CRRRI) until satisfactory levels of reliability were achieved. The teachers who were being observed had attended four workshops on collaboration during the semester prior to the study. Magiera and Zigmond (2005) also used only observations when collecting data, however they employed a time-sampling method to gather data documenting the behaviors of students in the co-taught classroom. To describe the behaviors of students in solo-taught settings, they relied on the same method in the same classroom during the times when the special educators absented themselves from the room.

Five studies employed the use of a combination of observations and interviews (Dieker, 2001; Morocco & Aguilar, 2002; Rice & Zigmond, 2000; Weiss & Lloyd, 2002, 2003). Dieker (2001) interviewed and observed nine dyads of teachers. Each was observed four times, with the observations being videotaped and later played back to the participants to validate the recorded observations. Students from each co-teaching team were also interviewed. Morocco and Aguilar (2002) also observed teachers in the co-taught setting. They made a total of 40 observations of 11 special education teachers in different co-taught classes with different general education teachers. There were two observers present for each observation and detailed notes were taken by each. There were no checklists. In this study the interviews were carried out with the school administrators to address the school's vision and model of co-teaching.

Rice and Zigmond (2000) interviewed and observed 17 teachers from two public schools in America and eight in Australia. Five teachers were interviewed, twelve were both observed and interviewed. The observations and interviews were conducted by one of the authors or by a trained interviewer following the same protocol. The observations were carried out at mutually agreed times and locations. All interviews were taped and transcribed prior to analysis.

In their 2002 and 2003 studies, Weiss and Lloyd used the constant-comparative method of data analysis when analyzing the data from their observations and interviews. The data were collected between October and February of the school year, and a total of 54 (2002) and 31 (2003), thirty-minute observations of the six participating teachers were conducted. In addition to this, each of the teachers was interviewed three times.

Austin (2001) also used interviews as a tool for gathering data, however used them in conjunction with a survey. A single survey instrument was used to gather data from the 139 participating co-teachers. The survey and cover letter was personally delivered by the researcher and completed by the teacher during the planning period that same day. The Semi Structured Interview: Perceptions of Co-Teaching script was developed, and an equal number of special education and general education teachers were selected from the respondents to participate in the interview.

Tobin's (2005) case study involved observing the participating special education co-teacher for a total of 40 hours. These observations were also recorded for future analysis. In addition to this, field notes on eight hours of meetings with the participating teacher were taken. Finally, recordings were made of individual meetings with students,

the teacher, and the teacher assistant were made. These meeting lasted three, two, and two hours respectively.

The final study involved a combination of survey, observations, interviews, and analyses of test scores, report cards, behavior referrals and IEP reviews (Wischnowski, Salmon & Eaton, 2004). This study examined the approach of an entire district to co-teaching, and a variation of the Context, Input, Process, and Product (CIPP) model of program evaluation was developed, comprising 18 questions in six categories.

### **Analyses**

A variety of methods were employed across the studies for analyzing the data generated. As most data were generated from observations and interviews, several studies coded the data into specific categories (Dieker, 2001; Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Pearl & Miller, 2007; Weiss & Lloyd, 2002, 2003).

Dieker (2001) used content analysis procedures to code the observations from the videotaped classes, the field notes and the interviews, with a minimum of 80% inter-rater reliability being required before themes were included in the discussion of the results. Magiera and Zigmond (2005) established an observation protocol before the observations took place. This allowed the authors to use a 10s time-sampling method during the 45-minute observation periods to record the occurrence or nonoccurrence of behaviors or interactions. Similarly, Pearl and Miller (2007) used the CRRI which grouped observation into five distinct categories: grouping patterns, IEP accommodations, IEP assessment accommodations, other assessment accommodations, and enhancements. Observers recorded the occurrence of items within groups during the observations. Morocco and Aguilar (2002) used a grounded approach to qualitative research and



employed a 'bottom-up' process to code their observation data and identify teacher role categories; capturing the complexities of the co-teaching model. In coding their data, Weiss and Lloyd (2002; 2003) used an open coding system to develop preliminary concepts, subsequently using axial coding to make connections between categories and subcategories.

Other studies used different data analyses tools. Austin (2000) used the SPSS 9.0 data analysis software for windows. The frequency of responses of special education and general education teachers across specific categories were analyzed and tabulated. In analyzing case study data, Tobin (2005) entered findings from recordings, notes, and memos into the QSR NUDIST software system. The coded data were then compared and is the case of conflicting data, existing schemes were refined and new schemes created. The findings were then verified by the teachers involved.

Rice and Zigmond (2000) relied on a more subjective approach, whereby the audio taped transcriptions of the interviews were read independently by both authors, who noted the apparent themes, subsequently comparing notes and agreeing on common themes. The findings were then reported back to the participants for further negotiation and revision. Their observation data were more objective in nature, as the teachers were judged according to basic criteria, which included the shared planning and instruction of the class and the engagement by both teachers in substantive instructional delivery.

Finally, Wischnowski, Salmon, and Eaton (2004) reported a management oriented approach to evaluation. Goals and objectives of the district's co-teaching program were developed and an evaluation team was assembled to collect and evaluate data over a two-tear period using a variation of the CIPP model of program evaluation. Evaluation

questions were then developed and a combination of qualitative and quantitative measures was used to collect and analyze data. Audiotape transcriptions read independently by both authors. Themes were noted, compared, and agreed upon and the findings reported back to participants, with revisions negotiated where necessary.

## **Results**

Several common themes emerged when reviewing the results of the studies. Most studies included a discussion of co-teaching practices and described the most commonly observed co-teaching models. The observed benefits of co-teaching for teachers and students were also often discussed, as were the perceived needs of the teachers in the co-taught classroom and the extent to which they were met. Other themes included the barriers to effective co-teaching and the limited empirical evidence to support co-teaching models.

The most commonly observed or referred to co-teaching model was one teach-one assist, otherwise referred to as one leads-one supports (Dieker, 2001; Morocco and Aguilar, 2007; Tobin, 2005; Wischnowski, Salmon, & Eaton, 2004; Weiss & Lloyd, 2002, 2003) In these cases, it was the general educator who assumed the role of lead teacher, the special education teacher played a supporting role. Other studies indicated the general educator played more of a dominant role and had more ownership of the class without directly referring to any specific model. Austin (2001) also concluded the general educator did most of the work in the classroom, with the special education teacher being primarily responsible for modifications, while Weiss and Lloyd (2002) also found all teachers were at some point playing a supporting role rather than leading the class. Other models, such as team teaching and alternate lead and assistance, were also reported;

albeit as being less prevalent than to one teach-one assist (Dieker, 2001; Morocco & Aguilar, 2007; Tobin, 2005).

There was generally agreement across the literature to support co-teaching as a positive and beneficial intervention. Several studies revealed co-teaching was beneficial for students with disabilities (Austin, 2001; Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond, 2000; Wischnowski, Salmon, & Eaton, 2004). Rice and Zigmond (2000) went further and reported the benefits of co-teaching for all students and teachers in the classroom. Three studies reported the presence of a second teacher in the classroom offered only limited benefits (Magiera & Zigmond, 2005; Tobin, 2005; Weiss & Lloyd, 2002), however in all three cases, this was attributed to some of the resource limitations that will be addressed below. It was also concluded that special educators reported the benefits of co-teaching more frequently than general educators (Austin, 2001).

Several interventions were noted as being particularly effective in the co-taught classroom. Teachers participating in the studies cited cooperative learning and small groups as effective techniques and co-teaching allowed them to make rigorous and authentic material accessible to all students, allowing students to focus on learning and educators to focus more on instruction (Austin, 2001; Morocco & Aguilar, 2002). It was also reported that in the co-taught classes, the students with disabilities received more than twice the number of interactions with the teachers than they would in the solo-taught class, although they received more interactions with the general educator when the special educator was not present (Magiera & Zigmond, 2005). The co-teaching models also provided students with many accommodations and enhancements and allowed

teachers to implement practices complementing traditional whole group instruction (Pearl & Miller, 2007). Other findings included students with disabilities were generally progressing with non-disabled peers, they were no less successful in the co-taught class than in pull-out classes, and achievement apparently supported by the accommodations made (Wischnowski, Salmon, & Eaton, 2004). Dieker (2001) reported the most common practice was establishing a positive climate. Positive perception of co-teaching was also important, as were active learning and high academic and behavioral expectations.

In most studies, teachers' perceptions and attitudes were taken into account and they were given the opportunity in interviews and surveys to provide their own commentary on co-teaching. Several studies recorded the perceived needs of teachers in the co-taught classroom and adequate time for collaboration and planning was a concern for the participants in these studies (Austin, 2001; Dieker, 2001; Morocco & Aguilar; Tobin, 2007; Wischnowski, Salmon, & Eaton, 2004). Some participants reported on the benefits of working within a school in which the importance of planning time was recognized and common planning time was scheduled (Morocco & Aguilar, 2002). Evidence to the contrary was also provided by Austin (2001) who reported among teachers who were given common planning time, there was disagreement to the effectiveness of the practice. Dieker (2001) found the teaching dyads who were given common planning time were the teams who employed team teaching techniques rather than one teach-one-assist or other less equal relationships.

Other concerns among teachers included a lack of time and other resources for training and professional development (Austin, 2001; Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond, 2000; Weiss &

Lloyd, 2002; Tobin, 2007; Wischnowski, Salmon, & Eaton, 2004). In some cases, professional development had been provided and positive effects of co-teaching in the classroom were ascribed at least in part to the heightened preparedness and knowledge on the part of the co-teachers (Dieker, 2001; Wischnowski, Salmon, & Eaton, 2004). Weiss and Lloyd (2003) also investigated why teachers found themselves co-teaching and the most common factors were pressure from the school, the LEA, and the community. The distribution of students with disabilities across available classes was another issue raised by participants (Wischnowski, Salmon, & Eaton, 2004), as was the need for co-teachers to be professionally and personally compatible and working together voluntarily as co-teachers (Rice & Zigmond, 2000).

In some studies, the perceived status of the special educator in the co-teaching arrangement was raised as an issue. Morocco and Aguilar (2002) found not only did the school in their study implement a plan whereby common planning was facilitated, but they also stressed the importance of both teachers in the dyad being equal in status. The subordinate role of the special education teacher was addressed in two of the nine participating dyads in Dieker's (2001) study, as in these dyads, it was the general educator who moved into the special educator's classroom for the duration of the co-taught lesson.

Several studies found as a practice or group of practices, co-teaching is still experimental and needs to attract a body of research (Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Rice & Zigmond, 2000). It was acknowledged that co-teaching is a worthwhile practice and beneficial to students academically and socially (Austin, 2001), however concerns were also expressed by the participants that the co-

taught classroom may not be the least restrictive environment (LRE) for all students (Wischnowski, Salmon, & Eaton, 2004). Although teachers adapted, often by adapting roles dictated by the situation rather than the literature (Weiss & Lloyd, 2002), some students with disabilities avoided more overt help structures and relied on secondary structures unless addressed directly by the teachers (Tobin, 2005). There was also concern regarding the validity of some modifications made and the impact on student performance (Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Wischnowski, Salmon, & Eaton, 2004). It was observed there were no significant differences in areas such as the grouping of students, on task behaviors, interactions with other students, and student participation between co-taught and solo-taught classes (Magiera & Zigmond, 2005) and the need for further research addressing student outcomes was identified (Magiera & Zigmond, 2005; Morocco & Aguilar, 2002).

### **Summary of Empirical Review**

The descriptive statistics in the current literature have predominantly detailed the roles and responsibilities of general and special educators collaborating in the co-taught classroom (Weiss & Lloyd, 2002; Rice & Zigmond, 2000; Pearl & Millar, 2007; Dieker, 2001). These studies varied in size and significance, but generally involved several dyads of teachers working in various, mainly secondary settings who were chosen for the most part based on their willingness to participate in the studies. Most studies had reliability and or validity measures in place. Eight studies involved observations and had inter-rater reliability criteria which were met by either having a second observer present in the classroom or recording the observed sessions for review by a second observer at a later date (Dieker, 2001; Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Pearl &

Liller, 2007; Rice & Zigmond, 2000; Weiss & Lloyd, 2002, 2003; Wischnowski, Salmon, & Eaton, 2004). In Ausrin's study (2001), interviews were coded by at least two raters.

Several studies also addressed co-teaching in terms of a school-wide or district-wide approach to co-teaching and inclusion (Austin, 2001; Wischnowski, Salmon, & Eaton, 2004). The studies varied in their focus and the nature number of participants, some choosing to focus on high achieving schools (Pearl & Miller, 2007), and others focusing on situations in which fewer supports were in place to facilitate co-teaching (Magiera & Zigmond, 2005).

In the Morocco and Aguilar (2002) study in which school wide interdisciplinary co-teaching teams were developed as part of a broader program aimed at more effective inclusion, more benefits were perceived and reported which conflicted with the evidence provided by other studies in which more problems and fewer benefits were perceived (Magiera & Zigmond, 2005; Weiss & Lloyd, 2003). This supports the need for further research and professional development. Teacher perceptions were addressed in eight of the studies in the form of interviews and in another study in a survey. Some strong common themes emerged. The need for common planning time and administrative support to include preparation and training in co-teaching best practices were most often cited (Austin, 2001; Magiera & Zigmond, 2005; Morocco & Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond, 2000; Weiss & Lloyd, 2002, 2003; Tobin, 2007; Wischnowski, Salmon, & Eaton, 2004). The one-teach-one-assist approach was most commonly observed despite the fact this was often not recommended in the literature (Dieker, 2001; Morocco & Aguilar, 2007; Tobin, 2005; Wischnowski, Salmon, & Eaton, 2004). Benefits for students with and without disabilities were also commonly reported

and observed although the need for research on student outcomes was also commonly cited (Austin, 2001; Magiera & Zigmond, 2005; Morocco and Aguilar, 2002; Pearl & Miller, 2007; Rice & Zigmond, 2000; Wischnowski, Salmon, & Eaton, 2004). Co-teachers generally supported co-teaching and reported professional benefits albeit alongside the need for more supports.

Commonly cited in the literature reviewed was a need for more research data on co-teaching in general, and in particular on specific co-teaching practices and related outcomes for students with and without disabilities. Some studies noted current data were not only limited, but also failed to offer substantial support for co-teaching in terms of improved student performance (Magiera & Zigmond, 2005; Morocco & Aguilar, 2002). This supports the need for further research to target student outcomes. Much of the current research is descriptive, and as such indicates where the perceived shortcomings of current co-teaching practices lie.

This study sought to address the issue of co-teaching as it pertains to high school educators in the participating school system. The researcher used the findings of research thus far, as well as recommendations and best practices outlined in the professional literature. This study focused on co-teaching practices currently employed in the classroom and used a single subject multiple probe design to provide experimental data to complement the largely descriptive statistics predominant in the current literature. Current practices in secondary schools in the participating school system reflect what is found in much of the literature, a reliance on the one-teach, one-assist practice, whereby the special educator plays a subordinate and supportive role to that of the content teacher. Also evident is a lack of training and preparation, which is in keeping with the findings of



the extant research. The findings of the study sought to provide evidence of the importance of and need for establishing guidelines and procedures for co-teachers and a formalized training package with ongoing supports.

## CHAPTER III

### **Methods**

Many general and special educators are assigned to co-teach with little regard for their preferences, a lack of formal preparation or training, and no clear understanding of their roles or responsibilities to students with disabilities in the co-teach classroom (Magiera & Zigmond, 2005; Weiss & Lloyd, 2003). Teachers are placed in such situations to provide services to students with disabilities as outlined in their respective Individualized Education Programs (IEPs) and there is an absence of formalized training and support in co-teaching. Therefore, a possible option is to place the responsibility of defining and implementing co-teaching on the teachers themselves.

With the absence of formalized training, teachers fall into a predictable pattern of using the one-teach, one-assist model, whereby one teacher, most often the special educator, plays a subordinate role (Dieker, 2001; Morocco & Aguilar, 2007; Tobin, 2005; Wischnowski, Salmon, & Eaton, 2004). When this happens, the general educator teaches the class and the special educator tends to assist individual students when the need arises. The current literature cites the need for more empirical research into the efficacy of co-teaching practices (Magiera & Zigmond, 2005; Morocco & Aguilar, 2002).

Broadly defined, co-teaching occurs when two teachers are placed in the same classroom to share the responsibility of delivering instruction (Friend, 2007). The current literature indicates a lack of formal preparation and training is to blame when teachers fail to adapt effective strategies in the classroom. The literature on best practices also indicates the one teach-one assist approach is the least effective use of classroom time and resources. Alternative approaches to co-teaching are: one teach-one drift, one teach-

one assist, parallel teaching, station teaching, alternative teaching, and teaming (Friend, 2007). These approaches require the co-teachers to assume different roles in different situations. The purpose of this study was to examine the effects of a co-teaching instructional program, with a focus on the teaming approach, on the observable co-teaching behaviors of three dyads of teachers each comprising one special educator and one general educator.

### **Research Questions**

1. What are the effects of a Teaming Instructional Procedures Program on the co-teaching practices of high school special education teachers?
2. What are general and special education teachers' perceptions of the Teaming Instructional Procedures Program and teaming practices?
3. What are high school students' perceptions of teaming practices in their content courses?

### **Method**

#### **Participants**

The participants in this study were six teachers from one high school (grades 9-12) in a school system that educates children with parents serving in the military. Three participants were content area general education teachers, one math, one German, and one science teacher. The general education teachers were teamed with three special educators; the only special educators teaching in co-taught classrooms at the time of the study. Five of the six participating teachers had more than five years of teaching experience, the exception being a special education teacher who was teamed with the German teacher and was in her first year as a teacher. Five of the participating teachers

had at least two years' experience in a co-taught classroom, again with the exception of the special education teacher teamed with the German teacher, who was in her first year of teaching and had co-taught only during her student teaching. Two teachers were male and six were female. The participating teachers were selected based upon their willingness to co-teach and to participate in the study. Certification areas, years of teaching experience, and years of co-teaching experience are documented in Table 1. In Dyad 1, the special education teacher was certified to teach special education and math at this level and held a counseling certificate. In Dyad 3, the special education teacher had special education and science certification. The special education teacher in Dyad 2 had a special education certificate, but had no background in the German language.

<p>Table 1</p> <p><i>Certification Areas, Years of Teaching and Co-Teaching Experience of Participating Teachers</i></p>					
Dyad	Teacher	Certification Area (s)	Highest Degree Earned	Teaching Experience	Co-Teaching Experience
Dyad 1 Male	General	Math, Computer Science	Master's	15	6
Dyad 1 Female	Special	SpEd, Math, & Counseling	Master's	13	9
Dyad 2 Female	General	German and ESL	Master's	6	4
Dyad 2 Female	Special	SpEd	Master's	<1	<1
Dyad 3 Female	General	Science	Master's	20	8
Dyad 3 Male	Special	SpEd and Science	Master's	15	3

Co-teaching class demographics are documented in Table 2. At the high school, there were four, eighty-five minute periods each day, one of which was a planning

period. The school operated on a two-day block schedule, whereby eight periods were spread over the two days. ‘Red days’ consisted of periods one through four, and ‘white days’ consisted of periods four through eight. The special educators had similar schedules to the general educators, however they spent at least 85 minutes of each school day working with general educators in a co-teach situation.

Table 2 <i>Co-Teaching Dyads’ Class Demographics</i>					
	Subject	Time of Class	Grade Level	Number of Students	Number of Students with IEPs
Dyad 1	Geometry	1120-1245	9th-11th	20	4
Dyad 2	German I	1120-1245	9th-11th	23	4
Dyad 3	Biology	1335-1500	10th	21	4

## Setting

The study took place in a high school in a K-12 school complex. The school was located within a school district that educates a large number of children with parents serving in the military. Enrollment at the high school was approximately 650 students for grades nine through twelve. The three dyads were recorded in the general education classroom in which students with IEPs were taught alongside their peers without disabilities. The presence of the special educator in the classroom was a result of service requirements of one or more of the students on IEPs. The classroom for each dyad was the room assigned to the general educator, in which the general educator spent the entire

day. The special educator in each case shared only one co-teaching class with the general educator and was present in the room for only that one 85-minute class period every second school day within the two-day block schedule. Co-taught classes in Geometry, German I, and Biology were the focus of this study. Different core curriculum classes were chosen to record team teaching behaviors in the delivery of core curricula within the same school. Each teacher in the school had one, 85-minute period each day dedicated to planning instruction, however, it was not possible to secure the participation of teaching dyads within which both teachers shared common classroom preparation time. Prior to the study, the co-teaching dyads had been in place for six months, since the beginning of the school year. None of the dyads had previously taught together as a co-teaching team.

## **Procedures**

**Experimental design.** This study used a multiple probe design targeting the teaming behaviors across the three participating dyads of teachers. The data collection focused on the special education teacher. The multiple probe design is a variation of the multiple baseline design involving continuous, yet staggered recording of all baseline and intervention data (Richards, Taylor, Ramasamy, & Richards, 1999). The multiple probe design involved introducing the intervention to the first dyad independently, only introducing the intervention to the next dyad once a substantial effect was recorded for the previous dyad. During baseline, intervention, and maintenance conditions, recordings were digitally audio recorded and analyzed using a partial time-sampling procedure to record the occurrence of teaming behaviors in the co-taught classroom. After an initial baseline probe across all three dyads, stable baseline data were collected for the first dyad (a minimum of three recordings), during which no additional baseline data were collected

for the other dyads. Once stable baseline data were established for the first dyad, the general and special education teachers attended the Teaming Instructional Procedures Program during which they were introduced to the co-teaching concept of teaming, watched an instructional video, and were invited to ask questions and discuss the concepts introduced. Upon completion of the training, the collection of post-intervention data for the first dyad coincided with a second baseline probe for Dyads 2 and 3. For the second dyad, the collection of baseline data coincided with the collection of intervention data for the first dyad. This pattern was repeated for the collection of data for the third dyad.

Once stable and improved intervention data were collected across five or more consecutive observations for Dyad 1, post intervention probes were implemented to check for maintenance of the behavior. Where possible, the maintenance probes were carried out every third class period (every six instructional days) for the duration of the study. This pattern was repeated with the remaining dyads.

**Dependent variable.** This study focused on the teaming behavior of the special education teacher in the three participant dyads. Teaming was defined as a co-teaching approach in which both teachers share the responsibility for delivering the main instruction to the whole group (Friend, 2007). Main instruction was defined as lead instruction in which the teacher addressed the class as a whole, including: (a) issuing instructions relating to classroom procedures, such as “Please open your books to chapter 2” or “Now return to your seats and prepare your space for the quiz”; (b) delivery of core content instruction (geometry, German, or biology); (c) classroom led discussion pertaining to core content; (d) working through core content problems posed by either

teacher and explaining answers to the entire class; and (e) reading aloud passages or questions. Examples of contributions that did not constitute delivering the main instruction include: (a) instances in which the special educator is assisting a small group of students; (b) offering individual assistance to students; and (c) addressing the whole class with short “Yes”, “No”, or “I agree” answers in response to questions from the general educator or students.

A partial time-sampling recording measure was used; the 84-minute observation period was divided into 42 2-minute intervals. If, at any time during a 2-minute interval a teaming behavior occurred (as defined above), it was counted as an occurrence of the desired behavior for that interval. The behavior did not need to last for the duration of the interval, and it did not need to occur when the signal for the beginning of an interval was sounded. If a teaming behavior was displayed more than once during any interval, the behavior was recorded as a positive occurrence for the interval, but bore no more weight than any other interval in which only one display of teaming behavior was recorded. The recorders were trained to record an occurrence of a teaming behavior if, at any point during the interval, the special educator was the main instructor. The percentage of intervals during which the special educator was teaming with the general educator were then calculated by using the following formula: number of intervals of teaming occurrences divided by the total number of intervals ( $N = 42$ ) multiplied by 100. Each dyad was recorded for the 84-minute duration of the observation session.

The Audiograbber™ software-based digital recording program was used to record the voices of the teachers. The program was set to run from a laptop computer positioned at the back of the classroom. The program was set to begin recording approximately one



minute before the bell rang to signal the beginning of the lesson. Two satellite microphones were positioned in the room, one at the front and one at the back. Before data were recorded, the digital recording was imported into the Garageband™ software application. This software allowed the entire session to be stored as one track and allowed a second track to be embedded into the recording. The second track contained only a metronome beep, which sounded at precise, two-minute intervals. The ringing of the school bell prior to each class, captured by the microphones, acted as the signal for the beginning of the first interval, with the ringing of the end of the lesson bell signifying the end of interval recording. The resulting recorded session was divided into 42 2-minute intervals. This final recording, containing the recorded session and the interval signals, was exported and saved as an mp3 file for the recorders to use. Refer to Appendix B for the partial interval data collection sheet upon which recorders noted the occurrence or nonoccurrence of the teaming behaviors for each interval. The recorders also had the opportunity to record additional comments as necessary.

**Independent variable.** The Teaming Instructional Procedures Program was developed by the author and adapted from Friend's (2007) *Co-Teach! A Handbook for Creating and Sustaining Effective Classroom Partnerships in Inclusive Schools* and included the brief descriptions of the co-teaching approaches contained in the participating school system's *Special Education Procedural Guide*. Original content came in the form of brief introductions to the sources and highlighting some similarities between the approaches recommended by each. Friend (2007) concentrated on six approaches to co-teaching: one teaching, one observing; station teaching; parallel teaching; alternative teaching; one teaching, one assisting; and teaming. For the purposes

of this investigation, materials and procedures were adapted to focus on the sixth approach, teaming. The participating school system presented eight similar approaches to include: lead and support, duet teaming, speak and add, speak and chart, skill grouping, station teaching, parallel teaching, and shadow teaching. Of these, duet teaming aligned most closely with Friend's (2007) definition of teaming.

Training on the teaming approach consisted of an 80-minute session presented to each dyad separately. The training session involved two phases: viewing a 40-minute instructional video on co-teaching focusing on the teaming approach followed by a 40-minute session during which questions and immediate concerns were addressed. The training sessions were administered immediately following the collection of three stable true baseline sessions and before intervention recordings began. Training took place during each general education teacher's planning period immediately following the last stable baseline recording for the dyad. As no common co-teaching preparation time was available, classroom coverage for each special education teacher was provided with approval from administration.

Prior to the start of the study, a 40-minute instructional video was created by the author. The first section of the video gave an overview of co-teaching, followed by a second section discussing different approaches to co-teaching, with the third and longest section concentrating on the teaming approach in isolation. The video was created with the participation of 10 volunteers to create the teaching scenarios contained therein. The scenarios were created based on the descriptions of the co-teaching approaches outlined in the participating school system's *Special Education Procedural Guide* and the *Co-Teach! A Handbook for Creating and Sustaining Effective Classroom Partnerships in Inclusive Schools* (Friend, 2007). Refer to Appendix C for the script used to narrate the video. Voice-overs directly from the script and titles of the approaches were aligned to the video to ensure the approaches were clearly differentiated and understood, particularly Friend's (2007) sixth approach, teaming. The researcher narrated the video

using the script in Appendix C. Filming took place with permission from school administration and carried out after the school day had ended. The video was created using a video editing software program.

Narration was constant throughout, accompanied by titles, scrolling text, and images. The filmed scenarios were inserted after the narrator read the definition of the particular approach and the name of the approach being modeled was added as a title in the corner of the screen.

The video consisted of three sections. In Section 1 (approximately 10 minutes), the concept of co-teaching was introduced and defined as teachers (or service providers) sharing the instructional responsibility for a group of students in a single classroom (Friend, 2007). The philosophy of inclusion was also introduced and the emergence of co-teaching as it relates to inclusion was addressed. Specifically, ownership of and accountability for the class is shared; teachers have a common goal of achieving specific content goals and objectives for the group of students in their classroom (Friend, 2007).

In Section 2 (approximately 10 minutes), the video presented each of the six approaches to co-teaching presented by Friend (2007) and the eight approaches outlined in the participating school system's Procedural Guide (2005). The scenarios presented in Section 2 were filmed in classrooms using volunteers playing the roles of teachers and students. General education and special education teachers with experience in co-teaching were asked to volunteer their time and be videoed modeling the co-teaching approaches. Prior to filming and for each video scenario, the author gave the volunteers the definition of each approach to be modeled. They were asked to apply the approach to the content of a class taught by the general educator. Before filming, the volunteers discussed with the researcher how they could best model each co-teaching approach in a short scenario, referring to the definitions from the script. After the discussion of each approach, the volunteers briefly rehearsed each scenario several times before being

filmed; however, they did not work from scripts. In each filmed scenario, a segment of a lesson being taught that day by the volunteering general education teacher was used to demonstrate the approach. They were then videoed modeling each co-teaching approach. After each scenario was filmed, the recording was reviewed by the author and the teacher volunteers to ensure its suitability for inclusion in the training video. The teacher volunteers deemed all tapings appropriate. There were no students present during the recording of each scenario, though teachers and classroom aides agreed to be present to enact the role of students in the room. Each of the scenarios was between 30 and 60 seconds in length.

The focus in Section 3 (approximately 20 minutes) of the instructional video was the teaming approach as defined by Friend (2007) and teaming as the targeted co-teaching option. In addition to the same procedures with the first five co-teaching approaches (i.e., teacher volunteers discussing, rehearsing, videoing, and reviewing the enactment of the teaming approach), the narrator listed elements that constituted the teaming approach, while the bulleted list appeared on the screen. These included examples in which the special educator was: (a) issuing instructions relating to classrooms procedures, such as “Please open you books to chapter 2”; (b) offering core content related contributions to instruction; (c) leading core content related classroom discussions; (d) working through core content problems and explaining answers aloud to the class as a whole; and (e) reading aloud passages or questions. Situations in which teaming was not occurring were also listed. These included examples of when the special educator was: (a) assisting only small groups of students; (b) offering individual

assistance to students; and (c) addressing the whole class, but only with short “Yes”, “No”, or “I agree” answers.

Before being finalized, the video, in its entirety, was reviewed by the author, a doctoral student in special education, and a school principal for critique. Inconsistencies between the narration and scrolling text were identified and corrected upon review, as were grammatical errors that were not detected by the video editing software. In addition, some of the narration and accompanying images and text were removed to avoid repetition.

In the discussion following the viewing of the instructional video, the dyads were: (a) invited to ask questions for clarification; (b) asked to discuss to what extent they were familiar with the terms used; and (c) asked to what extent they were able to describe their co-teaching behaviors in terms of the definitions introduced during the session. Further discussion focused on questions and concerns related to teaming as a co-teaching option. Questions raised were mainly concerning the logistics of recording in the classrooms. With each dyad, time was spent explaining how the Audiograbber™ software operated. Other concerns related to the positioning of the microphones, the use of the computer while the program was running on the computer, and how and where the audio files were saved. Upon completion of the session, the participants were asked to complete a procedural reliability checklist found in Appendix D and discussed in the Procedural Reliability section. The average length of each training session was 80 minutes.

**Maintenance procedures.** Post-intervention maintenance data were included to reveal the extent to which any increases in the teaming behaviors were maintained once direct formal supports and implicit expectations were removed. The procedure for

collecting maintenance data was identical to the collection of baseline and intervention data. The co-taught class was recorded for the duration of the classroom period, after which the 42 interval time-sampling approach was used to record the percentage of intervals during which the special education teacher displayed teaming behaviors. Maintenance data were collected ranging from every third to every fifth class after the intervention data were collected.

**Inter-observer reliability measures.** Inter-observer reliability was calculated after having a second data collector, an undergraduate student, record the occurrence of the teaming behaviors independently of the primary data collector, the researcher. Reliability measures were taken on over 30% of all baseline, intervention, and maintenance sessions. Item by item inter-observer agreement was calculated by dividing the number of agreements (occurrence and nonoccurrence) of recorded behaviors by the total number of intervals ( $N=42$ ), and then multiplying the result by 100. In several instances, classes were between three and six recording intervals shorter, due to problems starting or stopping the recording. Similarly, there were three clear instances in which tests or quizzes were given, during which teachers and students were silent for lengthy periods. In these cases, the number of recorded intervals varied, and the percentage calculations were recalibrated to reflect the length of instructional time recorded.

Prior to the start of the study, co-taught classes not involved in this study were digitally recorded and the two recorders were trained using these recordings until inter-observer agreement over 90% was reached. The study began when agreement had reached 90% or more for three consecutive trial recordings. Refer to Appendix B for the data collection tool used by the observers.

**Procedural reliability of the training program.** For this study, procedural reliability was established by issuing each participant (N=6) attending the Teaming Instructional Procedures Program sessions with a Procedural Reliability Checklist to complete at the end of each training session. Scores were then compared to ensure training was implemented correctly and consistently to each dyad. A Procedural Reliability Checklist (refer to Appendix D) detailing the primary components of the Teaming Instructional Procedures Program (N= 9) was developed. To determine procedural reliability, the number of completed procedures presented by the trainer indicated by the participant on the checklist was divided by the total number of procedures (N=9) and then multiplied by 100 for each participant completing the training.

**Social validation procedures.** Upon completion of the study, the six participating teachers and their students were presented with a questionnaire to determine their perceptions on the teaming approach; refer to Appendix E (Social Validation Teacher Questionnaire) and Appendix F (Social Validation Student Questionnaire). The questions asked of the teachers focused on the extent to which the intervention was feasible and to what extent the efforts made to implement the teaming co-teaching approach introduced in the Teaming Instructional Procedures Program translated into benefits in the classroom. The questions asked of the students were narrower in focus and concentrated on their perceptions of having two teachers in the classroom.

**IRB and confidentiality.** Approval was obtained from the University of Maryland's Internal Review Board (IRB) before research involving human subjects proceeded. Prior consent from the six participating teachers from the three co-teaching dyads was obtained. The teacher consent form is found in Appendix G. Prior to the study,

parents of the students in the classes being recorded were contacted. A parent permission form was sent to them to obtain permission for their child to fill out the social validation questionnaire found in Appendix H. At the time of soliciting students to complete the social validation questionnaire, students were given an assent form found in Appendix I, which provided explanation of the purpose and requested their approval to participate. The names of the participating teachers and students in the co-taught classes remained confidential.



## CHAPTER IV

### Results

#### Reliability Results

**Inter-observer reliability.** Inter-observer reliability was recorded for each of the three team teaching dyads. The overall mean inter-observer reliability across all three dyads across all three experimental conditions was 96.24%. For Dyad 1, inter-observer reliability of 95% agreement was recorded for one (25%) baseline session. Inter-observer reliability was subsequently recorded for two (40%) intervention sessions for Dyad 1 with a mean of 91.02%, and for one (50%) maintenance session with inter-observer reliability of 97.61%. Overall, the mean inter-observer reliability of 93.66% was recorded for Team Teaching Dyad 1, based on data collected during four (36.36%) reliability checks across all three conditions.

For Dyad 2, inter-observer reliability agreement of 100% was recorded for one (40%) baseline session. Inter-observer reliability was recorded for two (40%) intervention sessions, with a mean of 97%, and for one (50%) maintenance session with reliability of 90% being recorded. The overall mean inter-observer reliability for Dyad 2 was 97.46%, with data being collected during five (41.67%) reliability checks across all three conditions.

Mean inter-observer reliability agreement of 97.62% was recorded for Dyad 3 for two (33%) baseline sessions. Reliability was also recorded for two (40%) intervention sessions, with a mean of 92.82%. Inter-observer reliability of 97.61% was recorded for one (100%) maintenance session for Dyad 3. The overall mean inter-observer reliability

of 95.67% was recorded, based on data collected during five (41.67%) reliability checks across all three conditions.

**Procedural reliability.** Procedural reliability was established by having each participating teacher complete an Instructional Program Procedural Reliability Checklist (refer to Appendix D) immediately after training. Procedural reliability was recorded as 100% for all six participants.

### **Research Question 1**

The effects of the Teaming Instructional Procedures Program on the co-teaching practices of six high school educators are presented in Figure 1. During session 1, a baseline probe was collected for Team Teaching Dyad 1. True baseline data were then collected for three consecutive sessions. The baseline data for Dyad 1 were stable. The mean percent of intervals of teaming behaviors displayed by the special educator during baseline was 13.8%, with a range of 8.13% to 16.66% intervals. For Dyad 1, the mean percent of teaming behavior intervals for the following six intervention sessions was 71.52%, with a range of 50% to 80%. There was a mean increase in teaming behavior intervals of 57.7 percentage points. Maintenance probes were taken during the 13<sup>th</sup> and 18<sup>th</sup> sessions. The mean percent of teaming behavior intervals for the maintenance probes was 69.8%, with a range of 65.8% to 73.8%. The mean decrease in teaming behaviors from intervention to maintenance was 2.7 percentage points.

For Team Teaching Dyad 2, data were collected for two baseline probes during sessions 1 and 5, with true baseline data collected during sessions 6 to 8. The mean percent of teaming behavior intervals for baseline data was 10.14%, with a range of 8.82 to 11.9%. Intervention data were then collected during sessions 9 to 13, with a mean

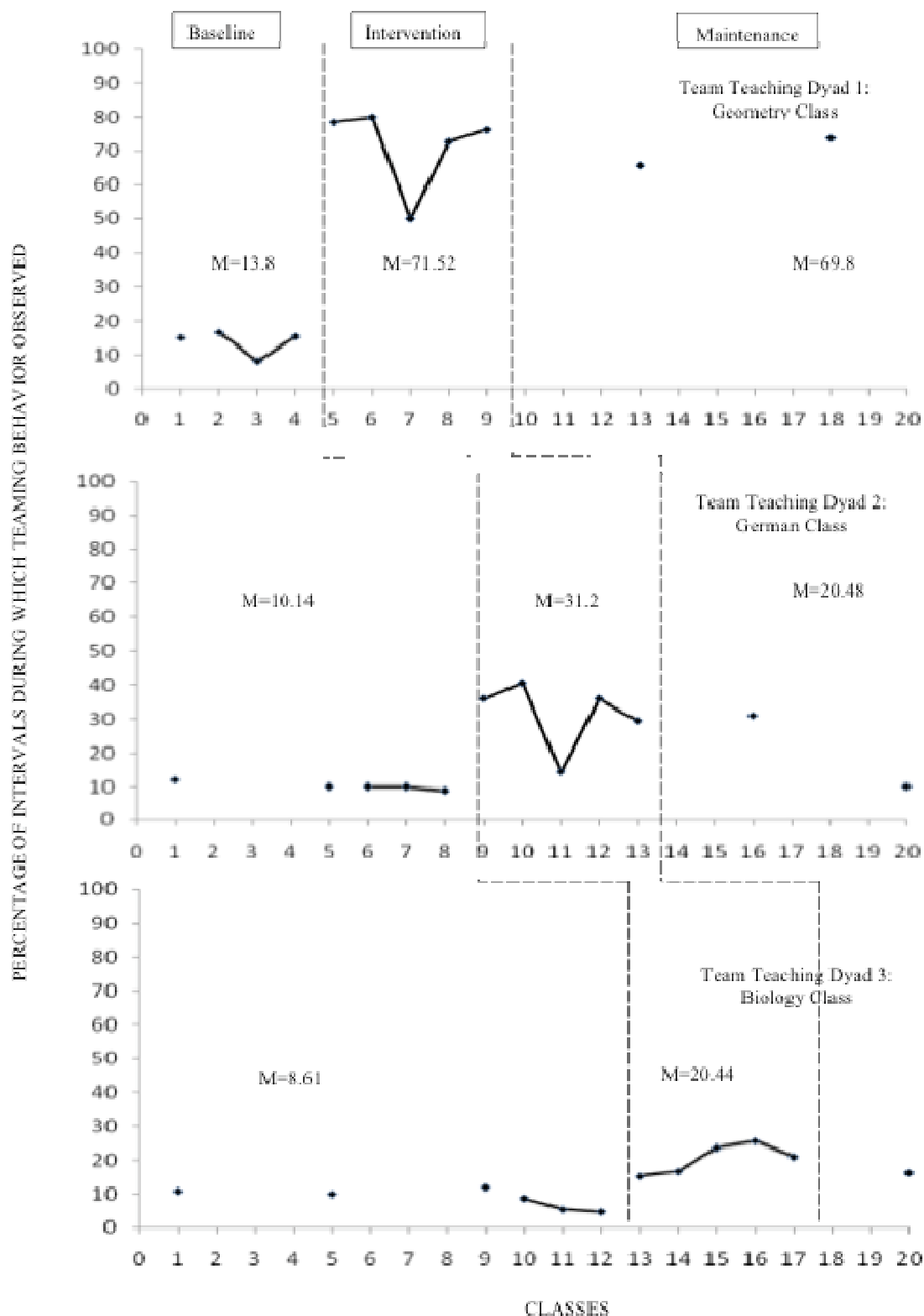


Figure 1. Percent of intervals during which teaming behaviors were observed for Dyads 1, 2, and 3 during baseline, intervention, and maintenance conditions.

percent of teaming behavior intervals of 31.2% and a range of 14.29% to 40.48%.

Intervention data showed a mean increase of teaming behavior intervals of 21.06 percentage points from baseline to intervention. Maintenance data were collected during sessions 16 and 20, with a mean percent of teaming behavior intervals of 20.4% and a range of 10% to 30.95%. Maintenance data showed a decrease of 10.8 percentage points from intervention.

Baseline probe data were collected for Team Teaching Dyad 3 during sessions 1, 5, and 7. True baseline data were then collected during sessions 8 to 10. The mean percent of teaming behavior intervals for baseline data was 8.61%, with a range of 4.76 to 10.81%. Intervention data were then collected for five consecutive sessions with a mean percent of teaming behavior intervals of 20.44%, and a range of 15.15% to 25.64%. The data for Team Teaching Dyad 3 showed a mean increase of 12.5 percentage points from baseline to intervention. Data were only available for one maintenance probe with Dyad 3 due to the school year ending. During this probe, teaming behaviors were displayed by the special education teacher for 16.27% of the observed intervals.

Across the three team teaching dyads, the overall baseline mean for the observance of teaming behavior intervals was 10.63%, with a range of 4.76% to 16.66%. The overall mean across the three dyads during intervention was 41.05%, with a range of 14.29% to 80%. The mean increase in the observance of teaming behaviors across all three dyads between baseline and intervention was 33.28 percentage points.

## **Research Question 2**

Social validity was measured to determine the general and special education teachers' perceptions of the Teaming Instructional Procedures Program and practices of

the co-teaching approach of teaming. Social validity was recorded for the teachers completing the questionnaire at the end of the study. The first five of 11 questions required a ‘yes’ or ‘no’ response and responses are recorded in Table 3. All six (100%) of the participating teachers responded ‘yes’ to two of the questions (1 and 4), confirming they found the Teaming Instructional Procedures Program training useful and they thought others would find the training useful. Five of the six teachers (83.33%) answered ‘yes’ to two other questions (3 and 5), indicating they intended to continue using the approach and they would like to receive further training in other co-teaching approaches. The remaining question (2) asked if the teaming approach was useful in their co-taught class. Four teachers (66.67%) found the approach useful, one (16.67%) reported she did not find it useful, and the final respondent (16.67%) was unsure, circling both answers.

Table 3

*Teacher Responses to Social Validation Questions 1- 5*

Social Validation Question	General Educators N = 3			Special Educators N = 3		
	YES	NO	UN- SURE	YES	NO	UN- SURE
1. Did you find the Teaming Instructional Procedures Program training useful?	3	0	0	3	0	0
2. Do you find the teaming approach useful in your co-taught class?	2	0	1	2	1	0
3. Will you continue to use the teaming approach in your co-taught classes?	2	1	0	3	0	0
4. Do you think other teachers would find the training useful?	3	0	0	3	0	0
5. Would you like to receive more training in other co-teaching approaches?	3	0	0	2	1	0
<b>TOTALS</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>13</b>	<b>2</b>	<b>0</b>

The remaining six questions were open ended. For question 6, four teachers (66.67%) indicated the students responded well to the implementation of the teaming strategies, although two teachers (33.33%) qualified this by adding the students were probably oblivious to any change occurring. In response to question 7, five teachers (83.33%) also reported perceiving positive changes in behavior and performance in their co-taught classroom with comments including “fewer discipline issues” and “students on IEPs were more engaged because their teacher was”. In response to question 8, all six teachers reported advantages of the teaming approach, with three teachers (50%) mentioning the increased ‘one-on-one’ time with students. In response to question 9, all teachers indicated the teaming approach did not lend itself to every situation. Five teachers (83.33%) responded to question 10, which invited comments about the advantages of the program. Advantages included the program was ‘quick’, ‘user-friendly’, and gave some ‘great tips’. When invited to offer constructive criticism in question 11, five participants (83.33%) indicated the approach was not suitable for all situations, with two participants (33.33%) indicating teaming was particularly problematic at the high school level.

### **Research Question 3**

High school students’ perceptions of teaming practices in their content courses were obtained. Students from each co-taught classroom also completed a social validity questionnaire. There were 11 student respondents from Dyad 1, 17 student respondents from Dyad 2, and 16 student respondents from Dyad 3.

**Student responses from Dyad 1.** The first six questions required a ‘yes’ or ‘no’ response and students’ responses are presented in Table 4. Eleven of the 20 (55%) students from Dyad 1’s classroom completed the questionnaire.

Table 4									
<i>Student Responses to Social Validation Questions 1- 6</i>									
Social Validation Question	Dyad 1 N = 11			Dyad 2 N = 17			Dyad 3 N = 16		
	YES	NO	UN-SURE	YES	NO	UN-SURE	YES	NO	UN-SURE
1. Do you enjoy it when (special educator) teaches in your classroom?	11	0	0	16	1	0	14	1	1
2. Do you enjoy having two teachers?	11	0	0	15	2	0	13	3	0
3. Was it confusing?	0	11	0	3	14	0	1	13	1
4. Was it helpful?	11	0	0	12	4	1	14	1	1
5. Do you concentrate more with two teachers in the classroom?	9	1	1	11	6	0	7	8	1
6. Do you learn more with two teachers in the classroom?	10	1	0	12	5	0	11	4	1
<b>TOTALS</b>	<b>52</b>	<b>2</b>	<b>12</b>	<b>69</b>	<b>33</b>	<b>1</b>	<b>60</b>	<b>30</b>	<b>5</b>

All 11 students answered ‘yes’ for questions 1, 2, and 4 indicating they enjoyed having the special education teacher teaching in the classroom, they enjoyed having two teachers, and it was helpful having a second teacher. In response to question 3, all students agreed they did not find the presence of a second teacher confusing. Nine (81.81%) students responded to question 5 by reporting they concentrate more with two teachers in the room, with one student (9.09%) indicating s/he did not concentrate more, and the remaining student (9.09%) leaving the question unanswered. In answering the open-ended questions on the questionnaire, four students (36.36%) in this class indicated

they were aware of the fact the presence of the second teacher was related to special education requirements. Four students (36.36%) reported they did not know the reason behind the presence of the second teacher. All students reported the general education teacher was the ‘main’ teacher and the special education teacher was the ‘helper’ or ‘assistant’. In responding to the question asking which teacher they would turn to for help first, six students (54.54%) chose the special education teacher, five (45.45%) chose the general education teacher, and two (18.18%) showed no preference.

**Student responses from Dyad 2.** Seventeen of the 23 students (73.91%) from the co-taught class of the second dyad completed the social validity questionnaire. In response to question 1, 16 of the 17 respondents (94.12%) indicated they enjoyed having the second teacher in the room, with one student (5.88%) stating s/he did not enjoy it. In response to question 2, 15 (88.24%) students also enjoyed having two teachers, with two students (11.76%) answering in the negative. In response to question 3, three students (17.65%) indicated they found it confusing having two teachers, with the remaining 12 (70.59%) answering it was not confusing. Twelve (70.59%) found it helpful having two teachers (question 4), with one student (5.88%) not finding it helpful and the remaining student leaving the question unanswered. Responding to question 5, 11 students (64.7%) reported they concentrate more with two teachers in the room, and six (35.3%) students indicated they did not concentrate more. Twelve students (70.59%) responded to question 6 by saying they felt they were learning more with two teachers in the room, with the remaining five (29.41%) reporting they did not feel they were learning more. In answering the open-ended questions for this dyad, six of the 17 (35.29 %) students were unaware of the reason behind the presence of the second teacher, with five (29.41%)



students reporting they thought the teacher was simply extra help, and one student (5.88%) thinking the special education teacher was a student teacher. Four students (23.52%) indicated they were aware the special educator was there to help particular students, with two (11.76%) students naming the students on IEPs. All student responses to the question “What is Ms. \_\_\_\_’s role in the classroom?” resulted in the students identifying the general educator as the ‘main’ teacher. Similarly, all students identified the special educator as a ‘helper’, ‘assistant’ or someone who makes it ‘more understandable’. When asked who they would turn to for help first, 14 (82.35%) students indicated they would first turn to the general education teacher, with the remaining three (17.64%) opting to turn to the special education teacher.

**Student responses from Dyad 3.** For the third dyad, 16 of the 21 students (76.19%) in the co-taught class completed the social validity questionnaire. Fourteen of 16 respondents (87.5%) responded to questions 1 and 4 by reporting they enjoyed having the special education teacher in the classroom and it was helpful to them. In each case, one (6.25%) student answered ‘no’ to the question, and one student did not respond. In response to question 2, 13 (81.25%) students indicated they enjoyed having two teachers, with the remaining three (18.75%) students reporting they did not enjoy it. Thirteen (81.25%) students reported, in response to question 3, they did not find it confusing having two teachers in the room, with two students (12.5%) reporting it was confusing and the remaining student (6.25%) declining to answer. Fourteen (87.5%) students found it helpful to have two teachers, with one student (6.25%) not finding it helpful, and the remaining student declining to respond. Seven (43.75%) students in this class found they could concentrate more in the co-taught class, with eight (50%) students finding it more

difficult to concentrate, and one student (6.25%) circling both responses. Eleven students (68.75%) felt they learned more with two teachers in the room, with one student (6.25%) indicating s/he did not learn more, and the remaining student declining to answer. When answering the remaining, open-ended questions, eight (50 %) students reported they did not know why there were two teachers in the classroom. Three (18.75%) students thought the second teacher was there to help all students, and three (18.75%) were aware the special education teacher was there to assist students on IEPs. The remaining student (6.25%) indicated s/he thought the second teacher was a student teacher. All 16 responding students identified the general educator as the 'main teacher' or 'biology teacher'. Fifteen (93.75%) students also identified the special educator as the 'helper' or 'assistant', with the remaining student (6.25%) claiming not to know or care why the special education teacher was there, indicating his presence was 'annoying as hell'. When asked which teacher they would turn to for help, 10 (62.5%) students reported they would turn to the general educator only, three (18.75%) students reported they would seek help from the special educator, and the remaining three (18.75%) students expressed no preference.

## CHAPTER V

### **Discussion**

This investigation identified a positive and functional relationship between the implementation of the Teaming Instructional Procedures Program and the co-teaching behaviors of the high school teachers. During the intervention, there were substantial increases in the occurrence of teaming behaviors on the part of the three special educators. A sustained increase in the occurrence of teaming behaviors was also recorded during the post-intervention maintenance probes.

### **Research Question 1**

For each of the three participating dyads, there were increases in the percent of intervals during which the special educator displayed teaming behaviors. Across the three dyads, the increase in the mean percent for the occurrence of teaming behavior intervals from 10.63% during baseline to 41.05% during intervention represents substantial gains, which appear to be due to the implementation of the Teaming Instructional Procedures Program. Prior to training, the teachers had been placed in their co-teach situations with no formal preparation. The results of this study support the importance of adequate training and the need for teachers to develop a clear understanding of their roles which have been documented in the literature (Cook & Friend, 1998; Dieker & Murawski, 2003; Kamens, 2007; Morocco & Aguilar, 2002; Murawski & Dieker, 2004; Murawski & Dieker, 2008; Mastropieri et al., 2005; Pearl & Miller, 2007; Weiss, 2004; Wischnowski, Salmon & Eaton, 2004).

The receptiveness of the participating teachers to the training and subsequent success can be attributed to several factors. The training was the first direct guidance they

had received in relation to their co-teaching situation and such, all six teachers, as evidenced in their responses to the questionnaire, found the training useful. In addition, the training was carried out in a relaxed, familiar setting, and implemented during preparation time. The teachers were given an opportunity to voice any concerns regarding the teaming approach as well as the collection of data. The data collection was carried out inconspicuously without an observer present during each class session. This may have also contributed to the teachers' willingness to be included in the study, implement the intervention strategies, and increase their teaming behaviors.

However, even though the data for Dyad 1 showed a mean increase in teaming behaviors of 57.7 percentage points over the baseline mean, results may have been higher had it not been for session 7. A substitute teacher was present for the duration of the classroom period, which may explain the discrepant data. Despite this, the data for session 7 showed significantly more participation from the special educator than was recorded during baseline. It appears the special educator, having been trained, continued using the teaming approach as a best practice despite the fact the substitute was unfamiliar with the approach.

The data for Dyad 2 showed a smaller, yet noticeable mean increase of 21.06 percentage points in teaming behaviors between baseline and intervention conditions. The data for this dyad were also impacted by one session of discrepant data. Again, the presence of a substitute teacher in the room may account for session 5 showing fewer displays of teaming behaviors by the special educator. Additionally, the second and final maintenance probe for this dyad produced data revealing occurrences of teaming behaviors similar to those recorded during baseline. During this recorded session, a test

was given for most of the classroom period. For this reason, only ten intervals were observed and the calculations adapted accordingly. Most of the time during these ten observed intervals was used by the general educator to issue instructions for taking the test.

The effects of the special education teachers' content background seemed to have a mixed impact on the results, as did the effects of teaching experience. It was expected that years of teaching experience and shared content area background would have a positive impact on the effect of the intervention, however the results for Dyads 2 and 3 did not support this. As for content background, the special education teacher from Dyad 1 was certified to teach math at the high school level and the special educator from Dyad 3 was certified to teach high school science. Additionally, both Dyads 1 and 3 had many years of teaching and co-teaching experience. However, there was a substantial difference between the effect of the intervention when comparing the teachers in Dyads 1 and 3. Moreover, the general education teacher from Dyad 2 commented on the special education teacher's lack of foreign language background and not having knowledge of German; this may explain the lower results obtained with Dyad 2. However, in Dyads 1 and 3, the special education teachers were both certified to teach in the respective content areas of their general education counterparts, but there was a marked difference in the impact of the intervention between these two dyads. More effect was demonstrated in Dyad 2, in which the special educator had no background in the foreign language being taught, than in Dyad 3, in which the teachers were more experienced and shared a science background.

## **Research Question 2**

The first five questions on the Social Validation Teacher Questionnaire addressed the following: the usefulness of the training program; the usefulness of the teaming approach; whether the teaming approach would be used after the study; whether other teachers may find the teaming approach useful; and whether the teachers would like to receive training in other co-teaching approaches. For Dyads 1 and 2, the four teachers responded 'yes' to all five questions. This is a firm indication these participants welcomed the implementation of the Teaming Instructional Procedures Program and believed it benefitted them in their co-teach situation to the extent they would recommend other teachers participate in the training. It also indicated they would like to learn more about other co-teaching approaches. The responses from Dyad 3 were mixed, indicating the teaming approach was not always suitable when co-teaching with content area experts.

The remaining questions on the Social Validation Teacher Questionnaire (6 - 11) were open-ended, and the responses varied. Question 6 asked the teachers to comment on how they perceived students responded once the teaming strategies were implemented in the classroom. In Dyads 1 and 2, all participants commented the students responded well, with the teachers from Dyad 3 providing less enthusiastic responses. In Dyad 3 the special educator reported the students responded "well, but perhaps they didn't notice too much that change had occurred". This is understandable, given the increase in teaming behaviors of the special educator was smallest for Dyad 3.

The teachers from Dyads 1 and 2 also reported positive changes in performance and behavior from their students in the co-taught classes. The teachers in Dyad 3 were

again less enthusiastic in their response, with the special educator reporting “nothing noticeable, but no real problems”, while the general educator reported noticing the “students on IEPs were drawn into the classes because their teacher was”, thus placing the emphasis on the students with disabilities. Once again, the responses indicated a generally positive perceived effect and strong social validity of the program.

All teachers identified advantages of the teaming approach when responding to question 8. Several teachers mentioned the approach allowed for more one on one time for both teachers in the room. According to the general educator from Dyad 2, teaming left more time to “focus on the kids instead of just concentrating on paperwork.” The general educator from Dyad 3 stated the approach “takes some pressure off the teachers in deciding what their roles should be”, while her co-teacher appreciated the fact the approach “gives the sped teacher more input and presence.”

When offering constructive criticism of the teaming approach (question 9), the teachers from Dyads 2 and 3 commented on the unsuitability of the teaming approach in some situations. The comments may explain why the effects of the intervention were less marked than they were for Dyad 1. The special educator in Dyad 2 commented the approach “may be too simplistic for some situations”, while the general educator said, “It can’t always work. I am the language teacher, and my co-teacher is great, but has no German.” Both teachers in Dyad 3 commented cautiously on the suitability of this approach for the science classroom, and the special educator responded the approach was “too narrow to use in the high school science room.” Similarly, the general educator commented the teaming approach was “not always appropriate.” The special educator added, “it is difficult for sped teachers at the high school level to team teach with content

area experts.” Although the comments were cautious, none of the teachers stated the approach was completely unsuitable or unhelpful.

When asked to identify the advantages of the Teaming Instructional Procedures Program, the responses from all teachers concentrated on the fact the program was not very time consuming, easy to understand, and “user friendly”. Criticisms of the Teaming Instructional Procedures Program were concerned with the limitations of the focus of the program, indicating the program needed to expand to include more details about other co-teaching approaches. Other suggestions included focusing more on approaches better suited to high school classrooms and elaborating on different approaches to allow teachers more flexibility to co-teach more effectively in a variety of situations.

### **Research Question 3**

It was apparent from the students’ responses to the first six questions on the questionnaire they were receptive of and had a positive attitude towards the presence of the co-teacher in the classroom. Of the 44 students who completed the questionnaire, 41 enjoyed it when the special educator taught in their room (question 1). Similarly, 39 students indicated they enjoyed having two teachers (question 2). Two students from Dyad 2’s classroom and three from Dyad 3’s classroom did not enjoy having two teachers. Of the students responding to question 3, all student respondents from Dyad 1’s classroom responded it was not confusing having two teachers; 14 of 17 students from Dyad 2’s classroom responded they did not find it confusing, with 13 of 16 students from Dyad 3’s classroom not finding two teachers in the classroom confusing. For question 4,



the vast majority of respondents from each classroom found it helpful having two teachers.

When responding to question 5, which asked if they concentrated more with two teachers in the classroom, the responses varied discrepantly among the co-taught classes. All but one student from Dyad 1's classroom felt they concentrated more. From Dyad 2's classroom, eleven of the seventeen respondents believed they concentrated more, and from Dyad 3's classroom, less than half the class believed they concentrated more with two teachers in the room. This pattern corresponded with the effect of the intervention on the teaming behaviors of the teachers. The greater the measured effect of the intervention, the more students believed they concentrated more with two teachers in the room. More students from Dyad 3's classroom provided negative responses than from the other dyads, perhaps due to their two teachers not feeling the co-teaching approach lent itself to the high school science classroom.

Question 6 on the student questionnaire also resulted in mixed responses. The students from Dyad 1's classroom were once again the most positive, with 10 of the 11 respondents indicating they learned more with two teachers in the classroom. However, the student respondents from the other dyads' classrooms were mixed. Five students from Dyad 2's classroom and four from Dyad 3's classroom responded they did not learn more with two teachers in the classroom. Once again, these negative responses correlated with the dyads displaying a smaller effect from the intervention.

The responses to the open ended questions 7–10 on the student questionnaire provided further information which could, to some extent, explain the nature of the co-teaching relationship in the different classrooms, and the extent to which the intervention

was successful. For example, four of the eleven respondents taught by Dyad 1 were unaware of why there were two teachers in the room, whereas six from seventeen taught by Dyad 2 and eight of the sixteen respondents taught by Dyad 3 were not aware of the reason for the presence of the second teacher. The intervention appeared to be more effective in the classrooms in which a greater proportion of the students were aware of the reason for the presence of two teachers. Based on these results, a recommendation to include the rationale for co-teaching in future training sessions is warranted.

Questions 8 and 9 asked the students to identify the role of each teacher in the co-taught classroom. Ten of the eleven students in Dyad 1 identified the general educator as the “main teacher” or “the geometry teacher”, with the other student simply stating he was there “to teach us.” Nine of these students also described the special educator as being there to help explain what the general educator had taught, as one student put it: “[she] explains things more when we don’t get something”. Similarly, the students taught by Dyads 2 and 3 identified the general educator’s role as the “main” or subject teacher. The students taught by Dyad 2 all identified the role of the special educator as secondary. Answers ranged from “She helps us learn and pay attention”, “the helper”, to “to be hear [sic] because Ms. [general educator] is pregnant and needs someone else.” All but one student taught by Dyad 3 described the special educator as being a helper, using words like “assist” and “helper”, with one student simply stating “don’t know, don’t care.” Again, it appears students taught by Dyad 1, for which the intervention was most effective, had a clearer idea of the reasoning behind the presence of two teachers in the classroom. During the training, full disclosure was not discussed; the teachers were left to decide the extent to which, if at all, they discussed with their students the reason why two

teachers were in the room and what their responsibilities were. The responses from students indicated they did not feel the teachers had shared ownership of the class, with only one exception. One student taught by Dyad 3 said of the role of the special educator, “He knows things that [special educator] doesn’t and vice versa. They work good together as a team.” Surprisingly, this comment was from a student taught by a dyad in which the teachers clearly questioned the suitability of a teaming approach in that content area and grade level.

Responses to the final question on the student questionnaire also varied. Six of the 11 respondents taught by Dyad 1 stated they would ask for help from the special educator first. Examples of reasons were “so Mr. [general educator] isn’t interrupted and can continue teaching”, and “Ms. [special educator] because she breaks things down for me.” Five students stated they would approach the general educator first, as he was the main teacher, and two students were equally prepared to approach both teachers. The responses from students taught by Dyads 2 and 3, however, favored the general educator as a source of help. Thirteen of the sixteen respondents taught by Dyad 2 favored the general educator, and 10 of the 16 taught by Dyad 3. In both classes, the students indicated the general educator knew more and was the primary source for content information. In Dyads 1 and 3, the special education teachers did have backgrounds in the respective content areas they were co-teaching, however in Dyad 2, in which the highest percentage of students favored the general educator as a source of help, the special education teacher had no background in German.

Concluding, it appears the students accepted and were receptive to having two teachers in the classroom. The majority of students found it helpful and felt they

concentrated and learned more with two teachers. Most students were unaware of the exact reason why there were two teachers; however, they perceived the general educator as the lead teacher, with the special educator in more of a supportive role. Students' confidence in the special educator as a source of assistance clearly varied across the dyads, a possible reflection on the teaching practices employed by the teachers in the room. This may also be related to the extent to which the teachers directly discussed their roles in the classroom with the students.

### **Limitations**

The study was limited to a small number of participants within one school complex. Given the nature and location of schools in the participating system, the results may not generalize to schools outside of the system. Likewise, the potential pool of participants was also a limitation. As the study was limited to involving teachers who were co-teaching within one school complex, it was difficult to ensure the participation of teachers who met the desired criteria. There were eight special educators available for selection within the complex, with the number of general educators determined by the schedules of the special education teachers.

Another limitation to this study was the focus on only one approach to co-teaching. Many models are discussed in the literature, however due to the size of the study, a focus on one approach was developed to measure the effect of the intervention and set the precedent for future research. The teaming approach, in which both teachers share the responsibility for delivering the main instruction to the whole group, is addressed in the literature as one of several approaches to co-teaching and has been referred as teaming or duet teaming (Participating School System, 2005; Friend, 2007).

More meaningful results could have been achieved had the study included a procedural training program addressing all six approaches discussed in Friend's (2007) handbook; one teaching, one observing; station teaching; parallel teaching; alternative teaching; one teaching, one assisting; and teaming. With knowledge of and training on each approach, teachers could select the approach most suitable to the teaching situation and vary the approach when needed.

As videotaping the classes was not an option, audio recordings were used to collect data for Research Question 1. The focus was narrowed to the teaming approach, as this approach best lent itself to analysis from audio recordings. The other approaches required a visual to confirm elements of the approach being used. This was a significant limitation, as the study was evaluating the effectiveness of the instructional program. Had the other approaches been addressed in detail, the teachers would have been able to use an approach more suitable to their classroom and team dynamic. For example, the special educator from Dyad 3, who commented the teaming approach was too narrow to use in the high school science room, may have adopted other approaches. Another limitation associated with the use of audio recordings was the checklist of teaming behaviors; it had to be compiled to include only spoken criteria. The teaming approach was described as being one in which both teachers share the responsibility for delivering the main instruction to the whole group. Instructional delivery also included nonverbal cues and prompts. For example, teachers may rely on visuals such as hand signals, discussion questions written on overhead projectors, or SMART™ boards. Sharing responsibility for instructional delivery is also a limitation, as at the high school level it is difficult to share the delivery of specific content area instruction if the special education teacher has no

certification in the content area. This was the case for Dyad 2, in which the special education teacher knew no German.

Time was also a limitation for this study. By the time Dyad 3's intervention data had been collected, it was the last week before the end of school year final examinations. This limited the opportunity for the collection of maintenance data to one session for Dyad 3. Ideally, more maintenance probes would have been carried out for each dyad.

### **Implications for Future Research**

The results from this study indicated the Teaming Instructional Procedures Program was effective as an intervention, as increases in the occurrence of teaming behaviors were recorded for each participating dyad. As such, it serves as an indication that teachers are more likely to use a co-teaching approach if the appropriate training and support is provided.

Limitations of this study could be addressed in future research. The implementation of a comprehensive training package could introduce teachers to all co-teaching approaches outlined by Friend (2007), helping them develop an understanding of each approach and the appropriateness of different approaches for different situations in the same co-taught classroom.

Future research may also focus not only on the observable practices of the classroom teachers in co-teach situations, but also on the effects of student performance as the ultimate focus of instruction. In addition, the use of different co-teaching approaches by the teachers in the co-teach situation could be monitored with the use of videotaped classroom sessions. Another factor that may be considered in future research

is detailed feedback from teachers and students, with feedback from students categorized to indicate whether the student was on an IEP.

Another important factor to consider for future research and practice in the classroom is the disclosure to all students when introducing the second teacher into the co-taught classroom. It was apparent from the study, students were often unaware of the rationale for the second teacher being in the room or the exact nature of his/her responsibilities in the classroom. The training did not address discussing the reason for or nature of the co-teaching relationship.

### **Conclusion**

The Teaming Instructional Procedures Program led to increases in the occurrence of teaming behaviors across the three participating dyads. The degree of impact varied across the dyads, however in each case, increases were recorded. All participating teachers reported they found the training useful and they believed other teachers would find it useful. When teachers reported not finding the approach useful, they qualified this by pointing out the approach was too narrow and other approaches may be more appropriate for different situations. Five of the six teachers involved stated they would like to receive further training in other co-teaching approaches. These results, in conjunction with the positive effects of the program and the receptiveness of students towards the presence of the special educator in the co-taught classroom, support the effectiveness and social validity of the Teaming Instructional Procedures Program.

## Appendix A

### Research Studies Focusing on Co-teaching Instructional Procedures

Study	Rationale/Purpose/Research Questions	Sample/Participants	Design & Procedures	Analyses	Results
Austin, V. L. (2001).	<ul style="list-style-type: none"> <li>•How do co-teachers perceive their current experience in the classroom?</li> <li>•What teaching practices do collaborative educators find effective?</li> <li>•What kind of teacher preparation do co-teachers recommend?</li> <li>•What school-based supports facilitate collaborative teaching?</li> <li>•Are students being adequately academically and socially prepared, and do they like this learning environment?</li> <li>•Who does more in the partnership, the general or special educator?</li> </ul>	<ul style="list-style-type: none"> <li>•139 collaborative teachers from nine school districts in northern NJ teaching K-12.</li> <li>•The majority of educators taught at the secondary level.</li> </ul>	<p>Survey and interviews.</p> <ul style="list-style-type: none"> <li>•A single survey instrument was used. The Semi Structured Interview: Perceptions of Co-teaching script was developed.</li> <li>•Researcher personally delivered the survey and cover letter, which was then completed during the planning period that same day.</li> <li>•An equal number of special and general educators were selected from the respondents to participate in a follow-up interview.</li> </ul>	<ul style="list-style-type: none"> <li>•Data analyzed using the SPSS 9.0 for Windows package.</li> </ul>	<ul style="list-style-type: none"> <li>•General agreement that co-teaching was worthwhile, but that the general educator did most of the work in the classroom.</li> <li>•General agreement that they should meet and plan daily, but those who did this already disagreed on the effectiveness of the practice.</li> <li>•More special educators than general educators thought it useful for student teachers to be placed in such an environment. The same held true of perceptions of the usefulness of preservice training in collaboration.</li> <li>•Teacher identified cooperative learning and small groups as two techniques they found most effective, and that the experience was positive.</li> <li>•Most teachers agreed that co-teaching and the strategies employed were academically and socially beneficial to their students.</li> <li>•More special educators stated that they were primarily responsible for modifications.</li> <li>•Most educators said they shared most of the teaching responsibilities.</li> </ul>
Dieker, L. A. (2001).	To determine the characteristics of 'effective' middle/high school co-taught teams for students with disabilities.	9 dyads participated from a Midwestern urban school district. Seven special educators and nine general educators. The teams served students with learning disabilities, emotional disturbances, mild-to moderate cognitive disabilities, and autism.	<p>Observations and interviews.</p> <ul style="list-style-type: none"> <li>•Dyads volunteered from a group nominated by university professors, administrators and inclusion facilitators as effectively meeting student needs using the co-teaching model.</li> <li>•Each team was observed four times, and observations were videotaped.</li> <li>•Amount of time spent planning/wanted for planning was documented by the teams.</li> <li>•Six students from each co-taught classroom were interviewed.</li> <li>•At the end of the study, teachers were interviewed to validate observations.</li> </ul>	<ul style="list-style-type: none"> <li>•Content analysis procedures were used to code the videotapes, field notes and interviews.</li> <li>•Inter-rater reliability of 80% or greater was required before themes were included in the final discussion of data.</li> </ul>	<ul style="list-style-type: none"> <li>•Five new co-teaching structures emerged, most notably the Cross-Family Support Model.</li> <li>•All of the pre-identified co-teaching structures were also found to be employed.</li> <li>•The four teams who had common planning time were the teams who employed team teaching.</li> <li>•In the teams using one-teach, one-support, the general educator was usually the lead teacher.</li> <li>•In the two teams using the most unique structures, the general educator moved into the special educator's classroom. In this family model, the special educator was assigned to a team of content-area specialists.</li> <li>•The most common practice was establishing a positive climate. Positive perception of co-teaching was also important, as were active learning and high academic and behavioral expectations.</li> <li>•Commitment to team planning and planning in general was also important.</li> </ul>
Magiera, K., & Zigmond, N. (2005)	<ul style="list-style-type: none"> <li>•This is a comparison of the experiences of students with disabilities in co-taught and solo-taught secondary school classes under 'normal' conditions, i.e. limited or no common preparation and planning time.</li> </ul>	<ul style="list-style-type: none"> <li>•Eight co-teaching dyads from four western NY middle schools volunteered (four were co-teaching for the first time). None had received any specific training in the last 3 years. Only 2 pairs had</li> </ul>	<p>Observations.</p> <ul style="list-style-type: none"> <li>•Instructionally relevant info gleaned from the IEP.</li> <li>•Solo-taught observations were made when the special educator absented themselves from the room.</li> <li>•Time sampling used to monitor how students were spending time.</li> </ul>	<ul style="list-style-type: none"> <li>•An observation protocol was designed measuring grouping patterns, on-task behavior and student-teacher interactions.</li> <li>•10s time-sampling used during the 45-minute</li> </ul>	<ul style="list-style-type: none"> <li>•In co-taught classes, target students received on average more than twice as many individual interactions.</li> <li>•Target students had more interactions with general educators when the special educators were not present.</li> <li>•No significant differences for the following variables: students working alone, grouping of students, on-task behavior, interactions with other students, directions to the whole class, directions to individuals, student participation.</li> </ul>



Study	Rationale/Purpose/Research Questions	Sample/Participants	Design & Procedures	Analyses	Results
		any common planning time. •Class sizes range from 18-27, with students with special needs ranging from 5-15 per class. •11 classes in total were observed		periods. Each target monitored for 3 minutes during each period using 5 codes: co-teaching/no co-teaching, group size, on-task behavior, interaction with others, nature of interaction.	<ul style="list-style-type: none"> <li>Results fail to identify substantial additive effects of co-teaching. This was the intention, and the authors attribute this to a lack of training and preparation.</li> <li>Failure to address student outcomes.</li> </ul>
Morocco, C. C., & Aguilar, C. M. (2002).	<ul style="list-style-type: none"> <li>What is the school's vision and model of coteaching? How has the school put that into practice?</li> <li>What coteaching roles do teachers use in their classroom instruction? How do those roles vary across pairs and teams?</li> <li>How can coteaching engage students in understanding rigorous content?</li> </ul>	Study focuses on 11 teachers observed in coteaching relationships. Teachers were from a K-8 school (80% students) in a mixed-income county in the southern part of the US. All teachers were relatively new in terms of experience (<1-5yrs). Four administrators were also key to the study, in that they developed the school's approach to coteaching.	Interviews and Observations.  <ul style="list-style-type: none"> <li>Administrators were interviewed to address the school's vision and model of development.</li> <li>3 special educators from grade 6, 7, and 8 respectively, were each observed co-teaching in three different classrooms with regular educators.</li> <li>Two observers observed in each instance, and made as detailed notes as possible (no checklists).</li> </ul>	<ul style="list-style-type: none"> <li>Interview data were interpreted using a grounded approach to qualitative research, and the researchers sought to capture the complexity of the coteaching model.</li> <li>Observation data were coded using a 'bottom-up' process. Seven role categories were identified.</li> <li>Examples of coteaching were selected in which teachers assisted students in rigorous content learning (3 criteria).</li> </ul>	<ul style="list-style-type: none"> <li>The school implemented a school wide interdisciplinary teaming model. They addressed the fact that students had been isolated for so long and needed integrating back into the general classroom. Teachers/admin met and consulted with outsiders when forming their vision for the future. They implemented a schedule that allowed for team planning and made the special educator and general educator equal in status.</li> <li>Students were focused on learning, and the educators were focused on teaching. Special educators spent (not significantly) less time on instruction across teams and more time assisting. The coteaching approach did vary across teams, with one-teach one-assist, team teaching and alternate lead and assistance approaches being adopted.</li> <li>Evidence shown of coteaching enabling the teachers to make rigorous and authentic material accessible to all students.</li> <li>More research needed to address the effects on student learning.</li> </ul>
Pearl, C. E., & Miller, K. J. (2007).	What are the frequencies for various grouping patterns, accommodations, and enhancements implemented by co-teaching teams in middle-school mathematics classrooms as measured by the Co-Teacher Roles and Responsibilities Inventory (CRRRI)?	Four co-teaching teams in A Central Florida middle school (the school earned an "A" based on school-wide performance on a statewide level). Each team had a special educator paired with a math teacher... novice teachers were paired with veterans. 61 Students with specific learning disabilities in six co-taught classes.	Observations using the CRRRI which was designed for this study. Four workshops on collaboration were held in the semester prior to the study. Observers trained until satisfactory reliability established	CRRRI items grouped into 5 categories: 1. Grouping patterns 2. IEP accommodations IEP assessment accommodations Other assessment accommodations 5. Enhancements	<ul style="list-style-type: none"> <li>Co-teaching model provided students with many accommodations and enhancements,</li> <li>implemented practices complemented traditional whole group mathematics instruction</li> </ul> <p>More intensive, individualized approaches were less frequently observed.</p>
Rice, D., & Zigmond, N. (2000).	Comparative study: 1. Are there unique features in the way co-teaching models are employed in Australian and American secondary schools? 2. What roles and responsibilities do co-teachers in secondary	All participants judged on criteria: a. Two qualified teachers, one regular, one special ed. b. Shared responsibility for planning and instruction of a diverse class.	Interviews/Classroom Observations with 17 teachers in us & Australia  Interviews audio taped (approx. 90 minutes) and then transcribed for analysis.	Audiotape transcriptions read independently by both authors. Themes were noted, compared and agreed upon. Findings reported back to participants, and	Several themes established:  Theme 1: Effective implementation of co-teaching requires school wide acceptance of inclusive policies and co-teaching as a viable support option. Theme 2: Co-teaching arrangements bring benefits to all teachers and all students.

Study	Rationale/Purpose/Research Questions	Sample/Participants	Design & Procedures	Analyses	Results
	<p>schools respectively assume, and how are the skills of the special educator most commonly employed?</p> <p>3. What do the teachers themselves report as the influences shaping the co-teaching model in which they are involved?</p>	<p>c. both engaged in substantive instructional delivery.</p> <p>10 public secondary schools, 2 in PA and 8 in Queensland, Australia.</p> <p>17 teachers involved.</p> <p>No interviews and observations fully met these criteria</p>		<p>revisions negotiated where necessary.</p>	<p>Theme 3: Teachers rate professional and personal compatibility highly in preferred co-teaching partners.</p> <p>Theme 4: Special Educators are rarely given equal status in co-teaching partnerships.</p> <p>Theme 5: Special educators must often prove themselves capable of making a unique and substantive contribution.</p> <p>Theme 6: Implementing co-teaching in secondary schools often involves overcoming entrenched attitudes and administrative barriers.</p> <p>Co-teaching as an approach is still to attract a substantial body of research, and is experimental and unproven.</p>
Tobin, R. (2005).	<p>1. In what ways did the co-teachers support students with disabilities in an inclusive grade-6 language arts classroom?</p> <p>2. How did three students identified with LD access help in an inclusive setting?</p>	The researcher and a grade-6 language arts teacher.	<p>Case study</p> <p>Tape recordings of participant observations (40 hours), field notes on meetings (8 hours), recorded student, teacher, and teacher assistant interviews (3 , 2, and 2 hours)</p>	<p>Recordings, notes and memos were entered into the QSR NUDIST system. Conflicting data were used to refine existing or create new schemes.</p>	<p>Teachers progressed from developmental to compromising stage, but lack of time prohibited entering the collaboration stage (Gatley &amp; Gately, 2001)</p> <p>One teach-one assist developed into a variety of co-teaching practices. Students (LD) avoided more overt help structures, and relied on secondary structures unless addressed by the teachers.</p>
Weiss, M. P., & Lloyd, J. W. (2002).	<p>1. What are the roles of special educators in co-taught classrooms at the secondary level?</p> <p>2. How do the instructional actions of special educators differ in co-taught and special education classrooms?</p>	<p>6 special educators from the middle and high schools of a rural school district. The district served approx. 1,500 students, 17% of whom received special education services.</p>	<p>Interviews/ Observations/ Constant-Comparative method.</p> <p>Data collected via interviews/observations and records from October to February.</p> <p>54 thirty-minute observations carried out.</p> <p>Each teacher was interviewed three times.</p> <p>The LEA special education handbook was examined, and the teachers' post-observation journal entries were also examined.</p>	<p>Guided by principles of 'symbolic interactionism'. Open-coding helped develop preliminary concepts. Axial coding helped make connections between categories and sub-categories. Selective coding was used to integrate and link all data to a core category.</p>	<p>At some point, all teachers reported being a support rather than instructing the class.</p> <p>Some reported pulling students out to remediate instruction, and only one teacher reported team teaching.</p> <p>The nature of co-teaching was reported as being influenced by: Scheduling pressures, content understanding, acceptance by general educators and the skills of the special needs students.</p> <p>Teachers reported gaps in skill levels for all students. Many roles were developed due to the situation (barriers) rather than by the literature.</p> <p>The presence of the special educator in the co-taught class offered only limited benefits.</p>
Weiss, M. P., & Lloyd, J. W. (2003).	<p>What are the roles of special educators in co-taught classrooms at the secondary level?</p> <p>reasons teachers co-teach?</p>	<p>6 special educators from the middle and high schools of a rural school district. The district served approx. 1,500 students, 17% of whom received special education services</p>	<p>Interviews/ Observations/ Constant-Comparative method.</p> <p>Data collected via interviews/observations and records from October to February.</p> <p>31 thirty-minute observations carried out.</p> <p>Each teacher was interviewed three times.</p> <p>The LEA special education handbook was examined, and the teachers' post-observation journal entries were also</p>	<p>Grounded theory methods for data analysis. Open-coding helped develop preliminary concepts. Axial coding helped make connections between categories and sub-categories. Selective coding was used to integrate and link all data to a core category.</p>	<p>At some point, all teachers reported being a support rather than instructing the class. Other models also observed.</p> <p>Some reported pulling students out to remediate instruction, and only one teacher reported team teaching.</p> <p>The nature of co-teaching was reported as being influenced by: Organizational conditions at the school, the teachers' definition of co-teaching, teaching in separate room (not in literature), the teaching of separate content in the same room.</p> <p>Teachers co-taught due to: Administrative pressure, community pressure, LEA pressure</p>

Study	Rationale/Purpose/Research Questions	Sample/Participants	Design & Procedures	Analyses	Results
			examined.		
Wischnowski, M. W., Salmon, S. J., & Eaton, K. (2004).	1. To describe the development/implementation of one district's approach to co-teaching. 2. To describe the evaluation approach used by the district.	A school district in New York state. Approx. 1,000 students in the district, but only grades 1-8 were involved (precise figures lacking). Students, teachers and parents were involved in the study.	Survey/ Observational data/Test results and report cards/IEP review/Interviews/Behavioral referrals/Test scores Co-teaching implemented at every grade-level. A variation of the CIPP model of program evaluation was developed. (18 questions in 6 categories addressed using the design in previous box.	Mgmt oriented approach to eval. Evaluation team. <ul style="list-style-type: none"> <li>Teachers tended to use 'one leads, one supports'</li> <li>Students with disabilities were generally progressing with non-disabled peers</li> <li>Students were no less successful than in pull-out classes</li> <li>Achievement apparently supported by accommodations</li> <li>Teachers express doubts as to the validity of test modification process</li> <li>Co-taught environment is not the LRE for all (behavior)</li> <li>No significant differences in self-concept between students</li> <li>Parents supported the model in general</li> </ul> Teacher concerns included planning time and the equal distribution of students with disabilities	

## Appendix B

### Two-Minute Time-Sampling Data Collection Sheet

**Recorder:** \_\_\_\_\_ **Dyad #:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Interval	Teaming Behavior	Comments	Interval	Teaming Behavior	Comments
1 @ 2 mins	+ -		22 @ 44 mins	+ -	
2 @ 4 mins	+ -		23 @ 46 mins	+ -	
3 @ 6 mins	+ -		24 @ 48 mins	+ -	
4 @ 8 mins	+ -		25 @ 50 mins	+ -	
5 @ 10 mins	+ -		26 @ 52 mins	+ -	
6 @ 12 mins	+ -		27 @ 54 mins	+ -	
7 @ 14 mins	+ -		28 @ 56 mins	+ -	
8 @ 16 mins	+ -		29 @ 58 mins	+ -	
9 @ 18 mins	+ -		30 @ 60 mins	+ -	
10 @ 20 mins	+ -		31 @ 62 mins	+ -	
11 @ 22 mins	+ -		32 @ 64 mins	+ -	
12 @ 24 mins	+ -		33 @ 66 mins	+ -	
13 @ 26 mins	+ -		34 @ 68 mins	+ -	
14 @ 28 mins	+ -		35 @ 70 mins	+ -	
15 @ 30 mins	+ -		36 @ 72 mins	+ -	
16 @ 32 mins	+ -		37 @ 74 mins	+ -	
17 @ 34 mins	+ -		38 @ 76 mins	+ -	
18 @ 36 mins	+ -		39 @ 78 mins	+ -	
19 @ 38 mins	+ -		40 @ 80 mins	+ -	
20 @ 40 mins	+ -		41 @ 82 mins	+ -	
21 @ 42 mins	+ -		42 @ 84 mins	+ -	

## Appendix C

### Training Script Aligned with Video

#### Co Teaching: A Teaming Approach

***Disclaimer:*** *For confidentiality reasons, the name of the participating school district has been replaced with “the participating school district”*

The information contained in this program is based on Dr. Marilyn Friend’s publication: *Co-Teach: A Handbook for Creating and sustaining effective classroom partnerships in inclusive schools*. In addition to this, information pertaining to co-teaching has also been taken from the participating school system’s Special Education Procedural Guide.

In this video, the concept of co-teaching will be introduced and defined. The relationship between co-teaching and the broader philosophy of inclusion will then be discussed. Following this, you will be introduced to a broad variety of approaches to co-teaching. This list of approaches to co-teaching is by no means exhaustive, however, you will first be introduced to the approaches suggested in the participating school district’s Special Education Procedural Guide, then you will be introduced to the approaches as suggested and outlined in *Co-Teach: A handbook for creating and sustaining effective classroom partnerships in inclusive schools* by Dr. Marilyn Friend.

We will then look at what co-teaching is not, and hopefully dispel some myths and correct some popular misconceptions. In the discussion following this video presentation, you will be invited to ask questions, discuss to what extent you are already familiar with the terms used, and discuss to what extent you are able to describe your current co-teaching behaviors in terms of the definitions introduced during the session.

### **Teaming: Co-teaching in Action**

Co-teaching is now common practice in many elementary and secondary classrooms. It is an instructional delivery system, and can be broadly defined as a situation whereby special education services can be delivered to students with disabilities in the general education classroom.

### **Inclusion**

In order to more fully understand the concept of co-teaching, and before we explore it further, it is perhaps necessary to explore the broader philosophy of inclusion. It is important to distinguish between inclusion and co-teaching, as they are not synonymous, however they are mutually dependant. As we will discover, co-teaching is a special education service delivery option. Inclusion, however, is the broader philosophy adopted by the school. An inclusive school extols the virtues of the full participation of all students in all school activities to the extent possible. Inclusion does not preclude some exclusive pullout services, but rather supplies these as guided by data-driven decision-making. Inclusion is not the service delivery option; it is the belief system or philosophy that guides all of the practices in a specific school.

### **Co-teaching: Broadly Defined**

Co-teaching occurs when two certified teachers or service providers are contracted to share the instructional responsibility for a group of students in a single classroom. Basically, in a co-teaching situation, ownership of and accountability for the class is shared. The common goal of achieving specific content goals and objectives is paramount. There are, however, many approaches to co-teaching. Different districts, schools, and teachers develop their own views of what co-teaching should look like in the

classroom. In some instances, teachers may be assigned to the co-teach classroom with little or no instruction in co-teaching best practices. In other cases the school, district or state may have firm guidelines and expectations in place for co-teaching.

There are some important factors to consider when discussing co-teaching:

**Co-teaching is an option for providing special services.**

Service options for students with disabilities are outlined in federal special education legislation and have existed for many years in public schools. Co-Teaching is not, however, listed like the other options, and it is a relatively recent addition, an option that has evolved in schools because of a need for ways to educate students with disabilities in the inclusive general education setting. It is used as a means for students with relatively mild special needs to receive special education services, but it can be the means through which students with significant disabilities are supported in school.

**Professionally Licensed Educators Implement Co-Teaching**

The participants in co-teaching depend on the services to be offered and the individuals who are assigned to co-teach in classrooms. Co-teachers are peers in terms of licensure and employment status. They truly are colleagues who jointly make instructional decisions and share responsibility and accountability. General educators, of course, are the first participants. However, they may co-teach with special education teachers, reading specialists, speech-language therapists, or even counselors, psychologists and occupational therapists. These teachers blend traditional and non-traditional roles and responsibilities. They are constantly on the alert to find new ways to combine their strengths to improve all students' learning.

### **All Students are Full Members of the Class Where Co-Teaching Occurs**

How ownership of students is discussed and addressed can have a significant impact on co-teaching success. In the co-taught classroom there is no referring to “my students” or “your students”.

### **Co-teaching Occurs Primarily in a Single Shared Classroom**

The aim in today’s schools is to meet students’ needs in general education, so it is important to keep them there and provide support in that setting.

### **The Focus of Co-Teaching is Access to the Curriculum**

The No Child Left Behind Act states that students with disabilities should be learning the same curriculum as all students. The essential consideration here is that co-teaching should not, in this day and age, ever be treated primarily as a means for socialization.

### **Co-Teachers’ Levels of Participation May Vary**

In these cases, it is particularly important to discuss what each person’s contribution will be. Co-teachers can address this topic in hundreds of creative ways when it is pertinent.

### **Participating School System’s Special Education Procedural Guide**

The participating school district publishes a Special Education Procedural Guide in which collaborative teaching practices are addressed. According to the guide, teaching in the general education setting with supplementary services is the first consideration when delivering special education services and supports, and guidelines are given for adapting, sharing, and enhancing instruction. Inclusion is a driving force behind special education service provision in our schools.



In the participating school district's guide, sharing instruction is broken down into eight different approaches to co-teaching: lead and support, duet teaming, speak and add, speak and chart, skill grouping, station teaching, parallel teaching, and shadow teaching. In the Procedural Guide, each of the co-teaching teaming methods are described as follows:

***Lead and support:*** A co-teaching method in which the general educator is the focus of instruction, with the special educator providing support such as providing visuals and demonstrating concepts using manipulatives.

***Duet teaming:*** A co-teaching method in which the general educator and special educator contribute equally to the same lesson objectives.

***Speak and add:*** A co-teaching method in which one teacher leads, with the other adding definitions and clarifications in a supportive role.

***Speak and chart:*** A co-teaching method in which one teacher leads, with the other complementing the discussion providing charts, graphs, and outlines.

***Skill grouping:*** A co-teaching method in which the class is divided into groups. Some groups receive additional instruction, and others receive enrichment activities.

***Station teaching:*** A co-teaching method involving both teachers instructing smaller groups, however the content is also divided, with each teacher re-teaching the material to the student groups as they move from one station to the next.

***Parallel teaching:*** A co-teaching method in which the class is divided and both teachers have full responsibility for providing the same instruction to a smaller group. One teacher is responsible for a segment of instruction, and the other is responsible for leading the following distinct segment.

***Shadow teaching:*** A co-teaching method in which one educator leads the lesson, with the other teacher providing reinforcement and follow-up.

It soon becomes apparent that the approaches outlined in the manual are distinct and varied, allowing teachers a great deal of latitude in deciding which approach or approaches best suit their teaching styles and accommodate the learners in their specific co-taught classroom.

### **Co-Teach: Marilyn Friend**

In her book *Co-Teach! A Handbook for Creating and Sustaining Effective Classroom Partnerships in Inclusive Schools*, Dr. Marilyn Friend outlines six possible approaches to co-teaching: one teaching, one observing; station teaching; parallel teaching; alternative teaching; one teaching, one assisting; and teaming. These are described as follows:

***One teaching, one observing:*** A co-teaching method defined by Friend (2007) as being when teachers agree on the observational information required, and one teacher observes and records whilst the other leads with the instruction.

***Station teaching:*** A co-teaching method involving both teachers instructing smaller groups, however the content is also divided, with each teacher re-teaching the material to the student groups as they move from one station to the next.

***Parallel teaching:*** A co-teaching method in which the class is divided and both teachers have full responsibility for providing the same instruction to a smaller group.

***Alternative teaching:*** A co-teaching method defined as being an approach that targets specific students or groups of students for specialized attention. This approach

involves one teacher taking responsibility for the large group, while the other works with smaller groups.

***One teaching, one assisting:*** Places one teacher in the lead role, while the other is clearly assisting. One leads instruction, while the other clearly monitors student work, addresses behavior issues, and answers questions, and distributes papers.

***Teaming:*** A co-teaching method in which both teachers share the responsibility for delivering the main instruction to the whole group.

After considering the definitions and viewing the vignettes, it soon becomes apparent that the approaches mentioned in the participating school district's Special Education Procedural Guide, and those outlined by Friend are very similar. For example, the lead and support approach from the participating school district's Special Education Procedural Guide is similar to the one teaching, one assisting approach as offered by Friend. In the case of parallel teaching, Friend and participating school district's guide use the same term, however the approach is slightly different in each case. The participating school district's guide recommends each teacher be responsible for teaching complimentary segments to the class, whereas Friend suggests that the term implies both teachers teach the same material to smaller groups. In the case of station teaching, the two are, however, in agreement on both the terminology and the approach used.

Having looked at these different approaches to co-teaching, this is the perfect opportunity to address what co-teaching is not. As mentioned earlier, the approaches outlined thus far are taken from just two sources, and other credible approaches and variations do exist. However, it is important to point out that some current practices are indeed not effective co-teaching, even though they may claim to be.

Co-teaching is not simply having an extra set of hands in the classroom. Co-teaching is not simply one person (usually the general education teacher) teaching, while the other (usually the special education teacher) roams around the classroom providing assistance to students who need help with spelling words or assistance. Co-teaching is not simply a turn taking arrangement whereby one teacher takes the lead one day, and the other takes the lead the next. Co-teaching is not simply a means for busy educators to get out of class responsibilities completed

### **Teaming**

For the purpose of this training, we are going to focus on one particular approach. The teaming approach is outlined in detail in Friend's 'Co-Teach' handbook, however this Teaming approach provides more substance to the similar 'duet teaming' approach from the participating school district's Special Education Procedural Guide.

Some teachers describe co-teaching as having "one brain in two bodies". They refer to finishing each other's sentences and the wonderful choreography of a two-teacher classroom. These teachers generally are discussing teaming. In teaming, both teachers are in front of the classroom, sharing the responsibility of leading instruction. Alternatively, co-teachers may have different but equally active roles, as when one teacher leads a large-group lesson while the other models note-taking on the overhead projector. The main characteristic of this co-teaching approach is that both teachers are fully engaged in the delivery of core instruction.

### **Teaming in Action**

In practice, teachers frequently use teaming at all grade levels and across all subject areas. For example, in an Algebra classroom, co-teachers are working with

students on the concepts of lines and slopes. The day's lesson includes writing an equation for a line already known. After reviewing, the students are being introduced to writing an equation for a line already known. At the beginning of this lesson, the special education teacher leads during the review and the general education teacher demonstrates the concepts using graphs that have been loaded for use on the smartboard. When the new concept is introduced, the general education teacher takes more of a lead while the special education teacher moves to the smartboard and the roles are somewhat reversed. Her, you may notice similarities to other co-teaching approaches, such as one teaching, and one assisting.

### **Opportunities and Challenges**

Teaming can be very energizing. Some teachers comment that working with a partner they are willing to try new ways to reach students they would not have tried if teaching alone. The y can also increase the entertainment factor of teaching: through instructional conversations, sharing question-asking, and the antics that sometimes accompany this approach, students are more likely to remain attentive. However, one of the challenges of teaming relates to the comfort level of teachers. If you and your co-teacher have just begun your partnership or are just not very comfortable working together in the classroom, this approach may call for more flexibility than can reasonably be expected. Even once teachers have been working together for a while, introducing a new approach may be awkward and taxing, not to mention time consuming.

Nevertheless, some co-teachers may use this approach intuitively and almost as soon as they begin co-teaching, others may use it once they learn each other's styles and

develop instructional trust, and some may indeed find teaming is just not an approach they can implement.

Also, if both partners tend to talk quite a lot, teaming can be challenging. One teacher may provide an example, which prompts the other teacher to give another example, which prompts the other teacher to relate a real life experience, and so on. Co-teachers may have to gauge their contributions so that the pacing is maintained.

### **Teaming: Variations on an Approach**

Teaming can bring out the creative side of teachers. For example, two high school teachers in a high school government class debated whether a woman should be president. They then asked students to write a reflective essay that distinguished between the facts and opinions the teachers had demonstrated. The next day the students engaged in debates of interest to them. As another example, in a middle school science class, one teacher usually gives directions for the lab while the other demonstrated the directions, quizzing students, occasionally making intentional mistakes to check student comprehension, and asking students, to repeat directions to confirm understanding.

Teaming is an option for partners to bring their expertise to the instructional situation.

### **Teaming and the Special Educator**

If the teaming approach were to be boiled down a checklist for the special education teacher, it would include the practices of:

- Leading core-content related classroom discussions
- Offering core content related contributions to instruction
- Working through core-content problems and explaining answers aloud to the class

- Reading aloud passages or questions
- Issuing instructions relating to classrooms procedures, such as “Please open your books to chapter two”

Teaming is not taking place when the Special Education Teacher is, for example,

- Addressing the whole class, but only with short “Yes”, “No”, or “I agree” answers
- Offering substantial assistance to small groups of students
- Offering substantial assistance to individual students

However, as mentioned earlier, the ultimate goal is not just to choose one of these approaches such as teaming, but rather to incorporate elements from many different approaches. Teaming is a flexible approach, which can provide a solid basis for a co-teaching relationship.

### **Teaming: Strengthening the Relationship**

Thus far, you have been given a broad overview of co-teaching methods. This was followed by an introduction to the teaming approach. In closing, it is important to mention some of the matters relating to the logistics of co-teaching. These relate not only to the teaming approach, but to all co-teaching situations. Further details can be found in Dr. Marilyn Friend’s handbook *Co-Teach: A Handbook for Creating and Sustaining Effective Classroom Partnerships in Inclusive Schools*

In order to strengthen your co-teaching partnership, the following points need to be considered and discussed:

- Parity in the classroom
- Division of labor for teaching and related responsibilities
- Preferences for out-of-class communication

- Strategies for responding to mistakes that occur during teaching
- Preferences for receiving feedback
- Acknowledgement of pet peeves

### **Classroom and Behavior Management**

Classroom and Behavior Management also need to be addressed and discussed by co-teachers. You will need to discuss:

- The use of space for instruction
- Tolerance for noise and strategies for keeping noise at an acceptable level
- Organizational routines
- Procedures for substitute teachers
- Safety procedures
- Classroom rules
- Discipline procedures for specific students

Last but not least, shared planning time needs to be addressed. Unfortunately, shared planning time is a luxury that is not guaranteed. It is the responsibility of the individuals assigned to the co-teach classroom to decide how and when best to plan for instruction.

This presentation has been developed to introduce and discuss a variety of approaches to co-teaching, and to explore one approach, Teaming, in a little more depth.

Thank you for participation, and hopefully this experience has given you the opportunity to explore and develop your co-teaching relationship. Following this video presentation, a discussion will focus on questions and concerns related to Teaming as a co-teaching option



## Appendix D

### Instructional Program Procedural Reliability Checklist

Instructional Program Procedures	Procedures Observed	
	Yes	No
<b>SESSION 1</b>		
1. Each teacher is greeted.		
2. Instructor introduces self.		
3. 40 minute video on co-teaching is shown		
4. Instructor leads a Q & A about clarifications		
5. Instructor asks participants to discuss the extent they were familiar with the terms used		
6. Instructor asks to what extent participants are able to describe their co-teaching behaviors in terms of the definitions introduced during the session		
7. The instructor distributes a procedural reliability checklist		
8. Participants complete the reliability checklist		
9. Instructor collects the completed checklist		
<b>Total Number:</b>		

$$\text{Reliability} = \frac{\text{\# of 'Yes' responses}}{\text{\# of Procedures}} \times 100 = \underline{\hspace{2cm}}$$

## Appendix E

### Social Validation Teacher Questionnaire

***Please answer the following questions by circling YES or NO.***

- |   |     |    |
|---|-----|----|
| 1. Did you find the Teaming Instructional Procedures Program training useful? | YES | NO |
| 2. Do you find the teaming approach useful in your co-taught class?           | YES | NO |
| 3. Will you continue to use the teaming approach in your co-taught classes?   | YES | NO |
| 4. Do you think other teachers would find the training useful?                | YES | NO |
| 5. Would you like to receive more training in other co-teaching approaches?   | YES | NO |

***Please answer the following questions by writing your response in the space provided.***

6. How do you feel the students responded when you implemented teaming strategies?

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7. Can you report any changes in behavior or performance for the students in this class?

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8. What are the advantages of the teaming approach?

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9. Can you offer any constructive criticism of the teaming approach?

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10. What are the advantages of the Teaming Instructional Procedures Program?

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11. Can you offer any constructive criticism of the Teaming Instructional Procedures Program?

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## Appendix F

### Social Validation Student Questionnaire

***Please answer the following questions by circling YES or NO.***

- |   |     |    |
|---|-----|----|
| 1. Do you enjoy it when (special educator) teaches in your classroom? | YES | NO |
| 2. Do you enjoy having two teachers?                                  | YES | NO |
| 3. Was it confusing?  | YES | NO |
| 4. Was it helpful?  | YES | NO |
| 5. Do you concentrate more with two teachers in the classroom?        | YES | NO |
| 6. Do you learn more with two teachers in the classroom?              | YES | NO |

***Please answer the following questions by writing your response in the space provided.***

7. Why do you have two teachers in this period?

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8. What is Mr. X's (*general education teacher's*) role in this classroom?

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9. What is Mr. Y's (*special education teacher's*) role in this classroom?

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10. Which teacher would you ask for help from first? Why?

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## Appendix G

### Teacher Consent Form

<b>Project Title</b>	Effects of a Co-Teaching Teaming Program on the Instructional Practices of DoDDS High School Teachers
Why is this research being done?	<p>This is a research project being conducted by Stephen P. G. Bond under the supervision of Dr. Philip J. Burke at the University of Maryland, College Park. We are inviting you to participate in this research project because you are currently co-teaching in an inclusive classroom setting in a DoDDS high school level. The purpose of this research project is to determine the effects of a co-teaching teaming program on the instructional practices of teachers in your position. The researcher wishes to use this information to establish whether such an instructional program will have an impact on the behavior and classroom practices of teachers in co-taught settings, and whether it will justify the establishment of a formalized co-teaching preparation program</p>
<b>What will I be asked to do?</b>	<p>The procedures involve several stages.</p> <p>Initially, the researcher will use a digital audio-recording program to record your teaching in your co-taught classroom. These recordings will then be listened to by a researcher, who will analyze the recording to determine the percentage of time that each teacher is using the Teaming approach.</p> <p>The next stage will involve two 45-minute training sessions, during which you will be introduced to the teaming approach, be given examples of the approach in action, and be given the opportunity to discuss the approach and co-teaching in general.</p> <p>The third stage will involve audio recording five more consecutive class sessions. The recorded classes will be analyzed in the same manner as the initial recordings, in order to determine the extent to which the teaming approach is being used by each teacher. Once a pattern has been established, the regular recording of classes will cease, however two or three more classes will be recorded at weekly intervals to determine whether the degree to which the teaming approach is being used remains constant.</p> <p>After the final class session is recorded, you will be asked to complete a questionnaire containing five YES/NO questions, and seven short answer questions.</p>

	<p>The questions will all relate to your perceptions of co-teaching, the teaming approach, and the teaming instructional program.</p> <p>The study is expected to span 20 class sessions (40 school days).</p>
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<b>Project Title</b>	Effects of a Co-Teaching Teaming Program on the Instructional Practices of DoDDS High School Teachers
<b>What about confidentiality?</b>	We will do our best to keep your personal information confidential. To help protect your confidentiality: (1) your name will not be included on the questionnaires or other collected data; (2) a code will be placed on the questionnaire and other collected data; (3) through the use of an identification key, the researcher will be able to link your questionnaire to your identity; and (4) only the researcher will have access to the identification key. If we write a report or article about this research project, your identity will be protected to the maximum extent possible.
<b>What are the risks of this research?</b>	There are no known risks associated with participating in this research project.
<b>What are the benefits of this research?</b>	The benefits of participating in this study include being able to learn and use research-based practices in your classroom. You will be able take advantage of a third party supplying tools to employ in the classes, and then judge the benefits for yourself. You will also have the opportunity to provide constructive feedback on the process.
<b>Do I have to be in this research? May I stop participating at any time?</b>	Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify
<b>What if I have questions?</b>	<p>This research is being conducted by Stephen P. G. Bond at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Mr. Stephen P. G. Bond at 0631 59871 or you can contact Dr. Philip J. Burke at: Department of Special Education, 1308 Benjamin Building, College Park, MD 2074, 301-405-6515, or <a href="mailto:pjburke@umd.edu">pjburke@umd.edu</a>.</p> <p>If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: <b>Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) <a href="mailto:irb@umd.edu">irb@umd.edu</a>; (telephone) 301-405-0678</b></p>

	This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.
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<b>Project Title</b>	Effects of a Co-Teaching Teaming Program on the Instructional Practices of DoDDS High School Teachers	
<b>Audiotape Agreement</b>	<p>_____ I agree to be audiotaped during my participation in this study.</p> <p>_____ I do not agree to be audiotaped during my participation in this study.</p>	
<b>Statement of Age of Subject and Consent</b>	<p>Your signature indicates that:  you are at least 18 years of age;,  the research has been explained to you;  your questions have been fully answered; and  you freely and voluntarily choose to participate in this research project.</p>	
<b>Signature and Date</b>	<b>NAME OF SUBJECT</b>	
	<b>SIGNATURE OF SUBJECT</b>	
	<b>DATE</b>	

## Appendix H

### Parental Permission

<b>Project Title</b>	Effects of a Co-Teaching Teaming Program on the Instructional Practices of DoDDS High School Teachers
<b>Why is this research being done?</b>	This is a research project being conducted by Stephen P. G. Bond under the supervision of Dr. Philip J. Burke at the University of Maryland, College Park. We are inviting your child to participate in this research because he/she is currently enrolled in a class being taught by two teachers. The purpose of this research project is to determine the effects of a co-teaching teaming program on the instructional practices of teachers in the classroom. The researcher wishes to use this information to establish whether such an instructional program will have an impact on the behavior and classroom practices of teachers in co-taught settings, and whether it will justify the establishment of a formalized co-teaching preparation program
<b>What will I be asked to do?</b>	Your child will be asked to fill out a brief questionnaire following the study. They will be asked to answer five questions requiring a simple 'yes' or 'no' answers, and five questions requiring a short written response. The questionnaire will be completed at the end of the final class period of the study, and should take less than 10 minutes for completion.
<b>What about confidentiality?</b>	<p>We will do our best to keep your child's responses on the questionnaire confidential. Because your child will not be asked to put his/her name on the questionnaire, there will be no way to link his/her name to his/her responses. Further, all data collected will be stored in a secure location in the student investigator's home office for 10 years in a locked filing cabinet. Data analysis will also take place in this location.</p> <p>If we write a report or article about this research project, your child's identity will be protected to the maximum extent possible.</p>
<b>What are the risks of this research?</b>	There are no known risks associated with your child participating in this research project.
<b>What are the benefits of this research?</b>	<p>This study is not designed to help you or your child personally.</p> <p>The major benefit of this study is to train teachers how</p>

	to utilize a teaming approach to co-teaching which in turn positively impact and enrich the learning environment for your child.
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<b>Project Title</b>	Effects of a Co-Teaching Teaming Program on the Instructional Practices of DoDDS High School Teachers	
<b>Do I have to be in this research? May I stop participating at any time?</b>	Your child's participation in this research is completely voluntary. You may choose not to have your child take part at all. If you decide to have your child participate in this research, you may stop your child's participation at any time.	
<b>What if I have questions?</b>	<p>This research is being conducted by Stephen P. G. Bond at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Mr. Stephen P. G. Bond at 0631 59871 or you can contact Dr. Philip J. Burke at: Department of Special Education, 1308 Benjamin Building, College Park, MD 2074, 301-405-6515, or <a href="mailto:pjburke@umd.edu">pjburke@umd.edu</a></p> <p>If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) <a href="mailto:irb@umd.edu">irb@umd.edu</a>; (telephone) 301-405-0678</p> <p>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</p>	
<b>Statement of Age of Subject and Consent</b>	Your signature indicates that: you are at least 18 years of age;, the research has been explained to you; your questions have been fully answered; and choose to allow your child to participate in this research project.	
<b>Signature and Date</b>	<b>STUDENT'S NAME</b>	
	<b>YOUR NAME</b>	
	<b>YOUR SIGNATURE</b>	
	<b>DATE</b>	

## Appendix I

### Student Assent Form

***Directions:***

*The following information is read aloud to students. Students are then asked if they have any questions and if they would like to participate. Students will then be asked to indicate their willingness to participate by checking 'yes', or their decision not participate by checking 'no'. They will also be asked to sign and date the form before returning it to the teacher.*

I am a currently a student at the University of Maryland, College Park. I am researching teachers who work together like your teachers during this class period. When two teachers work together like this, it is known as co-teaching.

I have spent some time over the last few weeks working with your teachers, and monitoring the way in which they co-teach. As a student in this class, you are also invited to participate in this research by filling out a short questionnaire. The questionnaire contains 10 questions, and should take about 5-10 minutes to complete. The questions are all about your teachers, the way in which they teach, and how you feel about it.

You can agree to participate or not, and if you choose not to participate, that is absolutely fine. You can ask me questions at any time.

Do you have any questions at the moment?

Would you like to participate by filling out the questionnaire?  
Please place a check mark in the box next to your answer.

***YES*** \_\_\_\_\_ ***NO*** \_\_\_\_\_

***Student's Name:*** \_\_\_\_\_

***Date:*** \_\_\_\_\_

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