An Analysis of Co-Teaching Instruction Provided in Teacher Education and Inservice Training for Special Education and General Education Teachers

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AN ANALYSIS OF CO-TEACHING INSTRUCTION PROVIDED IN TEACHER EDUCATION AND INSERVICE TRAINING FOR SPECIAL EDUCATION AND GENERAL EDUCATION TEACHERS

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Of the requirements for the

Doctor of Philosophy in Special Education

Department of Educational and Clinical Studies
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University of Nevada, Las Vegas
May 2013
THE GRADUATE COLLEGE

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entitled

An Analysis of Co-Teaching Instruction Provided in Teacher Education and Inservice Training for Special Education and General Education Teachers

be accepted in partial fulfillment of the requirements for the degree of

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ABSTRACT

An Analysis of Co-Teaching Instruction Provided in Teacher Education and Inservice Training for Special Education and General Education Teachers

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The No Child Left Behind Act (NCLB) (2001) and the Individuals with Disabilities Education Improvement Act (IDEA)(2004) call for students with disabilities to be given access to the general education environment. Currently, at least half of all students with disabilities receive more than 80% of instruction in the general education classroom (U.S. Department of Education, 2008). Although there are no direct mandates to use co-teaching, it has become the preferred model of instructional delivery within the general education classroom (Pugach & Blanton, 2011).

General and special education teachers need to be provided instruction on the fundamentals of co-teaching in their preservice and in-service training (Pugach & Winn, 2011). Teachers are often not prepared to co-teach in their preservice education programs nor given the support during in-service trainings. The level and types of co-teaching instruction skills provided in preservice and in-service trainings were explored in this study, by distributing an online questionnaire to licensed general and special education teachers.

The data analysis of the results in this study indicated that special education teachers receive more co-teaching training than general education teachers during their preservice education programs in all six areas (e.g., co-teaching models, co-communication, co-planning/preparation, co-instruction, co-conflict resolution, and co-
follow through). According to the data analysis, special education teachers received more training in three categories of co-teaching: (a) co-teaching models, co-instructional skills, and co-follow through skills than general education teachers during their in-service trainings. The data analysis indicated that special and general education teachers receive limited in-service training in the areas of co-communication skills, co-planning/preparation skills, and co-conflict resolution skills.
ACKNOWLEDGMENTS

I would not have made it successfully through this process without the guidance and support of my committee members. Dr. Kyle Higgins, there are no words to thank you. Your devotion to the field of education is truly inspiring. Additionally, I would like to thank you for your guidance and direction during this process. Dr. Susan Miller, thank you for always checking in to see how things were going. Your kind words and encouragement kept me going. Dr. Tom Pierce, your challenging and thoughtful words will forever influence my work. Finally, Dr. Richard Tandy, thank you for your statistically significant expertise. Each of you played an integral role over the last four years.

I would like to thank my academic family who did not know what they were getting themselves into when they agreed to participate in this study. Thank you for putting up with all of my nagging emails and still assisting. I could not have done this without you. Joseph Morgan, thank you for your sarcastic and yet heartfelt encouragement. Thank you to Nancy Brown for being the big sister I never had. Joe and Nancy, I will forever hear your laughter filling the hallways.

I would like to thank all of my co-teachers; this was a labor of love, inspired by our moments of success. Alison Green, thank you for your kind words and random dancing over the years. You were my perfect co-teacher! Sabrina Lyon, thank you for always lending an ear. Your love of life and teaching is contagious. To my girls in office 144D: Yun-Ju Hsiao, Wendie Castillo, and Lidia Sedano. Close quarters forced us together, but friendship will keep us together. Neal Nguyen, thank you for the visiting the Oval Office; you are a true inspiration. Danielle Lonnquist, thank you for being a true
friend since our high school days in Wurzburg, Germany. Jason Gates, thank you keeping me positive and focused when the end seemed to be getting further and further away. To my dear friend, my non-bff, what would I have done without you, Christy Baxter? Thank you for your tireless encouragement, friendship, and support. I am truly grateful to the Baxter family for unofficially adopting me. I am forever indebted to all of my friends for keeping me afloat while I worked on this “little paper.” I hope that someday this will be made into a musical.

I would like to thank my family (there are too many of you to list). Your support and sarcasm made this process a tad bit easier. I send a special thank you to my Uncle Walt, who is no longer with us, but I know is always with me in spirit. Uncle Walt you are missed. Finally, Mom, Dad, Patrick, and Kimberly, well simply, thank you and I love you.
Dedicated to my students,

each of you are at the heart of what I do.
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CHAPTER ONE

INTRODUCTION

The *No Child Left Behind Act* (NCLB) (2001) mandates that all children, including those with disabilities, be held to high expectations. As a result, students with disabilities are no longer excluded from standardized testing. The *Individuals with Disabilities Education Improvement Act* (IDEA) (2004) requires that students with disabilities have access to the general education curriculum and be educated with students without disabilities to the maximum extent that is appropriate. The United States Department of Education (2008) reported that approximately 95% of students with disabilities received services in the general education classroom at some point during the school day. Approximately half of these students (53.7%) were in the general education classroom for more than 80% of the day (U.S. Department of Education, 2010). A Blueprint for Reform, The Reauthorization of the Elementary and Secondary Education Act (2010) presented a plan for education that includes funding to prepare teachers and leaders to support the inclusion of students with disabilities. These various national reports, data, and educational mandates, both general education and special education, have called for appropriate interventions and strategies to meet the needs of students with disabilities within the general education environment. While there are no direct mandates or laws that stipulate the use of collaborative teaching (co-teaching), it quickly has become the preferred model of instructional delivery within the general education environment (Pugach & Winn, 2011).

In the late 1980s and early 1990s, co-teaching emerged from what was known as collaborative consultation. Bauwens, Hourcade, and Friend (1989) introduced the term
co-teaching. Most professionals agree that co-teaching involves: (a) a special education teacher, (b) a general education teacher, (c) a plan, (d) instruction, and (e) assessment, all within the single general education classroom setting (Bauwens, Hourcade, & Friend, 1989; Cook & Friend, 1995; Friend & Bursuck, 2012; Murawski, 2009; Salden, 2011).

The Evolution of Collaborative Consultation into Co-Teaching

In the 1960s, the effectiveness of traditional public education came into question (Hanslovsky, Moyer, & Wagner, 1969b). The projected number of teachers needed to fill classrooms in the early 1960s largely outweighed the number of teachers entering the field of education (Beggs, 1964; Blair & Woodward, 1964). This was due to teacher retirement, lower class size, and an increase in the number of students entering school systems (Blair & Woodward, 1964). During this time period, Trump (1966) suggested four modifications to the delivery of instruction in the United States and England. These were: (a) the nature of teacher presentation, (b) the character of independent study, (c) the type of student discussion, and (d) change of the evaluation process. The suggestion was that these could occur in any type of school setting, particularly team-taught classrooms. At this time, team teaching included a variety of classroom arrangements and the delivery of content by two or more teachers in one classroom (Beggs, 1964; Blair & Woodward, 1964; Hanslovsky, Moyer, & Wagner, 1969a; Hansolvsky, Moyer, & Wagner, 1969b; Shaplin & Olds, 1964). Team teaching became widespread throughout the United States in the 1960s (Beggs, 1964; Blair & Woodward, 1964).

Education and its delivery system began to change quickly from the 1960s to the 1970s. With the passing of the Elementary and Secondary Education Act (1965), the Elementary and Secondary Education Amendments (1968), the Handicapped Children’s
Early Education Assistance Act (1968), and the Education for All Handicapped Children Act (1975), the push toward including all students, including those with disabilities, in the general education system began its evolution. The Education for All Handicapped Children Act (1975) was the direct result of parents and advocates lobbying for the deinstitutionalization of students with disabilities and their right to a free and appropriate education in schools with their typical peers (National Center for Education Statistics, 2011). The passing of these laws increased the mainstreaming of students with disabilities into the general education classroom (Bauer, 1975; Walker, 1974). This increase meant shared responsibilities for general and special educators (Garvar & Papania, 1982).

In the early 1970s, the appearance of team teaching in the educational literature dwindled. Consultation began to emerge as the means for meeting the needs of students with disabilities (Dettmer, Thurston, Knackendoffel, & Dyck, 2012; Pugach, Johnson, Drame, & Williamson, 2012). The consultation model was conceived as an indirect or direct service provided to the student with a general educator seeking the assistance of the special educator on an as-needed basis (Pugach, Johnson, Drame, & Williamson, 2012). Idol-Maestas (1983) identified three areas that general education teachers should seek assistance from the special education consultant: (a) programming, (b) management, and (c) monitoring. Programming was defined as the identification and implementation within the general education classroom of individualized education plans (IEPs) for students with disabilities, and the alignment of IEPs with the appropriate curriculum; management was the grouping (small or large) of students based upon assessments; and, monitoring was the documentation of specific academic and behavioral progress (Idol-
Maestas, 1983). All areas relied on the special education consultant assisting the general education teacher to make appropriate decisions.

The need for the consultant to provide direct services in the classroom created the need for collaborative consultation (Idol-Maestas, 1983). As this need grew, consultation and collaborative consultation began to overlap. During the 1980s, the role of a consultant involved the special educator delivering consultation services in the general education classroom; while the general educator delivered and managed all students (Cook & Friend, 1995). Additionally, the Regular Education Initiative (REI) (Will, 1986) strongly encouraged the inclusion of students with disabilities in the general education environment on a full time basis.

Jenkins, Pious, and Jewell (1990) identified five roles for which the general education teacher was responsible based upon the REI: (a) educating all students, (b) monitoring instructional decisions for all students, (c) implementing curriculum, (d) managing instruction for a diverse group of students, and (e) coordinating assistance for struggling students. They maintained that the general educator was responsible for students with learning disabilities (LD), mild intellectual disabilities (ID) (previously referred to as mental retardation), and students with emotional and/or behavior disabilities (EBD). Jenkins, Pious, and Jewell (1990) believed that this inclusion could eliminate the need for a specialist (special education teacher/consultant). Thousand and Villa (1991) argued that the REI would increase the collaboration of teachers, making the general and special education teachers members of a larger team. The REI and the reauthorization of the Individuals with Disabilities Education Act (IDEA, Public Law

4
105-17) (1997) provided strong support for the development of collaborative practices in education (general and special) (Pugach, Johnson, Drame, & Williamson, 2012).

Thus, the role of the collaborative consultant began to involve the special education teacher working in the general education classroom to deliver consultation services (Cook & Friend, 1995). Collaborative consultation was evolving into a system in which the special educator delivered direct services in the general education classroom to the student with a disability (Idol, Nevin, & Paolucci-Whitcomb, 1992; Heron & Harris, 1987). This led to the re-emergence of a new type of team teaching in the 1990s, with the general education and special education teachers working together in one classroom (Pugach, Johnson, Drame, & Williamson, 2012).

As the collaborative consultation model evolved, it served as the foundation of co-teaching (Bauwens, Hourcade, & Friend, 1989; Idol, 2006). Co-teaching involved two teachers (general and special educators) delivering instruction to a single group of general and special education students in one classroom. Bauwens, Hourcade, and Friend (1989) discussed three models of co-teaching. The three models included complementary instruction, team teaching, and supportive learning. In the complementary instructional model, the general education teacher was responsible for content instruction, while the special education teacher provided survival skills (e.g., note taking, assignment completion). During team teaching, the general and special educators planned and delivered content instruction to all students. When using supportive learning, the general education teacher delivered content while the special education teacher developed and implemented supplementary and supportive learning activities. Bauwens et al. (1989)
identified three barriers to implementation: (a) a lack of teacher time, (b) the need for cooperation, and (c) an increased workload for educators.

The co-teaching movement (also referred to as cooperative teaching) continued throughout the 1990s with researchers expressing several concerns. These included the difficulty establishing partnerships among teachers, the lack of common planning time, differing beliefs and attitudes towards teaching and inclusion, communication problems, and the lack of administrative support (Reeve & Hallahan, 1994). Fuchs and Fuchs (1992) expressed concern about the lack of appropriate assessments, poor diagnostic processes, the rigidity of general education curricula content, the lack of appropriate instructional practices, little scheduled planning time, few techniques for managing teaching in the classroom, and the differences in monitoring/evaluating of student performance.

The reauthorization of the Elementary and Secondary Education Act, the introduction of No Child Left Behind (2001), and the alignment of IDEA (reauthorized in 2004) provided support for the current use of co-teaching in educational settings. No Child Left Behind (2001) called for access to the general education curriculum for all students. This mandate supported the need for general and special education teachers to work together; which often occurs in the form of co-teaching (Ludlow, 2012).

Recently, researchers have agreed on six models of co-teaching: (a) one-teach one-observe, (b) one-teach one-assist, (c) station teaching, (d) parallel teaching, (e) alternative teaching, and (f) team teaching (Cook & Friend, 2010; Friend & Bursuck, 2012; Murawski, 2009; Salend, 2001). Over time, the definition of co-teaching has evolved to be two educators (one general and one special) who plan, deliver, and assess
instruction for a single group of students (Dettmer, Thurston, Knackendoffel, & Dyck, 2009; Friend & Bursuck, 2009; Friend & Cook, 2010; Murawski, 2009; Pugach, Johnson, Drame, & Williams, 2012; Salden, 2011).

**Components of Co-Teaching**

Throughout the co-teaching literature, four components are discussed: (a) communication, (b) planning/preparation, (c) instruction/assessment, and (d) conflict resolution (Ploessl, Rock, Schoenfeld, & Banks, 2009). General and special educators must develop an understanding of the components of co-teaching for it to be successful (Gately & Gately, 2001). This involves teachers learning and using strategies to develop and maintain successful co-teaching teams (Stivers, 2008).

**Co-Communication**

Dettmer et al. (2009) indicate that communication occurs when individuals, working together (a) talk, (b) listen, (c) manage interpersonal conflict, and (d) address concerns. Additionally, communication involves a sender transmitting information to a receiver (either orally or in written form) (Friend & Cook, 2010). General and special education teachers engage in communication in a variety of ways when co-teaching (e.g., lesson planning, delivering instruction). The co-teaching literature suggests that positive co-communication involves all parties in an honest self-examination, a self-assessment, an analysis of personal communication patterns, and an evaluation of teacher talk while in the classroom (Ploessl et al., 2009). This involves teachers comparing roles and responsibilities (Knackendoffel, 2007) as well as fostering and developing relationships (Stivers, 2008).
Co-Planning and Co-Preparation

Co-planning and co-preparation involve the general and special educators dedicating time to prepare lesson plans, review assessments, and discuss classroom routines/structures. Scheduled time for planning is considered essential for productive instruction and student success (Brown, Howarter, & Morgan, in press). Ploessl et al. (2009) suggest developing protocols for meetings and using timelines; while Tannock (2008) discusses successful co-planning time as the development of written schedules for the classroom, scheduling meeting times, and reviewing student work. Lesson plan formats also should be standardized (Brown et al., under review). Carter, Prater, Jackson, and Marchant (2012) report that teachers find it challenging to plan collaboratively.

Co-Instruction

Ploessl et al. (2009) define co-instruction as general and special educators delivering instruction to a group of students while actively teaching and monitoring student progress (Ploessl et al., 2009). Co-instruction is the implementation of the co-planned lesson, based upon student academic and behavioral data. During co-instruction, teachers must base instruction upon informed data and the collection of those data (Ploessl et al., 2009). It is critical that teachers share the ownership of the co-planned lessons as well as responsibility for planning. Idol (2006) reports that the majority of teachers use the one-teach one-observe or the one-teach one-assist model of teaching. These two models of co-teaching are the least active and involve little teacher interaction (Idol, 2006).
Co-Conflict Resolution

Conflict arises when individuals have unresolved differences (Dettmer et al., 2009). Co-teachers may have a variety of differences including: (a) classroom roles, (b) teacher responsibilities, (c) classroom organization, (d) expectations of students, (e) personal values, (f) academic/behavioral beliefs, (g) personal goals, (h) type of personality, and (i) whether or not they share a sense of humor (Conderman, 2010). Co-conflict resolution occurs when a general and special education teacher come together to resolve differences. Proactive strategies must be used to resolve any conflicts. Conderman (2010) identifies six strategies teachers should discuss prior to implementing co-teaching (a) instructional issues, (b) conflict resolution, (c) written plans, (d) proactive talks, (e) positive communication skills, and (f) recognition that neither are perfect. Ploessl et al. (2009) suggest that teachers also consider (a) reviewing cultural differences, (b) discussing minor issues immediately, (c) thinking before reacting, and (d) using differences as a learning opportunity. Carter et al. (2012) indicate that many co-teachers report struggling with effective problem solving strategies.

Co-Teaching Training in Preservice Education

Teacher preparation is essential to the success of general and special education teachers in the classroom. This is also true for successful co-teaching. Currently, with the movement of students with disabilities into the general education classroom, there is an increase in collaborative teacher education preparation programs (Brownell, Griffin, Leko, & Stephens, 2011). These programs are varied in nature. They range from a combination of general and special education licensing, general education teachers taking
a few special education courses, and special education teachers taking a few general education courses (Pugach, Blanton, & Correa, 2011).

Pugach, Blanton, and Correa (2011) identify three stages of collaboration in preservice teacher education preparation. Each stage addresses the teacher education practice of the time, discourse, and the relationship between special and general education. The first stage, from 1975-1982, was the beginning of the movement to train teachers to work with students with disabilities. During this time, general and special education programs were separated, and preservice general education teachers did not take special education courses (Blanton & Pugach, 2011). The second stage, from 1983-2001, involved the push for collaborative practices, with the relationship between general and special education standards being explored by professional organizations (Pugach et al., 2011). Stage three began in 2011, and involves the preparation of all teachers with a focus on standardized testing of teachers and the evaluations of the teacher candidate (Pugach et al., 2011). The increase of students with disabilities in the general education classroom highlights the need to directly prepare both general and special education teachers for inclusive environments (e.g., co-teaching) (Oyler, 2011).

Young (2011) maintains that the lack of success of inclusive classrooms (e.g., co-taught classrooms) is due to the lack of integrated preparation in preservice teaching programs. However, teacher education programs provide several options for individuals seeking licensure (Blanton & Pugach, 2011). Typically, preservice teachers receive licensure in either general or special education, but not dual licensure (Blanton & Pugach, 2011). Two other types of teacher education models that exist, are discrete and integrated (Blanton & Pugach, 2011). In teacher preparation programs that use the discrete model,
Preservice teachers take coursework in their selected area and may take one or two courses outside of that area (Blanton & Pugach, 2011). For example, a preservice general education teacher might take one or two special education course(s) (Young, 2011). The programs assume that preservice teachers will make the link from general to special education and that they will generalize learning to the school environment (Blanton & Pugach, 2011). The integrated program model is designed to overlap curricula for the preparation of preservice general and special education teachers. In this type of preservice training, special education and general education faculty collaborate to align the curricula for all preservice teachers, thus, preparing them to work with students with and without disabilities.

The result of the increasing number of students with disabilities in the general education classroom reflects the need for preservice training for both general and special education teachers in the area of co-teaching (Young, 2011). Teacher preparation programs must prepare general educators to work in co-taught inclusive classrooms, as well as special educators to work in the general education classroom (Bocala, Morgan, Mundry, & Mello, 2010). With the national focus on college and career readiness for all students, it is imperative for general and special educators to receive in-depth training concerning co-teaching strategies so they prepare all students to be successful beyond the boundaries of school.

**Co-teaching Training in In-Service Education**

One method to support co-teaching teams is to provide targeted in-service training (or professional development) to general and special educators (Pugach & Winn, 2011). Stivers (2008) suggests that co-teachers attend professional development and conferences
together. Unfortunately, there are a limited number of peer-reviewed data based articles to support in-service training methods for co-teaching. A search using ERIC, Academic Premier, and PsychInfo provided a limited number of peer-reviewed articles on co-teaching training and in-service training. The following search terms were used: co-teaching, collaborative teaching, cooperative teaching, and in-service (in service and in-service) training. Thus, at this point in time, the research provides little information or data concerning the training of general or special educators to implement co-teaching once they are employed and expected to do so.

Statement of Problem

Training is a key element of successful co-teaching (Murawski & Swanson, 2001; Pugach & Winn, 2011; Scruggs, Mastropieri, & McDuffie, 2007). There is little research concerning whether co-teaching training is provided in teacher education programs or through in-service training (Pugach, Blanton, & Correa, 2011). While students with and without disabilities often receive services using a school-based co-teaching model, it appears that little data-based research has been conducted to support the effectiveness of the model (Pugach & Winn, 2011).

Currently, there is a lack of information regarding the collaborative preparation of preservice teachers for inclusive classrooms (e.g., co-taught classrooms) (Brownell, Griffin, Leko, & Stephens, 2011). If general and special education teachers are not prepared to implement research-based, co-teaching strategies while in their preservice program or in their school-based in-service training, it may be that they implement inclusive teaching inappropriately thus impacting the learning of all students.
The purpose of this study was to examine the training received by general and special educators in their preservice teacher education programs and school-based in-service training throughout the United States. A questionnaire was developed based upon the current co-teaching literature (see Appendix A). The study focused on the amount and type of co-teaching training received by general and special educators. The following questions were asked:

**Research Question 1:** Do special education teachers receive more training in co-teaching models than do general education teachers in their pre-service education program?

**Research Question 2:** Do special education teachers receive more training in co-teaching models than do general education teachers in their in-service training?

**Research Question 3:** Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their pre-service education program?

**Research Question 4:** Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their in-service training?

**Research Question 5:** Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their pre-service education program?

**Research Question 6:** Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their in-service training?
**Research Question 7:** Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their pre-service education program?

**Research Question 8:** Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their in-service training?

**Research Question 9:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their pre-service education program?

**Research Question 10:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their in-service training?

**Research Question 11:** Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their pre-service education program?

**Research Question 12:** Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their in-service training?

**Significance of the Study**

Reauthorizations of the *No Child Left Behind Act* (NCLB) (2001) and the *Individuals with Disabilities Act* (IDEA) (2004) do not explicitly call for the use of co-teaching, however, they do allude to its usage. The *No Child Left Behind Act* (2001) calls for the annual assessment of all students, including those with disabilities. Thus, holding
teachers accountable for student progress toward meeting general education standards (NCLB, 2001). In turn, IDEA (2004) has been aligned to meet the requirements of NCLB (Kavale & Spaulding, 2008). The Individuals with Disabilities Act (IDEA) (2004) states that children with disabilities should be included in the least restrictive environment (LRE), requiring education be provided in an age-appropriate classroom with students without disabilities and only being removed based on the need for curricular modifications (IDEA, 2004).

While co-teaching is considered the preferred method of teacher preparation (Pugach & Winn, 2011), there is limited research to support its effectiveness for either teachers or students in the real world (Pugach & Blanton, 2009; Kloo & Zigmond, 2008; Pugach & Winn, 2011). Several researchers directly question the effectiveness of co-teaching (Weiss & Brigham, 2000; Zigmond, 2003; Kloo & Zigmond, 2008; and Pugach & Winn, 2011). Although there have been hundreds of publications dealing with the topic of co-teaching, few are data based (Pugach & Winn, 2011). Murawski and Swanson (2001) found only six articles that contained data and that could be used to conduct a meta-analysis. Scruggs, Mastropieri, and McDuffie (2007) conducted a meta-synthesis of qualitative research on co-teaching and found 32 relevant articles. Thus, there are few empirical studies dealing with the use of co-teaching in actual classrooms. However, there is a plethora of how-to articles as well as teacher self-reports on co-teaching (Pugach & Winn, 2011).

There currently is limited research concerning the training of teachers to co-teach. Additionally, there is no literature providing information concerning whether or not effective co-teaching methods are taught in preservice or in-service training, how it is
being taught, and if this information is generalized into the school-based classroom. The findings of this study contribute to the knowledge base concerning effective preservice teacher preparation and in-service training in the areas of (a) co-teaching instruction, (b) co-teaching implementation, (c) appropriate training components in teacher education programs, and (d) appropriate training components in teacher in-service training. In this study, the level and type of co-teaching instruction provided to special education and general education teachers in their teacher preparation programs and school district in-service training were evaluated through a nationally distributed questionnaire. The level and type of co-teaching information were determined based upon the level of instruction received and the type of instruction.

**Definitions**

The definitions below were used in this study. These specific interpretations are critical to the understanding of this study.

**Alternative-teaching model of co-teaching.** One teacher delivers instruction to a large group, while one teacher delivers instruction to a small group (small group instruction includes reteaching, preteaching, and/or enrichment) (Murawski, 2009).

**Children/youth with disabilities.** Children with disabilities are students eligible to receive special education services under the provisions of the P.L. 108-446, *Individuals with Disabilities Education Improvement Act of 2004* (IDEA, 2004).

**City.** An area inside a principal city and inside an urbanized area, with a population from 100,000 to more than 250,000 (NCES, 2012).

**Co-teacher.** Two educators (one general education and one special education) who engage in lesson planning, delivering instruction, monitoring behavior, assessing
instruction, and assessing academic progress for a single group of students with and without disabilities (Pugach, Johnson, Drame, & Williams, 2012).

**Co-teaching.** Two educators (one general education and one special education) planning, delivering, and assessing instruction for a single group of students (Pugach, Johnson, Drame, & Williams, 2012).

**Direct instruction.** A research-based instructional approach in which the instructor presents subject matter using a review of previously taught information, presentation of new concepts or skills, guided practice, feedback and correction, and independent practice (Friend & Bursuck, 2012).

**Elementary level.** Grade levels pre-kindergarten through fifth grade in which students typically receive instruction in core subjects, arts, and physical education in one classroom (NCLB, 2001).

**General education.** Curriculum and instruction delivered to students with and without disabilities, students are not separated and the majority of students spend their day in this classroom (NCLB, 2001).

**Incidental instruction.** Instruction conducted during unstructured activities for brief periods of time, typically when students show an interest in or are involved with materials and activities (Brown, McEvoy, & Bishop, 1991).

**In-service training.** Professional development (courses, conferences, or study programs) provided by schools or school districts to general and special education teachers (Burns, 2007).

**Nationwide.** Encompasses a sample of teacher training programs from across the United States in rural, suburban, town, and city settings (NCES, 2012). The following
universities participated in this study: (a) Arizona State University, (b) California State University, Fullerton, (c) California State University, Monterey Bay, (d) Eastern Illinois University, (e) Emporia State University, (f) San Diego State University, (g) Southern Connecticut State University, (h) St. Cloud State University, (i) University of Georgia, (j) University of Massachusetts, Amherst, (k) University of Nevada, Las Vegas, (l) University of North Carolina, Greensboro, and (m) Wichita State University.

One-teach, one-observe model of co-teaching. One teacher leads and delivers content material, while one teacher observes student behavior (e.g., on-task behavior, independent work, productive use of time). The general or special educator may take the primary teaching role (Friend & Bursuck, 2012).

One-teach, one-assist model of co-teaching. One teacher delivers content material, while one teacher assists the lead teacher by helping students as needed, managing paperwork, setting up materials, disseminating/collecting papers, providing accommodations, or removing/redirecting disruptive students. The general or special educator may take the primary teaching role (Murawski, 2009).

Parallel-teaching model of co-teaching. Two teachers divide the class into two equal heterogeneous groups and each teacher is responsible for instruction of the content material (Murawski, 2009).

Resource room. Placement/setting in which the special education teacher delivers instruction for part of the day to students with disabilities (IDEA, 2004).

Rural. An area that is either less than 5 miles or more than 25 miles from an urbanized area, and less than 2.5 miles to more than 10 miles from an urban cluster (NCES, 2012).
Secondary level. Follows the elementary level and encompasses grades 6-12. The students receive instruction in core subjects and electives in different classrooms (NCLB, 2001).

Self-contained (separate classroom). Placement/setting in which the special education teacher delivers instruction for more than 50 percent of the day to students with disabilities (IDEA, 2004).

Special education. Specifically designed instruction for students with disabilities delivered by a school district or education agency in the general education or special education classroom (e.g., resource room, self-contained) (IDEA, 2004).

Suburban. An area outside a principal city and inside an urbanized area, with a population ranging from 100,000 to 250,000 (NCES, 2012).

Station-teaching model of co-teaching. The teachers divide a class into three groups, and the content material is divided between the two teachers. The students are placed into three groups and the students or teachers rotate groups (Murawski, 2009).

Teacher education. A formal program to prepare elementary- and secondary-level teachers, including general education teachers and special education teachers (Pugach, Blanton, & Correa, 2011).

Team-teaching model of co-teaching. Two teachers deliver content to the whole group of students simultaneously (Murawski, 2009).

Town. An area inside an urban cluster with a distance of 10 miles to more than 35 from an urbanized area (NCES, 2012).
Limitations

The limitations of this study include the following:

1. The questionnaire was available in an online format and participation could possibly be low because of the lack of face-to-face contact with potential participants.

2. The questionnaire used was developed from current co-teaching research and literature therefore the reliability and validity of the questionnaire is unknown.

3. Teachers reported their perceptions concerning the level of training they received in their teacher education programs and in-service training and participants may or may not have been truthful in their responses.

4. Participants were not asked to identify where they live, the university they attend, or the school district in which they work. This possibly increased the return rate, although it did not allow for analysis of the data by region or university.

5. Participants did not have a live link and had to type in the website information in order to complete the questionnaire. This possibly limited the number of participates.

Summary

In today’s educational environment, it is likely that general and special education teachers will teach together in co-taught classrooms (Pugach et al., 2011). Thus, they must be prepared through their preservice teacher training and supported through in-service training to improve the academic achievement and behavior of students with and without disabilities. There is limited research concerning the implementation of co-teaching or the student outcomes when co-teaching is implemented within the school setting (Scruggs, Mastropieri, & McDuffie, 2007). There is even less research addressing the amount of co-teaching instruction that general and special education teachers receive.
in teacher education programs or in-service trainings. A search using ERIC, Academic Premier, and PsychInfo provided a limited amount of peer-reviewed articles on co-teaching and school-based in-service training.

The purpose of this study was to evaluate the amount and level of co-teaching training delivered in preservice teacher education programs and in-service trainings nationwide. This study contributes to the literature by presenting evidence related to the inclusion of co-teaching training in teacher education programs and in-service training. Additionally, this study attempted to quantify the amount and type of (direct or incidental) teaching currently occurring in teacher education programs and in-service trainings. General and special education teachers must be trained to co-teach and without this training there could be a negative impact on general and special education students. With appropriate co-teaching training, general and special education teachers will be prepared to deliver effective instruction to all students in the general education setting.
Co-teaching is used increasingly to provide instruction for students with disabilities in the general education environment. This method of teaching is defined as two teachers (general and special educators) in one classroom, planning, instructing, and assessing together (Pugach, Johnson, Drame, & Williams, 2012).

Research indicates that successful co-teaching implementation has four components: (a) co-communication, (b) co-planning/co-preparation, (c) co-instruction/co-assessment, and (d) co-conflict resolution (Ploessl, Rock, Schoenfeld, & Blanks, 2009). An understanding of each of the four components along with the six co-teaching models (e.g., one-teach one-observe, one-teach one-assist, station teaching, alternative teaching, parallel teaching, team teaching) comprises the foundation of successful co-teaching implementation.

Because general and special educators are mandated to implement inclusive practices in the general education classroom (e.g., Individuals with Disabilities Education Improvement Act (IDEA, 2004) and No Child Left Behind (NCLB, 2001), the field has adopted co-teaching as the method to meet the legal mandates (Ludlow, 2012). If teachers are not fully prepared to co-teach, the academic and social performance of students with and without disabilities will be impacted. Thus, it is imperative that teachers are prepared to co-teach, a skill that must be taught in preservice training and reinforced in inservice training (Pugach & Winn, 2011).
Co-Teaching Models

There are six co-teaching models: (a) one-teach one-observe, (b) one-teach one-assist, (c) station teaching, (d) parallel teaching, (e) alternative teaching, and (f) team teaching (Friend & Cook, 2010). While, there is limited data-based co-teaching literature, several authors address the use of classroom arrangements that align to the co-teaching models (e.g., Fien et al., 2011; Rosman, 1994). Idol (2006) indicates that the majority of co-teaching observed in classrooms adheres to the one-teach one-assist model. It appears that the field has implemented the one-teach one-assist model, with little focus on the other five models (Idol, 2006).

One-Teach One-Observe Model

The one-teach one-observe co-teaching model is defined as one teacher, typically the general educator, leading and delivering the content material, while the other teacher, typically the special educator, is observing student behavior (e.g., on-task behavior, independent work) (Friend & Bursuck, 2012). The co-teaching literature suggests that this model is used only when student academic or behavioral data are collected (Friend & Bursuck, 2012). Several authors do not recognize this as a co-teaching model, in that one teacher never teaches (Kloo & Zigmond, 2008; Knackendoffel, 2007; Murawski, 2009; Salend, 2011). These critics of this model maintain that it should be used only when data collection is necessary.

Hagan-Burke, Burke, and Sugai (2007) examined the problem behaviors of a student during writing assignments in a general education classroom. The purpose of the study was to identify the instructional tasks that functioned as an antecedent to problem behavior. Although this study does not directly address the one-teach one-assist co-
teaching model, the use of direct observation in the study is similar in nature to this model.

The participant in the study was a third-grade male student in general education. The student was referred to the behavior intervention specialist due to frequent discipline issues. An initial interview and review of academic records were conducted to identify behavior problems. The teacher reported that the child acted out when writing assignments were given in class.

An alternating treatment design was used, and data were collected using direct observations. A 10-second partial interval time sampling was used to collect the student’s behaviors and responses to instruction or tasks given by the teacher. The observer coded the antecedents, behaviors, and consequences during the direct observation time. The baseline data confirmed that the student acted out during independent writing assignments. Three antecedent manipulations were implemented in the study: (a) written expression tasks, (b) guided production writing tasks, and (c) guided production writing tasks with teacher attention. The intervention was presented to the entire class. During Phase A of instruction, students were presented with a written expression task. This task included four picture prompts. The students were taught an explicit writing approach. During Phase B, students were given three picture prompts with no guidance from the teacher. In Phase C, the students were given two picture prompts and taught a self-monitoring strategy. In Phase D, the students were given one picture prompt and self-monitoring sheets.

The data from the alternating treatment design were analyzed by conducting a within- and across-phase analysis of the level, range, and percentage of overlapping data
points in each phase. While in Phase A of intervention, the student increased on-task engagement from 17% during baseline to 65% during Phase A. The student’s on task behavior remained high throughout the following four phases.

Hagan-Burke et al. (2007) concluded that explicit strategies on writing tasks could increase the on-task behavior of students. Additionally, self-monitoring checklists assist in the success of students independently completing a given strategy. Hagan-Burke et al. (2007) recommend future research on academic interventions for students with or at risk for emotional behavior disorders that manifest during academic tasks.

Chiang (2009) explored the communication of children with autism through naturalistic observations. The purpose of the study was to collect observational data on elicited expressive communication using teacher instruction with students with autism. Although this study does not directly use the one-teach one-observe co-teaching model, it does implement observational data by the special educator that is similar to data collected when using this model.

The participants in the study included 32 children with autism, ranging from three- to sixteen- years old. This study took place in three classrooms (two self-contained and one general education).

Each participant was videotaped during daily activities (e.g., academic activities, lunch, free time) for a total of two hours. Data were collected using an expressive communication coding sheet. For the purpose of the study, elicited expressive communication behaviors were defined as communication associated with teacher instructions. The teacher instructions were coded as verbal prompt, modeling, or physical prompt. Three types of student communicative forms were coded: (a) speech, (b) aided
augmentative with alternative communication (AAC) (e.g., pictures, word cards), and (c) unaided ACC (e.g., sign language). The functions of student communication were coded into requests, reject, greet, or comment. The data were analyzed using descriptive statistics and an analysis of variance (ANOVA).

There were a total of 653 student elicited expressive communicative behaviors and 709 teacher instructional behaviors observed. The teachers were observed providing (a) modeling, (b) verbal prompts, (c) physical prompt with verbal prompts, and (d) modeling with physical prompt. The teachers used verbal prompts and modeling most often.


Majeika et al. (2011) examined the collection of behavior data by a special educator in a co-taught high school classroom using the one-teach one-observe co-teaching model. The purpose of the study was to improve on-task behavior of a student using a functional assessment-based intervention (FABI).

The participants in this study included a general educator, a special educator, and a 17-year old male student with Attention Deficit Hyperactive Disorder (ADHD). The setting of the study was an eleventh grade English co-taught class. The high school implemented the Positive Behavior Interventions and Supports (PBIS) plan school wide. The teachers and staff gave students PBIS tickets for demonstrating appropriate
behaviors. These could be exchanged for a variety of items (e.g., electronic games, t-shirts, lunch privileges, preferred parking spaces).

This study used an ABAB withdrawal design. The general and special educators identified off-task behaviors (e.g., out of seat without permission, using a cell phone, listening to music, not responding to directives within five seconds) as the target behaviors. The replacement behavior was on-task behavior (e.g., being in seat, looking at the teacher during instruction, responding to questions, following directives within five seconds). Momentary time sampling was used to collect the data. The class sessions lasted for 25-minutes, each session was divided into 30-second intervals (50 total intervals). An observer and the special educator collected data using the Multiple Option Observation System for Experimental Studies (MOOSES) (Tapp, Wehby, & Ellis, 1995).

After the collection of baseline data the Functional Intervention Decision Model (Umbreit, Ferro, Liaupsin, & Lane, 2007) was used to design the intervention. This model requires the student to be able to perform the replacement behavior. The antecedent conditions must provide opportunities for the student to practice the replacement behavior. Three components were implemented in the intervention phase of the study. The first component (adjust the antecedents) included putting a behavior contract in place, implementing a self-monitoring checklist, having the student state how to appropriately access attention, the student being in his seat, and the teachers increasing circulation around the room. The second component (adjust the reinforcement) involved the teachers providing specific praise, daily rewards, weekly rewards, and a PBIS ticket. The third component (extinction components) included the teachers withholding attention for off-task behavior, specific praise, and redirection. The general educator implemented
the three components, while the special educator collected data, thus using the one-teach one-observe co-teaching model.

During the baseline phase no changes were made to the classroom and data were collected for five class sessions. The intervention phase lasted for six sessions. The withdrawal phase, which was the same as baseline, lasted for three sessions. The study ended with the reintroduction phase, which was the same as the intervention phase and lasted for three sessions. The maintenance phase occurred five weeks after the intervention was reintroduced, data were collected for two sessions. The data were analyzed using visual analysis and each phase was compared. The data collected by the special educator and observer were compared.

The student’s on-task behavior was low during the baseline phase, an average of 53% of the time. During the intervention phase, the student was on-task for an average of 80% of the time. The student was on-task for an average 48% of the time during the withdrawal phase. When the intervention was reintroduced the student was on-task for 83% of the time. During the maintenance phase, the student was on-task for an average of 70% of the time. The study had two goals, to increase a student’s on-task behavior and assess the special educator’s ability to collect data. When using the one-teach one-observe co-teaching model, special educators are responsible for collecting data, which must be done accurately. The special educator’s data collection matched that of the research observer.

Majeika et al. (2011) concluded that the special educator effectively collected data in this co-taught high school classroom. They recommended that future studies involve training the general and special educator in data collection methods. They also
maintained that modeling of effective strategies for incorporating praise in instruction should be provided to general educators.

**One-Teach One-Assist Model**

The one-teach one-assist model of co-teaching is defined as one teacher delivering content material, while the other teacher assists (e.g., helping students, setting up materials, providing accommodations) (Murawski, 2009). The general or special educator may take either role. However, the general educator typically takes the lead. This is the most commonly used model of co-teaching and is considered to be the least effective of the six co-teaching models (Idol, 2006). In this model, one educator is placed in the role of educational assistant rather than teacher (Hourcade & Bauwens, 2001).

Rosman (1994) conducted a study to explore the differences that occur in achievement and attitude of students in a general education classroom compared to a co-taught classroom. The purpose of the study was to compare the math attitudes and achievements of students in co-taught classes using the one-teach one-assist and team teaching models.

Participants in this study included four groups of students, two algebra teachers, and one special educator. The control group was comprised of 10 students in grades 9 through 12, of which four students had Individualized Education Plans (IEPs). The one-teach one-assist group consisted of 17 students in grades 9 through 11, of which four students had IEPs. The first team taught group, consisted of 16 students in grades 9, 10, and 12 (four students having IEPs). The second team teaching group had 16 students grades 9 through 11, with two students having IEPs. A total of 59 students participated in the study.
Four algebra classes participated in the study, students were placed in these classes because they achieved a grade of C or below in eighth grade pre-algebra. In the control group, the algebra teacher delivered instruction in a traditional manner, with no support from the special educator. In the one-teach one-assist group, the algebra teacher delivered instruction, and the special educator provided support. In the two team teaching groups, the algebra teacher and special educator planned, delivered, and assisted each other in providing instruction. The implementation of the co-teaching models lasted for a three-week period. Teachers in each group delivered instruction from one chapter of the textbook, *Merrill Algebra I: Applications and Connections* (Foster, Winters, Gell, Rath, & Gordon, 1992).

The data were collected for math achievement and math attitude. Math achievement scores included daily assignments, worksheets, quizzes, and chapter tests. Test scores from the previous algebra lesson were considered as the pre-treatment (pre-co-teaching intervention). A one-way analysis of variance (ANOVA) was conducted to compare the pre-treatment scores to the treatment scores for the four groups. Additional ANOVAs were conducted to compare females, males, and students with IEPs. The math attitude scores were assessed using the *Attitude Toward Math Subtest of the Test of Mathematical Abilities* (TOMA) (Brown & McEntire, 1984). An ANOVA was conducted to compare pre- and post-treatment student attitudes.

There was no significant difference in math attitudes between the four groups of students. The math achievement data indicate that overall the students in the team taught groups preformed significantly higher on the chapter test than those in the one-teach one-assist and the control groups. Females in the team taught groups scored significantly
higher than those in the control and one-teach one-assist groups. There was no significant difference among male students or students with IEPs. These findings indicate that typical students in co-taught classes achieve at a higher level than those in a traditional class with one teacher. Students with IEPs achieved higher tests scores in the team taught classroom than they did in the control classroom or in the one-teach one-assist classroom.

Rosman (1994) concluded that schools should consider the implementation of co-teaching with common co-planning time and administrative support. She suggested that the implementation of co-teaching will increase academic performance and individualized instruction overtime. Rosmon (1994) recommended four areas for further study, using a larger student population: (a) co-teaching planning (with discussions on philosophy, theoretical viewpoints, procedures/instructional methods, and evaluations), (b) long-term study on the impact of a special educator in a co-taught class on student attitude, (c) replication of the study in other academic areas, and (d) effects of gender achievement in co-taught classes.

Rice and Zigmond (2000) investigated the co-teaching approaches of teachers in inclusive secondary classrooms. The purpose of this study was to compare and identify co-teaching models used in these classrooms in Australian and American secondary schools.

The participants included 17 secondary special and general educators, in 10 secondary public schools from the United States and Australia. The classes taught by the teachers included students with learning disabilities, physical disabilities, behavioral disabilities, intellectual disabilities as well as students without disabilities.
The data collected were qualitative in nature, including interviews and classroom observations. The teachers participated in semistructured interviews that were audiotaped and transcribed. Seventeen co-teachers were interviewed for 90-minutes. The classroom observers collected narrative observation notes of the classroom instruction. A total of 11 classroom periods (40-45 minutes) were observed. Interviews and observations were analyzed for themes. Six themes emerged from the data. The identified themes were (a) effective implementation of co-teaching requires schoolwide acceptance of inclusive policies and co-teaching as a viable support option, (b) co-teaching arrangements benefit all teachers and students, (c) teachers rate professional and personal compatibility highly in preferred co-teaching partners, (e) special education teachers seldom receive equal status in co-teaching partnerships, (f) special education teachers must prove themselves capable of making unique and substantive contributions, and (g) the implementation co-teaching in secondary schools involves overcoming entrenched attitudes and administrative barriers. All teachers reported that it was important to have a shared vision of inclusion among co-teachers as well as schoolwide. The teachers also indicated a need for specific times to plan. There were no differences among the American and Australian teachers in the co-teacher roles, responsibilities, or obstacles encountered during implementation. The Australian teachers were actively involved in finding a compatible co-teacher, while American teachers were assigned co-teachers.

Rice and Zigmond (2000) concluded that the data indicated that general educators deliver the content while special educators monitor or help in the classroom. Thus, the most commonly used co-teaching model among these teachers was the one-teach one-assist model. They noted that the population sampled did not meet the criteria for
effective co-teaching (e.g., shared teaching, shared planning, shared instructional delivery). The observations and interviews found that across the two countries the general educator used the special educator as an assistant. Rice and Zigmond (2000) suggest further research that examines and clarifies the models of co-teaching at the secondary level.

Welch (2000) examined the co-teaching models used by two elementary classrooms. The purpose of the study was to investigate the co-teaching models selected by co-teachers and the results on student performance. Twenty-eight students at the first school and seventeen students from the second school participated in the study. Each school had a two teachers assigned to each class (one general educator and one special educator).

Prior to the study the teachers participated in a video training program. Two topics where addressed in the training. The first video focused on school-based partnerships (e.g., team teaching, teacher assistance teams, resource-consultant teacher). The teachers watched the videos that modeled the school-based partnerships, followed by breakout activities (e.g., guided discussions). Three models were presented in separate videos, including the six co-teaching models. The second video addressed how to conduct a school-wide needs assessments. Teachers were provided instruction on developing an action plan based on the assessment. The action plan included evaluating and implementing the selected school-based partnerships.

Once the teams were selected at each of the schools, they were provided an additional three hours of training. The teachers participated in training to complete a pre-implementation planner, a weekly planning log, and an objective and evaluation form.
The teachers selected a co-teaching model and implemented it for 30- to 45-minute periods daily. The selected co-teaching intervention was implemented for 16 weeks at the first school and 19 weeks at the second school. A member of the research group met with both teams once a month and provided support and collected logs. Teachers recorded time, date, and planning information (e.g., co-teaching models, student groupings) from each weekly meeting.

The information from the teacher log forms were coded. These were reviewed and tabulated for the type of co-teaching model and student groupings used. The curriculum-based assessments in reading and spelling were collected pre- and post- co-teaching implementation. Paired t tests were used to analyze assessments.

The results indicated that the teams used the lead-support (one-teach one-assist) model of co-teaching over all other methods. The first school used the one-teach one-assist model of co-teaching 48 times and the second school used this approach 62 times. The station teaching model was used 20 times at the first school. The schools also used large group instruction over small group instruction. At the first school, large group instruction was used 60 times and small group instruction 23 times. The second school used large group instruction 45 times and small group 33 times.

Students were tested using a curriculum-based reading assessment, pre- and post-co-teaching implementation. A paired t test was used to determine if there was a significant difference between pretest and posttest mean scores. The first school had a significant difference on pre- and post- test means scores for reading fluency and word recognition for all students and students with learning disabilities. Similarly, the second school had a significant difference on pre- and post- test mean grade equivalent test
scores in the areas of reading comprehension, vocabulary knowledge, spelling, and reading recognition for the whole class and students with learning disabilities. Teacher impressions and satisfaction data were collected using focus group interviews. The teachers reported a lack of adequate time to plan with their co-teacher and the special educators stated they were unable to contribute equally to the classroom instruction. General educators reported learning new strategies from the special educators.

Welch (2000) concluded that the one-teach one-assist model was used most often due to the predisposition of the general educators to plan and teach for the entire class. He maintains that this reinforces the traditional roles of general and special educators. Welch (2000) recommended that qualitative methods be used to collect further data on teacher logs, time spent planning, instructional objectives, and activities. Welch (2000) also supported the use of experimental studies and formative data collection to report academic gains for students in co-taught classrooms.

Weiss and Lloyd (2002) examined the roles and actions of secondary special educators in co-taught classrooms and special education settings. The purpose of this study was to identify and describe the roles and instructional actions of the special education teachers. Participants in the study included six special educators, three middle school teachers, and three high school teachers. They taught both resource classes and co-taught classes.

The data collected included observations, interviews, and a review of teacher documents. The special educators were observed for a total of 54 times, averaging about nine observations per teacher. The observations occurred in either English or math resource rooms or co-taught class rooms. The special educators taught resource room
English and/or math with a corresponding co-taught class. The narrative observations focused on the special educator. Each teacher also was interviewed three times. The interviews focused on teacher experiences, co-teaching, and clarification of what occurred during the observations. The teacher documents were comprised of teacher journals, lesson plans, class materials, and the special education policy and job responsibilities handbook.

Data were analyzed using a constant-comparative method. Data were coded using the grounded theory method (e.g., open coding, axial coding, and selective coding). Open coding provided four categories of instructional actions by the special educators: (a) providing support (one-teach one-assist), (b) same content in separate classes (e.g., resource room instruction), (c) separate content in co-taught class (e.g., alternative teaching), and (d) team teaching. Axial coding identified connections between causal conditions, contexts, intervening conditions, and consequences. Selective coding of the data were integrated by a core category and each axial-code core category.

The data collected indicated that the special educator roles in the general education classroom included (a) providing support (e.g., one-teach one-assist), (b) teaching the same content in a separate classroom, (c) teaching different parts of the content (e.g., alternative teaching), and (d) team teaching. In the resource room, the special educators were the sole provider of content instruction, with instruction being delivered at a lower grade level, broken into smaller units, slower paced, and individualized. In the general education classroom, the special educators supported the instruction of the general educator, closely aligned with the one-teach one-assist co-
teaching model. The special educators monitored and supported students while the general educator delivered the instruction.

Weiss and Lloyd (2002) concluded that the special educators in this study had limited opportunities to plan, little training, and no opportunity to deliver content area instruction. They suggest that future research focus on the roles and actions of co-teachers and the learning outcomes of the students with disabilities in co-taught classrooms.

**Station Teaching Model**

The station teaching model of co-teaching is defined as two teachers dividing a class into three or more groups (Murawski, 2009). The content material is then divided among three teaching stations in the classroom (Friend & Cook, 2010). Each group of students rotates to the stations and spend equal time at the stations.

Turrant (1999) examined the use of a literacy curriculum in a primary grade classroom. The purpose of this study was to explore the implementation of an early literacy curriculum for students with and without disabilities. The co-teachers used station teaching to implement the *Early Literacy Program* (ELP) (Englert, Garman, Mariage, Rozendal, & Tarrant, 1995) in the classroom.

The participants included a special educator, general educator, and primary-level students. The two teachers co-taught in a mixed-level inclusionary primary classroom. A total of 26 students with and without disabilities participated in the study.

A qualitative design, using a naturalistic inquiry approach, was used. Data were collected as the classroom observations unfolded. There were no set interventions in place, rather the implementation of the ELP (Englert, et al., 1995) was reported. The data
collected included observations, video recordings, interviews, documents, and pre/post literacy assessments. Observation data were collected through note-taking and video recordings of each teaching session. Informal interviews were conducted with the teachers and the students as well as audiotaped semi-structured interviews with the teachers. The student documents collected were (a) writing portfolios, (b) books written by the class, (c) journals, and (d) thematic reports. The teacher documents collected were (a) lesson plans, (b) outlines of student grouping, and (c) reflections of experience.

The Early Literacy Program (Englert, et al., 1995) included the implementation of partner reading, reader response logs, and partner spelling. The students were placed in groups based on the Slosson Oral Reading Test (SORT) (Slosson, 1963) test scores and were placed in one of five different groups based on instructional needs. The students participated in five different planned activities, every 20 minutes during instruction. The co-teachers planned the group objective and activity for each teaching station. For example, the first group learned new vocabulary using flashcards with a classroom volunteer, the second group did choral reading from the basal text with the special educator, the third group worked on a spelling activity at the computers, the fourth group did vocabulary review with the general educator, and the fifth group did assigned independent work at their desks. At the sound of a buzzer the students rotated stations until each group had completed all teaching stations.

Information obtained from observations, videotapes, interviews, and documents were coded and sorted into emerging patterns. Credibility was accounted for by (a) prolonged engagement with the research site, (b) triangulation of data, (c) peer examination, and (d) member checks (e.g., interpretation of data were shared with teacher
participants for input). Observations of the groups indicated that students moved among stations based upon instructional needs. The results from the pre- and post- test scores from the SORT (Slosson, 1963) indicated that 13 of the 14 special education students achieved one month’s growth in reading for every month they participated in the station teaching. Six of the 14 special education students were near or above grade level at the end of the school year in reading. The students with disabilities and their general education peers achieved the same level of reading growth over the year, indicating that students with disabilities can achieve academic growth in the general education classroom using the station teaching model of co-teaching.

Turrant (1999) concluded that the use of the station teaching model created a sense of community in the classroom. The use of station teaching allowed the teachers to spend more time with small groups of students, resulting in academic achievement for all students. Turrant (1999) did not provide any recommendations for further study.

Gurgur and Uzuner (2011) examined the implementation of team teaching and station teaching. The purpose of this study was to define co-planning, implementation, and the reflection process of co-teaching.

The participants in the study included 33 students (two with disabilities). The class was co-taught by a general educator and a special educator. The study was conducted in a general education classroom.

An action-research qualitative design was used to collect data in this study. No intervention was implemented in this study. However, observations of the natural co-teaching environment was reported using a checklist, lesson plans, teaching materials, student products, observation, video recordings and audio recordings. The teachers were
observed implementing either the team teaching or station teaching models. The teachers also were observed weekly during planning and reflection meetings.

Gurgur and Uzuner (2011) created a checklist, the *Evaluation Control List of Co-teaching Courses* based on the analysis of video recordings of the implementation of lessons. Six weeks of data were analyzed. The co-teaching model (e.g., team teaching), the lesson content (e.g., life science), the teaching method (e.g., cooperative learning), and duration were recorded for each week. The data were analyzed for successful and challenging actions of the general and special educator.

The results were reported in three areas (co-planning meetings, teaching practices, and reflection meetings). During co-teaching planning meetings, the teachers did not discuss lesson objectives, instructional materials, co-teaching models, or teacher responsibilities and roles. The teachers did not keep pre-arranged meeting times and they met for only short periods of time. Six co-teaching instructional lessons were selected and analyzed. Five of these lessons were team taught, and one lesson used the station teaching model. The team teaching lessons started on time. Neither the general nor special educator explained the lesson objectives to the students nor did they use instructional materials effectively. The special education teacher provided feedback to students, answered questions, and monitored behavior. During the station teaching co-taught lesson, the student desks were arranged into groups of three. Observations indicated that the groups were too large and rules were not explained for each station. The reflection meetings occurred after each lesson. The teachers held meetings at an appropriate location, discussed co-teaching models, and materials used during the lessons. During the
reflection meetings, the co-teachers did not discuss their roles during instruction, lesson objectives, or content.

Gurgur and Uzuner (2011) concluded that planning meetings are important to successful implementation of co-teaching. Furthermore, co-teachers should volunteer for co-teaching and should have experience in planning and assessment. Gurgur and Uzuner (2011) suggested that data be collected to determine the cause and effect relationships among co-teaching components (e.g., teaching experience, class grade). They maintain that research is needed on the impact of common planning time and co-teaching models on student performance.

**Parallel Teaching Model**

The parallel teaching model is defined as two teachers dividing a class into two equal heterogeneous groups with both teachers being responsible for the instruction of the same content material (Murawski, 2009). Only one study was found that specifically addressed the use of parallel teaching. A search using ERIC, Academic Premier, and PsychInfo provided one peer-reviewed data-based article on parallel teaching. The following search terms were used: parallel teaching, teacher arrangements, split teaching, multi-level teaching, open schools, open classrooms, and large groups.

Dieker (2001) investigated the characteristics of secondary education co-teaching teams who worked with students with disabilities. The purpose of the study was to identify variables in team structures and practices. The participants included nine co-teaching teams, all considered to be effective in implementing co-teaching. There were seven middle school teams and two high school teams.
Data were collected using four different approaches. First, observations of co-teaching were collected four times over a 16-week period. Second, co-teaching teams recorded the amount of time spent planning over a six-week period. Third, six students from each co-taught class were interviewed using a structured protocol. Fourth, eight of the co-teaching teams were interviewed at the end of the study.

Data collected included observations, interviews, field notes, and videotapes. Themes were derived from the sources with an 86% point-by-point agreement across the data. The data collected showed six co-teaching practices: (a) creating a positive climate, (b) positive perception of co-teaching by all members, (c) active learning, (d) high expectations for both behavior and academic performance, (e) planning, and (f) multiple methods used to evaluate student progress.

The results from the observations of the teams showed that the teachers used five of the six co-teaching models (one-teach one-assist, station teaching, parallel teaching, alternative teaching, and team teaching). Four teams used the one-teach one-assist model. During the lessons using the one-teach one-assist model, the general educator led the instruction; while the special educator supported instruction by dealing with behavior issues, adapting material, and clarifying concepts for students. In one case the roles were reversed. Four co-teaching teams used the team teaching model; these teams had common planning time. Dieker (2001) reported that they appeared to share in the development, delivery, and evaluation of lessons. The last team used a variety of co-teaching models (parallel teaching, alternative teaching, station teaching, and team teaching). Multiple models were used within daily lessons by this team. All teachers in the study showed evidence of positive planning sessions (e.g., preparing a positive
climate, considered academic and behavioral needs of the students, clarified their co-teaching roles).

Dieker (2001) concluded that co-teachers need structured planning times. She suggests that teachers conduct preplanning sessions and develop evaluation plans. For the planning sessions teachers should prepare a positive climate, consider the academic and behavior needs of students, set goals, clarify teacher roles, set planning time, and use a variety of co-teaching models. Dieker (2001) recommended that further research be conducted concerning the dissemination of co-teaching practices and research to teachers (pre-service and in-service).

Alternative Teaching Model

The alternative teaching model is defined as one teacher delivering instruction to a large group while the second teacher delivers instruction to a small group. The small group instruction consists of reteaching, preteaching, and/or enrichment lessons (Friend & Cook, 2010). Typically, the general educator monitors the large group instruction while the special educator delivers instruction to the small group.

Self, Benning, Marston, and Magnusson (1991) explored the academic achievement of at-risk students in co-teaching settings as well as the perceptions of general and special educators. The purpose of the study was to increase the reading and readiness skills of elementary level students using the alternative co-teaching model.

The participants in this study were students and teachers in an elementary school. The teachers included 14 general education teachers, two compensatory education teachers, two special education teachers, two tutors, and one speech/language therapist. One hundred-seventy kindergarten through third grade students participated in the study.
The intervention aligned with the alternative co-teaching model. The intervention groups were small groups that received instruction from the special educator, tutor, or compensatory teacher for 25-minutes daily. The students with speech or language difficulties received small group instruction from the speech/language therapist, three days a week for 25 minutes. All groups met in the general education classroom during the scheduled reading or independent reading time. Special educators, tutors, and compensatory educators meet twice monthly for planning, problem solving, and sharing instructional strategies.

Prior to implementation of the small group (alternative teaching) intervention, the teachers evaluated the students using a curriculum-based measurement (CBM). The special education students and students with a reading score below the 25th percentile were placed into intervention groups. All students (special education, general education, and high-risk) were monitored throughout the intervention using a CBM.

Data were collected using a CBM three times a year for three years. The students were tested weekly using a word per minute passage using a grade level reading passage. The students read out loud for one minute and the teacher counted the number of words read correctly. Progress was monitored and graphed. Pre- and post- intervention CBM scores were compared using a paired t test.

The results of the study were divided into four categories: (a) effectiveness of cooperative teachers, (b) impact of cooperative teaching, (c) effect of cooperative teaching, and (d) teacher attitudes toward cooperative teaching. A paired t test was used to compare the reading rates of the students in small groups to students not in small groups. Analysis after the first year indicated that the students not in small groups
improved by 0.83 words per week while the students in small groups averaged a gain of 2.89 words per week. After the third year, 28 students were assessed with an average gain of .58 words per week. Self et al. (1991) considered this to be statistically significant. Overall, the use of the alternative co-teaching model showed significant gains for students needing supplemental reading instruction.

Self et al. (1991) concluded that the students who participated in small group instruction made significant academic gains over the three-year period. Special education students achieved at or above the expectations of the school district when using the alternative co-teaching approach. Teacher attitudes toward collaboration were positive and there was an increase in collaborative planning between general and special educators. Self et al. (1991) suggested that further studies be conducted concerning the effects of similar collaborative practices between general and special educators.

Fien et al. (2011) examined vocabulary instruction for students with low vocabulary skills using the alternative co-teaching model. The purpose of the study was to explore the use of supplemental instruction with small groups in the general education classroom.

The participants included 106 first-grade students in 18 classrooms. There were 54 students in the small group intervention and 52 students in the control group. Students in each class were assessed using the Relational Vocabulary Subtest of the Test of Oral Language and Development, Primary (TOLD-P-3)(Newcomer & Hammill, 1997). There were 10 students per class who scored below the 50th percentile on the TOLD-P-3 (Newcomer & Hammill, 1997) who were randomly placed in the control or intervention group. Eleven interventionists delivered the small group instruction.
All students in the control and treatment groups participated in whole group read-aloud instruction. The whole group instruction included 28 sessions (30 minutes each) for eight weeks and included the teachers reading the text aloud, providing explicit instruction for comprehension, and working with vocabulary instruction. The intervention groups received additional small group sessions that occurred twice a week for 20 minutes for eight weeks. The additional instruction in the small group included strategies to preview, review, and enhance vocabulary instruction that aligned with the whole group read-aloud instruction. The students in the control group received no additional support.

Data were collected using the TOLD-P-3 (Newcomer & Hammill, 1997) to measure language proficiency, semantics, syntax, and phonology. Pre- and post-tests were given and compared to evaluate student performance between the intervention and the control groups. The data were analyzed for comprehension and vocabulary using a three-level hierarchical linear model.

Results indicated that the students who received small group instruction outperformed the non-small group students on vocabulary and expository retells, but not on narrative retells. The students in the small group scored, on average, 5.98 points higher on the vocabulary assessment than the students in the control group. There was a small difference between groups on expository retells with an average of 0.89 points higher for the students in the small group instruction. These results support the implementation of the alternative co-teaching model.

Fien et al. (2011) concluded that small group instruction (alternative teaching) increases students’ vocabulary and expository retelling skills. Fien et al. (2011) recommended further research using additional standardized measures.
Hudson, Isakson, Richman, Lane, and Arriaza-Allen (2011) explored the use of a decoding intervention with a small group of underachieving readers. The purpose of the study was to evaluate the effects of lower-level skills on mid-level skills (e.g., decoding) and upper-level skills (e.g., fluency and comprehension). This study used a small group intervention similar to the alternative co-teaching model. The participants in the study were 56 second-grade students in seven schools. Ten teachers delivered the small group instruction.

The students were screened using the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS-ORF) (Good & Kaminski, 2002) and the Picture Vocabulary subtest of the *Woodcock Johnson Test of Academic Achievement III* (WJIII) (Woodcock, McGrew, & Mather, 2001). Students with a score at or below the 35th percentile on the DIBELS-ORF and at or above the 45th percentile on the WJIII participated in the study.

Two conditions were implemented. In the first condition, the students were assessed for accuracy and automaticity of reading individual words. In the second condition, the students were assessed for their accuracy of reading individual words. The students were assigned randomly to the first or second condition. Each condition had several small groups. The small groups consisted of two to four students who meet two to four times per week for 20 to 28 minutes. There were a total of 40 sessions per group. Both conditions used the same phonemic awareness lessons. The materials included worksheets that focused on isolated sounds (e.g., *a, s, n, r*) and word families (e.g., *-ack, tack, back, pack*). In the first (accuracy and automaticity) condition, the students were told to read accurately and quickly. The lessons in this condition were delivered in three steps: (a) the students warmed up as a group, using modeling and corrective feedback of
sounds, (b) the students individually practiced a page of isolated letter sounds with modeling and correction, and (c) the students individually practiced a word family page with modeling and correction. In the second (accuracy) condition, the students followed the same three steps, but were told to read correctly regardless of speed.

Data were collected using the *Kaufman Test of Educational Achievement II* (Kaufman & Kaufman, 2004), the phonemic decoding efficiency (PDE) subtest of *Test of Word Reading Efficiency* (TOWRE) (Torgesen, Wagner, & Rashotte, 1999), and the Reading Comprehension subtest of the *Woodcock Johnson Test of Academic Achievement III* (WJIII) (Woodcock, McGrew, & Mather, 2001). The data were analyzed by using a multilevel hierarchical linear modeling. Pre- and post- test scores were compared in the areas of decoding accuracy, decoding automaticity, and reading comprehension.

The results indicated that the students in the first condition increased fluency rates. The students in the second condition decoded 15 out of 16 sounds per page; a significant difference over the first condition. There was a significant difference in words per page for the accuracy condition. The students in both conditions increased their fluency rates. Overall, students in both conditions improved their academic performance when using the alternative co-teaching model.

Hudson et al. (2011) concluded that the students in small groups improved their decoding skills and showed academic gains. Hudson et al. (2011) recommended further research is needed with smaller groups of students, over a longer timeframe, and with a larger number of schools.
Team Teaching Model

The team teaching model is defined as two teachers delivering content to a whole group of students simultaneously (Murawski, 2009). When using the team teaching model, teachers equally engage in instructional activities (Friend & Bursuck, 2009). The teachers work as a team and deliver content together through role-play, modeling, demonstrating appropriate behaviors, debating, or providing different viewpoints (Cook & Friend, 1995; Murawski, 2009).

Boudah, Schumacher, and Deshler (1997) investigated the collaborative instructional model (often referred to as team teaching) used in inclusive secondary classes. The purpose of this study was to examine the effects of instructional models on students with disabilities and low-achieving general education students. Boudah et al. (1997) identified two major goals of this study: (a) to determine the effects of teacher training on teacher performance, and (b) to determine the effects of teacher implementation on student engagement and academic outcomes.

The participants in this study included 16 teachers. The teams of teachers (a general and special educator) were placed into either an experimental group or a control group. The experimental group participated in training and implementation of the Collaborative Instruction Model (CI Model). The control group received no training. The students in the experimental classrooms consisted of 16 students with mild disabilities and 16 low-achieving students without disabilities. The control group consisted of 14 students with mild disabilities and 18 low-achieving students without disabilities.

There were four experimental groups (two history, one science, one English) and four control groups (one history, one science, and two English). The class size averaged
22 students, with two classes at each grade level (sixth-, seventh-, eighth-, and tenth-grades). The groups were matched by grade level across experimental and control groups.

Baseline data were collected once a week every other week, for three months. The teachers in the experimental classrooms participated in two CI Model training sessions that focused on co-teachers working simultaneously to deliver instruction to secondary students. When using this model, the general educators delivered content instruction while the special educator acted as a mediator. The general educator provided students with facts, rules, concepts, and themes in the specific subject area. The special educator broke down the content (e.g., re-explains, smaller steps) and provided learning strategies to all students. The training sessions were designed to provide (a) feedback on baseline data, (b) an overview of CI Model, (c) information on the function of the team teaching model, (d) information on the implementation and prompting of strategic skills, and (e) practice with the CI Model. The students in the control group received instruction from the general educator only. No training was provided to the teachers in the control group.

Data collection included observations of teachers and students, along with student assessments. Data were collected for the teacher measures using a time-sampling observation system in which data were recorded for the teacher actions: (a) delivering content instruction, (b) supporting student learning, (c) circulating to provide individual instruction, and (d) engaging in non-instructional behaviors. In order to collect data on the student measures, three different student performances were reported: (a) student engagement, (b) mastery of strategic skills, and (c) content test outcomes.

Data were analyzed using a single-subject, multiple-probe-across-teams-of-teachers design which is a variation of the multiple-baseline design. Data were compared
and analyzed in four different manners. Baseline data were collected on the experimental group prior to CI Model training and were observed at least once every other week for a three-month period.

The data indicated that the special educators in the experimental group took a more active role in the delivering of instruction, from 8% to 22% of the time. The co-teachers in the experimental group exchanged roles delivering content from five times to 17 times during a lesson. The special educators increased their roles by presenting content more often and providing more support to individual students. The general and special educators engaged in non-instructional behaviors less often. The CI Model training directly impacted teachers instructional time, with more time spent engaged in instructional behaviors over non-instructional behaviors. The teachers engaged in a team teaching approach more after training. A series of one-way analyses of variance (ANOVAs) indicated that there was a significant difference between the groups of students using the specific strategies, favoring the experimental group. The students in the experimental group were engaged in lessons more often than students in the control group, and they scored significantly higher than students in the control group on the content area post-test. This indicates that students in the team taught classes were engaged during instructional time, used specific strategies, and scored higher on academic tests than those in the non-team taught classes.

Baudah et al. (1997) concluded that the use of the CI model increased the instructional actions of teachers and the academic performance of students in the team taught classes. Boudah et al. (1997) recommended further research to explore the impact of in-service training on teacher instructional performance, the relationship between co-
teachers and student performance, and the components of the CI Model that can be used outside of the co-taught classroom.

Salend, Johansen, Mumper, Chase, Pike, and Dorney (1997) explored the perspectives and experiences of two elementary co-teachers as they implemented the team teaching model. The purpose of this study was to examine the development and evolution of the co-teaching relationship between a general and special educator.

The participants in this study included first-year kindergarten co-teachers, one general educator, and one special educator. The co-taught class contained 24 students, including students with and without disabilities. The classroom was divided into centers (e.g., community meeting, reading, writing center, kitchen/house, blocks, art, and the table area).

Data were collected using open-ended, non-directed journals kept by the teachers and interview questions. The journals were read twice to analyze the writings. The first reading was to develop an overview of the feelings and experiences of the teachers. The second reading focused on identifying issues, themes, and concerns of the co-teaching pair. The follow-up interviews were conducted with the teachers and principal. Interviews were recorded, transcribed, and incorporated into the findings. The findings were shared with the co-teaching pair and principal to provide feedback to the participants.

The results of the study indicated that the co-teachers first expressed concerns about co-teaching at the beginning of the school year (e.g., not feeling comfortable in the classroom). The pair then moved into recognizing the skills of their partner. For example, the general educator had an understanding of content and the special educator could
modify curriculum and behavior. The teachers reported that once they became accustomed to each other, they began to blend their teaching skills and taught outside of their trained area. The teacher reflections indicated that, as the year progressed their team teaching skills developed and their language changed (e.g., our classroom). Both teachers reported that the support of the administration assisted in the success of their co-teaching partnership.

Salend et al. (1997) concluded that the development of team teaching takes time. The teachers started the school year with some apprehension (e.g., class ownership, teaching space, role delineation, philosophical differences, use of language) and the relationship evolved gradually, based on the shared responsibility, accountability, and decision making of the co-teaching pair. Salend et al. (1997) recommended that future research use qualitative methods focusing on the academic and social skills of students in team taught classrooms.

Morocco and Aguilar (2002) investigated the implementation of a schoolwide co-teaching model in a middle school setting. The purpose of this study was to describe the interactions of team teaching within and across interdisciplinary teams.

The participants in this study were administrators and middle school teachers who made up three co-teaching teams. The first sixth grade team included one special educator, one mathematics teacher, and one geography teacher. The second was comprised of one special educator, one geography teacher, one science teacher, and one language arts teacher who taught in seventh grade. The third team included one special educator, one geography teacher, one language arts teacher, and one mathematics teacher who taught eighth grade. This study was conducted at a middle school for one year.
Data were collected from administrator interviews and classroom observations. The data collected reflected the grounded theory approach to qualitative research. The interview questions were based on the school leadership literature. The interviews were conducted face-to-face, tape recorded, and transcribed. Observation data were collected over 40 co-taught lessons.

The interviews were analyzed by coding each session for reference to co-teaching models, steps, or processes for implementing co-teaching. The observation sessions were coded based on common themes. Four steps were used for coding all data. First, actions and comments were identified for coding. Second, repeated actions and comments were given a concept name (code). Third, codes were refined and agreement was met. Fourth, the identified codes were retested for interrater agreement. From the data analysis, seven categories of co-teaching roles emerged: (a) set up/engage students in learning experience, (b) motivate learning, (c) provide instruction, (d) monitor/provide feedback on work, (e) manage instruction and behavior, (f) assist individual students, and (g) confer with co-teacher.

The data indicated that the teachers provided instruction to students 30% of the time, assisted students 21% of the time, set up instruction 16% of the time, and monitored or provided feedback 11% of the time. General and special educator roles were compared using a Pearson’s Chi-Square analysis. Overall, the general educators provided content instruction significantly more often than the special educators; and the special educators provided assistance significantly more than the general educators. Two of the teams used a one-teach one-assist model of teaching most often, while the other two teams used the team teaching model. In the first team, the general educator provided instruction 82% of
the time while the special educator provided instruction 17% of the time. In the third team, the general educator provided instruction 64% of the time, while the special educator provided instruction 35% of the time. The second and fourth teams shared an almost an equal amount of time providing instruction, 54% (general educators) compared to 45% (special educator).

Morocco and Aguilar (2002) concluded that there was a lack of parity between two of the co-teaching pairs using the one-teach one-assist model. The authors recommend that further research is needed to address the impact of co-teaching models on student learning.

McDuffie, Mastropieri, and Scruggs (2009) compared the effects of peer tutoring in co-taught middle school science classrooms to those in non co-taught classrooms. The purpose of this study was to investigate the (a) effects of peer-tutoring interventions on academics for students with and without disabilities, (b) differences in student academic achievement in co-taught and non-co-taught classrooms, and (c) value added when peer tutoring was implemented in co-taught classrooms. This study used the team teaching model when implementing co-teaching.

The participants included middle school students and teachers. There were four general educators, two special educators, one instructional assistant, and one substitute teacher. A total of 203 middle school students with and without disabilities (62 students with a disability) participated in the study.

The study was conducted in eight inclusive middle school science classes (four co-taught and four non-co-taught) in two middle schools. Students with disabilities were placed in co-taught classes based on their individualized education program (IEP).
The study occurred over an eight-week period, with pre- and post-testing for each unit taught. There were four conditions with two groups per condition: (a) co-taught class with peer tutor groups, (b) non co-taught class with peer tutor groups, (c) co-taught class without peer tutor groups, and (d) non co-taught class without peer tutor groups. Two state science standards were taught during the study.

Data collection included observations and teacher-made tests. Forty-eight sessions were videotaped and transcribed. The observational data focused on student-teacher interactions: (a) identification of the student, (b) condition group, (c) identification of the teacher (general educator or special educator), (d) initiator of the interaction, (e) instructional setting (e.g., small group, whole class), (f) focus (academic or behavioral), and (g) duration. Observational data also were collected on teacher actions: (a) providing directions, (b) lecturing without discussion, (c) lecturing with minimal discussion, (d) lecturing with maximum discussion, (e) lab group work, (f) supplementary science activity group work, (g) other group work, (h) individual work, (i) reviewing assignments, (j) multi-media activities, (k) free time/transitional time, and (l) other (e.g., morning announcements). A research-developed pre-test was administered. The test included 25 multiple-choice and 10 open-ended or short-answer items. At the end of each unit (every one to two weeks), the students were assessed using a multiple-choice posttest. At the end of the study, the students completed a research-developed, post-test that consisted of 42 multiple-choice questions and 12 open-ended or short-answer items. A total of 48 observations were conducted to examine the instructional methods and student-teacher interactions.
Data were analyzed using an analysis of covariance (ANCOVA) with the pretest as the covariates. The impact of the peer-tutoring intervention was analyzed based on condition (peer tutoring versus traditional instruction), by setting (co-teaching vs. non-co-teaching), and by students (with versus without disabilities).

Results of the data analysis indicated that the students in the peer-tutoring condition performed better academically than those in a traditional setting. Similarly, the students in co-taught classes preformed significantly better than those in a non co-taught setting. These findings indicate that the increased time on task and reinforcement of factual information in peer tutoring and co-teaching produced higher scores on assessments. No interaction between co-teaching and peer tutoring was found. Students with disabilities interacted more often with their teachers in both the co-taught and non-co-taught settings. This indicates that the use of team teaching in the co-taught classrooms produced optional learning opportunities for students with disabilities. The observers noted that the most commonly used models of co-teaching were one-teach one-assist and team teaching.

McDuffie et al. (2009) concluded that the findings from the study supported the use of peer tutoring in middle school settings. However, the findings relative to co-teaching were mixed, with evidence of academic improvement, but not student-teacher interactions. McDuffie et al. (2009) recommended that further research on peer tutoring in co-taught and non-co-taught classrooms be conducted using a larger number of participants. They also recommended a more in-depth study on co-teacher planning, collaborating, delivering of instruction, and the impact on academic outcomes for students.
Components of Co-Teaching

Research has identified four components of co-teaching: (a) co-communication, (b) co-planning and co-preparation, (c) co-instruction and co-assessment, and (d) co-conflict resolutions (Ploessl, et al, 2009). Co-teachers must have a foundation in the components of co-teaching to develop successful co-teaching teams (Gately & Gately, 2001). Each of the four components are important to the proper implementation of co-teaching practices in order to impact student learning or behavior.

Co-Communication

Co-communication occurs when individuals talk, listen, manage interpersonal conflict, and address concerns (Dettmer at al., 2009). Co-teachers communicate during a variety of activities (e.g., lesson planning, delivering instruction). Several methods can be used to communicate (e.g., computers, planned meetings). General and special educators must have an understanding of effective communication practices to successfully communicate with each other. When there is a breakdown in communication, conflict can develop thus making the implementation of co-teaching difficult.

Hindin, Morocco, Mott, and Aguilar (2007) examined teacher collaboration and learning in a middle school. The purpose of the study was to examine the participation of middle school educators in teacher learning groups. The teacher learning groups were designed to address the areas of curricula development, understanding of literacy practices, and shared expertise.

The participants included four middle school language arts teachers, two reading teachers, and four special educators. Three language arts teachers were selected as focal teachers for an in-depth description of their participation. The teachers attended 12 after-
school teacher-learning groups that included discussion of the language arts curriculum being implemented. Two curricula units of study were selected for the study that focused on novels dealing with friendship.

Data collected for the study included transcripts from 12 after-school teacher learning groups, classroom observations, and interviews. The classroom observations were videotaped and transcribed. The interviews were conducted at the end of each unit, audiotaped, and transcribed. During the interviews, the teachers were asked about their implementation of the unit, expectations of the students, and changes that occurred in their instructional practices.

Data from the teacher learning groups were analyzed using a content analysis of the meeting records. Seven topics were identified for coding: (a) implementation, (b) instructional practices, (c) students and student learning, (d) teacher learning communities, (e) design of the unit, (f) personal learning, and (g) research process and procedures. The audio recordings for each meeting were reviewed and teacher comments were coded based on the identified topics. The classroom observations were coded based on student and teacher interactions during the five phases of understanding (e.g., engaged in questions, journal writing, elaboration, comparison of responses, written essay). The data from the three focal teachers were analyzed across the three areas for evidence of common themes.

The data were comprised of roles during meetings, literacy practices discussed in the meetings, practices in classroom teaching, and the extent that instructional expertise was discussed within the group. During the teacher meetings, the three focal teachers engaged in designing, teaching, and reflecting on their literacy approach and instructional
units. The teachers took on the role of community builder, contributing expertise in literacy. All the teachers actively participated in the same classroom activities and experiences. The majority of the meeting time was spent discussing lesson plans. There was a minimal amount of time spent examining and discussing students work samples. The teachers did not spend much time discussing the challenges or successes they experienced in the classroom. A positive finding was that the teachers did use the new practices discussed in their group meetings.

Hindin et al. (2007) concluded that teachers learn new teaching strategies and ideas when collaborating with other teachers. They recommended further research be conducted concerning the facilitator role in learning groups.

Judson and Lawson (2007) explored the roles of teachers in communication networks. The purpose of the study was to identify constructivist teachers who had an active role in learning communities comprised of peer teachers. The constructivist teacher is one that operates alone and does not engage in communication with colleagues. The study involves the communication of teachers within the same department.

The participants in this study included two groups of teachers. The first group consisted of nine biology high school teachers. The second group involved 16 high school mathematics teachers.

Data were collected through classroom observations and frequency counts of communication in learning communities. There were two types of communication patterns among faculty members. The first type of communication consisted of content or pedagogical issues and the second type involved communication concerning social or informal information. The classroom observation data were collected using the Reformed
Teaching Observation Protocol (RTOP) (Piburn & Sawada, 2000). The RTOP consists of 25 Likert-scale items that measure the extent to which classroom practice aligns with constructivist teaching theory. Data also were collected on the communication patterns of the teachers using the social network analysis (SNA). The teachers were asked to identify others that they communicated with frequently and the type of communication (content/pedagogy and informal/social) used in the online communities. The teachers were given an outdegree score (the number of times they identified communicating with another teacher) and indegree score (the number of times they identified another teacher communicating with them). The data were analyzed using the RTOP (Piburn & Sawada, 2000) score and social network analysis score. Scores were given to each type of communication, these were then compared to the RTOP scores.

Analysis of the data indicated that there was a positive relationship between constructivist-teaching practices and the frequency of communication. The teachers with a constructivist teaching approach communicated often with other constructivist teachers to discuss content and pedagogy. It was predicted that the teachers with high RTOP scores (constructivist) were less likely to communicate with other teachers in any manner. Based upon the results this was found to be untrue, the teachers with high RTOP scores communicated as often as those with low RTOP (non-constructivist scores). The teachers who did not receive a high RTOP score (not constructivist) communicated more often on social and informal topics. Thus, teachers with high and low RTOP scores are likely to communicate with each other with little regard for their constructivist beliefs.

Judson and Lawson (2007) concluded that teachers with a constructivist approach to teaching take active roles in learning communities and are not isolated from their
colleagues. Judson and Lawson (2007) recommended further study using a larger sample size and with all teaching disciplines.

Chen (2012) explored the use of technology to support collaboration and communication among teachers. The purpose of the study was to gain insight into the impact of social communication on the communication process.

The participants in this study included 26 teachers, with low-, medium-, and high-level usage of social media. Training occurred in a media room located in an elementary school. Two school-based trainers participated in this study (a school librarian and master teacher with a degree in educational technology).

The teachers participated in a three-hour training session. These training sessions focused on the social media site, wikispaces.com, and using the free K-12 plan. The training included guidance and monitoring of the wiki website. The teachers were provided training on the usage of the wiki to discuss books, collaborate on assignments, and share information.

Data were collected through pre- and post-training surveys, interviews, and frequency counts of wiki usage. A month after the training session teacher attitudes about the training and technology were collected through interviews. The data were analyzed using a frequency count (number of times teachers used the wiki website). An average of the high-, medium-, and low-level users was compared over a four-week period.

Results indicated that after the training the teachers increased their use of wikis for collaboration and instructional purposes. Frequency counts showed an increase in wiki usage. The high-level users increased their usage of wikis for collaboration purposes from 20% to 85%. The high-level users maintained at high level of engagement with the
wiki website over the four-week period. The medium- and low-level users used that wiki website more directly following the first training. Eighty percent of teachers reported they could use the wiki website to collaboratively communicate with others. The teachers in this study reported that the wiki website could support communication among teachers, thus co-teachers could use this website to communicate with one other. Co-teachers could create lesson plans and share strategies via the social media website.

Chen (2012) concluded that technology has the potential to increase the collaborative communication teachers. She recommended that professional development programs focus on training teachers to use social media to collaborate.

**Co-Planning and Co-Preparation**

Co-planning and co-preparation are defined as teachers dedicating time to preparing lesson plans, reviewing assessments, and discussing classroom routines and structures with each other. Co-teachers report that a lack of planning time is an obstacle to successful co-teaching instruction (Walther-Thomas, 1997; Carter, Prater, Jackson, & Marchant, 2010). In order to implement co-teaching practices, co-teachers must have scheduled planning time (Brown, Howarter, & Morgan, in press). During co-teaching planning time, co-teachers discuss the instructional content, goals, co-teaching models, and review student work.

Walther-Thomas (1997) reported the co-teaching experiences of elementary and middle school teams. The purpose of this study was to explore the benefits and problems of co-teaching teams as reported by teachers and principals.

The participants in this three-year study were 23 co-teaching teams in eight school districts. Each team included a principal, assistant principal, a general educator, and a
special educator. The teams were selected based on three criteria: (a) recommended by administrators, (b) observed for effective use of service delivery models and co-teaching components, and (c) willingness to participate.

Data collection for this study included classroom observations, semistructured individual interviews, school-developed documents, and informal interactions. The classroom observations occurred at least once a year. The observers collected data on instructional procedures, student disability, and classroom characteristics. Follow-up interviews were conducted after the observations. The semistructured interviews were conducted each spring. The interviews were audiotaped and transcribed. School documents included record-keeping forms, lesson plans, and staff development materials.

Data were coded, reviewed, and analyzed. After each observation the field notes and audiotapes were reviewed. The observation notes were coded on color-coded note cards. Each card included information about the participant, professional role, school location, date, and observer identification information. Categories and subheadings were developed based on a systematic review of the color-coded notecards.

Results from this study included benefits for special and general education students, benefits for co-teachers, and challenges in co-teaching. The teachers reported that students with disabilities in co-taught classes experienced an increase in self-confidence, improved academic performance, improved social skills performance, and increased positive peer relationships. The teachers reported that the general education students in co-taught classes showed improved academic performance, received more attention, demonstrated increased study skills, and increased social skills. The general educators, special educators, and administrators indicated that co-teaching increased
professional satisfaction, provided more opportunities for professional growth, and increased opportunities for collaboration. The co-teachers reported there were problems in the co-taught environment (e.g., lack of time, increased case load). The majority of teachers reported that several factors contributed to successful planning: (a) planning routines, (b) special educators familiar with content area, and (c) comfort level among co-teaching teams.

Walther-Thomas (1997) concluded that although co-teaching was complex, the co-teaching in the schools included in the study was successful. She recommended that future research is needed to determine the reported benefits and challenges of co-teaching.

Bryant-Davis, Dieker, Pearl, and Kirkpatrick (2012) investigated the co-planning process between general and special educators and the resulting lesson plans of co-teachers in middle school classrooms. The lesson plans were collected over a three-year period. The teachers recorded their lesson plans in the co-teaching lesson plan book (Dieker, 2002).

Data were analyzed by coding the co-teaching lesson plan book. The data were coded by (a) date of lesson, (b) alignment of academic and behavioral accommodations, (c) co-teaching model, (d) behavioral accommodations or modifications, (e) academic accommodations or modifications, and (f) technology. Five components were used in the analysis: (a) the alignment of the general and special educators’ plans, (b) co-teaching structures, (c) behavior, (d) academics, and (e) technology.

The data indicated that the co-teaching lesson plans showed the use of several of the co-teaching models. The data analysis indicated that the one-teach one-assist model
was used 350 times, station teaching was used 33 times, parallel teaching was used 49 times, alternative teaching was used 42 times, team teaching was used 107 times, and one-teach one-observe was used three times. Sixty-seven of the lesson plans addressed student behavior (13 reminding students of rules and expectations and 54 changing students’ seats). Eight academic strategies were addressed in the lesson plans, including visual accommodations (e.g., graphic organizers), auditory accommodations (e.g., directions repeated), kinesthetic accommodations (e.g., breaks), tactile accommodations, additional time allowed, modifications to assessments or assignments, directions or content read aloud, and spelling not graded. The lesson plans also indicated the use of low-level technology (e.g., highlighters, flash cards, calculators) and high-level technology (e.g., computers). A few lesson plans used the additional supports of peer tutoring and cooperative group work.

Bryant-Davis et al. (2012) concluded that teachers who used co-teaching lesson planning aligned instruction with student needs. Bryant et al. (2012) recommended that future researchers continue to evaluate content-specific lesson plans and trace the evolution of lesson plans over time.

Carter, Prater, Jackson, and Marchant (2012) investigated teacher perceptions concerning the collaborative planning process. The purpose of this study was to describe the perceptions of general and special educators concerning the collaborative planning processes when using the *Curriculum, Rules, Instruction, Materials, Environment* (CRIME) (Carter et al., 2012) collaboration-planning model.
Six pairs of elementary teachers participated in the study. Each pair contained one
general and one special educator. The study was conducted in the general education
classroom.

The teachers received training on the *CRIME* (Carter et al., 2012) model which
focused on the four steps of the collaborative planning process: (a) evaluate the
components of CRIME (curriculum, rules, instruction, materials, environment), (b) list
student strengths and limitations (behavioral and academic), (c) evaluate the classroom
environment and student needs, and (d) plan adaptations and accommodations. The
teachers then scheduled planning time to complete the *CRIME* forms (Carter et al., 2012)
for the identified students with a behavioral or academic accommodation plan in the co-
taught classroom. After the planning session, the teachers were interviewed individually
concerning the planning process.

The *CRIME* forms (Carter et al., 2012) and interview narratives were collected for
analysis. The data were analyzed using a nine-step typological analysis format: (a)
identify the typologies, (b) mark entries related to typologies, (c) read entries by typology
and record main ideas, (d) identify patterns and themes within typologies, (e) code entries
based on patterns, (f) identify patterns supported by data and search for nonexamples, (g)
identify relationships among patterns, and (h) identify generalizations.

The data analysis identified several patterns when using the CRIME process.
There was evidence that the teachers discussed the elements of the CRIME process. The
teachers were able to reach consensus when they encountered differences in their
perceptions. This involved the teachers describing their philosophical perspectives on a
situation and defining a student’s academic or behavioral problem. The teachers then
jointly made the appropriate accommodations and adaptations. The study found that four of the six pairs of teachers completed the four-step CRIME model process together. While three of the general education teachers completed the form prior to meeting with the special education teacher one completed it after the meeting. The pair that did not complete the process had different perceptions of the targeted student and did not plan accommodations for the student. The majority of the teachers reported the four-step process to be beneficial.

Carter et al. (2010) concluded that teacher philosophies concerning disabilities grew through the use of the CRIME model and that these philosophies directly influenced the planned accommodations and adaptations. Carter et al. (2010) recommended that all teachers receive training on a specific planning process to adapt classroom instruction when co-teaching.

**Co-Instruction**

Co-instruction involves teachers implementing a co-planned lesson that is based on student academic and behavioral data. During co-instruction, the teachers actively deliver instruction and monitor student progress (Ploessl et al., 2009). General and special educators should implement co-planned lessons that involve both teachers delivering instruction and monitoring student behavior. Successful co-instruction can lead to improvement in student academic and behavioral skills (Rea, McLaughlin, & Walther-Thomas, 2002).

Lundeen and Lundeen (1993) investigated the academic achievement of high school students with and without disabilities in a co-taught classroom. The purpose of the study was to evaluate the effectiveness of co-teaching at the secondary level.
The participants in this study were 318 high school students in co-taught classrooms. Eight general educators and five special educators who co-taught 15 different classes, covering four subject areas (social studies, English, science, and health), also participated in the study.

Data were collected using reading comprehension scores, grades from previous non-co-taught courses, mean grade-point average in content areas, and specific grades for individual students. Student academic results were based on comparisons across students in co-taught classes and with individual student performance prior to the study.

An analysis of variance (ANOVA) was used to compare student scores across grades. Grades across courses revealed significant differences, likely due to teachers establishing evaluation criteria. An analysis of variance (ANOVA) analysis for the grading periods indicated no significant difference between groups of students (general and special). In the co-taught classes, students with disabilities received similar grades to students without disabilities. The means of grades for individual students showed an increase in half a grade for all students in the co-taught classes. The results indicate that all students made academic gains in the co-taught classrooms.

Lundeen and Lundeen (1993) concluded that academic scores of all students in co-taught classes improved. Lundeen and Lundenn (1993) did not provide any recommendations for further study.

Walsh and Snyder (1993) conducted a study designed to compare student academic achievement in co-taught classes to that in general education classrooms. The participants included 343 students in 15 co-taught classes and 363 students in 15 general
education classes without co-teaching. The 30 ninth grade classes focused on content academic areas (e.g., science, social studies, math, English).

Data were collected from the student information management system in the public schools. The data obtained included student scores on functional tests, course grades, absences, and discipline referrals.

The mean of absences, referrals, and course grades were analyzed using an analysis of variance (ANOVA). The functional test percentages for the students were analyzed using Chi-Square tests.

Results indicated that when comparing course grades in all classes, there was no significant difference between groups. The students in co-taught classes scored significantly higher on all subject area competency tests than did the students who did not participate in co-taught classes. In terms of attendance, in the math classes there was a significant difference in favor of students in co-taught classes.

Walsh and Snyder (1993) concluded that students in co-taught classes achieve higher than those in general education settings without co-teaching. They recommended that a general and special educator work together to produce better academic results for students.

Bouck (2007) investigated the components of co-teaching through the collaboration of a general and special educator in two U.S. History classes. The purpose of the study was to examine the roles, environment, and service delivery options (co-teaching models) used by a pair of co-teachers.
The participants in the study included a general educator, special educator, and two classes of eighth grade students. The first class included 32 students with and without disabilities. The second class had 28 students with and without disabilities.

The two teachers shared physical space, instruction, management, and discipline during instructional time. Both teachers provided one-on-one instruction and divided the class in terms of behavior management implementation. The general and special educators took turns implementing team taught lessons. Data collected included classroom observations and informal teacher interviews. Classroom observations were conducted three times a week for a nine-week period. Observations were documented using field notes that were coded. The teacher interviews were conducted at the end of the day, individually and together. Analysis of the data included a review of the coded field notes and interviews. Themes were identified and categorized. The categories were organized by event.

Analysis of the data indicated that the teachers took on several roles. Both teachers acted as an instructor to whole class and small groups, and they managed and supported classroom activities as well as monitored student breaks. The teachers acted as disciplinarian to the students, either to the whole class or to individual students.

Bouck (2007) concluded that the study illustrates a positive co-teaching environment with two teachers engaged in a positive co-teaching relationship. She recommended further examination of co-teaching relationships on student academic outcomes.
Harbort et al. (2007) conducted a study to define the roles of general and special educators in co-taught secondary classrooms. This study focused on teacher interactions, teaching formats, and co-teaching roles.

The participants included two co-teaching teams comprised of a science general educator and a special educator. The first team co-taught a biology class for 90-minutes daily. The class included 27 students, five with disabilities. The second team co-taught two classes of physical science twice daily. The first section included 17 students (five with disabilities) and the second section included 17 students (three with disabilities).

Data were collected using videotaping. Fifteen teaching sessions were recorded and five were selected randomly for analysis. The sessions were viewed for (a) teacher interaction, (b) teaching format, and (c) co-teaching roles. Data were reported using percent intervals of the teachers engaging in the identified behaviors.

Data from the videotapes were analyzed using momentary time sampling (MTS) procedures. The five randomly selected videos were viewed and every 30-seconds the actions of the teachers were recorded on an observation sheet. A total of 90 intervals were scored.

Results were reported in the three categories (teacher interaction, teaching format, and co-teaching roles). There were 11 different behaviors observed in the five lessons. The results indicated that general educators managed behavior, presented instruction, engaged in non-interaction instructional tasks, and led small groups. While the special educators responded to students, monitored students, led large groups, and conducted one-on-one instruction more frequently than the general educator. These results indicated
that the general educator took the lead in the classroom while the special educator played a supportive role.

Harbort et al. (2007) concluded that the study supports that co-teachers use the one-teach one-assist co-teaching model. They recommended that larger evaluations of co-teaching models and teacher training programs be conducted.

**Co-Conflict Resolution**

Co-conflict resolution occurs when two individuals resolve differences together. Conflicts can occur between general and special educators due to individual expectations of students and the use of proactive resolution strategies are effective to resolve this conflict (Conderman, 2010). In order to proactively prevent conflict, the use of intervention plans can assist in the problem solving and conflict resolution processes.

Telzrow, McNamara, and Hollinger (2000) examined the use of problem solving by multidisciplinary teams (MDTs). The purpose of the study was to identify the relationship between the implementation of a problem solving strategy and student performance.

The participants in this study included 227 multidisciplinary teams. The teams conducted the *Intervention Based Assessment* (IBA) (Tekzrow et al., 2000) for one academic year. The IBA process includes the behavioral definition of the problem, baseline data, clearly identified goal, hypothesized reason for the problem, systematic intervention plan, evidence of treatment integrity, data of student response to the intervention, and comparison of student performance with baseline data.

Data were collected using documents from the MDTs that supported the implementation of the IBA processes and documents were used to evaluate student case
information. The MDTs documents included a Problem Solving Worksheet and Evaluation Team Report (ERT). The components used were (a) description and analysis of concerns to be addressed, (b) description and analysis of intervention to be implemented, and (c) eligibility determination (completed for students who were evaluated because of suspected disability). The student evaluation documents included a Likert-scale rubric that evaluated the degree of student change during the IBA implementation.

Data were analyzed using a rubric that identified components of the MDTs case documentations. Each of the following components were scored on the rubric: (a) behavioral definition of the target behavior, (b) direct measure of the student behavior in the natural setting prior to intervention (baseline data), (c) identified goal or target behavior, (d) hypothesized reason for the problem, (e) systematic step-by-step intervention plan, (f) evidence that the intervention was implemented, (g) data indicating student response to intervention, (h) direct comparison of the student post intervention and performance with baseline data, and (i) student outcome (degree to which the target goal was achieved).

Results indicated that there was an overall improvement in student performance based on the MDTs behavioral goals. When the selected intervention plans were implemented, a positive change was found in the targeted student goal. Results also indicated that there was a relationship between implementation fidelity and student outcome.

Telzrow et al. (2000) concluded that problem-solving models can be used to enhance assessment and interventions of students with disabilities. They recommended
further research to examine the fidelity of problem-solving implementation in the school setting.

Bradley and Monda-Amaya (2005) examined the effects of an instructional strategy designed to prepare preservice special educators to understand, analyze, and resolve teacher conflicts. The purpose of the study was to evaluate a strategy to resolve conflict.

The participants in the study were nine students enrolled in a special education teacher preparation program. The participants were full time graduate students. Three groups participated in the study.

The study used a multiple baseline design across groups. Pre- and post-surveys were conducted to assess student perceptions concerning conflict resolution. Data were collected on their opinions of conflict, approaches to conflict, analysis of responses to conflict vignettes, generalization, and social validation. The student opinions of conflict were assessed using interview questions, pre- and post- intervention. Conflict situation vignettes were presented to the students during the baseline and intervention stages. Nine vignettes were developed; and consisted of a brief description of the situation and a video segment with actors portraying the conflict. After the students reviewed the vignettes, they provided written responses (interpreting the situation and providing steps to solving the conflict). The written responses to the vignettes were assessed using a conflict scoring rubric. The rubric assessed nine components (e.g., identifying the source, the position and interest of the special educator, the position and interest of the general educator, establishing an effective atmosphere, commonalties of the educators, creating a solution, and providing rationale for the solution). A score for each component was recorded.
During the baseline phase, each participant viewed the vignettes. The vignettes were read aloud, then read silently, and videotapes were viewed. The participants then wrote their interpretation of the situation and steps to solving the conflict. These responses were coded and scored. During the intervention phase, three instructional sessions were presented. Each student participated in two sessions in which a strategy for conflict resolution was introduced, discussed, and questions were answered. In the third intervention session, the participants role-played the steps toward conflict resolution. Once instruction was completed, the students completed the vignettes as described in the baseline phase. During the generalization phase, they were presented with the vignettes from the baseline phase with no instruction or discussion of the conflict resolution strategy.

Data analysis indicated that all groups stabilized during baseline. The means (group and individual) for all groups increased from baseline to intervention. The third group had the highest mean score pre- and post-intervention. Post-intervention participants were able to identify the interest of the special educators, the commonalities among teachers, and the atmosphere. Results indicated that the students were able to identify a solution, but this often did not match the expert responses. Pre-intervention interviews indicated that the participants had negative feelings (e.g., anxious, nervous, angry, scared) or physical responses (e.g., getting hot, shaking voice) during a conflict. Post-intervention, the students stated that they felt more comfortable with handling a conflict. The participants also had fewer negative feelings toward conflict.

Bradley and Monda-Amaya (2005) concluded that strategies for resolving conflict increased the confidence of individuals to deal with a difficult situation. They also
concluded that the conflict resolution vignettes provided discussion opportunities for preservice and inservice teachers. Bradley and Monda-Amaya (2005) recommended that further research be conducted concerning conflict resolution research in the school setting.

Newton, Horner, Todd, Algozzine, and Algozzine (2012) explored the use of a problem-solving model for Positive Behavior Interventions and Supports (PBIS) teams. The purpose of this study was to pilot the *Team-Initiated Problem-Solving* (TIPS) (Newton et al., 2012) model.

Four schools participated in the study, with 1,982 students and 140 staff participating in the study. All schools implemented the School-wide Positive Behavior Interventions and Supports (SWPBIS) and used the School-wide Information System prior to the study. Each school had a PBIS team.

The PBIS team members from the four schools were provided a one-day workshop that covered the *Team-Initiated Problem-Solving* (TIPS) (Newton et al., 2012) model. The workshop included presentations and activities focused on each step of the model. The participants received a TIPS notebook, presentation handouts, and materials. The TIPS model has six steps: (a) establish a problem-solving foundation, (b) identify problems, (c) develop and refine hypotheses, (d) discuss and select solutions, (e) develop and implement a problem-solving action plan, and (f) evaluate and revise the problem-solving action plan. The PBIS teams were taught how to complete out the *Decision Observation, Recording, and Analysis* (DORA) (Newton et al., 2012) data collection protocol. The DORA (Newton et al., 2012) was used as the data collection protocol for problem solving a student issue in the study.
Data were collected following participation in the TIPS workshops. The DORA (Newton et al., 2012) protocols were analyzed. The DORA protocols were assigned three scores based on the implementation of the problem-solving process. The Problem Precision Score was the percentage of accuracy when completing the DORA protocol. The Thoroughness Score reflected a team’s problem solving for an identified student. The Solution Score indicated team’s solution to the identified problem. The data were analyzed by reviewing the DORA protocols, each protocol was assigned three percentage scores (Problem Precision Score, Thoroughness Score, and Solution Scores).

The data indicated that the PBIS teams were successful in implementing the TIPS model. The scores from the DORA were collected, and averages were calculated. Team precision scores ranged from 50% to 100% accuracy and thoroughness in implementation of the problem-solving process ranged from 67% to 100%. Follow-up visits were scheduled for the next school year. No additional support was provided for PBIS teams during the year. The maintenance score for the first school averaged 83% for accuracy on implementation over three follow-up meetings. The third and fourth schools scored 82% during the follow-up visit, compared to 100% the previous school year. No follow-up visits were conducted at the second school. These results indicate there was a decline in the accuracy of implementation from one school year to the next.

Newton et al. (2012) concluded that ongoing training in problem solving strategies was essential for school personnel. They recommended that further research be conducted to test the benefits of the problem-solving process.
Co-Teaching Training in Preservice Education

Preservice training for co-teachers is essential for planning instruction to insure student academic and behavioral outcomes. There is an increasing number of students with disabilities in the general education setting, increasing the need of preservice training for proper implementation of co-teaching (Young, 2011). General and special education teacher perceptions indicate the need for preservice training for co-teaching.

General Education

Historically, general educators deliver instruction to students with disabilities in the general education classroom, sometimes with a special educator in the form of co-teaching. While general educators are required to take an introduction to special education course while in their teacher preparation program (Blanton & Pugach, 2011), this single course does not prepare general education teachers to collaborate with special education teachers (Pugach, Blanton, & Correa, 2011).

Pavri (2004) explored the preparation needs of general and special educators to support inclusive education. The purpose of this study was to explore the perceptions of general and special educators in the areas of (a) preservice training to address student social relationships/social skills, (b) in-service training to address student social relationships/social skills, and (c) additional training needed to support students.

The participants in this study included 30 special educators and 30 general educators. The general educators were certified and taught in the third, fourth, or fifth grades. All classrooms included students with learning disabilities. The special educators were certified and spent at least 80% of the school day in inclusive classrooms.
Data were collected using the *Social Support Interview* (Pavri, 2004) that was developed for this study. The *Social Support Interview* (Pavri, 2004) included three sections: (a) demographic information, (b) open-ended questions concerning social support for students in an inclusive classroom, and (c) questions concerning the teachers’ preservice training, in-service training, and supports needed. The teachers were interviewed individually at their school locations. All the interview sessions were tape-recorded.

Data from the interview sessions were analyzed using content analysis procedures. Data were coded and themes were identified. All themes and categories were independently sorted.

The general and special educators reported receiving minimal perservice training in the facilitation of social skills and social relationships for students. The special educators indicated that they received less preservice training in this area than their general educator counterparts. The general educators believed that the special educators were the experts in this area. Both general and special educators stated their need for more training at the preservice level, but reported they had opportunities for in-service while teaching.

Pavri (2004) concluded that teachers did not receive adequate training to work with students with disabilities at the preservice level and maintained there was a need for preservice training for educators in the area of inclusive social skills training. Parvi (2004) recommended observational research to enhance the social functioning of students in inclusive settings.
Kurtts, Hibbard, and Levin (2005) explored the collaborative problem solving process among preservice general and special educators using online technology. The purpose of the study was to identify the support provided in an online learning management system (Blackboard 5) for collaborative problem solving.

The participants in this study were undergraduate students (10 elementary and five special education majors). These participants were at two different universities. The general education majors were enrolled in a course titled *Elementary Curriculum: Science, Social Studies, and Special Needs*. This course included university-based instruction and 72-hours of field placements. The special education majors were enrolled in a course titled *Interdisciplinary Field Experiences* which also included traditional class time and 10 hours of fieldwork each week.

The students were placed in triads, two general education majors and one special education major. The triads were presented with a scenario about a school moving toward an inclusive model and given two collaborative activities to complete. The first activity dealt with online pre-referral intervention planning. To participate in the activity, the students were taught a problem-solving process. The second activity involved the triad in developing and revising co-teaching lesson plans prepared by a preservice general educator. The students were taught the co-teaching models and given the lesson plan to review prior to the online meeting.

Data were collected using transcripts of the online meetings, the initial and final responses of the activities, and an online survey. Data were identified, compared, and triangulated using multiple sources of data. The results were reported in three categories:
(a) use of online tools, (b) perceptions of using technology for collaboration, and (c) perceived strengths and weaknesses of online collaborative problem solving.

Kurtts et al. (2005) reported that the use of the online tools was easy, collaborative, and respectful. Discussion moved from the use of the words I to we about one-third of the way through the first session of instruction. The general education students reported that the online tools were useful when revising lesson plans, and that they felt successful in completing the task with the special education students. All triads reported that they worked collaboratively and successfully using the problem-solving strategy online.

Kurtts et al. (2005) concluded that general and special education students were able to collaborate using strategies and methods learned in previous coursework. The students practiced their collaborative skills and learned about their roles prior to fieldwork. They recommended that online discussions may serve as a tool to support collaborative work when geographical distance is a factor. They suggested that preservice preparation programs should include training in collaborative activities using online environments.

**Special Education**

Special educators are working with general educators in the general education classroom more and more (Kloo & Zigmond, 2008). However, they receive limited instruction in content instruction during their preservice preparation programs (Blanton & Pugach, 2011). In order for special educators to successfully collaborate with general educators, they must receive training in their teacher preparation program (Bocala, Morgan, Mundry, & Mello, 2010).
Stang and Lyons (2008) examined the perceptions of preservice special educators concerning collaboration. The study modeled co-teaching practices in coursework and measured the effects on the perservice special educators.

The participants included 43 preservice special educators enrolled full-time in a post-baccalaureate mild/moderate or moderate/severe special education licensure programs. The students enrolled in a *Collaboration and Consultation* course that was co-taught by a general and special educator.

Data were collected using a research-created survey that was completed by the students. This survey included (a) demographic questions, (b) Likert scale items (e.g., knowledge of co-teaching, activities that increased co-teaching knowledge), and (c) open-ended short answer questions (e.g., co-teaching instructional skills, strategies for success, challenges in co-teaching).

A mixed-methods model was used to analyze the data. Descriptive statistics were reported (e.g., demographic information). An intercorrelation was conducted to determine if there were significant relationships between Likert-items and content analysis procedures were followed to examine qualitative open-ended items.

Stang and Lyons (2008) found that over half of the preservice students indicated that they were unfamiliar with co-teaching practices prior to the course. The majority of the preservice special educators reported that they either agreed or strongly agreed that the course increased their understanding and comfort of co-teaching. Three themes emerged from the data, based on the open-ended questions: (a) strategies (e.g., planning, communication), (b) challenges (e.g., equity, time), and (c) student discovery (e.g., organization).
Stang and Lyons (2008) concluded that teacher preparation programs should provide models for co-teaching and other research-based practices in higher education coursework. They indicated that the increase in the knowledge of the preservice special educators in the study was directly due to their participation in a co-taught course. Stang and Lyons (2008) recommended a follow-up study with the same group of preservice teachers while in their third year of teaching to reexamine their views.

Bashan and Holsblat (2012) explored the modeling of co-teaching in a teacher training program. The purpose of this study was to evaluate the teacher training program from the perspective of the students.

The participants in this study included 48 general and special education majors and two instructors. This study was conducted over a three-year period, with the students participating each year. The two course instructors (one general and one special educator) remained the same for the duration of the study.

This study consisted of two components, instructors modeling co-teaching and students implementing co-taught lessons during their field placements. The students were grouped in pairs (one preservice general and one preservice special educator). These pairs co-planned lessons and implemented co-taught lessons during student teaching. The instructors met with the students before and after co-taught lessons. The students and instructors met on campus to discuss topics related to lesson implementation (e.g., planning, management, successes). The instructors also modeled co-taught lessons. These lessons occurred at the college and in the field. During co-taught modeled lessons, four principles were implemented by the instructors: (a) student observation of the instructors’ co-teaching, (b) student observation of the instructors’ roles and contribution to co-
teaching, (c) exposure to the instructors’ reflections, and (d) exposure to the planning and lesson performance of co-instructors.

Data were collected from students and instructors. The students and instructors kept reflection journals throughout the study. Data analysis of the journals was conducted using a constant-comparative method. The journals from the three-year study were analyzed for major themes. These themes were then placed into categories.

Data analysis of the journals indicated five categories. The students indicated difficulty implementing co-taught lessons and trouble coping with conflict. The students did not want to meet with their co-teaching counterpart when conflict occurred, but indicated that they were able to resolve conflict. The students found it useful to participate in co-teaching during field placement. The students also reported that the co-teaching provided opportunities to collaborate with their peers. The students found the modeling of co-teaching practices useful for delivering co-taught lessons. The results indicated that the modeling by the instructors of co-teaching allowed for the connection of theory and practice for the students.

Bashan and Holsblat (2012) concluded that the exposure to co-teaching at the preservice level resulted in an increased awareness of effective co-teaching practices. They recommended that preservice programs provide opportunities for instructors to model co-teaching practices for general and special education students.

**Co-Teaching Training in In-Service Education**

There is limited research concerning the training of teachers in the area of co-teaching once they are employed as educators. While the literature discusses co-teaching in-service training as means to increase the academic outcomes of students (Klingner,
Vaughn, Hughes, Schumm, & Elbaum, 1998; Egodawatte et al, 2011), there appears to be little data concerning in-service as a means to support co-teaching teams (Pugach & Winn, 2011).

**General Education**

General education teachers report the need for in-service support for teaching students with disabilities (Conderman & Johnston-Rodriguez, 2012). One way to do this is through targeted in-service training (Pugach & Winn, 2011). There is limited research on the implementation of in-service trainings for general educators (Pugach, Blanton, & Correa, 2011), but it is considered to be a key element for co-teaching implementation (Murawski & Swanson, 2001).

Miller, Wienke, and Savage (2000) investigated the implementation of an in-service training program for elementary and secondary educators. The purpose of the study was to examine the perceptions of general educators concerning their ability to provide instruction to and modify behaviors of students with disabilities.

The participants in this study included 116 general educators (64 elementary and 52 secondary teachers). The teachers worked in schools that used teams of teachers to provide services to students. The university personnel served as facilitators for the in-service training provided.

This study involved a 10-week training program at each school and weekly seminars. The seminars focused on (a) definitions and characteristics of students with disabilities, (b) modeling of collaborative practices, (c) demonstration of instructional and learning strategies, and (d) motivational and behavior management strategies. The university facilitators created training materials based on the needs of each team.
A pre- and post-training Likert-item survey, the *Assessment of Skills for Teachers* (Morsink, Thomas, & Correa, 1991) was used to assess teacher perceptions of their ability to implement inclusive practices (e.g., develop a plan for behavior problems). Data were analyzed using independent (unpaired) *t* tests.

Results indicated that elementary educators had more favorable perceptions of their skills for adapting materials than did secondary educators. The participants reported a lack of training concerning interventions for problem behavior. However, after training, the results indicated that confidence levels of general educators increased.

Miller et al. (2000) concluded that in-service trainings are needed for general educators. They recommended that future in-services for general educators focus on the understanding of the collaborative problem solving process.

DeSimone and Parmar (2006) investigated the challenges experienced by general educators in inclusive middle school classrooms. The purpose of this study was to examine the knowledge of general educators concerning inclusive instruction, students with learning disabilities, and implementation of inclusive practices. The participants in this study included seven middle school general education mathematics teachers and the students with and without disabilities enrolled in their general education classes.

Data collection included interviews, surveys, and classroom observations. The teachers completed *The Survey on Teaching Mathematics to Students With Learning Disabilities in the Middle School* (DeSimone & Parmar, 2006) that consisted of 32 questions concerning beliefs about inclusion and knowledge about curricular adaptations for students with disabilities. The interviews were conducted with each teacher. Each
participant was observed during an inclusive math lesson and field notes collected and transcribed. Data were analyzed using a constant comparative method.

Reoccurring themes were identified and analyzed. Six themes emerged from the interviews and observations: (a) beliefs about the effectiveness of inclusion, (b) beliefs about teacher responsibilities toward inclusion, (c) knowledge of learning disabilities, (d) instructional strategies, (e) knowledge concerning adaptations for special learning needs, (f) preservice teacher preparation programs, (g) support from colleagues, and (h) working with teacher aides. Three out of the seven teachers reported successful implementation of inclusive practices at their current school. However, two of the teachers did not work directly with students with disabilities. All seven of the general educators believed they were not responsible for the academic needs of the students with disabilities.

The interviews and observations indicated that the general education teachers were not implementing individualized lessons plans or adaptations. All seven participants indicated that they did not receive adequate preservice or in-service training to work in inclusive environments and that they did not believe it was their responsibility to implement adaptations for students with disabilities.

DeSimone and Parmar (2006) concluded that in-service training must include inclusive practices. They recommended that principals provide general educators with planning time, additional information, and assistance to implement appropriate instruction for students with disabilities.

Kosko and Wilkins (2009) investigated the in-service training and the perceptions of Individualized Education Program (IEP) implementation of general educators. The purpose of this study was to identify the number of years general educators taught
students with an IEP, the amount of professional development (in-service) received by the teachers, and their perceptions of their ability to adapt instruction for students with IEPs.

Data from the Study of Personnel Needs in Special Education (SPeNSE) (U.S. Department of Education, Office of Special Education Programs, 2002) were used in this study. The data included 1,126 general educators who taught in early childhood, K-5 classrooms, or at the secondary level (social studies, language arts, science).

Data were collected using responses to the SPeNSE questionnaire. The data were analyzed based on educators responses to (a) Likert-items (e.g., “I am skillful in adapting instruction for students with IEPs”), (b) answering yes or no if they received preservice training for inclusive practices, and (c) the number of hours of in-service received on adapting instruction for students with IEPs. Data were analyzed using correlational and multiple regressions to find relationships among the amount of (a) in-service training, (b) number of years teaching students with IEPs, and (c) perceptions of ability to adapt curriculum for students with IEPs.

A significant correlation was found between in-service preparation and teachers ability to adapt instruction. The amount of professional development (in-service) and teachers’ perceived ability to adapt curriculum was statistically significant and positively related. The teachers with more in-service training were able to implement practices in their current classrooms. The teachers with higher levels of in-service training indicated that they had a higher comfort level with adapting materials for students with IEPs.

Kosko and Wilkins (2009) concluded that the more hours of in-service training general educators received the higher their perceptions of their ability to adapt instruction
for students with IEPs. Kosko and Wilkins (2009) recommended in-service training on inclusionary practices for general educators. They believe further research is needed to ascertain the duration of professional development needed.

**Special Education**

Similar to general educators, special educators can benefit from in-service training on co-teaching practices. The literature suggests that general and special educators attend in-service training together (Stivers, 2008). In-service training is considered a key element to successful co-teaching implementation (Pugach & Winn, 2011).

Klingner, Vaughn, Hughes, Schumm, and Elbaum (1998) designed a study to explore the effects of teacher in-service training on academic outcomes for students who were low, average, and high achieving. The focus of the study was on the reading gains of elementary students with learning disabilities in co-taught classrooms.

The study included 114 students in third through sixth grade, of which 25 were identified as having learning disabilities. The students without disabilities were identified as low, average, or high achieving based on teacher ratings. There were four general educators and two special educators who participated in the study.

The six elementary classes were assigned a special education teacher to work in the classroom. The special education teacher served as a co-teacher and worked with small groups as well as one-on-one with the students with learning disabilities. The teachers co-planned for 30-minutes weekly.
The teachers participating in the study attended four days of professional development (in-service). The training sessions included reading or writing instructional strategies based on the reported needs of the teachers from the previous school year.

The student participants were given four pre- and post-assessments at the beginning and end of the school year. The first assessment was the Basic Academic Skills Samples-Reading (BASS) (Espin, Deno, Maruyama, & Cohen, 1989). The second assessment used was the Kaufman Test of Educational Achievement (KTEA) (Kaufman & Kaufman, 1985). The students were assessed using the reading decoding and reading comprehension subtests. The Qualitative Reading Inventory (QRI) (Leslie & Caldwell, 1994) was used to assess student word identification skills. The Mathematics Concepts and Applications Test (MCA) (Stecker, Fuchs, & Hamlett, 1992) was used to assess student ability to complete calculation and application mathematic problems. The data were analyzed using t tests.

The students in all groups significantly improved on both reading and math assessments. The students with learning disabilities improved at a statistically significant level in reading and gains in math approached significance. On reading and mathematical assessments, low- to average-achieving and high-achieving students improved at a statistically significant level.

Klingner et al. (1998) concluded that low-level readers need intensive support (one-on-one). They also concluded that students with disabilities placed fulltime in general education classrooms need additional supports that included one-on-one instruction provided by highly trained personnel. Klingner et al. (1998) recommended that students with learning disabilities receive in-class and resource room support. They
also recommended further studies focusing on the impact of teacher professional development (in-service) on student outcomes.

Buell, Hallam, Gamel-McMormick, and Scheer (1999) surveyed the in-service needs and perceptions of general and special educators towards inclusion. The purpose of this study was to conduct a needs assessment of teachers to plan in-service training.

The participants in this study included general and special educators who completed a survey. The data were collected using a survey consisting of 25-Likert-type scale items, yes/no, and open-ended questions. The survey was divided into three sections focusing on the confidence of the teachers concerning the facilitation of student success in the inclusive environment, their in-service needs, and the supports needed to create successful inclusive environments. Data were analyzed using a multivariate analysis of variance (MANOVA) to ascertain the differences among the responses of special and general educators.

The general educators rated their understanding of inclusive practices lower than did the special educators. The general educators reported needing more in-service training concerning the implementation of special education practices (e.g., modifications, monitoring of progress, behavior management, IEPs, assistive technology) than did the special educators. The general educators also indicated that they did not have the necessary supports to implement inclusion successfully (79% reported not having an adequate class-size, 78% reported needing in-service training, and 73% reported not having time to meet with families). Forty-eight percent of special educators reported needing in-service training with their general education peers.
Buell et al. (1999) concluded that teachers (general and special education) need resources and support to appropriately implement inclusive practices for students with disabilities. They recommended teacher involvement in curricula decision-making and input concerning in-service trainings.

Austin (2001) designed a study to ascertain the beliefs of educators concerning co-teaching. The purpose of this study was to gather information concerning (a) perception of classroom experiences, (b) use of effective teaching practices, (c) teacher preparation recommendations, (d) school-based supports needed, (e) preparation of students for inclusive environment, (f) collaborative partnerships, and (g) curricula issues.

The participants in the study included 139 collaborative K-12 teachers who completed the survey. The majority of special and general educators surveyed taught science or social studies at the secondary level. Twelve co-teachers were interviewed.

Data were collected using a two-part survey developed for this study, *The Perceptions of Co-Teaching Survey* (PCTS). The first portion of the survey involved the collection of demographic information. The second part focused on teacher perceptions in four categories (e.g., co-teacher perceptions of current experience, recommended collaborative practices, teacher preparation for collaborative teaching, school-based supports that facilitate collaborative teaching). Six general and six special educators participated in follow-up interviews. Each semistructured interview lasted approximately 20 minutes, was recorded, and transcribed.

The survey data were analyzed using cross-tabulations from each survey item. The general and special educators indicated that the general educator took the lead role in
the classroom (e.g., delivering whole group instruction). The teachers believed that co-teachers should meet daily to plan lessons, but indicated that this did not occur. The special educators (46%) indicated that preservice courses in collaborative teaching were of value to them in their current teaching placement over the general educators (29%). The general and special educators indicated that in-service training was important or very important.

Data from the semistructured interviews were analyzed and coded to identify trends of participant responses. Most co-teachers indicated that their experiences were positive. The special educators indicated that they increased their knowledge in content areas through co-teaching. The general educators noted they benefited from classroom management strategies and curriculum adaptations through co-teaching. The co-teachers reported that with two teachers in the room the student-teacher ratio was reduced and considered this a benefit. The teachers also reported needing more in-service training from their administrators.

Austin (2001) concluded that co-teachers provide feedback to each other (e.g., classroom management, planning time). However, it appears that teacher preparation programs and in-service education do not adequately prepare general and special educators to work in a collaborative inclusive environment. Austin (2001) recommended that in-service training include collaborative teaching modeled after current research in the area.

Egodawatte, McDougall, and Stoilescu (2011) explored the effects of teacher collaboration on ninth grade mathematics achievement. The purpose of the study was to enable teachers to improve their collaborative skills through in-service training. The
participants in the study included teachers, department heads, curriculum leaders, and administrators.

The teachers attended three in-services focusing on mathematics instruction, SMART Board technology, and assessment. Data were collected through interviews. The follow-up interviews were conducted and focused on successes, goals, school context, challenges, and participation in the project. All interviews were audio recorded and transcribed.

Data were analyzed using a qualitative data analysis software to identify themes. Six themes emerged: (a) achieving the goals, (b) student success, (c) professional development, (d) co-planning and co-teaching opportunities, (e) increased communication, and (f) improved technological skills. Analysis of the themes indicated that teacher usage of co-planning and co-teaching increased after in-services were provided.

Egodawatte et al. (2011) concluded that teachers receiving in-service trainings increased their knowledge and skills concerning collaboration. Egodawatte et al. (2011) recommended that collaboration research focusing on providing appropriate in-service training and measuring the impact of the training on teacher-based collaborative practices.

General and special education teachers indicate their need for co-teaching instruction in preservice preparation programs and in-service training (Conderman & Johnston-Rodriguez, 2012). However, there continues to be little research at the preservice and in-service level exploring the implementation of this instruction. Preservice and in-service trainings must be provided to general and special educators to
ensure proper implementation of co-teaching practices and to, ultimately, impact the learning of students residing within their care.

Summary

The co-teaching literature suggests that educators working in collaborative environments must employ a variety of skills to be successful and for learning to occur (Ploessl et al., 2009). Overtime, without appropriate preservice and in-service training, teachers will not effectively implement co-teaching practices, therefore hindering the academic and social growth of students (Pugach & Blanton, 2011).

The limited literature supports the need for co-teaching instruction at the preservice and in-service level for general and special educators (Brownell, Griffin, Leko, & Stephens, 2011). However, general and special educators continue to perceive a need for additional preservice and in-service training to implement co-teaching (Austin, 2001; Miller et al. 2000; Conderman & Johnston-Rodriguez, 2012; DeSimone & Parmar, 2006; Kosko & Wilkins, 2009; Buell et al., 1999). The literature also supports modeling co-teaching practices during preservice training (Pavri, 2004; Kurtts et al. 2005; Stang & Lyons, 2008; Bashan & Holsblat, 2012). Because literature indicates that student academic and behavioral outcomes are impacted positively in co-teaching environments, it is imperative that educators (general and special) receive adequate training concerning all components and models involved in the implementation of co-teaching (Klingner et al. 1998; Egodawatte et al, 2011).

This study was designed to provide a snapshot of the foundation of co-teaching training received by general and special educators in their preservice and in-service training. This study will provide an understanding of the current level of knowledge that
general and special educators received and continue to receive in (a) co-teaching models, (b) co-communication, (c) co-planning and co-preparation, (d) co-instruction and co-assessment, and (e) co-conflict resolution.
CHAPTER THREE
METHODOLOGY

Overview

The goal of teacher preparation is to prepare general and special educators with the necessary skills to succeed in the classroom. The increase of students with disabilities in the general education setting should result in differentiation in the methods used to prepare general and special educators (Pugach et al., 2011). General and special educators are mandated to provide access to the general education curriculum to students with disabilities, and this often occurs through the use of co-teaching (Ludlow, 2012). Teacher education, whether preservice or in-service, must prepare general and special educators to work together in co-taught settings to facilitate the learning of all students (Bocala et al., 2010; Pugach & Winn, 2011).

This study was designed to investigate the level and type of co-teaching training received by general and special education teachers in teacher education programs and school district in-service training. Teachers taking classes at 13 universities completed an online questionnaire. The universities included the following: (a) Arizona State University, (b) California State University, Fullerton, (c) California State University, Monterey Bay, (d) Eastern Illinois University, (e) Emporia State University, (f) San Diego State University, (g) Southern Connecticut State University, (h) St. Cloud State University, (i) University of Georgia, (j) University of Massachusetts, Amherst, (k) University of Nevada, Las Vegas, (l) University of North Carolina, Greensboro, and (m) Wichita State University. Convenience sampling was used in the design of this study, for
the selection of university sites. However, the universities include rural, suburban, town, and city settings (NCES, 2012).

**Research Questions**

Data were collected to evaluate the effectiveness of teacher education programs and school district based in-service training using a questionnaire comprised of questions focusing on co-teaching elements. These include co-teaching models, communication, planning and preparation, instruction and assessment, conflict resolution, and specific strategies. The following questions were asked.

**Research Question 1:** Do special education teachers receive more training in co-teaching models than do general education teachers in their pre-service education program?

It was predicted that special education teachers receive more training in co-teaching models than do general education teacher in their pre-service education program.

**Research Question 2:** Do special education teachers receive more training in co-teaching models than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching models than do general education teacher in their in-service training.

**Research Question 3:** Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their pre-service education program?
It was predicted that special education teachers receive more training in co-teaching co-communication skills than do general education teacher in their pre-service education program.

**Research Question 4:** Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching co-communication skills than do general education teacher in their in-service training.

**Research Question 5:** Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their pre-service education program?

It was predicted that special education teachers receive more training in co-teaching co-planning/preparation skills than do general education teacher in their pre-service education program.

**Research Question 6:** Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching co-planning/preparation skills than do general education teacher in their in-service training.
**Research Question 7:** Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their pre-service education program?

It was predicted that special education teachers receive more training in co-teaching co-instructional skills than do general education teacher in their pre-service education program.

**Research Question 8:** Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching co-instructional skills than do general education teacher in their in-service training.

**Research Question 9:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their pre-service education program?

It was predicted that special education teachers receive more training in co-teaching co-conflict resolution skills than do general education teacher in their pre-service education program.

**Research Question 10:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their in-service training?
It was predicted that special education teachers receive more training in co-teaching co-conflict resolution skills than do general education teacher in their in-service training.

**Research Question 11:** Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their pre-service education program?

It was predicted that special education teachers receive more training in co-teaching follow-through skills than do general education teacher in their pre-service education program.

**Research Question 12:** Do special education teachers receive more training in co-teaching, follow through skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching follow-through skills than do general education teacher in their in-service training.

**Participants**

The participants in this study included general education teachers, special education teachers, and university facilitators. The participants who were invited to participate were teachers enrolled in degree programs at institutions nationwide, including rural, suburban, town, and city settings. The participants included teachers who taught across educational settings (special education, general education, resource room, and self contained) and levels (elementary and secondary). All participants completed a digital informed consent form prior to accessing and completing the online questionnaire.
(see Appendix B and C). Demographic information was collected from general education teachers, special education teachers (see Appendix D) and the university facilitators (see Appendix D).

**General and Special Education Teachers**

This study included special and general education teachers who are currently enrolled in a degree or certification program in curriculum and instruction (elementary or secondary) or special education. All teachers were teaching when they completed the questionnaire. Teacher demographic information was collected (see Appendix D). Teachers signed an online consent form (see Appendix B).

**University Facilitators**

University professors in the areas of special and general education assisted in the facilitation of the online questionnaire. One special education professor from each university recruited one general education professor to participate. Thus, there were a total of 13 special education professors serving as university facilitators, with 13 general education facilitators for a total of 26 facilitators. All university facilitators signed an informed consent form prior to participation in the study (see Appendix C). Demographic information were collected from university facilitators (see Appendix D).

**Setting**

Thirteen Colleges of Education were invited and agreed to participate in this study. The universities are located throughout the United States in rural, suburban, town and city settings (NCES, 2012).
Participating Universities

University professors were contacted via email and their participation was solicited. Each university provided consent for access to individual sites, department chairs signed notification to recruit research participants (see Appendix E). Department chairs from 13 universities agreed to participate (see Appendix F).

Instrumentation

The questionnaire used in this study was designed to evaluate the type and level (direct or incidental) of co-teaching training received by general and special education teachers in their teacher education programs and in their school-based in-service training. The Co-Teaching Questionnaire (CQ) (see Appendix G) was developed through a review of the co-teaching literature (see Appendix A).

Questionnaire Development. The questionnaire was developed through a systematic review of the literature. First, a review of the co-teaching literature was conducted to identify peer-reviewed, research-to-practice articles. The search engines used were ERIC, PsychInfo, and Academic Search Premier. Co-teaching became a service delivery model in 1989 (Baewens et al., 1989), using this date as a starting point, the years searched were 1989-2012. The following search terms were used: co-teaching, collaborative teaching, cooperative teaching, and team teaching. The articles were sorted for over all themes, concepts, and strategies for co-teaching. An article published by Ploessl, Rock, Schoenfeld, and Blanks (2009) was used as a guiding source as it identified the four pillars of co-teaching (communication, planning/preparation, instruction, and conflict resolution). These four components appeared frequently in the
general co-teaching literature. Two more areas were identified (co-teaching models and follow through) and added to the final six co-teaching pillars.

A matrix for each of the co-teaching pillars was developed (see Appendix A). Each matrix is titled based on a specific pillar (e.g., co-communication, models, co-instruction) and broken down into key items from the literature (e.g., self-examination, ownership). Each article was read four times. The first reading was to ascertain the main foci discussed from co-teaching, these foci were entered into the corresponding pillar by author name (left-hand column). On the second read, the articles were read for key items. The key items became headings, subheadings, and main ideas for each section. If the same key item was repeated, it was condensed into one item. On the third read an “X” was placed in the columns matching author(s) and key item(s).

Items needed to appear at least four times across the articles reviewed to appear on the questionnaire. Originally 50 key items were identified. However, five items did not meet this criterion and were eliminated. Finally, each article was read a fourth time to confirm the correct identification. Each key item was developed into a statement for the Co-teaching Questionnaire (CQ), resulting in 45-statements over the six pillars of co-teaching.

Materials

Several materials were required for the implementation of this study. These materials include the co-teaching online questionnaire and the website via Qualtrics (Qualtrics Labs Inc., 2009).
Co-teaching Questionnaire

For the purpose of this study a questionnaire (see Appendix G) was developed based on the co-teaching literature. The 45-item questionnaire focused on the type and level of training general and special education teachers receive during their preservice teacher education programs and in-service training. For each item, the teachers indicated on a 5-item, Likert scale whether instruction on co-teaching was: (1) mentioned and a specific strategy taught through direct instruction; (2) mentioned and a specific strategy discussed directly; (3) mentioned and a specific strategy discussed incidentally; (4) mentioned but no specific strategy taught; or (5) never mentioned and no specific strategy taught. The questionnaire was posted online through a dedicated IP address.

Website

The Co-teaching Questionnaire (CQ) was accessible to participants via Qualtrics (Qualtrics Labs Inc., 2012). Qualtrics is a web-based survey software re-released in 2009. This research-based survey tool has been adopted by 600 universities, government organizations, non-profit organizations, and over 100 corporate clients (Qualtrics, 2012). Qualtrics has several uses in the academic setting including course evaluations, tests/quizzes, experimental research, application/admissions, student feedback, classroom research, and data analysis (Qualtrics, 2012).

Participants, who volunteered to complete the questionnaire, were given a dedicated web address to access the online questionnaire. The website was accessible for a four-month period. All questionnaire responses were categorized and maintained electronically. Access to the information was limited to two people. Information was
obtained for the purpose of statistical analysis and dissemination of information pertaining to and limited to this study.

Design and Procedures

This study was conducted over a four-month period and consisted of five phases. The phases included development of the online questionnaire, solicitation of participants, questionnaire distribution, data collection, and data analysis.

Phase One

The co-teaching questionnaire was developed from a review of the literature (see Appendix A). Ploessl et al. (2009) identified the four common pillars in co-teaching (communication, planning/preparation, instruction/assessment, and conflict resolution.) From these four pillars, statements were developed based upon an overview of the co-teaching literature. Co-teaching articles and books were utilized. The six pillars that emerged from the literature were co-teaching models, co-communication, co-planning and co-preparation, co-instruction, co-conflict resolution, and co-teaching strategies.

The Co-teaching Questionnaire (CQ) was available on a website through the University of Nevada, Las Vegas server supported by Qualtrics (Qualtrics Labs Inc., 2012). Teacher participants accessed the website at http://www.qualtrics.com/academic-solutions/the-unlv-cannon-survey-center. Qualtrics (Qualtrics Labs Inc., 2012) is free for faculty and students at the University of Nevada, Las Vegas. The paper format of the questionnaire (see Appendix G) was formatted into the online version.

The request for informed consent appeared on the first page of the website before participants entered the co-teaching questionnaire (see Appendix B). Digital consent is considered to be a legal consent for an online survey (C. Esparza, personal
communication, August 29, 2012). Once participants agreed to participate in the study by selecting the “Yes, I have read the above information and agree to participate in this study. I am at least 18 years of age,” they had access to the online questionnaire (see Appendix B). Participants could terminate the survey at anytime by closing the questionnaire website. Once a participant completed the questionnaire, they were unable to access the questionnaire again.

Two reliability checkers reviewed the digital questionnaire prior to it going live in order to ensure that the paper format has been properly transferred to the digital format. Reliability was set at 100%. The questionnaire was transferred to Qualtrics with 100% accuracy. A pilot study was then conducted to insure that the online version of the questionnaire functioned properly. Five special education and five general educators completed the online version of the questionnaire. No data was analyzed in this process.

**Phase Two**

Thirteen special education professors from a representative sample, of rural, suburban, town, and city Colleges of Education, solicited the participation of students in their classes. The professors served as site facilitators and were responsible for inviting one professor from general education to solicit participation of general education students. All professors who agreed to participate signed an informed consent form (see Appendix C).

At each university, the two facilitators (general and special education) were responsible for identifying one course scheduled during the fall of 2012 and spring of 2013 in which there are at least 20 students. These courses served as the settings from which teacher participation was solicited. Each facilitator presented the study to the class
and stressed that participation in the study was voluntary and had no impact on their course performance. The university facilitators were given a protocol description to read (see Appendix H) and distribute that described the purpose of the study and how to access the online questionnaire. The protocol description was sent in conjunction with two other studies in order to maximize the participant responses in all studies (L. Olafson, personal communication, September 5, 2012). The university facilitators reminded students to complete the questionnaire four consecutive weeks in the fall of 2012 and four consecutive weeks in the spring of 2013.

**Phase Three**

University facilitators provided written instruction to participants concerning the purpose of the study, accessing the questionnaire, and completing the online questionnaire (see Appendix G). Participants were directed to the questionnaire website at which informed consent was completed prior to accessing or completing the questionnaire. Once participants completed the questionnaire, they were unable to access the website again.

**Phase Four**

The online questionnaire was accessible for a four-month period (fall 2012 and spring 2013). Participant responses were downloaded into a database and grouped based upon responses. Data from the questionnaire was entered into a database using a statistical program, *Statistical Package for the Social Sciences* (SPSS).
Data Collection

Questionnaire responses and demographic information were collected and coded electronically through an online database for four-months. University facilitators solicited student participation from their university courses four times during fall 2012 and four times in the spring 2013. The data were organized into a database.

Treatment of the Data

Data from the co-teaching questionnaire were analyzed to answer the following questions:

Research Question 1: Do special education teachers receive more training in co-teaching models than do general education teachers in their pre-service education program?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching model instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

Research Question 2: Do special education teachers receive more training in co-teaching models than do general education teachers in their in-service training?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching models instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.
Research Question 3: Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their pre-service education program?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-communication skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

Research Question 4: Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their in-service training?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-communication skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

Research Question 5: Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their pre-service education program?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-planning/preparation skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.
Research Question 6: Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their in-service training?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-planning/preparation skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

Research Question 7: Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their pre-service education program?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-instructional skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

Research Question 8: Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their in-service training?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-instructional skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.
**Research Question 9:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their pre-service education program?

**Analysis:** In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-conflict resolution skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

**Research Question 10:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their in-service training?

**Analysis:** In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-conflict resolution skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.

**Research Question 11:** Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their pre-service education program?

**Analysis:** In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching follow-through skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.
Research Question 12: Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their in-service training?

Analysis: In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching follow-through skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. The alpha level was set at .05.
CHAPTER 4

RESULTS

General and special education teachers must be provided with co-teaching instruction during preservice and in-service trainings (Pugach & Winn, 2011). An increasing number of students with disabilities are placed in the co-taught classroom, thus the need to prepare general and special educators to co-teach (Young, 2011). According to the co-teaching literature, teachers indicate that co-teaching instruction is important during preservice and in-service training (Austin, 2001; Buell et al., 1999; Conderman & Johnston-Rodriguez, 2012; DeSimone & Parmar, 2006; Kosko & Wilkins, 2009; Miller et al. 2000;). However, no literature exists indicating that this occurs.

The purpose of this study was to evaluate the level of co-teaching instruction provided to general and special education teachers in preservice education programs and in-service trainings. An online questionnaire was developed for use in the study and a dedicated URL address was generated to provide access to the questionnaire. Thirteen university facilitators across the United States solicited participation from approximately 520 licensed special and general education teachers enrolled in university education programs. A total of 278 participants completed the questionnaire (see Appendix D). Data were collected over a four-month period and were analyzed using quantitative analyses.

The Co-Teaching Questionnaire (see Appendix G) was developed based on the co-teaching literature using a matrix (see Appendix A) to identify co-teaching components. The 45-item questionnaire focused on the type and level of training general and special education teachers receive during their preservice teacher education programs.
and in-service training. For each item, teachers indicated on a 5-item, Likert scale whether instruction on co-teaching was: (1) mentioned and a specific strategy taught through direct instruction; (2) mentioned and a specific strategy discussed directly; (3) mentioned and a specific strategy discussed incidentally; (4) mentioned but no specific strategy taught; or (5) never mentioned and no specific strategy taught. Descriptive data were analyzed for each of the components of co-teaching: (a) co-teaching models (see Table 1), (b) co-communication (see Table 2), (c) co-planning/preparation (see Table 3), (d) co-instruction (see Table 4), (e) co-conflict resolution (see Table 5), and (f) co-follow through (see Table 6). The data from the questionnaire were analyzed to answer the following questions:
### Table 1

*Percentage of Responses of Special Educators and General Educators for Co-Teaching Models*

<table>
<thead>
<tr>
<th></th>
<th>Preservice Special Educators (n=132)</th>
<th>Preservice General Educators (n=146)</th>
<th>In-Service Special Educators (n=132)</th>
<th>In-Service General Educators (n=146)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Teach, One-Observe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>36.6</td>
<td>15.8</td>
<td>18.9</td>
<td>10.3</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>8.3</td>
<td>39.7</td>
<td>30.3</td>
<td>42.2</td>
</tr>
<tr>
<td>One-Teach, One-Assist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>35.6</td>
<td>13.0</td>
<td>20.5</td>
<td>11.6</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>12.1</td>
<td>39.0</td>
<td>29.5</td>
<td>43.2</td>
</tr>
<tr>
<td>Station Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>38.4</td>
<td>11.6</td>
<td>23.5</td>
<td>7.5</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>6.8</td>
<td>41.1</td>
<td>31.8</td>
<td>48.6</td>
</tr>
<tr>
<td>Parallel Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>37.9</td>
<td>10.3</td>
<td>22.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>13.6</td>
<td>44.5</td>
<td>32.6</td>
<td>52.1</td>
</tr>
<tr>
<td>Alternative Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>37.9</td>
<td>11.6</td>
<td>20.5</td>
<td>8.9</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>11.4</td>
<td>43.2</td>
<td>27.3</td>
<td>46.6</td>
</tr>
<tr>
<td>Team Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>39.4</td>
<td>12.3</td>
<td>22.0</td>
<td>11.6</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>6.8</td>
<td>34.9</td>
<td>27.3</td>
<td>42.5</td>
</tr>
</tbody>
</table>
Table 2

*Percentage of Responses of Special Educators and General Educators for Co-Communication Skills*

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th>In-Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Special</td>
<td>General</td>
</tr>
<tr>
<td></td>
<td>Educators</td>
<td>Educators</td>
</tr>
<tr>
<td></td>
<td>(n=132)</td>
<td>(n=146)</td>
</tr>
<tr>
<td>Conduct Self-Examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>32.6</td>
<td>19.2</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>18.9</td>
<td>28.1</td>
</tr>
<tr>
<td>Compare Teaching Style</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>24.2</td>
<td>8.2</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>28.8</td>
<td>56.2</td>
</tr>
<tr>
<td>Consider Ownership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>28.8</td>
<td>8.2</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>26.5</td>
<td>58.2</td>
</tr>
<tr>
<td>Develop Rules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>37.1</td>
<td>13.7</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>19.7</td>
<td>49.3</td>
</tr>
<tr>
<td>Discuss/assign Responsibilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>31.1</td>
<td>12.3</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>22.0</td>
<td>55.5</td>
</tr>
<tr>
<td>Discuss/assign classroom tasks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>16.7</td>
<td>8.9</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>43.2</td>
<td>58.2</td>
</tr>
<tr>
<td>Task</td>
<td>Preservice Special Educators (n=132)</td>
<td>Preservice General Educators (n=146)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Create lesson plan format</td>
<td>32.6 (Mentioned/Instruction)</td>
<td>7.5 (Not Mentioned)</td>
</tr>
<tr>
<td>Use lesson plan format</td>
<td>26.5 (Mentioned/Instruction)</td>
<td>7.5 (Not Mentioned)</td>
</tr>
<tr>
<td>Select co-teaching model</td>
<td>28.0 (Mentioned/Instruction)</td>
<td>5.5 (Not Mentioned)</td>
</tr>
<tr>
<td>Select classroom structure</td>
<td>28.8 (Mentioned/Instruction)</td>
<td>8.2 (Not Mentioned)</td>
</tr>
<tr>
<td>Schedule lesson plan meetings</td>
<td>25.8 (Mentioned/Instruction)</td>
<td>6.2 (Not Mentioned)</td>
</tr>
<tr>
<td>Create agenda</td>
<td>25.0 (Mentioned/Instruction)</td>
<td>6.8 (Not Mentioned)</td>
</tr>
<tr>
<td>Prepare for meeting</td>
<td>22.0 (Mentioned/Instruction)</td>
<td>6.2 (Not Mentioned)</td>
</tr>
<tr>
<td>Create timeline for instruction</td>
<td>22.7 (Mentioned/Instruction)</td>
<td>7.5 (Not Mentioned)</td>
</tr>
<tr>
<td>Consider role/responsibilities</td>
<td>26.5 (Mentioned/Instruction)</td>
<td>7.5 (Not Mentioned)</td>
</tr>
<tr>
<td>Consider alignment of instruction and assessment</td>
<td>25.8 (Mentioned/Instruction)</td>
<td>21.9 (Not Mentioned)</td>
</tr>
</tbody>
</table>
Table 4

| Percentage of Responses of Special Educators and General Educators for Co-Instruction Skills |
|------------------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                          | Preservice       | In-Service      | Preservice      | In-Service      |
|                                          | Special         | General         | Special         | General         |
|                                          | Educators (n=132) | Educators (n=146) | Educators (n=132) | Educators (n=146) |
| Teach together                           |                 |                 |                 |                 |
| Mentioned/Instruction                    | 34.8            | 8.2             | 14.4            | 5.5             |
| Not Mentioned                            | 17.4            | 50.7            | 40.9            | 60.3            |
| Use data to guide decision programs      |                 |                 |                 |                 |
| Mentioned/Instruction                    | 31.1            | 11.0            | 17.4            | 8.9             |
| Not Mentioned                            | 25.8            | 54.1            | 43.2            | 57.5            |
| Reflect on student progress              |                 |                 |                 |                 |
| Mentioned/Instruction                    | 31.8            | 12.3            | 16.7            | 11.0            |
| Not Mentioned                            | 18.9            | 49.3            | 41.7            | 54.1            |
| Discuss satisfaction with lessons        |                 |                 |                 |                 |
| Mentioned/Instruction                    | 18.9            | 8.2             | 6.1             | 5.5             |
| Not Mentioned                            | 16.2            | 33.5            | 50.8            | 65.8            |
| Deliver instruction                      |                 |                 |                 |                 |
| Mentioned/Instruction                    | 31.1            | 8.9             | 15.9            | 4.8             |
| Not Mentioned                            | 22.0            | 52.1            | 43.9            | 56.8            |
| Share instructional responsibilities     |                 |                 |                 |                 |
| Mentioned/Instruction                    | 26.5            | 8.2             | 11.4            | 6.2             |
| Not Mentioned                            | 17.4            | 54.1            | 42.4            | 61.0            |
| Model instructional content              |                 |                 |                 |                 |
| Mentioned/Instruction                    | 25.8            | 8.2             | 13.6            | 5.5             |
| Not Mentioned                            | 24.2            | 63.0            | 44.7            | 64.4            |
| Select role of each teacher              |                 |                 |                 |                 |
| Mentioned/Instruction                    | 22.7            | 6.8             | 11.4            | 4.1             |
| Not Mentioned                            | 23.5            | 61.0            | 45.5            | 64.4            |
| Use cooperative learning                 |                 |                 |                 |                 |
| Mentioned/Instruction                    | 29.5            | 9.6             | 14.4            | 8.2             |
| Not Mentioned                            | 22.7            | 56.8            | 46.2            | 60.3            |
Table 5

Percentage of Responses of Special Educators and General Educators for Co-Conflict Resolution Skills

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th>In-Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Special Educators (n=132)</td>
<td>General Educators (n=146)</td>
</tr>
<tr>
<td>Discuss instructional-related issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>20.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>28.0</td>
<td>59.6</td>
</tr>
<tr>
<td>Address conflict as it arises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>19.7</td>
<td>8.9</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>28.0</td>
<td>61.0</td>
</tr>
<tr>
<td>Put conflict resolution plans in writing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>14.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>44.7</td>
<td>71.2</td>
</tr>
<tr>
<td>Identify issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>18.2</td>
<td>5.5</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>32.6</td>
<td>65.8</td>
</tr>
<tr>
<td>Develop course of action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>15.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>35.6</td>
<td>62.3</td>
</tr>
<tr>
<td>Select course of action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>13.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>37.9</td>
<td>64.4</td>
</tr>
<tr>
<td>Use proactive strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>15.9</td>
<td>6.8</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>33.1</td>
<td>66.9</td>
</tr>
</tbody>
</table>
Table 6

Percentage of Responses of Special Educators and General Educators for Co-Follow Through Skills

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th></th>
<th>In-Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Special Educators (n=132)</td>
<td>General Educators (n=146)</td>
<td>Special Educators (n=132)</td>
<td>General Educators (n=146)</td>
</tr>
<tr>
<td>Seek administrative support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>16.7</td>
<td>4.1</td>
<td>6.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>34.8</td>
<td>66.4</td>
<td>55.3</td>
<td>67.1</td>
</tr>
<tr>
<td>Analyze results</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>24.2</td>
<td>6.8</td>
<td>12.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>31.1</td>
<td>59.6</td>
<td>47.7</td>
<td>65.1</td>
</tr>
<tr>
<td>Communicate with parents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>26.5</td>
<td>6.8</td>
<td>12.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>31.8</td>
<td>64.4</td>
<td>53.8</td>
<td>67.1</td>
</tr>
<tr>
<td>Discuss student behavior problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>27.3</td>
<td>7.5</td>
<td>12.1</td>
<td>5.5</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>26.5</td>
<td>59.6</td>
<td>48.5</td>
<td>65.1</td>
</tr>
<tr>
<td>Ensure parity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>13.6</td>
<td>4.1</td>
<td>5.3</td>
<td>2.1</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>39.4</td>
<td>70.5</td>
<td>58.3</td>
<td>74.0</td>
</tr>
<tr>
<td>Arrange/carryout meeting times</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>17.4</td>
<td>6.8</td>
<td>8.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>33.3</td>
<td>58.9</td>
<td>50.8</td>
<td>62.3</td>
</tr>
<tr>
<td>Revise lessons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentioned/Instruction</td>
<td>18.2</td>
<td>6.8</td>
<td>9.1</td>
<td>2.7</td>
</tr>
<tr>
<td>Not Mentioned</td>
<td>32.6</td>
<td>65.8</td>
<td>56.8</td>
<td>67.8</td>
</tr>
</tbody>
</table>
**Research Question 1:** Do special education teachers receive more training in co-teaching models than do general education teachers in their preservice education program?

It was predicted that special education teachers receive more training in co-teaching models than do general education teachers in their pre-service education program.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching model instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of One-Teach, One-Observe ($x^2 = 43.7111, p < .001$); One-Teach, One-Assist ($x^2 = 39.735, p < .001$); Station Teaching ($x^2 = 39.035, p < .001$); Parallel Teaching ($x^2 = 45.840, p < .001$); Alternative Teaching ($x^2 = 48.314, p < .001$); and, Team Teaching ($x^2 = 48.6, p < .001$) (see Table 7). As predicted, special education teachers receive more training in the co-teaching models than do general education teachers in their preservice education program.

**Research Question 2:** Do special education teachers receive more training in co-teaching models than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching models than do general education teachers in their in-service training.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching models
instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of One-Teach, One-Assist ($x^2 = 12.959, p = .011$); Station Teaching ($x^2 = 17.086, p = .002$); Parallel Teaching ($x^2 = 16.029, p = .003$); Alterative Teaching ($x^2 = 14.271, p = .006$); and, Team Teaching ($x^2 = 10.166, p = .038$) (see Table 1). The One-Teach One-Observe subcategory of the co-teaching models indicated no relationship between the two groups ($x^2 = 8.549, p = .073$) (see Table 7). As predicted, special education teachers receive more training in the co-teaching models than do general education teachers in their in-service training, except for the model of one-teach one-observe.

Table 7

Summary of Chi-Square Test of Independence Statistics for Co-Teaching Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Preservice $x^2$</th>
<th>Preservice $p$</th>
<th>In-Service $x^2$</th>
<th>In-Service $p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Teach, One-Observe</td>
<td>43.711</td>
<td>&lt;.001*</td>
<td>8.549</td>
<td>.073</td>
</tr>
<tr>
<td>One-Teach, One-Assist</td>
<td>39.735</td>
<td>&lt;.001*</td>
<td>12.959</td>
<td>.011*</td>
</tr>
<tr>
<td>Station Teaching</td>
<td>39.035</td>
<td>&lt;.001*</td>
<td>17.086</td>
<td>.002*</td>
</tr>
<tr>
<td>Parallel Teaching</td>
<td>45.840</td>
<td>&lt;.001*</td>
<td>16.029</td>
<td>.003*</td>
</tr>
<tr>
<td>Alterative Teaching</td>
<td>48.314</td>
<td>&lt;.001*</td>
<td>14.271</td>
<td>.006*</td>
</tr>
<tr>
<td>Team Teaching</td>
<td>48.600</td>
<td>&lt;.001*</td>
<td>10.166</td>
<td>.038*</td>
</tr>
</tbody>
</table>

Note. $p < .05$
**Research Question 3**: Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their pre-service education program?

It was predicted that special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their preservice education program.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-communication skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of comparing teaching styles ($\chi^2=27.851, p<.001$); considering ownership ($\chi^2=37.689, p<.001$); developing rules ($\chi^2=37.154, p<.001$); discussing and assigning responsibilities ($\chi^2=40.059, p<.001$); and, discussing and assigning classroom tasks ($\chi^2=40.478, p<.001$) (see Table 8). The subcategory, conducting a self-examination, indicated no significant relationships between groups ($\chi^2=9.218, p=.056$) (see Table 8). As predicted, special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their preservice education programs.
**Research Question 4:** Do special education teachers receive more training in co-teaching, co-communication skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching co-communication skills than do general education teachers in their in-service training.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-communication skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of developing rules ($\chi^2=12.915, p=.012$), and discussing and assigning responsibilities ($\chi^2=10.654, p=.031$) (see Table 8). The results of the Chi-Square Test of Independence indicated no significant relationship between the two groups in the subcategories of conducting a self-examination ($\chi^2=1.344, p=.854$), comparing teaching styles ($\chi^2=7.017, p=.135$), and discussing and assigning classroom tasks ($\chi^2=9.266, p=.005$) (see Table 8). The data analysis indicated that special education teachers receive more in-service training in two of the areas (developing rules and discussing/assigning responsibilities) indicating that special education teachers receive more training than general education teachers. However, there is no significant relationship in the other four areas indicating that neither special education nor general education teachers receive in-service training.
Table 8

*Summary of Skills Chi-Square Test of Independence for Co-Communication Skills*

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th></th>
<th>In-Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct Self-Examination</td>
<td>9.218</td>
<td>.056</td>
<td>1.344</td>
<td>.854</td>
</tr>
<tr>
<td>Compare Teaching Style</td>
<td>27.851</td>
<td>&lt;.001*</td>
<td>7.017</td>
<td>.135</td>
</tr>
<tr>
<td>Consider Ownership</td>
<td>37.689</td>
<td>&lt;.001*</td>
<td>9.328</td>
<td>.053</td>
</tr>
<tr>
<td>Develop rules</td>
<td>37.154</td>
<td>&lt;.001*</td>
<td>12.915</td>
<td>.012*</td>
</tr>
<tr>
<td>Discuss/assign responsibilities</td>
<td>40.059</td>
<td>&lt;.001*</td>
<td>10.654</td>
<td>.031*</td>
</tr>
<tr>
<td>Discuss/assign classroom tasks</td>
<td>40.478</td>
<td>&lt;.001*</td>
<td>9.266</td>
<td>.055</td>
</tr>
</tbody>
</table>

*Note. p<.05*

**Research Question 5:** Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their preservice education program?

It was predicted that special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their pre-service education program.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching, co-planning/preparation skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of creating a lesson plan format...
(χ² = 38.453, p < .001); using a lesson plan format (χ² = 34.669, p < .001); selecting a co-teaching model (χ² = 42.230, p < .001), selecting a classroom structure (χ² = 38.206, p < .001); scheduling lesson plan meetings (χ² = 38.597, p < .001); creating a meeting agenda (χ² = 33.063, p < .001); preparing for meeting (χ² = 34.497, p < .001); creating a timeline for instruction (χ² = 32.149, p < .001); and, considering roles and responsibilities (χ² = 45.898, p < .001) (see Table 9). The subcategory, considering alignment of instruction and assessment, indicated no significant relationship (χ² = 7.964, p = .093) (see Table 9). As predicted, special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their preservice education program.

**Research Question 6:** Do special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their in-service training.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-planning/preparation skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of selecting a classroom
structure ($x^2=14.942, p=.005$); scheduling lesson plan meetings ($x^2=10.088, p=.039$); creating a meeting agenda ($x^2=33.063, p<.001$); and, considering roles and responsibilities ($x^2=12.723, p=.013$) (see Table 9). The results of the Chi-Square Test of Independence indicated no significant relationship between the two groups in the subcategories of creating a lesson plan format ($x^2=6.803, p=.147$); using a lesson plan format ($x^2=5.462, p=.243$); selecting a co-teaching model ($x^2=8.198, p=.085$); preparing for a meeting ($x^2=7.958, p=.093$); creating a timeline for instruction ($x^2=7.071, p=.132$); and, considering the alignment of instruction and assessment ($x^2=5.751, p=.219$) (see Table 9). The data analysis show that special education teachers receive more in-service training in four of the areas indicating special education teachers received more training than general education teachers in co-teaching, co-planning preparation. However, there is no significant relationship in the other six areas indicating that neither special education nor general education teachers receive in-service training.
Table 9

Summary of Chi-Square Test of Independence Statistics for Co-Planning/Preparation Skills

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th></th>
<th>In-Service</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$x^2$</td>
<td>$p$</td>
<td>$x^2$</td>
<td>$p$</td>
</tr>
<tr>
<td>Create lesson plan format</td>
<td>38.453</td>
<td>&lt;.001*</td>
<td>6.803</td>
<td>.147</td>
</tr>
<tr>
<td>Use lesson plan format</td>
<td>34.669</td>
<td>&lt;.001*</td>
<td>5.462</td>
<td>.243</td>
</tr>
<tr>
<td>Select co-teaching model</td>
<td>42.230</td>
<td>&lt;.001*</td>
<td>8.198</td>
<td>.085</td>
</tr>
<tr>
<td>Select classroom structure</td>
<td>38.206</td>
<td>&lt;.001*</td>
<td>14.942</td>
<td>.005*</td>
</tr>
<tr>
<td>Schedule lesson plan meetings</td>
<td>38.597</td>
<td>&lt;.001*</td>
<td>10.088</td>
<td>.039*</td>
</tr>
<tr>
<td>Create agenda</td>
<td>33.063</td>
<td>&lt;.001*</td>
<td>12.723</td>
<td>.013*</td>
</tr>
<tr>
<td>Prepare for meeting</td>
<td>34.497</td>
<td>&lt;.001*</td>
<td>7.958</td>
<td>.093</td>
</tr>
<tr>
<td>Create timeline for instruction</td>
<td>32.149</td>
<td>&lt;.001*</td>
<td>7.071</td>
<td>.132</td>
</tr>
<tr>
<td>Consider roles/responsibilities</td>
<td>45.898</td>
<td>&lt;.001*</td>
<td>20.976</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Consider alignment of instruction and assessment</td>
<td>7.964</td>
<td>.093</td>
<td>5.751</td>
<td>.219</td>
</tr>
</tbody>
</table>

*Note. p<.05*
**Research Question 7:** Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their preservice education program?

It was predicted that special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their preservice education program.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching, co-instructional skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of teaching together ($x^2=48.534$, $p<.001$); using data to guide decision making ($x^2=30.689$, $p<.001$); reflecting on student progress ($x^2=32.532$, $p<.001$); discussing satisfaction with lessons plans ($x^2=25.337$, $p<.001$); delivering instruction ($x^2=38.155$, $p<.001$); sharing instructional responsibilities ($x^2=46.023$, $p<.001$); modeling instructional content ($x^2=44.633$, $p<.001$); selecting the role of each teacher ($x^2=46.094$, $p<.001$); and, using cooperative learning ($x^2=41.996$, $p<.001$) (see Table 10). As predicted, special education teachers receive more training in co-teaching, co-planning/preparation skills than do general education teachers in their preservice education program.
**Research Question 8:** Do special education teachers receive more training in co-teaching, co-instructional skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching co-instructional skills than do general education teachers in their in-service training.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching co-instructional skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of teaching together ($\chi^2 = 13.170$, $p = .010$); using data to guide decision making ($\chi^2 = 11.579$, $p = .021$); delivering instruction ($\chi^2 = 11.216$, $p = .024$); sharing instructional responsibilities ($\chi^2 = 12.965$, $p = .011$); modeling instructional content ($\chi^2 = 13.941$, $p = .007$); selecting the role of each teacher ($\chi^2 = 12.804$, $p = .012$); and, using cooperative learning ($\chi^2 = 10.080$, $p = .039$) (see Table 10). The results of the Chi-Square Test of Independence indicated no significant relationship between the two groups in the subcategories of reflecting on student progress ($\chi^2 = 5.536$, $p = .237$) and discussing satisfaction with lesson plans ($\chi^2 = 7.618$, $p = .107$) (see Table 10). The data analysis indicated that there was no significant relationship in two of the eight areas. As predicted, special education teachers receive more training in six areas of co-teaching, co-instruction skills than do general education teachers in their in-service trainings.
Table 10

Summary of Chi-Square Test of Independence Statistics for Co-Instruction Skills

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th>In-Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$x^2$</td>
<td>$p$</td>
</tr>
<tr>
<td>Teach together</td>
<td>48.534</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Use data to guide decision</td>
<td>30.689</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>making</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflect on student progress</td>
<td>32.532</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Discusss satisfaction with</td>
<td>25.337</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>lessons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deliver instruction</td>
<td>38.155</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Share instructional</td>
<td>46.023</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>responsibilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model instructional content</td>
<td>44.633</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Select role of each teacher</td>
<td>46.094</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Use cooperative learning</td>
<td>41.996</td>
<td>&lt;.001*</td>
</tr>
</tbody>
</table>

Note. $p<.05$

**Research Question 9:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their preservice education program?

It was predicted that special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their preservice education program.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching, co-conflict
resolution skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of discussing instructional-related issues ($x^2=32.349, p<.001$); addressing conflict as it arises ($x^2=33.646, p<.001$); putting conflict resolution plans in writing ($x^2=23.513, p<.001$); identifying issues ($x^2=34.234, p<.001$); developing a course of action ($x^2=25.472, p<.001$); selecting a course of action ($x^2=21.231, p<.001$); and, using proactive strategies ($x^2=24.38, p<.001$) (see Table 11). As predicted, special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their preservice education trainings.

**Research Question 10:** Do special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching, co-conflict resolution skills than do general education teachers in their in-service training.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching, co-conflict resolution skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted.
The results of the Chi-Square Test of Independence indicated no significant relationship between the two groups in the subcategories of, addressing conflict as it arises ($x^2=6.381, p=.172$); putting conflict resolution plans in writing ($x^2=6.349, p=.175$); identifying issues ($x^2=6.873, p=.143$), developing a course of action ($x^2=3.161, p=.531$); selecting a course of action ($x^2=3.950, p=.413$); and, using proactive strategies ($x^2=5.752, p=.218$) (see Table 11). The subcategory, discussing instructional-related issues, indicated a significant relationship between the two groups ($x^2=14.021, p=.007$) (see Table 11). The data analysis indicated that there is no relationship between special and general education teachers in co-teaching, co-conflict resolution skills instruction during their in-service trainings. Thus, neither special education nor general education teachers received training in-servicing training in co-conflict resolution skills.
Table 11

<table>
<thead>
<tr>
<th></th>
<th>Preservice</th>
<th></th>
<th></th>
<th>Inservice</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$x^2$</td>
<td>$p$</td>
<td></td>
<td>$x^2$</td>
<td>$p$</td>
</tr>
<tr>
<td>Discuss instructional-related issues</td>
<td>32.349</td>
<td>&lt;.001*</td>
<td></td>
<td>14.021</td>
<td>.007*</td>
</tr>
<tr>
<td>Address conflict as it arises</td>
<td>33.646</td>
<td>&lt;.001*</td>
<td></td>
<td>6.381</td>
<td>.172</td>
</tr>
<tr>
<td>Put conflict resolution plans in writing</td>
<td>23.513</td>
<td>&lt;.001*</td>
<td></td>
<td>6.349</td>
<td>.175</td>
</tr>
<tr>
<td>Identify issues</td>
<td>34.234</td>
<td>&lt;.001*</td>
<td></td>
<td>6.873</td>
<td>.143</td>
</tr>
<tr>
<td>Develop course of action</td>
<td>25.472</td>
<td>&lt;.001*</td>
<td></td>
<td>3.161</td>
<td>.531</td>
</tr>
<tr>
<td>Select course of action</td>
<td>21.231</td>
<td>&lt;.001*</td>
<td></td>
<td>3.950</td>
<td>.413</td>
</tr>
<tr>
<td>Use proactive strategies</td>
<td>24.380</td>
<td>&lt;.001*</td>
<td></td>
<td>5.752</td>
<td>.218</td>
</tr>
</tbody>
</table>

*Note. p<.05

Research Question 11: Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their preservice education program?

It was predicted that special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their preservice education program.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching, follow-through skills instruction provided to teachers in their pre-service education, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.
The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of seeking administrative support ($x^2 = 32.750, p < .001$); analyzing results ($x^2 = 28.815, p < .001$); communicating with parents ($x^2 = 36.330, p < .001$); discussing student behavior problems ($x^2 = 37.625, p < .001$); ensuring parity ($x^2 = 30.184, p < .001$); arranging and carrying out meeting times ($x^2 = 21.972, p < .001$); and, revising lessons ($x^2 = 35.320, p < .001$) (see Table 12). As predicted, special education teachers receive more training in co-teaching, co-follow through skills than do general education teachers in their preservice education trainings.

**Research Question 12:** Do special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their in-service training?

It was predicted that special education teachers receive more training in co-teaching, follow-through skills than do general education teachers in their in-service training.

In order to determine if a significant relationship existed between the type of teacher (general education and special education) and the level of co-teaching, follow-through skills instruction provided to teachers in their in-service training, a Chi-Square Test of Independence was conducted. An alpha level of .05 was set for this analysis.

The results of the Chi-Square Test of Independence indicated a significant relationship between the two groups in the subcategories of analyzing results ($x^2 = 13.556, p = .009$); communicating with parents ($x^2 = 11.280, p = .024$); discussing student behavior problems ($x^2 = 12.131, p = .016$); ensuring parity ($x^2 = 15.120, p = .004$); and, revising lessons ($x^2 = 7.808, p = .009$) (see Table 12). No significant relationship was indicated in the
subcategories of seeking administrative support ($x^2=6.431, p=.169$) and arranging and carrying out meeting times ($x^2=5.348, p=.253$) (see Table 12). As predicted, special education teachers receive more training in co-teaching, co-follow through skills than do general education teachers in their in-service trainings.

Table 12

*Summary of Chi-Square Test of Independence Statistics for Co-Follow Through Skills*

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<th>Inservice</th>
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<tr>
<td></td>
<td>$x^2$</td>
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<tr>
<td>Seek administrative support</td>
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<tr>
<td>Analyze results</td>
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<td>&lt;.001*</td>
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<tr>
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<td>&lt;.001*</td>
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<td>problems</td>
<td></td>
<td></td>
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<tr>
<td>Ensure parity</td>
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<td>&lt;.001*</td>
</tr>
<tr>
<td>Arrange/carryout meeting</td>
<td>21.972</td>
<td>&lt;.001*</td>
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<tr>
<td>times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revise lessons</td>
<td>35.320</td>
<td>&lt;.001*</td>
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*Note. p<.05*

Overall, in this study the special education teachers received more co-teaching training than general education teachers in their preservice education programs and in-service training. The data analysis indicates that in all six categories of co-teaching (e.g., co-teaching models, co-communication, co-planning/preparation, co-instruction, co-conflict resolution, and co-follow through) the special education teachers received more
training in their preservice education programs. The data analysis also indicates that the special education teachers received more training in the three categories of co-teaching models, co-instructional skills, and co-follow through skills than general education teachers during their in-service trainings. According to the data analysis, special and general education teachers receive limited in-service training in the areas of co-communication skills, co-planning/preparation skills, and co-conflict resolution skills.
CHAPTER FIVE
DISCUSSION

Co-teaching has become the preferred method to deliver instruction to students with high incidence disabilities. However, there is limited research to support student or teacher outcomes in the co-taught classroom (Pugach & Blanton, 2009; Kloo & Zigmond, 2008; Pugach & Winn, 2011). If general and special educators are expected to co-teach and continue to be underprepared, there may be a direct impact on the academic and behavioral outcomes for students with disabilities. Research does indicate that appropriate training of special and general educators can lead to successful implementation of co-teaching in the general education environment (Bashan & Holsblat, 2012), which results in the success for students with and without disabilities in co-taught classes.

The purpose of this study was to evaluate the level of co-teaching instruction provided to general and special education teachers in preservice education programs and in-service trainings. Comparisons were made between the level and type of instruction provided to general and special educators. Data were collected using an online questionnaire created for the study, the Co-Teaching Questionnaire.

The Co-Teaching Questionnaire measured the type of co-teaching instruction for six components of co-teaching: (a) co-teaching models, (b) co-communication, (c) co-planning/preparation, (d) co-instruction, (e) co-conflict resolution, and (f) co-follow through. The questionnaire also examined the level of instruction: (a) mentioned and a specific strategy taught through direct instruction; (b) mentioned and a specific strategy discussed directly; (c) mentioned and a specific strategy discussed incidentally; (d)
mentioned but, no specific strategy taught; or (e) never mentioned and no specific strategy taught.

**Level of Co-Teaching Model Instruction**

Question One analyzed the relationship between general and special educators and the level of co-teaching model instruction provided in their preservice education programs. The data analysis indicated there was a significant relationship between levels of training and all six subcategories of the co-teaching models (e.g., one-teach/one-observe, one-teach/one-assist, station teaching, parallel teaching, alternative teaching, team teaching). The standard residual indicated that the source of the significant relationship was in the mentioned with direct instruction and not mentioned category in all six areas of the co-teaching models. The special educators indicated receiving more instruction in each of the models than did the general educators (see Table 1). The lack of training for general education teachers in the area of co-teaching models directly supports the research that teachers tend to use the one-teach/one-assist model (Idol, 2006). With little to no background in the co-teaching models, general educators are not prepared to use the six co-teaching models. Thus, special educators often take on the role of an assistant and do not use the other five co-teaching models.

Question Two centered on the relationship between general and special educators and the level of co-teaching model instruction provided during their in-service trainings. The data analysis indicated that there was a significant relationship between levels of training in five of the six subcategories of co-teaching models (e.g., one-teach/one-assist, station teaching, parallel teaching, alternative teaching, team teaching). The standard residuals indicated that the source of the significant relationship was in the mentioned
with direct instruction and the not mentioned category in the five subcategories, with special educators receiving more training in the co-teaching models (see Table 1). As there is a lack of in-service training for general educators in co-teaching models, implementation of these co-teaching models will not occur in the co-taught classroom.

**Level of Co-Communication Skills Instruction**

Question Three focused on the relationship between general and special educators and the level of co-communication skills instruction provided in their preservice education programs. In five of the six subcategories, over 50% of general educators reported not receiving instruction in co-communication skills (see Table 2). The lack of co-communication skills instruction could lead to a break down in the planning process or cause conflicts between general and special education teachers in the classroom (Dettmer, Thurston, Knackendoffel, & Dyck, 2009).

Question Four dealt with the relationship between general and special educators and the level of co-communication skills instruction provided during in-service trainings. Almost 60% of general education teachers reported that they received no training in co-communication skills instruction in five of the six subcategories (see Table 2). Forty percent of the special educators also reported no instruction in co-communication skills. Thus, no relationship was found between general and special educators, this is likely because both general and special educators indicate low levels of co-communication skills instruction. A break down in communication can cause conflict between teachers, proper training in co-communication during in-service could support teachers.
Level of Co-Planning/Preparation Skills Instruction

Question Five explored the relationship between general and special educators and the level of co-planning/preparation skills instruction provided in their preservice education programs. Over 55% of the general educators report receiving no preservice training in co-planning/preparation skills (see Table 3). However, special educators report receiving more preservice training in all subcategories of co-planning/preparation skills. In order to properly implement a lesson, teachers must plan before hand. Co-planning/preparation requires a different set of skills than does planning and preparing a lesson independently (Davis, Dieker, Pearl, & Kirkpatrick, 2012). Without appropriate skills in this area, neither the general nor special educator will be ready to plan or prepare together. If teachers do not plan together, they are most likely not delivering instruction together (Dieker, 2001).

Question Six examined the relationship between general and special educators and the level of co-planning/preparation skills instruction provided during their in-service trainings. Although no relationship between general and special educators was indicated in the data analysis in the area of co-planning/preparation skills instruction, over 50% of the general and special educators reported receiving no in-service training in the subcategories in this skill area (see Table 3). If general and special educators are not receiving proper in-service training in co-planning/preparation this could indicate that teachers are not planning together. The lack of in-service training reinforces the special educator in continuing to act as an assistant in the general education classroom (Idol, 2006). Teachers report that planning collaboratively is challenging (Carter, Prater, Jackson, & Marchant, 2012), if they do not receive support in this area while teaching,
the implementation of co-teaching will continue to be low and have poor results for students.

**Level of Co-Instruction Skills Instruction**

Question Seven focused on the relationship between general and special educators and the level of co-instruction skills provided in their preservice education programs. The data analysis indicated there was a significant relationship between levels of training in all nine subcategories (e.g., teach together, use data to guide decisions, reflect on student progress, discuss satisfaction with lesson, deliver instruction, share instructional responsibilities, model instructional content, select role of each teacher, use cooperative learning). The standard residual indicated that the source of the significant relationship was in the mentioned with direct instruction and not mentioned category in all nine areas of co-instruction skills. The general educators reported receiving less instruction in each of the co-instruction skills than did special educators in their preservice program (see Table 7). Thus, when they enter the classroom general educators do not possess the instructional skills to work with their special education peers in the co-taught classroom.

Question Eight explored the relationship between general and special educators and the level of co-instruction skills provided during their in-service trainings. The data analysis indicated there was a significant relationship between levels of training and seven of the nine subcategories (e.g., teach together, use data to guide decisions, instruction, share instructional responsibilities, model instructional content, select role of each teacher, use cooperative learning). Approximately, 60% of the general educators reported receiving no in-service training in all of the subcategories of co-instructional skills (see Table 7). Forty percent of special educators also reported receiving no in-
service training in this skill area. Thus, limited in-service training on co-instruction skills is being delivered to general and special educators. This creates a conundrum. If the special educator enters teaching possessing co-instruction skills and these skills are not reinforced through in-service training, it is probable that the skills will be lost. Conversely, if the general educator enters teaching without the skills and does not receive in-service training, they have no one from which to learn the skills.

**Level of Co-Conflict Resolution Skills Instruction**

Question Nine examined the relationship between general and special educators and the level of co-conflict skills instruction provided in their preservice education programs. The data analysis indicated there was a significant relationship between levels of training and all nine subcategories (e.g., discuss instructional-related issues, address conflict as it arises, put conflict resolution plans in writing, identify issues, develop a course of action, select a course of action, use proactive strategies). The standard residuals indicated that the relationship occurred in the mentioned with direct instruction and not mentioned levels. About 55% the general educators and approximately 30% of special educators report receiving no training in co-conflict resolution skills. This means that general and special educators are not prepared to enter employment with appropriate co-conflict resolution skills. Thus, when faced with conflict teachers lack the skills to quickly and effectively resolve the issue.

Question Ten centered on the relationship between general and special educators and the level of co-conflict skill instruction provided during their in-service training. Overall, data analysis indicated no relationship between general and special educators in co-conflict resolution. There appears to be no difference in the percentage of general
(60% or more) and special educators (47% or more) who reported receiving no in-service training focused on conflict resolution (see Table 5). Thus, general and special educators receive little to no training in this skill area. The lack of training in co-conflict resolution could impact the relationships between general and special educators. Without proper in-service training in this area, conflict that occurs may not be resolved between teachers. If conflict occurs between teachers it is likely that proper implementation of co-teaching, will not happen (Conderman, 2010).

**Level of Co-Follow Through Skills Instruction**

Question Eleven explored the relationship between general and special educators and the level of co-follow through skills instruction provided in their preservice education programs. The data analysis indicated there was a significant relationship between the levels of training and all seven subcategories of co-follow through skills (e.g., seeking administrative support, analyzing results, communicating with parents, discussing student behavior problems, ensuring parity, arranging and carrying out meeting times, and revising lessons) (see Table 6). The general educators overwhelmingly reported that this skill was never mentioned in their preservice program. This finding supports the research indicating that general educators receive limited preservice training in specific co-teaching skills (Pugach, Blanton, & Correa, 2011).

Question Twelve focused on the relationship between general and special educators and the level of co-follow through skills instruction provided during their in-service training. The standard residual indicated that the source of the significant relationship was in the mentioned with direct instruction and not mentioned category in five of the seven subcategories of co-follow through skills (e.g., analyzing results,
communicating with parents, discussing student behavior problems, ensuring parity, revising lessons) (see Table 6). Over 50% of the general and special educators reported receiving little training in all subcategories of co-follow through skills during their in-service trainings (see Table 6). Therefore, general and special educators are not being provided the support to follow through with effective co-teaching strategies once they are employed as teachers. This finding is particularly disturbing in that the general educators also were not taught the skills as preservice students.

Conclusions

Based on the data collected in this study, several conclusions can be drawn. Caution must be used when considering these conclusions based upon the limitations of this study.

1. Special education teachers receive more overall training in all co-teaching models (e.g., one-teach one-observe, one-teach one-assist, station teaching, parallel teaching, alterative teaching, team teaching) during their preservice education programs than do general education teachers. This indicates that general education teachers need more preparation in co-teaching models in order to enter the classroom prepared to implement a variety of models collaboratively with the special educator.

2. Special education teachers receive more overall training in five of the co-teaching models (e.g., one-teach one-assist, station teaching, parallel teaching, alterative teaching, team teaching) during their in-service training. This indicates that general education teachers need more in-service training in the co-teaching models in order to implement a variety of models when co-teaching.
3. Special education teachers receive more training in co-communication skills (e.g., comparing teaching styles, developing rules, considering ownership, developing rules, discussing/assigning responsibilities, discussing/assigning classroom tasks) during their preservice education program than do general education teachers. This indicates that special education teachers are more prepared to communicate with others during preservice education than are general educators.

4. Special education and general education teachers receive little training in co-communication skills instruction (e.g., comparing teaching styles, developing rules, considering ownership, developing rules, discussing/assigning responsibilities, discussing/assigning classroom tasks) during their in-service training. This indicates that general and special education teachers receive little in-service training in communication skills. This is troubling if they are expected to communicate with each other on a daily basis.

5. Special education teachers receive more training in co-planning/preparation skills instruction (e.g., creating lesson plan format, using lesson plan format, selecting co-teaching model, selecting classroom structure, scheduling lesson plan meetings, creating meeting agenda, preparing for meeting, creating a timeline, considering roles/responsibilities) during their preservice education program than do general education teachers. This indicates that special education teachers are more prepared with co-planning/preparation skills during preservice education programs. Thus, special educators enter employment with the skills to co-plan and prepare lessons than do their general education counterparts.
6. Special education and general education teachers receive little training in co-planning/preparation skills instruction (e.g., creating lesson plan format, using lesson plan format, selecting co-teaching model, preparing for meeting, creating a timeline, consider alignment of instruction and assessment) during their in-service training. This indicates that these skills are not reinforced during their employment and may not be used.

7. Special education teachers receive more training in co-instructional skills (e.g., teaching together, using data, discussing satisfaction, delivering instruction sharing instructional responsibilities, modeling, selecting roles, using cooperative learning) during their preservice education program than do general education teachers. This indicates that special education teachers are more prepared to co-teach with others than their general education colleagues.

8. Special education teachers receive more training in co-instructional skills (e.g., teaching together, using data, delivering instruction sharing instructional responsibilities, modeling, selecting roles, using cooperative learning) during their in-service training than do general education teachers. This indicates that special education teachers continue to be better prepared than their general education peers while they are expected to co-teach.

9. Special education teachers receive more training in co-conflict resolution skills (e.g., discussing instructional-related issues, addressing conflict, pulling plans in writing, identifying issues, developing a course of action, selecting a course of action) during their preservice education program than do general education
teachers. This indicates that special education teachers are better prepared to resolve conflict prior to employment than are their general education counterparts.

10. Special education and general education teachers receive little training in co-conflict resolution skills (e.g., discussing instructional-related issues, addressing conflict, pulling plans in writing, identifying issues, developing a course of action, selecting a course of action) during their in-service training. This indicates that upon employment general and special education teachers receive little reinforcement concerning conflict resolution. This could be problematic in that teaching often is stressful and conflicts arise.

11. Special education teachers receive more training in co-follow through skills (e.g., seek administrative support, analyze results, communicate with parents, discuss student behavior, ensure parity, arrange/carryout meeting times, revise lessons) during their preservice education program than do general education teachers. This indicates that special education teachers are better prepared to follow through with instruction communication than general educators.

12. Special education teachers receive more training in co-follow through skills (e.g., analyze results, communicate with parents, discuss student behavior, ensure parity, revise lessons) during their in-service training than do general education teachers. This indicates that special education teachers continue to receive training in this area, however their general education peers do not.
Recommendations for Further Study

General and special educators must be prepared to work collaboratively in co-taught environments. However, the little co-teaching research that exists indicates that teachers are underprepared to co-teach (Pugach & Winn, 2011). This study indicates that there is a lack of preparation of specific co-teaching instruction in preservice education programs and a lack of co-teaching in-service reinforcement once employed. If teachers, general and special education, are not prepared to implement a mandated model of instruction, it is the students who suffer. Based on the results of this study, the following areas are suggested for further research:

1. Further research should examine the relationship between general educators and the type of co-teaching instruction received during their preservice and in-service trainings. This could identify the type of co-teaching instruction that should be implemented in preservice programs and in-service trainings.

2. Further research should examine the relationship between special educators and the type of co-teaching instruction received during their preservice and in-service trainings. This could identify the type of co-teaching instruction that should be implemented in preservice programs and in-service trainings.

3. Future research should be conducted concerning the impact of in-service training on the co-teaching pair (special and general educator). This will provide direct follow-up of the training and allow reinforcement of the training.

4. Future research should examine the impact of specific co-teaching skills (e.g., co-teaching models, co-planning/preparation, co-instruction) on the academic and
behavioral outcomes of students in co-taught classrooms. This will allow for a direct relationship between co-teaching and student outcomes to be identified.

5. Future research should focus on the interactions (e.g., use of models, co-planning, co-teaching lesson plans) of general and special educators in co-taught classrooms. Research on these interactions will provide an indication of skills implementation in the classroom.

6. Future research should focus on the comparison of courses provided in teacher education programs and co-teaching instruction provided during in-service trainings. This will indicate if there is a connection between higher education and school district and identify where breakdowns in co-teaching instruction has occurred.

**Summary**

This study contributes to the knowledge base concerning effective preservice teacher preparation and in-service training in the areas of: (a) co-teaching instruction, (b) co-teaching implementation, (c) appropriate training components in teacher education programs, and (d) appropriate training components in teacher in-service training. The twelve research questions in this study focused on the level and type of co-teaching instruction provided to educators during their preservice programs and in-service trainings. The data analysis indicates that special educators receive more preservice training than general educators in the area of co-teaching. During in-service training, special and general educators receive limited co-teaching instruction. Overall, educators receive little direct co-teaching instruction in preservice or in-service training.
Educators must be provided with the foundational co-teaching skills in their preservice education program and then provided in-service support to implement these skills when teaching (Pugach & Winn, 2011). General and special educators indicate the need for co-teaching training (Austin, 2001; Miller et al. 2000; Conderman & Johnston-Rodriguez, 2012; DeSimone & Parmar, 2006; Kosko & Wilkins, 2009; Buell et al., 1999). Without the key skills to implement well structured co-teaching, proper classroom implementation will not occur.
APPENDIX A

CO-TEACHING QUESTIONNAIRE DEVELOPMENT MATRICES
### Pillar One: Co-Teaching Model

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158
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APPENDIX B

PARTICIPANT CONSENT FORM
The purpose of this study is to research the level and type of co-teaching instruction received by general and special education teachers in their pre-service and in-service training programs.

You are being asked to participate in the study because you meet the following criteria: you are a general or special education teachers who is currently teaching.

If you volunteer to participate in this study, you will be asked to do the following: completion of an online questionnaire. If you wish to volunteer, please go to the following URL address http://www. <insert address>.

This study includes only minimal risks. The study will take approximately 20 minutes of your time. You will not be compensated for your time.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.

Your participation in this study is voluntary. You may withdraw at any time. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:

☐ Yes, I have read the above information and agree to participate in this study. I am at least 18 years of age. (By clicking here, you will be directed to the questionnaire.)

☐ No, I do not want to participate at this time.
APPENDIX C

UNIVERSITY FACILITATOR CONSENT FORM
TITLE OF STUDY: An Analysis of Co-Teaching Instruction Provided in Teacher Education and Inservice Training for Special Education and General Education Teachers

INVESTIGATOR(S): Catherine S. Howarter and Kyle Higgins

For questions or concerns about the study, you may contact Dr. Kyle Higgins or Catherine Howarter at 702-895-1102.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to research the level and type of co-teaching instruction received by general and special education teachers in their pre-service and in-service training programs.

Participants
You are being asked to participate in the study because you fit this criteria: you are currently a university instructor of higher learning, teaching in the area of special education or general education, and will be providing instruction in the fall 2012 or spring 2013 to at least 30 students enrolled in a degree or certification program.

Procedures
If you volunteer to participate in this study, you will be asked to do the following: disseminate the study description and online access information to 30 university students prior to the start of class. It is anticipated that the study will last XXX weeks.

Benefits of Participation
There may/may not be direct benefits to you as a participant in this study. However, we hope to learn the level and type of co-teaching instruction provided in teacher education during pre-service and in-service training programs to general and special educators.
TITLE OF STUDY: An Analysis of Co-Teaching Instruction Provided in Teacher Education and Inservice Training for Special Education and General Education Teachers

INVESTIGATOR(S): Catherine S. Howerter and Kyle Higgins

For questions or concerns about the study, you may contact Dr. Kyle Higgins or Catherine Howerter at 702-895-3205.

Risks of Participation
There are risks involved in all research studies. This study involves you disseminating information to assist in the completion of an online questionnaire to your students currently enrolled in your university courses. This study includes only minimal risks.

Cost /Compensation
There will not be financial cost to you to participate in this study. You will participate in this study by facilitating the distribution of questionnaire information to participants. The facilitation of the questionnaire information to students will take approximately 15 minutes of your time. You will not be compensated for your time. The University of Nevada, Las Vegas may not provide compensation or free medical care for an unanticipated injury sustained as a result of participating in this research study.

Confidentiality
All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be destroyed.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Participant ____________________________ Date __________

Participant Name (Please Print) ____________________________

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APPENDIX D

DEMOGRAPHICS OF SPECIAL EDUCATION TEACHERS, GENERAL EDUCATION TEACHERS, AND UNIVERSITY FACILITATORS
## Demographics of Special and General Education Teachers

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<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>86</td>
<td>110</td>
</tr>
<tr>
<td>Black/African American</td>
<td>8</td>
<td>4</td>
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<tr>
<td>Hispanic, Latino, or Spanish origin</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Asian</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacific Islander</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>4</td>
<td>5</td>
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(continued)
Demographics of Special and General Education Teachers

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Special Education Teachers</th>
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</tr>
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<tbody>
<tr>
<td>Teacher Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors (BA/BS)</td>
<td>82</td>
<td>97</td>
</tr>
<tr>
<td>Masters (MA/MS)</td>
<td>38</td>
<td>44</td>
</tr>
<tr>
<td>Educational Specialist (EdS)</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Doctorate (EdD/PhD)</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Current Teaching Assignment</td>
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<td></td>
</tr>
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<td>Special Education</td>
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<td>General Education</td>
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<tr>
<td>Teaching Experience</td>
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</tr>
<tr>
<td>Number of Years Teaching</td>
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<td></td>
</tr>
<tr>
<td>1-3 yrs</td>
<td>75</td>
<td>84</td>
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<td>4-9 yrs</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>10 years or more</td>
<td>10</td>
<td>24</td>
</tr>
</tbody>
</table>

(continued)
Demographics of Special and General Education Teachers

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Special Education Teachers</th>
<th>General Education Teachers</th>
</tr>
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<tbody>
<tr>
<td>Current Teaching Assignment</td>
<td></td>
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<tr>
<td>Resource Room</td>
<td>39</td>
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<td>Co-Teaching Classroom</td>
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<td>Self-Contained Classroom</td>
<td>70</td>
<td>0</td>
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<tr>
<td>Grades Taught</td>
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<td></td>
</tr>
<tr>
<td>K-1</td>
<td>44</td>
<td>31</td>
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<tr>
<td>2-3</td>
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<td>29</td>
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<tr>
<td>4-5</td>
<td>36</td>
<td>22</td>
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<td>6-8</td>
<td>34</td>
<td>56</td>
</tr>
<tr>
<td>9-12</td>
<td>43</td>
<td>25</td>
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(continued)
Demographics of Special and General Education Teachers

<table>
<thead>
<tr>
<th>Disabilities Among Students</th>
<th>Special Education Teachers</th>
<th>General Education Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Disabilities</td>
<td>86</td>
<td>115</td>
</tr>
<tr>
<td>Emotional Behavior Disorders</td>
<td>62</td>
<td>86</td>
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<tr>
<td>Intellectual Disabilities</td>
<td>63</td>
<td>39</td>
</tr>
<tr>
<td>Orthopedic Impairments</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>Autism Spectrum Disorders</td>
<td>98</td>
<td>50</td>
</tr>
<tr>
<td>Speech or Language Impairments</td>
<td>67</td>
<td>77</td>
</tr>
<tr>
<td>Visual Impairments/Blindness</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Other Health Impairments</td>
<td>67</td>
<td>17</td>
</tr>
<tr>
<td>Hearing Impairments/Deafness</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>Physical Impairments</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Developmental Delay</td>
<td>33</td>
<td>34</td>
</tr>
<tr>
<td>Multiple Disabilities</td>
<td>55</td>
<td>21</td>
</tr>
</tbody>
</table>
Demographics of Special and General Education University Facilitators

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Special Education Facilitators</th>
<th>General Education Facilitators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Average Years Teaching In Higher Education</td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>
APPENDIX E

NOTIFICATION TO RECRUIT RESEARCH PARTICIPANTS
Notification to Recruit Research Participants

[[Insert name and address of your department and university].

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas (“UNLV”) researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled *An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers*.

The researchers will provide full details of the research project to you (please see attached). If you give permission for the researcher to recruit participants for the study please sign below.

If you have any concerns or require additional information, please contact the UNLV Office of Research Integrity – Human Subjects at 895-2794 or email IRB@unlv.edu.

______________________________________________________________________________

I give permission to recruit subjects at this facility.

 Facility’s Authorized Signatory ___________________________ Date ___________________________

Printed Name and Title of Authorized Signatory ___________________________

Office of Research Integrity – Human Subjects
4505 Maryland Parkway  Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794  Fax 702.895.0805
Website: www.unlv.edu/Research/OPRS  Email IRB@unlv.edu
Notification to Recruit Research Participants

Arizona State University
Mary Lou Fulton Teachers College
Division of Educational Leadership and Innovation
PO Box 37100, Mail Code 3151
Phoenix, AZ 85069-7100

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howerton would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

Suzanne R. Parker, Division Director
Facility's Authorized Signatory

9/17/12
Date

Suzanne R. Parker, Division Director
Printed Name and Title of Authorized Signatory
Division of Educational Leadership & Innovation

Office of Research Integrity – Human Subjects
4505 Maryland Parkway Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0805
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV")
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your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in
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Research Integrity – Human Subjects at 895-2794 or email IRB@unlv.edu.

I give permission to recruit subjects at this facility.

[Signature]
Facility's Authorized Signatory

[Signature]
MELINDA PIERSON, CHAIR OF SPEEO
DEPT
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
UNLV
1545 Maryland Parkway, Box 351047 Las Vegas, NV 89154-1047
Phone: 702-895-5704 Fax: 702-895-0810
Website: www.unlv.edu/ResearchOPRS E-mail: IRB@unlv.edu
Notification to Recruit Research Participants

California State University, Monterey Bay School of Education

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howerton would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

[Signature]
Date

Dr. Irene Nares-Guzicki; Chair, School of Education
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.8005
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
Notification to Recruit Research Participants

Special Education Department
600 Lincoln Avenue
1212 Buzzard Hall
Charleston, IL 61920

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howerter would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

9/13/12
Date

[Signature]
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
1505 Maryland Parkway, Box 451047 Las Vegas, NV 89154-4547
Phone 702.895.2704 Fax 702.895.0845
Website www.unlv.edu/Research/OPHS Email IRB@unlv.edu
Notification to Recruit Research Participants

Emporia State University
Department of Elementary Education, Early Childhood, Special Education
Box 4037
1200 Commercial Street
Emporia, KS 66801

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

Facility’s Authorized Signatory

__________

Date

Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
1575 Maryland Parkway, Box 151047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0805
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
Notification to Recruit Research Participants

[[Insert name and address of your department and university]]

Department of Special Education
College of Education
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-1170

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled *An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.*

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I give permission to recruit subjects at this facility.

Anne Graves 9/10/12
Facility’s Authorized Signatory  Date

Anne Graves
Printed Name and Title of Authorized Signatory

Special Education Department Chair

Office of Research Integrity – Human Subjects
4505 Maryland Parkway - Box 451017 Las Vegas, NV 89154-1017
Phone 702.895.2794  Fax 702.895.8805
Web-site: www.unlv.edu/Research/OPRS  Email IRB@unlv.edu
Department of Special Education
St. Cloud State University
School of Education
720 Fourth Avenue South
St. Cloud, Minnesota 56301-4498

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howerton would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

[Signature]
Facility's Authorized Signatory

September 19, 2012
Date

Mary Beth Noll, Ph.D., Department Chair
Printed Name and Title of Authorized Signatory
Notification to Recruit Research Participants

Southern Connecticut State University, Department of Special Education and Reading

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

Michael Alfano
Facility's Authorized Signatory

9/13/12
Date

Michael Alfano
Printed Name and Title of Authorized Signatory

________________________________________________________________________________________

Office of Research Integrity – Human Subjects
4505 Maryland Parkway Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0805
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
Notification to Recruit Research Participants

Department of Communication Sciences and Special Education
University of Georgia
570 Aderhold Hall
Athens, GA 30602-7153

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled *An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.*

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory 9-17-12

[Signature]
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
1505 Maryland Parkway, Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0805
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
Notification to Recruit Research Participants

Mary Lynn Boscardin, Ph.D.
Dept Chair, Student Development
University of Massachusetts
111 Thatcher Rd
Amherst MA 01003

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas (“UNLV”) researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

[Signature]
Facility's Authorized Signatory

[Signature]
Printed Name and Title of Authorized Signatory

19 Sept 2017
Date

Office of Research Integrity – Human Subjects
4505 Maryland Parkway Box 451047 Las Vegas, NV 89154-4047
Phone 702.895.2790 Fax 702.895.6805
Website: www.unlv.edu/Research/OPRS Email IRB@unlv.edu
Notification to Recruit Research Participants

Department of Educational and Clinical Studies
University of Nevada, Las Vegas
4505 S. Maryland Parkway
Box 453014
Las Vegas, NV 89154

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howerter would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

Facility’s Authorized Signatory

Date

Dr. Tom Pierce, Department Chair
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway Box 451047 Las Vegas, NV 89154-1047
Phone 702.895.2794 Fax 702.895.0805
Website: www.unlv.edu/Research/OPES Email IRB@unlv.edu
Notification to Recruit Research Participants

Dr. Janice Ewing, Department Chair
Curriculum and Instruction
Wichita State University
1845 Fairmount Street
Wichita, KS 67260-0028

Subject: Letter of Notification to Conduct Research

Dear Department Chair:

This letter will serve as notification that the University of Nevada, Las Vegas ("UNLV") researchers, Amanda Kyle Higgins and Catherine Howarter would like to recruit participants at your facility for a research project entitled An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers.

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I give permission to recruit subjects at this facility.

[Signature]
Facility’s Authorized Signatory

[Date]

[Signature]
Janice K. Ewing, Dept. Chair
Printed Name and Title of Authorized Signatory

Office of Research Integrity – Human Subjects
4505 Maryland Parkway, Bldg 451011 Las Vegas, NV 89154-4854
Phone: 702.895.2794 Fax: 702.895.9505
Website: www.unlv.edu/Research/OPRS Fax: 702.895.9505
Kyle Higgins, PhD  
Department of Educational and Clinical Studies  
Box 453014  
4505 S. Maryland Parkway  
Las Vegas, NV 89154-3014

September 25, 2012

Dear Dr. Higgins:

The IRB for the Protection of Human Participants in Research at The University of North Carolina at Greensboro (UNCG) is willing to accept the approval of the project entitled “An Analysis of Co-Teaching Instruction Provided in Teacher Education and Inservice Training for Special Education and General Education Teachers” through the University of Nevada Las Vegas. Please note that this approval is contingent upon receipt of the approval letter from the University of Nevada Las Vegas IRB.

Access to participants on this campus must be cleared through the appropriate department prior to collecting data on the UNCG campus.

If you have any questions, please contact me at crmcgoff@uncg.edu or (336) 256-1482.

Sincerely,

Cristy McGoff, Interim Director  
Office of Research Compliance
APPENDIX F

PARTICIPATING UNIVERSITY DEMOGRAPHICS
### Participating University Demographics

<table>
<thead>
<tr>
<th>University</th>
<th>Location</th>
<th>University Enrollment</th>
<th>College of Education Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona State University</td>
<td>Phoenix, Arizona</td>
<td>72,254 students (58,404 undergraduate and 6,776 graduate)</td>
<td>5,672 students (Arizona State University, 2012)</td>
</tr>
<tr>
<td>California State University, Fullerton</td>
<td>Orange County, California</td>
<td>36,156 students (30,782 undergraduate students and 5,374 graduate students)</td>
<td>824 graduate students (California State University, Fullerton, 2012)</td>
</tr>
<tr>
<td>California State University, Monterey Bay</td>
<td>Seaside California</td>
<td>5,173 students (4,806 undergraduate and 367 graduate)</td>
<td>45 graduate students (California State University, Monterey Bay, 2012)</td>
</tr>
<tr>
<td>Eastern Illinois University</td>
<td>Charleston, Illinois</td>
<td>11,178 students (9,657 undergraduate and 1,521 graduate students)</td>
<td>3,222 students (Eastern Illinois University, 2012)</td>
</tr>
<tr>
<td>Emporia State University</td>
<td>Emporia, Kansas</td>
<td>5,976 students (3,846 undergraduate and 2,130 graduate)</td>
<td>2,372 students (Emporia State University, 2012)</td>
</tr>
<tr>
<td>San Diego State University</td>
<td>San Diego, California</td>
<td>30,541 students (25,796 undergraduate and 4,745 graduate)</td>
<td>1,045 students (San Diego State University, 2012)</td>
</tr>
</tbody>
</table>

(continued)
### Participating University Demographics

<table>
<thead>
<tr>
<th>University</th>
<th>Location</th>
<th>University Enrollment</th>
<th>College of Education Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Connecticut State University</td>
<td>New Haven, Connecticut</td>
<td>11,533 students (8,696 undergraduate and 2,837 graduate) (NCES, 2012g)</td>
<td>2,077 students (Southern Connecticut State University, 2012)</td>
</tr>
<tr>
<td>Saint Cloud State University</td>
<td>Saint Cloud, Minnesota</td>
<td>17,604 students (15,879 undergraduate and 1,725 graduate) (NCES, 2012h)</td>
<td>692 students (St. Cloud State University, 2012)</td>
</tr>
<tr>
<td>University of Georgia</td>
<td>Athens, Georgia</td>
<td>34,816 students (26,373 undergraduate and 8,443 graduate) (NCES, 2012i)</td>
<td>4,575 students (University of Georgia, 2012)</td>
</tr>
<tr>
<td>University of Massachusetts, Amherst</td>
<td>Amherst, Massachusetts</td>
<td>28,084 students (21,812 undergraduate and 6,272 graduate) (NCES, 2012j)</td>
<td>672 students (University of Massachusetts Amherst, 2012)</td>
</tr>
<tr>
<td>University of Nevada, Las Vegas</td>
<td>Las Vegas, Nevada</td>
<td>27,364 students (22,137 undergraduate and 5,227 graduate students) (NCES, 2012k)</td>
<td>2,433 students (University of Nevada, Las Vegas, 2012)</td>
</tr>
</tbody>
</table>

(continued)
### Participating University Demographics

<table>
<thead>
<tr>
<th>University</th>
<th>Location</th>
<th>University Enrollment</th>
<th>College of Education Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of North Carolina, Greensboro</td>
<td>Greensboro, North Carolina</td>
<td>18,627 students (14,898 undergraduate and 3,729 graduate) (NCES, 2012l)</td>
<td>2,066 students (University of North Carolina Greensboro, 2012)</td>
</tr>
<tr>
<td>Wichita State University</td>
<td>Wichita, Kansas</td>
<td>14,909 students (12,106 undergraduate and 2,803 graduate) (NCES, 2012m)</td>
<td>1,887 students (Wichita State University, 2012)</td>
</tr>
</tbody>
</table>
Demographic Information

Please complete the following information, by clicking the appropriate answer. All information provided will be kept confidential.

____________________________

Gender

  o  Male       o  Female

____________________________

Current Teaching Assignment

  o  Special Education
  o  Elementary Education  (Grades K-5)
  o  General Education
  o  Secondary Education  (Grades 6-12)

  Grade Levels Currently Taught
  o  K-1       o  2-3     o  4-5      o  6-8      o  9-12

If Special Education

  o  Resource Room
     (pull-out placement or setting, deliver of instruction for part of the day)
  o  Co-Taught Classroom
     (general and special educators deliver instruction in general education setting)
  o  Self-contained Classroom or Separate Classroom
     (special education teacher delivers instruction for more than 50 percent of the day)

If General Education

  Content Areas taught, if Secondary:__________
Please select the identified disabilities among students you instruct in your current teaching assignment.

- Learning Disabilities
- Emotional Behavior Disorders
- Intellectual Disabilities
- Orthopedic Impairments
- Autism Spectrum Disorders
- Speech or Language Impairments
- Multiple Disabilities
- Visual Impairments/Blindness
- Other Health Impairments
- Hearing Impairments/Deafness
- Physical Impairments
- Traumatic Brain Injury
- Developmental Delay
This questionnaire is designed to evaluate the preparation of general and special education teachers for co-teaching, whether provided through teacher education programs or in-service training.

| **Co-Teaching** (collaborative teaching): two educators (one general education and one special education) planning, delivering, and assessing instruction for a single group of students (Pugach, Johnson, Drame, & Williams, 2012). |
| **Direct Instruction**: Research-based instructional approach in which the instructor presents subject matter using a review of previously taught information, presentation of new concepts or skills, guided practice, feedback and correction, and independent practice (Friend & Bursuck, 2012). |
| **Incidental Instruction**: Instruction conducted during unstructured activities for brief periods of time, typically when students show an interest in or are involved with materials and activities (Brown, McEvoy, & Bishop, 1991). |
| **Teacher education**: A formal program to prepare elementary- and secondary-level teachers, including general education teachers and special education teachers (Pugach, Blanton, & Correa, 2011). |
| **In-service training**: Professional development (courses, conferences, or study programs) provided by schools or school districts to general and special education teachers (Burns, 2007). |

Please rate the level of instruction received in your teacher education program and in-service training in your school district for each of the following co-teaching areas:

- Select 1 if the area was mentioned and a specific strategy was taught through direct instruction
- Select 2 if the area was mentioned and a specific strategy was discussed
- Select 3 if the area was mentioned and a specific strategy was discussed incidentally
- Select 4 if the area was mentioned, but no specific strategy was taught
- Select 5 if the area was not mentioned and no specific strategy was taught
### Group 1
Co-Teaching Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Mentioned/ Specific Strategy Taught Through Direct Instruction</th>
<th>Mentioned/ Specific Strategy Discussed</th>
<th>Mentioned/ No Specific Strategy Taught</th>
<th>Not Mentioned/ No Specific Strategy Taught</th>
</tr>
</thead>
</table>

1. **One-Teach, One-Observe:** When using the One-Teach, One-Observe model, one teacher leads the content instruction; one teacher observes and documents observations.

   - Teacher Education Program: 1 2 3 4 5
   - In-Service Training: 1 2 3 4 5

2. **One-Teach, One-Assist:** When using the One-Teach, One-Assist model, one teacher leads the content instruction for the whole class and one teacher assists the lead teacher.

   - Teacher Education Program: 1 2 3 4 5
   - In-Service Training: 1 2 3 4 5

3. **Station Teaching:** When using the Station Teaching model, the class is broken into three small groups and the two teachers deliver different content material at each station.

   - Teacher Education Program: 1 2 3 4 5
   - In-Service Training: 1 2 3 4 5
**Group 1**  
Co-Teaching Models

|---------------------------------------------------------------|--------------------------------------|---------------------------------------------|-------------------------------------|--------------------------------------|

4. **Parallel Teaching:** When using the Parallel Teaching model, students are broken into two heterogeneous groups and the two teachers deliver the same material to each group.

   Teacher Education Program | 1 | 2 | 3 | 4 | 5  
   In-Service Training       | 1 | 2 | 3 | 4 | 5  

5. **Alternative Teaching:** When using the Alternative Teaching model one teacher delivers the material to a large group, and one teacher delivers material to a small group (small group includes reteaching, preteaching, or enrichment).

   Teacher Education Program | 1 | 2 | 3 | 4 | 5  
   In-Service Training       | 1 | 2 | 3 | 4 | 5  

6. **Team Teaching:** When using the Team Teaching model, both teachers deliver the material to the whole class while co-instructing.

   Teacher Education Program | 1 | 2 | 3 | 4 | 5  
   In-Service Training       | 1 | 2 | 3 | 4 | 5  

200
### Group 2
Co-Communication

<table>
<thead>
<tr>
<th>Mentioned/Specific Strategy Taught Through Direct Instruction</th>
<th>Mentioned/Strategies Discussed</th>
<th>Mentioned/No Specific Strategy Taught</th>
<th>Not Mentioned/No Specific Strategy Taught</th>
</tr>
</thead>
</table>

7. **How to conduct a self-examination of my teaching style and philosophy prior to instruction.**

<table>
<thead>
<tr>
<th>Teacher Education Program</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>In-Service Training</td>
<td>1</td>
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</tr>
</tbody>
</table>

8. **How to compare my teaching style and philosophy with my co-teacher prior to instruction.**

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<thead>
<tr>
<th>Teacher Education Program</th>
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<tbody>
<tr>
<td>In-Service Training</td>
<td>1</td>
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</tbody>
</table>

9. **How to consider ownership (e.g., our classroom, our students) with my co-teacher prior to instruction.**

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<thead>
<tr>
<th>Teacher Education Program</th>
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<tr>
<td>In-Service Training</td>
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</tbody>
</table>
**Group 2**  
Co-Communication

<table>
<thead>
<tr>
<th></th>
<th>Mentioned/ Specific Strategy Taught Through Direct Instruction</th>
<th>Mentioned/ Specific Strategies Discussed</th>
<th>Mentioned/ Strategies Discussed Incidentally</th>
<th>Mentioned/ No Specific Strategy Taught</th>
<th>Not Mentioned/ No Specific Strategy Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10. How to develop classroom rules and expectations</strong> with my co-teacher prior to instruction.</td>
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<td>Teacher Education Program</td>
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<tr>
<td><strong>11. How to discuss and assign assessment responsibilities</strong> with my co-teacher prior to instruction.</td>
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<td>Teacher Education Program</td>
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<tr>
<td><strong>12. How to discuss and assign classroom tasks</strong> (e.g., taking roll, collecting homework, contacting parents) with my co-teacher prior to instruction.</td>
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<td>Teacher Education Program</td>
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</table>
**Group 3**
Co-Planning and Co-Preparation

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<tr>
<td>In-Service Training</td>
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<tr>
<td>In-Service Training</td>
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<td>1 2 3 4 5</td>
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</table>

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<thead>
<tr>
<th>15. How to select a co-teaching model to be used by co-teachers for individual lessons.</th>
<th>Mentioned/Specific Strategy Taught Through Direct Instruction</th>
<th>Mentioned/Specific Strategy Discussed</th>
<th>Mentioned/Strategies Discussed Incidentally</th>
<th>Mentioned/No Specific Strategy Taught</th>
<th>Not Mentioned/No Specific Strategy Taught</th>
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<tbody>
<tr>
<td>Teacher Education Program</td>
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<td>In-Service Training</td>
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<tr>
<td>Teacher Education Program</td>
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<td>In-Service Training</td>
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</tbody>
</table>
### Group 3
Co-Planning and Co-Preparation

|---------------------------------------------------------------|--------------------------------------|---------------------------------------------|---------------------------------------|---------------------------------------------|

17. **How to schedule on-going meeting times** for lesson planning with my co-teacher.

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<thead>
<tr>
<th>Teacher Education Program</th>
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<tr>
<td>In-Service Training</td>
<td>1</td>
<td>2</td>
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</table>

18. **How to create an agenda** for regularly scheduled meeting times with my co-teacher.

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<thead>
<tr>
<th>Teacher Education Program</th>
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<tbody>
<tr>
<td>In-Service Training</td>
<td>1</td>
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</table>

19. **How to prepare for regularly scheduled meeting times** with my co-teacher.

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<tr>
<th>Teacher Education Program</th>
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</table>

20. **How to create a timeline** prior to instruction with my co-teacher, (e.g., map out goals for units, months, marking periods, and semesters).

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<thead>
<tr>
<th>Teacher Education Program</th>
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<td>In-Service Training</td>
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</table>
**Group 3**  
Co-Planning and Co-Preparation

|---------------------------------------------------------------|----------------------------------------|-----------------------------------------------|----------------------------------------|-------------------------------------------|

21. How to **consider roles and responsibilities** for each co-teacher.

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<thead>
<tr>
<th>Teacher Education Program</th>
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<td>In-Service Training</td>
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</table>

22. How to **consider the alignment** between instruction and assessment.

<table>
<thead>
<tr>
<th>Teacher Education Program</th>
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<tr>
<td>In-Service Training</td>
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### Group 4
Co-Instruction

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<tbody>
<tr>
<td><strong>23. How to <strong>teach together</strong> during co-taught lessons.</strong></td>
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<td>Teacher Education Program</td>
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<td>In-Service Training</td>
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<td><strong>24. How to <strong>use data to guide decision making</strong> from individual co-taught lessons.</strong></td>
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<td>Teacher Education Program</td>
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<tr>
<td>In-Service Training</td>
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<td><strong>25. How to <strong>reflect on student progress</strong> to inform future co-taught lessons.</strong></td>
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<td>Teacher Education Program</td>
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<tr>
<td>In-Service Training</td>
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<tr>
<td><strong>26. How to <strong>discuss satisfaction</strong> with individual co-taught lessons with my co-teacher.</strong></td>
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<tr>
<td>Teacher Education Program</td>
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<tr>
<td>In-Service Training</td>
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</table>
### Group 4
Co-Instruction

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</thead>
<tbody>
<tr>
<td>27. How to <strong>deliver instruction</strong> to students with my co-teacher.</td>
<td>Teacher Education Program: 1 2 3 4 5</td>
<td>In-Service Training: 1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>28. How to <strong>share instructional responsibilities</strong> with my co-teacher.</td>
<td>Teacher Education Program: 1 2 3 4 5</td>
<td>In-Service Training: 1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>29. How to <strong>model instructional content</strong> with my co-teacher.</td>
<td>Teacher Education Program: 1 2 3 4 5</td>
<td>In-Service Training: 1 2 3 4 5</td>
<td></td>
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</tr>
<tr>
<td>30. How to <strong>select the role of each teacher</strong> during selected co-teaching models.</td>
<td>Teacher Education Program: 1 2 3 4 5</td>
<td>In-Service Training: 1 2 3 4 5</td>
<td></td>
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<tr>
<td>31. How to use <strong>cooperative learning</strong> with students during co-taught lessons.</td>
<td>Teacher Education Program: 1 2 3 4 5</td>
<td>In-Service Training: 1 2 3 4 5</td>
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<tr>
<td>Group 5</td>
<td>Co-Conflict Resolution</td>
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32. How to **discuss instructional-related issues** as with my co-teacher.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training       | 1 | 2 | 3 | 4 | 5 |

33. How to **address conflict** as it arises with my co-teacher.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training       | 1 | 2 | 3 | 4 | 5 |

34. How to **put conflict resolution plans in writing** with my co-teacher.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training       | 1 | 2 | 3 | 4 | 5 |

35. How to **identify issues** as they arise with my co-teacher.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training       | 1 | 2 | 3 | 4 | 5 |

36. How to **develop a possible course of action** when conflict arises.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training       | 1 | 2 | 3 | 4 | 5 |
### Group 5
Co-Conflict Resolution

<table>
<thead>
<tr>
<th>Mentioned Specific Strategy Taught Through Direct Instruction</th>
<th>Mentioned Specific Strategy Discussed</th>
<th>Mentioned Strategies Discussed Incidentally</th>
<th>Mentioned No Specific Strategy Taught</th>
<th>Not Mentioned No Specific Strategy Taught</th>
</tr>
</thead>
</table>

37. How to **select a course of action for conflict resolution** with my co-teacher.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training | 1 | 2 | 3 | 4 | 5 |

38. How to **use proactive strategies** for resolving conflicts with my co-teacher.

| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training | 1 | 2 | 3 | 4 | 5 |
### Group 6
#### Co-Teaching Follow Through

| 39. How to seek support from my administration when problems arise in co-teaching. |
|---|---|---|---|---|---|
| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training | 1 | 2 | 3 | 4 | 5 |

| 40. How to analyze the results (e.g., student on task behavior, student learning) of a co-taught lesson with my co-teacher. |
|---|---|---|---|---|---|
| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training | 1 | 2 | 3 | 4 | 5 |

| 41. How to communicate with parents about students placed in co-taught classes. |
|---|---|---|---|---|---|
| Teacher Education Program | 1 | 2 | 3 | 4 | 5 |
| In-Service Training | 1 | 2 | 3 | 4 | 5 |
42. **How to discuss behavior problems** of a student with my co-teacher.

<table>
<thead>
<tr>
<th>Teacher Education Program</th>
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<tbody>
<tr>
<td>In-Service Training</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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</table>

43. **How to ensure parity** between myself and my co-teacher.

<table>
<thead>
<tr>
<th>Teacher Education Program</th>
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<th>2</th>
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<tbody>
<tr>
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<td>1</td>
<td>2</td>
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</table>

44. **How to arrange and carry out** meeting times.

<table>
<thead>
<tr>
<th>Teacher Education Program</th>
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<td>1</td>
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</table>

45. **How to revise, on a regular basis, co-taught lessons** with my co-teacher.

<table>
<thead>
<tr>
<th>Teacher Education Program</th>
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<th>2</th>
<th>3</th>
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<tbody>
<tr>
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</tbody>
</table>
Additional Demographic Information

Please complete the following information, by clicking the appropriate answer. All information provided will be kept confidential.

Gender
- Male
- Female

Ethnicity
- White
- Black/African American
- Hispanic, Latino, or Spanish origin
- America Indian/Alaska Native
- I prefer not to answer
- Asian
- Native Hawaiian/Other Pacific Islander
- Other: ___________

Teacher Education (Highest degree earned)
- Bachelors (BA/BS)
- Masters (MA/MS/MEd)
- Educational Specialist (EdS)
- Doctorate (EdD/PhD)

Teaching Experience (Total Number of Years Teaching)
- 1-3
- 4-10
- 10 years or more

Comments:
Dear <University’s Name> student:

You are being invited to participate in three research studies. The purpose of these studies is to investigate teacher preparation in the following areas: Co-teaching, English Language Learners, and Reading.

Your participation in this study is voluntary. Your input to these studies is needed to contribute to the research on teacher preparation. Participation will in no way effect your grade in this course. Additionally, no identifying information will be collected.

Participation involves the completion of three online questionnaires; each questionnaire will take you approximately 20 minutes to complete. If you wish to volunteer, please go to the following URL addresses:

http://www
http://www
http://www

Once you press enter you will be directed to the homepage of the questionnaire.

If you have any questions concerning the research study, please contact Dr. Kyle Higgins at 702-895-1102. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Office of Research Integrity – Human Subjects Research, at (702) 895-0964.

Sincerely,

Kyle Higgins, Ph.D.
Principal Investigator

Wendie Castillo, M.Ed.
Catherine S. Howarter, M.A.
Lidia Sedano, M.Ed
Student Investigators
References


Dieker, L.A. (2001). What are the characteristics of “effective” middle and high school co-taught teams for students with disabilities?. Preventing School Failure, 46, 14-23.


http://nces.ed.gov/collegenavigator/?q=Arizona+State+University&s=all&id=104151

National Center For Education Statistics (2012b). College Navigator: California State University, Fullerton.
http://nces.ed.gov/collegenavigator/?q=california+state+university&s=all&id=110565

National Center For Education Statistics (2012c). College Navigator: California State University, Monterey Bay. Retrieved from
http://nces.ed.gov/collegenavigator/?q=california+state+university&s=all&id=409698

http://nces.ed.gov/collegenavigator/?q=Eastern+Illinois+University&s=all&id=144892

National Center For Education Statistics (2012e). College Navigator: Emporia State University. Retrieved from
http://nces.ed.gov/collegenavigator/?q=Emporia+State+University&s=all&id=155025


http://nces.ed.gov/collegenavigator/?q=University+of+North+Carolina+Greensboro&s=all&id=199148

National Center For Education Statistics (2012m). College Navigator: Wichita State University. Retrieved from
http://nces.ed.gov/collegenavigator/?q=Wichita+State+University&s=all&id=156125


Rosman, N.J. (1994). *Effects of varying the special educator’s role within an algebra class on math attitude and achievement* (Master’s Thesis). Retrieved from ERIC.


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Catherine Suzann Howarter
Curriculum Vitae

(702) 587-0159, cshowarter@gmail.com

EDUCATION

2013 University of Nevada, Las Vegas
Ph.D. in Special Education
Disability Areas: Learning Disabilities and Emotional Behavioral Disorders
Leadership Emphasis: Diversity Issues in Education and Co-teaching
An Analysis of Co-teaching Instruction Provided in Teacher Education and In-service Training for Special Education and General Education Teachers

2008 New York University
Master of Arts in Educational Psychology
Bullying: An Overview of Key Players, What Works, Intervention Programs and Suggestions for Future Research

2001 Carlow University
Bachelor of Arts in Elementary Education and Special Education

PROFESSIONAL EXPERIENCE

2009-2013 Doctoral Teaching Graduate Assistant
Department of Educational and Clinical Studies
University of Nevada, Las Vegas
Las Vegas, Nevada
• Responsible for teaching two undergraduate or graduate classes each semester and supervising student teaching

2012 (Summer) Research Graduate Assistant
Project Grow: A NeCoTIP Project and Highly Qualified, High Quality (HQ2): A 325T Project
Department of Teaching and Learning
University of Nevada, Las Vegas
Las Vegas, Nevada
• Responsible for the unwrapping of Biology standards, the design of instructional task analysis, and the creating of inclusive Biology lessons
• Responsible for the re-design of the pre-student teaching undergraduate content course to align with research-based content standards (EDSP 466)

2010-2011
Intervention Coordinator
Andre Agassi College Preparatory Academy
Las Vegas, Nevada
• Intervention specialist for students struggling in reading and mathematics at a district funded charter school
• Collected assessment data and designed interventions to support learners

2005-2009
Special Education Teacher
New York City Department of Education, Middle School 582
Brooklyn, New York
• Special Education Co-teacher in all content areas (Language Arts, Mathematics, Social Studies, Science) for students with learning disabilities, emotional and behavioral disorders, and other high incidence disabilities

2002-2005
Special Education Teacher
District of Columbia Public Schools, Kenilworth Elementary School
Washington, D.C.
• Resource Language Arts and Mathematics teacher for students with learning disabilities, intellectual disabilities, and other high incidence disabilities

PROFESSIONAL CERTIFICATIONS
Nevada, Certification in Elementary Education (Grades K-8)
Nevada, Certification in Special Education (Grades K-12), Generalist (mild-moderate)
New York, Certification in Childhood Education (Grades 1-6)
New York, Certification in Students with Disabilities (Grades 1-6)

PROFESSIONAL ORGANIZATIONS
Council for Learning Disabilities
Council for Exceptional Children, Teacher Education Division
United Federation of Teachers
Washington Teachers’ Union
Alpha Phi Omega, National Service Co-Ed Fraternity
## UNIVERSITY COURSES TAUGHT

### Undergraduate

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Course Description</th>
<th>Semester(s) Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSP 411: Special Education Techniques in Inclusive Settings</td>
<td>Course designed to provide general education pre-service teachers an overview of special education, including legal aspects, characteristics of disabilities, accommodations for learning, and collaborative skills.</td>
<td>Spring 2010</td>
</tr>
<tr>
<td>EDSP 423: Collaborative Consultation in Special Education</td>
<td>Course designed to provide an introduction to collaborative skills required when working with other professionals in a school environment.</td>
<td>Fall 2011, Fall 2012</td>
</tr>
<tr>
<td>EDSP 466: Group Teaching Methods for Students with Disabilities</td>
<td>Course designed to provide information related to instructional methods and procedures applicable to the education of students with mild disabilities.</td>
<td>Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2012, Fall 2012, Spring 2013 (assigned)</td>
</tr>
<tr>
<td>EDPS 487: Pre-student Teaching in Special Education Supervision</td>
<td>Provided field experience supervision to pre-student teachers.</td>
<td>Fall 2010</td>
</tr>
<tr>
<td>EDSP 488: Pre-student Teaching in Special Education Seminar</td>
<td>Course designed to provide a forum for pre-student teachers to brainstorm, problem-solve, and share information related to their field experience.</td>
<td>Fall 2009, Spring 2010</td>
</tr>
<tr>
<td>EDSP 491: Student Teaching in Special Education-Supervision</td>
<td>Provided field experience supervision to student teachers in both traditional and alternative route to licensure settings.</td>
<td>Fall 2009, Fall 2010, Fall 2011</td>
</tr>
</tbody>
</table>
### Graduate Course Number and Title

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Course Description</th>
<th>Semester(s) Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESP 701: Introduction to Special Education and Legal Issues</td>
<td>Course designed to provide general education pre-service teachers an overview of special education, including legal aspects, characteristics of disabilities, accommodations, and collaborative skills.</td>
<td>Summer 2010 Spring 2012</td>
</tr>
<tr>
<td>ESP 708: Advanced Education Strategies for Students with Disabilities</td>
<td>Course designed to provide research validated practices for teaching students with diverse needs and abilities, with an emphasis in methodology that is appropriate for inclusive teaching environments.</td>
<td>Summer 2011 Spring 2013 (assigned)</td>
</tr>
<tr>
<td>ESP 724: Math Methods in Special Education</td>
<td>Course designed to provide effective classroom methods and strategies for assessing, teaching, and monitoring the mathematical performance of students with learning difficulties.</td>
<td>Spring 2011</td>
</tr>
</tbody>
</table>

### Invited Guest Lectures


### University Courses Created

EDSP 423 Collaborative Consultation in Special Education
EDSP 466 Group Teaching Methods for Students with Disabilities
ESP 705 Psychological and Social Problems for Students with Emotional Behavioral Disorder
ESP 706 Advanced Educational Strategies for Students Emotional Behavioral Disorders
ESP 708 Advanced Education Strategies for Students with Disabilities
University Course Syllabi Create

EDSP 423 Collaborative Consultation in Special Education
EDSP 466 Group Teaching Methods for Students with Disabilities

SCHOLARSHIP

Publications


Peer Reviewed Conference Presentations

Howerton, C.S. (2012, November). *Preparing Pre-Service Teachers for Co-Teaching*. Poster session presented at Teacher Education Division of Council for Exceptional Children Annual Conference, Grand Rapids, MI.


Howerter, C.S. (2011, November). *iPads: An Instructional Tool*. Poster session presented at Kaleidoscope at Teacher Education Division of Council for Exceptional Children Annual Conference, Austin, TX.


**Invited Workshops**


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**LEADERSHIP AND SERVICE**

2012-Present  
**Doctoral Student Mentor**  
- Selected as one of five doctoral students to serve as a mentor to first year doctoral student

2012-Present  
**Committee Member, Council for Learning Disabilities**  
- Selected to serve on technology committee
2012-Present National Student Representative, Council for Exceptional Children Representative Assembly
• Elected as one of two national student representatives

2012-Present National Student Committee Member, Council for Exceptional Children
• Elected as one of eight national student committee members

2010-2013 President, UNLV Student Chapter, Council for Exceptional Children
• Served as President-elect, President, and Past-President

2010-2011 Graduate Student Representative
UNLV Graduate and Professional Student Association
• Elected as the student representative from the Department of Special Education

2010-2011 Member, Community Service Committee
UNLV Graduate and Professional Student Association

2009-2010 Doctoral Student Representative
UNLV Chapter, Council for Exceptional Children
• Elected to serve as doctoral student representative to student chapter

Publications and Conference Reviewer

Conference Proposal Reviewer, Teacher Education Division of Council for Exceptional Children, 2012

Conference Proposal Reviewer, Kaleidoscope, Teacher Education Division of Council for Exceptional Children, 2012

Guest Reviewer, Intervention in School and Clinic, 2011

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GRANT AFFILIATIONS

Formative evaluator, Project Grow: Making Data-Based Decisions in the Science Content Area, Nevada System of Higher Education, NeCoTIP Projects, 2012-2013

Curriculum evaluator, Highly Qualified, High Quality (HQ2): A 325T Project, 2012-2013
HONORS

CEC Children and Youth Action Network (CAN) Training-Selected by the CEC Teacher Education Division as one of seven doctoral students to attend this training. Scholarship received. Washington, DC, Summer 2011

Teacher Delegate, Selected by the China Institute as one of thirteen teachers to attended Summer Student Tour in China. Scholarship received. China Institute New York, Summer 2009