DEVELOPMENT AND VALIDATION OF A CLASSROOM OBSERVATION INSTRUMENT FOR IMPLEMENTATION OF CO-TEACHING PRACTICES

by

Amy Jill Rogers

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this study was to develop and field test the Co-Teaching Observation Instrument (CTOI) to determine its validity and reliability as an instrument for the observation of general and special education teacher practices in co-taught classrooms across kindergarten through twelfth grade levels. Face and content validity were established through a review by 10 experts in the field of special education. The experts were asked to pilot the instrument and then rate the composite instrument on a three point Likert-type scale in terms of whether it measures co-teaching practices including the dimensions of collaboration/teacher parity, teacher to student interaction, instructional roles, instructional strategies, individualized instruction, and classroom management. The experts were also asked to rate each of the 48 items as essential, useful but not essential, or not necessary. Following the expert review, five items were removed. Field testing was completed with the observation of 160 pairs of co-teachers ($N = 320$) in classrooms across the state of Georgia. A principle component analysis (PCA), which resulted in the removal of 8 additional items and a four factor solution, established construct validity. Cronbach's alpha and the Spearman-Brown coefficient were calculated to establish reliability and internal consistency. It was concluded that the Co-Teaching Observation Instrument (CTOI) is a valid and reliable measure of effective co-teaching practices. This instrument yielded 35 interpretable items loading onto four components/subscales: (a) *classroom interaction*, (b) *classroom management*, (c) *instructional strategies*, and (d) *instructional roles*.

Key words: classroom observations, collaboration, co-teaching, inclusion, , teacher attitudes, teacher perception

Dedication

I would like to dedicate this dissertation to my children, Owen and Bree. You are my greatest gifts. You gave me the motivation to keep going, and you continue to bring joy to every second of every day. My most sincere prayer is for both of you to grow into strong Christians and keep a close walk with God. My heart's desire is to be exactly what God wants me to be as your mother, and please always know that this journey was about you every step of the way.

I love you both more than you can imagine.

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There have been many individuals who have helped me throughout this process. I would like to thank God for allowing me the opportunity to embark on and see the completion of this journey. It has truly been a gift. Although some days were not easy, He has given me the strength to see it through and allowed me to grow through this process. My family has been a source of strength as well. My husband, Michael, has always been supportive of me regardless of the time that I had to put into the work. He is my rock, and I probably don't tell him that enough. My children, Owen and Bree, gave me joy and love that often turned my days around. It might have been from a smile or just their presence, but when the burden would be overwhelming, they were always my ray of light. My mom, as always, was my biggest cheerleader, and I couldn't have done this without her belief in me. My dad was patient and understanding with me as I had so many obligations and deadlines that often had to come before other things. I would like to thank Dr. Bigham for his insight and guidance in this process. I would also like to thank Dr. Spaulding and Dr. Szapkiw not only for their professional support but also for their personal interest and the prayers sent up for me during this process. The time that I spent with them on campus shaped the rest of this process.

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List of Abbreviations

Behavior Intervention Plan (BIP)

Blending Assessment with Instruction (BAIP)

Classroom Observations of Student-Teacher Interactions (COSTI)

Co-Teaching Observation Instrument (CTOI)

Confirmatory Factor Analysis (CFA)

Council of Administrators of Special Education (CASE)

Council for Exceptional Children (CEC)

Education for All Handicapped Children Act (EAHCA)

Elementary and Secondary Education Act (ESEA)

Every Child Achieves Act (ECAA)

Every Student Succeeds Act (ESSA)

Exploratory Factor Analysis (EFA)

Factor Analysis (FA)

Functional Behavior Assessment (FBA)

Georgia Learning Resource System (GLRS)

Individuals with Disabilities Education Act (IDEA)

Individualized EducationProgram (IEP)

Kaiser-Meyer-Olkin (KMO)

Least Restrictive Environment (LRE)

Local educational agency (LEA)

No Child Left Behind (NCLB)

Principal Component Analysis (PCA)

Regional Education Services Agency (RESA)

Regular Education Initiative (REI)

Social Cognitive Theory (SCT)

Teacher-Pupil Observation Tool (T-POT)

Teacher-Student Relationship Inventory (TSRI)

Traumatic Brain Injury (TBI)

United States (U.S.)

CHAPTER ONE: INTRODUCTION

Introduction

Special education law in the Unites States mandates that students with disabilities receive access to the general education curriculum and that this instruction be provided in the least restrictive environment (LRE) (Individuals with Disabilities Education Act [IDEA] of 2004, 2004). The LRE requires that students receive access to the general education curriculum and be educated with non disabled peers to the greatest extent possible (Crockett & Kauffman, 1998; Moores, 2011; Solis, Vaughn, Swanson, & Mcculley, 2012). This access to the general education curriculum is typically accomplished for students with disabilities utilizing either inclusion or co-taught classrooms. Inclusion is the term that describes the process of training students with and without disabilities in the same classroom setting, while co-teaching describes this inclusion setting which is led by both a general education and a special education teacher (Silverman, Hong, & Trepanier-Street, 2010). Due to the requirements set forth by IDEA, inclusion and specifically co-teaching has become a increasingly utilized model in the education of students with disabilities in recent years (de Boer, Pijl, & Minnaert, 2011).

Those employed in the field of education have been impacted by this movement in both positive and negative manners. One result has been the conversations and research surrounding the barriers to inclusion models such as co-teaching as well as the characteristics and practices that contribute to successful co-taught classrooms (Haug, 2010; Leatherman, 2007; Pearce, Gray, & Campbell-Evans, 2009). There is need for further research in this area as well as more comprehensive means to assess the implementation of practice in the classroom. Behavior influences a great many other classroom practices, which increases the need to measure and understand this phenomenon. It is necessary to understand the actions of teachers as they will

inevitably have an impact on the behaviors and achievement of students, because strategy has much more impact than location of instruction (Madden & Slavin, 1983). Student behavior will in turn influence the climate of the classroom in either a positive or negative way, and the cycle will continue.

The purpose of this study was to develop and validate an observation instrument to measure general education and special education teacher practices in co-taught environments across kindergarten through 12th grade levels. In this chapter, the background of this study is discussed and the problem and purpose of the proposed research established. The significance of the study and research questions are also discussed.

Background

Hospitals and institutions for individuals with disabilities were established as early as the 12th century (Carey, 2009; Richards, 2004; Winzer, 1998). Prior to and during the 1800s, societal views of individuals with disabilities were generally characterized as embarrassment and avoidance (Winzer, 1993). Individuals with disabilities were viewed as less than human, excluded from many situations, abandoned, and even put to death (Crissey, 1975; Dybwad, 1990; Heller, 1979; Winzer, 1993). It was believed that children with any type of deformity were an indication of the sins of the parents and something to be hidden away. During the French Enlightenment, philosophical questions arose regarding the education of individuals with sensory impairments. Research followed on education for the deaf and the blind as well as those with severe intellectual disabilities, which bridged the gap between philosophy and the educational and medical communities (Crissey, 1975; French, 2006; Itard, 1962; Winzer, 1998). The work begun was carried on in the United States by people like Dorothea Lynde Dix, who challenged the legislation in this area, and educators such as Thomas Gallaudet and Samuel Gridley Howe,

who presented strategies for the education of individuals with disabilities (Carey, 2009; Cerney, 2007; Trent, 1994).

Compulsory attendance laws were enacted in the United States as early as 1840, but these laws did not support the inclusion of students with disabilities in the school system. In Watson v. City of Cambridge 1893, the Massachusetts Supreme Court ruled that students could be expelled due to being "weak in mind, troublesome to other children, and unable to take ordinary, decent, physical care of himself" (Yell, Rogers, & Lodge Rodgers, 1998, p. 219). In Ohio, the Cuyahoga County Court of Appeals ruled in 1934 that the state department of education could choose to exclude certain students from compulsory attendance laws (Yell et al., 1998).

The impact of several historical events provoked a closer look at the societal views regarding educating individuals with disabilities in the United States. The Civil Rights movement was a major influence in this process. In Brown v. Board of Education 1954, a precedent was set. The argument was raised that all typical students are provided an education but not all students with disabilities. This type of unequal treatment based on an individual's unalterable characteristics was deemed unacceptable. The Expansion of Teaching in the Education of Mentally Retarded Children Act of 1958 provided more funds for the training of educators in the field of education. The National Defense Education Act of 1960 allocated more federal funds for the education of public school students. In 1965, the Elementary and Secondary Education Act (ESEA) set aside more federal funds for certain categories, and students with disabilities were among these. Title VI added funding for additional programs in 1966. In 1973, Section 504 of the Rehabilitation Act addressed the civil rights of the handicapped population (Yell et al., 1998).

All of these legislative occurrences culminated in the passage of PL 94-142 Education for all Handicapped Children Act (EAHCA) of 1975. This act provided federal monies to states for help in educating students with disabilities. The Bureau of Education for the Handicapped approved the plans submitted by each state for the education of these students. Once the plans were accepted, the states agreed to provide the services, and the funds were provided by the federal government. The EAHCA mandated non-discriminatory testing, evaluation, and placement procedures; education in the least restrictive environment (LRE); procedural due process; and a free and appropriate public education. An Individualized Education Program (IEP) was required for all students with disabilities (Solis et al., 2012; Yell et al., 1998).

In 1990, the EAHCA was reauthorized and renamed the Individuals with Disabilities Education Act (IDEA). The changes included the use of language to first person and the addition of Autism and Traumatic Brain Injury (TBI) as accepted service categories. A plan for transition also became a requirement in IEPs by age 16. IDEA was amended in 1997 to include students with disabilities in the administration of state and district assessments. The goals and objectives found in the IEP were required to be measurable and progress was to be reported. Students exhibiting behavior issues were required to have a Behavior Intervention Plan (BIP) written from the results of a Functional Behavior Assessment (FBA). These necessary changes were mandated by this 1997 amendment (Solis et al., 2012; Yell et al., 1998).

The concept of LRE also received a great deal of attention in the 1997 reauthorization of IDEA. The terminology "was derived from the concept of least restrictive alternative which has its legal basis in the United States Constitution and serves to balance individual and state interests" (Crockett & Kauffman, 1998, p. 75). The requirement is that students be educated in the general education setting with nondisabled peers to the maximum extent possible (Crockett

& Kauffman, 1998; Moores, 2011; Solis et al., 2012). The ruling of the courts on this issue is difficult to predict. The needs of each individual student must be considered in light of the benefits of all settings. School systems are not required to place the student in the general education setting prior to suggesting another placement option. The district is required to offer a full continuum of services from self-contained and pullout options to a full inclusion model. There must also be policies in place to meet the needs of students who need more restrictive placements such as institutionalization or hospitalization. The needs of nondisabled students may also be taken into account in determining placement. Data must be considered in order for student needs and outcomes to be assessed and to determine services needed (Crockett & Kauffman, 1998). The reauthorization of IDEA in 2004 addressed the need for research based interventions to be utilized with students with disabilities (Solis et al., 2012).

There has long been the debate over whether students achieve more promising academic outcomes in co-taught settings when compared to students in self contained or special education settings. A very small number of studies indicate a preference for the special education environment, and most indicate this benefit for those students possessing an IQ of less than 70 (Canadian Council on Learning [CCL], 2009; Madden & Slavin, 1983). One study suggested that more positive academic outcomes are experienced in the general education classroom, but most of these outcomes were not significant (CCL, 2009).

It is also recognized that there are many other factors contributing to the academic results in addition to placement. One of the most important factors to consider is quality of instruction (CCL, 2009). This conclusion is supported and evidence is provided that students perform better in heterogeneous settings, as Calhoun and Elliott (1977) demonstrated in their longitudinal study of 100 students. In a more recent study, Tremblay (2013) found that, following a study of co-

taught and special education classes ($N = 353$), co-teaching had a positive impact on reading and writing as well as attendance.

There is no consensus or significant results from research studies regarding co-teaching versus self contained education. Students with disabilities in the general education setting performed better on some measures than those being served in the special education classroom, and other measures were comparable (Rea, McLaughlin, & Walther-Thomas, 2002). There is support to suggest that in general education settings, where individualized instruction was utilized for students with disabilities, there was a preference over special education classrooms using the same strategies (Madden & Slavin, 1983; Rea et al., 2002). Where this individualized instruction was not used, there were very few differences noted (Madden & Slavin, 1983). It was stated that this type of instruction is more easily implemented in general education classrooms where there are few students receiving special education services (CCL, 2009).

In order to be successful, students with disabilities must be afforded more support than is readily accessible in the general education setting, and instruction must be tailored to their individual needs (IDEA of 2004, 2004). According to a correlational study conducted by Rea et al. (2002) on students with learning disabilities ($N = 58$), there were no more discipline referrals on students with disabilities when placed in the general education setting, and these co-taught students attended school more consistently than their counterparts in self-contained classrooms. Placement in the co-taught setting does not appear to have negative consequences, and in some instances, there may be positive aspects to behavior (Rea et al., 2002; Solis et al., 2012). The strategies that have been found effective for students with disabilities are at minimum as beneficial and sometimes more beneficial for typical age peers, as well (CCL, 2009; Madden & Slavin, 1983).

Many studies have been conducted examining the role of educators' perceptions on the co-teaching process (Hwang & Evans, 2011; Parua, 2010; Rakap & Kaczmarek, 2010). These results indicate a variety of attitudes stemming from diverse variables. Some results indicate overall positive attitudes toward inclusion (Gal, Schreur, & Engel-Yeger, 2010; Horne & Timmons, 2009). However, there are multiple variables noted that raise concerns and possibly impact the resulting attitudes toward this model of instruction. These variables include lack of administrative support and resources, lack of appropriate training, lack of participation in the decision making process, disruptive behaviors, and lack of planning time (Brackenreed, 2008; Hwang & Evans, 2011; Ocloo & Subbey, 2008). Still, other studies yielded results that indicate a more neutral stance from educators or inconsistencies from one measurement instrument to another (Hwang & Evans, 2011; Sari, Celikoz, & Secer, 2009). There are inconsistent findings regarding the impact of gender, teaching experience, and level of education on these perceptions as well (de Boer et al., 2011; Parua, 2010; Rakap & Kaczmarek, 2010). The literature supports the fact that there has been no significant change in these perceptions over time (Avramidis & Norwich, 2002; Buell, Hallam, Gamel-McCormick, & Scheer, 1999; de Boer et al., 2011; Boyd, 2013; Stefanidis & Strogilos, 2015).

In considering how perceptions affect the resulting practices of educators in co-taught classrooms, it is important to consider what makes up attitude. Eagly and Chaiken (1993) proposed in the three-component theory that attitude is comprised of cognitive, affective, and behavioral components. This concept is further supported by Fishbein and Ajzen's (2009) theory of planned behavior, which states behaviors can be explained and predicted. The variables that predict the resulting actions are behavioral control, subjective norms, and intentions (Campbell, 2010; Kuyini & Desai, 2007; Mahat, 2008). Both of the referenced theories draw conclusions

from Bandura's (1997) social cognitive theory. Bandura (1997) stated, "It is difficult to guide actions that are only partially observable or to make corrective adjustments in behavior that is poorly monitored" (p. 373). This premise further supports the need for behavioral data in order to truly understand or change classroom behavior.

With the theory of planned behavior (Fishbein & Ajzen, 2009), three-component theory (Eagly & Chaiken,1993) and social cognitive theory (Bandura, 1997) in mind, a recurrent limitation and gap in the research is evident. These theories are discussed in more detail in Chapter Two. While there are many studies assessing the perceptions of educators regarding co-teaching in the cognitive (Brady & Woolfson, 2008; de Boer et al., 2011; Parua, 2010) and affective realms (Avramidis & Norwich, 2002; Korkmaz, 2011; Ocloo & Subbey, 2008), there are no studies with observational data regarding the resulting classroom practices (Brackenreed, 2008; Horne & Timmons, 2009; Ocloo & Subbey, 2008). There is a stated concern that there is no guarantee that practices will follow perceptions resulting in the conclusion that observation may be a more reliable tool than self-report (de Boer et al., 2011; McCray & McHatton, 2011; Rakap & Kaczmarek, 2010). A review of existing research revealed that there is no validated instrument for the observation of co-teachers in existence, which means that a clear picture of attitude cannot be obtained without considering the behavioral component. It is possible to measure teacher perceptions and thoughts regarding the co-teaching model with available validated instruments; however, without the existence of a reliable observational tool for co-teachers' classroom practices, it is impossible to address all pertinent components. It is necessary to understand how the reported thoughts and feelings regarding co-teaching impact classroom practices. The labeling of a classroom as a co-taught setting does not necessarily mean best practices are being implemented. A measurement tool for collecting data on teacher practices in

co-taught classrooms could have far reaching implications for administrators, educators, and researchers who wish to improve the educational outcomes for children with and without disabilities in co-taught environments.

Problem Statement

Research indicates that students with special needs perform better in the co-taught setting than in the special education setting when individualized instruction is utilized (CCL, 2009; Rea et al., 2002; Solis et al., 2012). Favorable outcomes in co-taught settings are still marginal or non-significant in most cases, which might indicate that individualized instruction is not actually being implemented. It is important to assess whether the individualized instruction is actually being employed in order to truly evaluate the placement (CCL, 2009; Madden & Slavin, 1983). While there is much quantitative and qualitative research with a focus on how teachers perceive the effectiveness of co-teaching (Avramidis & Norwich, 2002; de Boer et al., 2011), there are no validated instruments for observing teacher practices (Brackenreed, 2008; Horne & Timmons, 2009; Ocloo & Subbey, 2008). While social cognitive theory (Bandura, 1997) indicates there is a link between attitude and behavior, self-report surveys cannot stand alone without observing actual practices (McCray & McHatton, 2011; Rakap & Kaczmarek, 2010). There must first be a instrument that measures those practices that are observable in the classroom setting (de Boer et al., 2011). As there is no such validated observation instrument, this study sought to develop a reliable, validated instrument to provide this behavioral data.

Purpose Statement

The purpose of this study was to develop and validate an observation instrument that measures both general education and special education teacher practices in co-taught environments across kindergarten through twelfth grade levels. This instrument was developed

through three distinct phases that included instrument development, expert review, and field testing. A comprehensive review of the literature supports the theory of planned behavior (Fishbein & Ajzen, 2009) and the psychology of attitudes (Eagly & Chaiken, 1993) with a need for the instruments to measure the behavior component of attitudes related to co-teaching.

Significance of the Study

This study makes an important contribution to the field of education by developing an instrument that measures the observable practices of general and special educators in co-taught K–12 settings. Co-teaching has been heralded as an effective mechanism utilized to educate all learners in one environment provided that effective instructional strategies are consistently implemented (CCL, 2009; Rea et al., 2002; Solis et al., 2012), but more information is needed. Previous studies indicated that teacher perceptions regarding co-teaching practices range from negative to positive with some studies even citing neutrality. These findings indicate that there has been little consensus in this area (de Boer et al., 2011; Horne & Timmons, 2009; Sari et al., 2009). There is a large variance in findings, and it is difficult to give credence to the relationship between perception and practice without a validated measurement instrument for co-teaching practices. This research contributes to this gap in the research by providing this necessary instrument. In future research, the Co-Teaching Observation Instrument (CTOI) could assist in illustrating the resulting triangulation of cognitive, affective, and behavioral components of attitudes in relation to co-teaching practices (Eagly & Chaiken, 1993; Hwang & Evans, 2011; Rakap & Kaczmarek, 2010).

There have been many practices recognized in the literature that contribute to the successful implementation of co-teaching strategies. These include collaboration skills, teacher parity, shared responsibility, and accommodations and active learning strategies for students

(Patterson, Syyerud, & Seabrooks-Blackmore, 2008; Rix, Hall, Nind, Sheehy, & Wearmouth, 2009; Thousand, Rosenberg, Bishop, & Villa, 1997). Developing an instrument for classroom observation allows the evaluation of the implementation of these practices, and the instrument can be utilized to develop more effective co-teaching programs across all grade levels. Ongoing evaluation would help develop more classroom environments that epitomize best practices culminating in better results for students.

There is also the opportunity for further theoretical implications as a result of this study, including support for the tenant of social cognitive theory (Bandura, 1997) and the role that behavior plays in social environments. Future research using this instrument will assist in a more cohesive view of the interaction between attitudes and resulting practices.

Research Questions

The research questions for this study were**:**

RQ1: Does the Co-Teaching Observation Instrument (CTOI) have face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management?

RQ2: Does the Co-Teaching Observation Instrument (CTOI) have content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management?

RQ3: What is the underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study?

RQ4: Does the Co-Teaching Observation Instrument (CTOI) show internal consistency for the composite scale and its subscales?

Hypotheses

The following were the research hypotheses:

$H_1$1: The Co-Teaching Observation Instrument (CTOI) has face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$2: The Co-Teaching Observation Instrument (CTOI) has content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$3: The underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will be co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$4: The Co-Teaching Observation Instrument (CTOI) shows internal consistency for the composite scale and its subscales.

Alternatively, the following were the null hypotheses:

$H_0$1: The Co-Teaching Observation Instrument (CTOI) does not have face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_0$2: The Co-Teaching Observation Instrument (CTOI) does not have content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_0$3: The underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will not be co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_0$4: The Co-Teaching Observation Instrument (CTOI) does not show internal consistency for the composite scale and its subscales.

Identification of Items

Drawing from social cognitive theory (SCT) (Bandura, 1969, 1997), the constructs necessary to understand behavior have been identified through prior research. SCT is the theoretical basis for research regarding the practice of effective co-teaching including each of the six dimensions of teacher practices identified during review of the literature for intitial instrument development in this study. SCT offers support for the effective development of instructional roles, strategies, individualized instruction, classroom management, collaboration, and interaction (Abulibdeh & Hassan, 2011; Anderson, Walker, & Ralph, 2009; Dibapile, 2012; Fok-Han, Martin, & Batty, 2009; Greener, 2009; Woodcock & Vialle, 2010). These dimensions were utilized in the development of the CTOI.

Classroom management strategies are those practices utilized in order to control inappropriate behaviors, promote positive behaviors, and preserve the learning environment.

This can be evidenced by a majority of students on task and completing assignments (Mastropieri et al., 2005).

Individualized instruction is the act of delivering instruction in order to meet the needs of the learner as outlined by their IEP (Konrad, Joseph, & Itoi, 2011).

Instructional roles are the duties performed during instruction by both educators in the classroom. The students should view both instructors as teachers and see them assume responsibility for the classroom (Linz, Heater, & Howard, 2008).

Instructional strategies are defined as the practices implemented in the classroom in order to deliver instruction effectively to all learners including necessary accommodations (King-Sears, 1997; Muscott, 1995; Sanacore, 1996).

Student to teacher interaction is defined as both verbal and non verbal communication in the classroom that contributes to student success (Ripski, LoCasale-Crouch, & Decker, 2011).

Teacher collaboration is effective planning to utilize the expertise from the general and special education teacher. Collaboration leads to greater trust and shared responsibility in the classroom (Carter, Prater, Jackson, & Marchant, 2009; Linz et al., 2008; Silverman et al., 2010).

Definitions

As with all subjects of study, there is vocabulary specific to the realm of education and specifically special education and the practices therein. In order to truly delve into the subject of co-taught classrooms, there are several terms that require understanding.

1. *Accommodations* - A change in delivery or the materials used but not a change in curriculum content (McLaughlin, 2012; Scruggs & Mastropieri, 1995).

2. *Attitudes* - The feelings that an individual exhibits toward something or someone that is comprised of cognitive, affective, and behavioral components (de Boer et al., 2011).

3. *Behaviors* - The overt actions that are observable in a situation (Bandura, 1997).

4*, Classroom management* - While there are several components working together in classroom management, the majority of literature focuses on control and student behavior in the instructional setting resulting from the expectations and strategies used by the teacher (Garrahy, Cothran, & Kulinna, 2005).

5. *Co-teaching* - A strategy based on collaboration and implemented for the service of special education students in a general education setting in which the class is conducted by both a general education teacher and a special education teacher (Nichols, Dowdy, & Nichols, 2010).

6. *Construct validity* - Whether or not an instrument measures what it claims to measure based on proven relationships between the variables determined during data analysis (Salkind, 2000).

7. *Content validity* - Refers to whether the items in an instrument actually measure what they are stated to measure (Delgado-Rico, Carretero-Dios, & Ruch, 2012).

8. *Face validity* - How well an instrumentappears to measure what it is intended to measure or its face value (Kucuk & Walters, 2009).

9. *Inclusion* - This is the process of training students with and without disabilities in the same classroom setting (Silverman et al., 2010).

10. *Individualized Education Program (IEP)* - An educational plan determined by a committee consisting of a special education teacher, general education teacher, a representative of the local educational agency (LEA), the parent, the student, and any other providers or individuals with pertinent information pertaining to the student in order to support a student's academic progress and set forth goals that will be monitored to assist in the achievement of state grade-level academic standards (Ahearn, 2010).

11. *Instructional roles* - Refers to the various duties and responsibilities taken on in the classroom during instruction (Bouck, 2007; Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010).

12. *Instructional strategies* - Refers to the delivery of materials while differentiating instruction (Rea & Connell, 2005).

13. *Least restrictive environment (LRE)* - The requirement is that students be educated in the general education setting with non disabled peers to the maximum extent possible (Crockett & Kauffman, 1998; Moores, 2011; Solis et al., 2012).

14. *Modifications* - An intervention offered in an IEP that requires a change in content or curriculum (McLaughlin, 2012; Scruggs & Mastropieri, 1995).

15. *Perceptions* - The beliefs and expectations held by an individual regarding a certain situation (Fishbein & Azjen, 2009).

16. *Practices* - The feature of relationship that binds activities and behaviors together in observable ways (Gherardi, 2001).

17. *Student-to-teacher interaction* - Style and quality of communication between teachers and students (Smolkowski & Gunn, 2012).

18. *Teacher collaboration* - The shared interactions between professionals in a variety of activities (Friend et al., 2010).

19. *Theory of Attitude*/*The Three Component Theory* - Eagly and Chaiken (1993) stated that attitudes are comprised of cognitive, affective, and behavioral components.

20. *Theory of Planned Behavior* - A theory that states normative beliefs, perceived behavioral control, and intention directly affect behavior. There is also an influence by prior knowledge or experience (Fishbein & Azjen, 2009).

Assumptions

The first assumption was that the experts, general education, and special education teachers participating in the study were representative of the population of the United States. I attempted to ensure this by sending out the requests to participate to the appropriate agencies and individuals. Following the completion of the study, demographics were used to demonstrate that the sample was representative of the population with whom the instrument will be used. There was the assumption that individuals reported their credentials honestly, which resulted in the choosing of the most appropriate applicants.

Research Summary

This research design was instrument development, and the purpose of this study was to develop and validate an observation instrument that measures both general education and special education teacher practices in co-taught environments across kindergarten through twelfth grade levels. A great deal of research evaluated teachers' perceptions of the effectiveness of co-teaching in the last several years (Avramidis & Norwich, 2002; de Boer et al., 2011); however, prior to this study there were no validated instruments for observing teacher practices (Brackenreed, 2008; Horne & Timmons, 2009; Ocloo & Subbey, 2008). This study makes an important contribution to the field of education by developing an instrument that measures the observable practices of both general and special educators in co-taught settings.

This initial instrument was developed through three distinct phases. Phase 1 was instrument development and included a review of the empirical and theoretical literature and review of similar observational scales. In Phase 2 and Phase 3, data was anlayzed using multiple analyses in order to address face and content validity via expert review, construct validity via principal component analysis (PCA), and internal consistency and reliability via Crohnbach's

alpha and the Spearman-Brown coefficient. This design was appropriate as an instrument was developed for the observation of co-taught classrooms and needed to determine appropriate components and which items should be retained in order to have a valid and reliable instrument. The resulting instrument was a combination of a five-point Likert-type scale and checklist items that a non-participant observer completes during the classroom observation of pairs of co-teachers. The literature review offered support for the appropriateness of the components chosen and assisted in determining the definition of each.

In Phase 2, the face and content validity of the instrument were investigated using expert review. Experts with specific qualifications in the field were utilized in order to evaluate the validity of the instrument to measure what it intends to measure, and changes were made following their review as deemed appropriate. In Phase 3, the revised instrument was field tested in school systems across the state of Georgia to further determine validity and reliability. A principal component analysis (PCA) was completed in order to reduce the number of variables into the appropriate components for measurement of co-teaching practices. Based on the components that were indicated by the intitial evaluation of the eigenvalues, scree plot, parallel analysis, and a conceptual understanding of the literature, a determination was made regarding which items loaded onto these components and should be retained for inclusion in the final instrument. PCA was the most appropriate analysis, as it was an exploratory approach to determine appropriate components and allowed all variance to be analyzed between the items. This analysis allowed a final decision on the number of appropriate items and allowed for determination of the construct validity of the instrument. Cronbach's alpha and Spearman Brown coefficient were generated in order to determine internal consistency and reliability of both the instrument and the subscales. The following chapters illustrate the manner in which the

review of the literature provided the direction for this study and how this led to the resulting methods, outcomes, and suggestions for future research.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to develop and validate an observation instrument that measures both general education and special education teacher co-teaching practices in co-taught environments across kindergarten through 12th grade levels. While there is much quantitative and qualitative research with a focus on how teachers perceive the effectiveness of co-teaching (Avramidis & Norwich, 2002; de Boer et al., 2011), there are no validated instruments for observing teacher practices (Brackenreed, 2008; Horne & Timmons, 2009; Ocloo & Subbey, 2008). This chapter provides a synthesis of the historical, empirical, and theoretical literature surrounding co-teaching. The literature review includes the background of co-taught classrooms, a review of co-teaching models, barriers to this approach, as well as the characteristics of successful co-teachers. A discussion of the literature surrounding six identified dimensions of teacher parity/collaboration, teacher to student interaction, instructional roles, instructional strategies, individualized instruction, and classroom management are also included. The chapter concludes with the theories informing the study parameters and research hypotheses, including the theory of planned behavior (Ajzen & Fishbein, 1980) attitude theory (Eagly & Chaiken, 1993), and social cognitive theory (Bandura, 1997).

Background

Over the past decades the process of co-teaching, once referred to as cooperative teaching, has been considered one of education's best practice models for educating students with disabilities in the general education classroom (Bouck, 2007; Friend et al., 2010; Murawski & Swanson, 2001). Despite this push toward co-taught classrooms, there is still much debate in the educational community regarding how to define or evaluate co-teaching practices (Gotshall

& Stefanou, 2011; Haug, 2010; Thorpe & Shafiul Azam, 2010). The Regular Education Initiative (REI) proposed in 1986 by Assistant Secretary of Special Education and Rehabilitative Services, Madeline Will, sought to give the local school control over the service delivery, increase instructional time and classroom support, individualize instruction, align assessment to the curriculum, and promote cooperative learning in general education classrooms. Will voiced concerns over whether services were being delivered in the current system. The ideas of accountability and expectations within pull out classrooms as well as stigma associated with this service were also called into question. This concept of REI was advocated as an alternative to the dual systems of special and general education. For the first time it was questioned whether a lack of success in the classroom could be a result of the environment rather than ability of the student (Kubicek, 1994).

The movement toward co-teaching as a model to implement in the general education classroom has long been a subject for debate. Full inclusionists are proponents of the general education environment for all children (Fuchs, 1998). Rationale for this mindset includes the belief that while any purely special education placements exist, teachers will put children in them simply to remove them from the classroom rather than to meet the needs of the student (Fuchs, 1998). The belief is also held that students must model the social behaviors of general education peers and must be in the general education classroom full-time in order to feel a part of the environment. The inclusionists, on the other hand, support the legally mandated continuum of services to address the individual needs of each student. Individuals in this school of thought feel that the general education classroom may not always be able to meet all the needs of each individual student depending on the needs of the child. The continuum of services offers the

ability to individualize instruction and have more time to remediate skills in a small group setting (Fuchs, 1998).

Inclusion is defined as "educational programming wherein students with disabilities learn with peers in general education classrooms" (Solis et al., 2012, p. 498). This process may be carried out with or without a special education teacher present in the classroom. The co-taught classroom includes instruction from both general and special education teachers; however, co-teaching is much more than the presence of two individuals in the classroom, and there is a great deal to understand about the practice itself. Much research exists with a focus on inclusion and co-teaching; however, a majority is centered around teacher perceptions and attitudes regarding this approach rather than classroom practice (Gurgur & Uzuner, 2010; Korkmaz, 2011; Solis et al., 2012).

In reviewing the research on perceptions, the results of this body of literature appear to be largely contradictory. There are many studies that indicate a positive perception of inclusive education held by classroom educators (Gal et al., 2010; Horne & Timmons, 2009). Still, others found a predominantly negative or neutral opinion was held by those participating (Brackenreed, 2008; de Boer et al., 2011). It has been suggested that there are so many varying opinions because of the various levels of implementation (Solis et al., 2012).

A metasynthesis of qualitative studies indicated that most participants described co-teaching as beneficial given the right resources. The most observed co-teaching method was still one-teach one-assist which does not fully utilize the instructional skills of the special education teacher. General education teachers were primarily leading whole group instruction with little observable individualized instruction. In this environment, special education teachers were simply viewed as assistants (Scruggs, Mastropieri, & McDuffie, 2007).

In a meta-analysis conducted by Murawski and Swanson (2001), it was decided that there was not enough data to speculate effects of co-teaching on gender, length of study, or disability type. There was some limited data to suggest that the possibility of positive effects on achievement could exist, but there was not enough evidence to corroborate the existence of individualized instruction in practice (Murawski & Swanson, 2001).

Many have expressed a belief that there are social benefits from educating students with disabilities in the environment with their non-disabled peers; however, there are concerns noted for the academic realm (Daane, Beirne-Smith, & Latham, 2000). There has long been discussion of possible feelings of stigmatization when students are pulled out and educated in a special education classroom. However, in a review of the literature, Scruggs and Mastropieri (1995) found no basis for this when reviewing data from student interviews. To the contrary, it was determined that students felt that the services were necessary and felt a connection to their special education teacher with no feelings of deprivation related to the general education setting that they were missing.

The variance among studies leaves many questions for consideration, as the differing factors are also quite varied. It is difficult to fully assess perceptions without understanding the resulting practice. Research relying completely on self report may not provide all necessary data. Solis et al. (2012) indicated that "Researchers have addressed the attitudes, beliefs, and perceptions of teachers about collaborative models, with the rationale that teachers' beliefs are likely to influence teachers' motivation and thus their quality of practice within collaborative models" (p. 505). More research is needed in this area to clarify these issues.

Previous Studies Regarding Teacher Perception

There are many studies relying on self- report that examine the perceptions of educators in relation to the co-taught environment. In order to truly evaluate this relationship an instrument such as the proposed Co-Teaching Observation Instrument (CTOI) is necessary to bring the data on classroom practices into the equation. While this study will not include a component to address perceptions, the inclusion of the research on this subject illustrates the gap in the literature and the need for this instrument. Hopefully, future research will utilize this instrument to investigate the relationship between perception and practice.

Demographics

It has been determined that the impact of demographic features such as age, teaching experience, and gender do not provide consistent results (Rakap & Kaczmarek, 2010). In one study, it was determined that the oldest and youngest teachers along with males possessed the most positive attitudes toward co-teaching (Rakap & Kaczmarek, 2010). Training and years of experience in special education also appeared to contribute to positive perceptions (Rakap & Kaczmarek, 2010). Other studies indicated that females held more positive opinions than their male counterparts and that less experienced teachers are also more accepting (Hwang & Evans, 2011; Parua, 2010). Forlin, Loreman, Sharma, and Earle (2009) found that while male educators began with a more negative outlook, they gained a more positive opinion following some training. This correlational study ($N = 500$) also indicated that educators with higher degrees were more negative with less change noted following training, while younger teachers were more apt to show changes in perception. Another project undertaken in Ghana found no statistical significance regarding age, gender, or the length of teaching career (Gyimah, Sugden, & Pearson, 2009). There was lack of support for any one finding in the area of demographics.

Experience with Disabilities

There is consensus that educators possess different views regarding including students with different disabilities (Avramidis & Kalyva, 2007; Carter & Hughes, 2006; Idol, 2006). Teacher self-efficacy has an impact on teachers' resulting reaction to students with disabilities in general education classrooms (Buell et al., 1999). In several studies, positive attitudes regarding the inclusion of students with disabilities were noted; however, this perception was slightly less positive with regard to certain disabilities (Avramidis & Kalyva, 2007; Carter & Hughes, 2006). These perceptions can impact students as well. Evidence is offered in statements from researchers such as, "If teacher perceptions of students with disabilities are negative then including such students in general education classrooms may not result in a beneficial experience for the student" (Daane et al., 2000, p. 332).

Findings in Greece indicated an existing fear of problems regarding students with neurological disorders, hearing and vision deficits, and autism spectrum disorders in the general education classroom (Avramidis & Kalyva, 2007). There seemed to be a common misconception that students with disabilities create more behavior problems than their non disabled peers; therefore, these behavior problems are another subcategory that teachers would like to see excluded (Carter & Hughes, 2006). However, in another study conducted in a large metropolitan school district in the southwestern United States, Idol (2006) indicated that the reaction from teachers due to disruptive behavior problems is the same regardless of a present disability or the lack thereof. Those experiencing behavior problems of any type and cognitive issue were less readily accepted than those with physical disabilities (Gal et al., 2010; Goodman & Burton, 2010; Rakap & Kaczmarek, 2010).

The Impact of Teacher Education Programs

Current studies indicate that educator preparation programs must take an active role in addressing teacher readiness and acceptance of students with disabilities (Diana, 2014; Weilbacher & Tilford, 2015;). The separate educational programs for general education and special education teachers have created a gap that continues to widen (Buell et al., 1999; Daane et al., 2000; Diana, 2014; Weilbacher & Tilford, 2015). Students emerge with both greater knowledge and understanding of individuals with disabilities following courses that include more content related to co-teaching and special education topics. The integration of this content related to co-teaching leads to an increase in feelings of self-efficacy as teachers feel more prepared to teach this population of students. In turn, there is also a more positive opinion of the education of students with disabilities in the general education classroom (Brandes & Crowson, 2009: McCray & McHatton, 2011; Sosu, Mtika, & Colucci-Gray, 2010). While the training of special education teachers includes several content area classes, often the training of general education teachers does not include deep and meaningful information regarding students with disabilities. This information is covered at a surface level, and the gap created in knowledge and understanding may have an impact on the perceptions of general education teachers.

Barriers to Effective Co-Teaching

Much of the literature focused on the barriers to co-teaching from the viewpoint of both general and special educators in the classroom. The barriers are an important component to consider in any evaluation of a team teaching program. Training was a recurrent concern across studies; the consensus indicated that there is not enough initial or ongoing training in order to address the needs of students with disabilities. There is also an indication of a lack of planning time allocated to collaborate and work with team members in preparation for class (Brackenreed,

2008; Korkmaz, 2011; Ocloo & Subbey, 2008). A lack of administrative support is also cause for concern. Teachers feel that they have no input or control regarding the co-teaching process (Brackenreed, 2008; Korkmaz, 2011; Ocloo & Subbey, 2008). Adequate differentiation of activities, student behaviors, a lack of appropriate resources in the classroom, and parent expectations are also areas of concern or uncertainty (Brackenreed, 2008; Korkmaz, 2011; Ocloo & Subbey, 2008).

Researchers cited concern regarding resources as a source of negative feelings or worries regarding successfully implementing the co-teaching framework (Carter & Hughes, 2006; Ernst & Rogers, 2009; Koutrouba, Vamvakari, & Steliou, 2006). Across research studies, concerns varied and ranged from human resources to materials to time constraints. These concerns regarding sufficient time to collaborate and plan and having enough materials and staff to work effectively were the same concerns noted ten years previously as well (Carter & Hughes, 2006). Ersnt and Rogers (2009) indicated that "teachers' access to support materials and resource staff influenced the affective and behavioral components of their attitudes positively" (p. 318). Staff shortages and the resulting stress appear to create distrust for administration as well as the process of co-teaching, as it seems to create more work (Koutrouba et al., 2006). Ocloo and Subbey (2008) reported that 65% of respondents were concerned about not having enough of the required resources. Support from administration is vital in addressing staff concerns; it is doubtful that without it, the required changes in order to ensure the success of this or any program will take place (Idol, 2006).

Positive Outcomes in Co-Taught Classrooms

There are very few studies that addressed the practices of teachers in the co-taught classroom from the standpoint of observation. The available findings were based on qualitative

interviews with co-workers and administrators. One study by Ben-Yehuda, Leyser, and Last (2010) provided some insight into characteristics of effective co-teachers. This was a phenomenological, qualitative study with 24 teachers and 782 students participating. In this research, there were some personal characteristics associated with successful co-teachers which included support for the education of students from various disability levels in the general education setting, a designated time appointed for collaboration, and more effort in making and maintaining parent contact. These educators were also more aware of student needs and accommodated these needs in the course of instruction (Ben-Yehuda et al., 2010). The professional relationship between teachers involved appeared to have an impact on the success of the co-taught classroom (Solis et al., 2012). When questioned, successful co-teachers believed student success was related to their own skill in teaching, while unsuccessful co-teachers often attributed failures to external factors outside of their control. Mintz (2007) reported that the attitudes of educators in his study were fluid rather than fixed. Flexibility allowed for constant growth and change as new information was acquired through training.

Co-Teaching Models

There are several accepted models for the organization of content in a co-taught classroom. Friend et al (2010) defined six which are commonly accepted. *One teach, one observe* and *one teach, one assist* lend support to the perception of the special education teacher as an aide, although it could also be the general education teacher supporting in this model. In one teach, one observe, one teacher is collecting some type of data while instruction occurs while with one teach, one assist, a teacher is moving among students offering help as the lesson is taught. This assistance can be in the form of academic, behavioral, or on task reminders. The other forms of co-teaching offer more opportunity for shared instructional roles. *Station teaching*

indicates that instruction has been divided into groups that may be teacher led or independent in nature and students transition to these various areas. In order to decrease the student-to-teacher ratio or offer an opportunity for differentiation, *parallel teach* can be employed. Parallel teach allows the teachers to divide the class and provide instruction on the same content. Small group instruction may occur through the use of *alternative teaching*, where one teacher leads a portion of the class in order to remediate, enrich, or assess. Finally, *team teaching* requires both educators to work together in order to provide instruction to the whole group in a shared instructional role (Friend et al., 2010).

Friend et al.'s (2010) co-teaching models provide a framework for a co-taught environment and are beneficial to practice. However, they do not offer an all-inclusive view of the characteristics necessary to ensure a successful outcome. In essence, there is more to be considered in whether co-teaching is actually taking place, as this is more about strategy than location. There are also other constructs that factor into the successful practice of co-teaching that must be examined. A review of the literature reveals that practices related to successful co-taught classrooms are embodied in six dimensions: (a) teacher collaboration/parity, (b) teacher to student interaction, (c) instructional roles, (d) instructional strategies, (e) individualized instruction, and (f) classroom management (Angelides, Georgiou, & Kyriakou, 2008; Mastropieri et al., 2005; Ripski et al., 2011).

Teacher Classroom Practice as a Component of Perception

While all of the findings regarding teacher perceptions and concerns regarding co-teaching are important and beneficial to classroom planning, there is still a component that remains unstudied. The perceptions of teachers in the co-taught setting as well as their thoughts regarding what stands in the way of success deserve consideration. When viewing attitude from

the perception of the three component theory (Eagly & Chaiken, 1993), it becomes clear that perceptions do not exist in isolation. In order to truly understand the influence of attitudes, the cognitive, affective, and behavioral components must be considered (Eagly & Chaiken, 1993).

The previous research accounts for the cognitive and affective pieces of this body of knowledge through the process of self report. The problem is that there is no valid measure for the classroom practices of co-teachers. There could be a vast difference between perceptions recorded through self-report and observable classroom practice. There is no guarantee that the practices exhibited will be directly aligned to the perceptions reported. The difference between perception and practice could be a result of social pressure or a desire to please (de Boer et al., 2011; Rakap & Kaczmarek, 2010). The majority of literature generally focuses on teacher contentment rather than actual classroom practices (Kusuma-Powell & Powell, 2016; Welch, Brownell, & Sheridan, 1999). In order to examine the relationship between teacher perceptions regarding co-teaching and the use of these models in the classroom, there must be a valid and reliable evaluation instrument in order to observe teacher practices. It is imperative to possess this information in order to understand the impact that the implementation of co-teaching strategies and teacher practice has on the resulting academic outcomes experienced by the students in the classroom.

The Need for a Validated Instrument for Co-Teaching Observation

A review of the existing literature brought to light the need for an evaluation instrument for teacher practices in the co-taught classroom. Scruggs et al. (2007) stated, “Classroom instructional practices have not changed substantially in response to co-teaching” (p. 412). This statement reinforces what Murawski and Swanson (2001) observed: “Few studies describe the actions of the special education teacher during the process of co-teaching” (p. 265) and

additional data is needed in this area. The literature indicated that teacher perception of the co-taught classroom is a greater predictor of effective co-teaching than the knowledge of the educator as established through interviews with the educators (Pearce et al., 2009). Without the existence of this instrument, future research cannot truly evaluate the impact that teacher perceptions have on the implementation of co-teaching strategies. Until that is understood, it is difficult to understand how the implementation of co-teaching strategies correlates with the resulting measures of student achievement. There have been discrepancies between self-reported perceptions in relation to the self reported willingness of educators to teach students with disabilities (Hwang & Evans, 2011). Many researchers include in their discussion of limitations the need for observation, the lack of reliability of self-report, and the uncertainty of whether actions match self-report (de Boer et al., 2011; Rakap & Kaczmarek, 2010; Scruggs & Mastropieri, 1996).

When Friend et al. (2010) discussed limitations and needs for further research in their writing examining the existing research in the field of co-teaching, there were several areas of concern. The need for study of rigorous programs adhering to a specific definition of co-teaching across multiple grade levels was discussed. Friend et al. (2010) stated:

> It is essential that the impact on students of high-quality co-teaching implemented consistently be determined. Teacher, students, and even parent perceptions of co-teaching outcomes are helpful in that they inform the field concerning priorities and beliefs of the implementers and recipients of co-teaching, but perceptions do not establish an evidence base. (p. 22)

It is evident that there must be a validated means of assessing teacher practices and strategy in co-taught classrooms. This information considered in relation to the academic achievement of students would offer great benefit to the field of special education.

Teacher Collaboration and Parity

Teacher collaboration is a construct that reappears in literature related to successful co-teaching for the past two decades. Collaboration, defined as time spent together with a focus on shared thoughts with time for reflection and feedback in order to utilize each educators strengths, requires that educators sharing a classroom also share planning time and responsibility for student success (Knight, 2011). When this collaboration is effective the result is respectful interactions between educators and parity in the classroom setting (Friend et al., 2010). The relationship is established between teachers, and the result is observable in the way that they interact, conference, and respond to each other both in and out of the classroom. Educators working together in a co-teaching relationship must be compatible and communicate effectively (Friend et al., 2010).

The successful implementation of a co-taught environment requires an understanding of the definition of co-teaching as well as the individual requirements. Teachers need to be aware of and comfortable with a shift in roles and responsibilities in the classroom. There are differences between co-teaching and team teaching. Historically, team teaching occurred between professionals sharing similar knowledge bases. In co-teaching, there are varied areas of expertise that should complement instruction. Collaboration is an integral part of co-teaching but is not synonymous with this term, as teachers may share a classroom and even some duties with no level of collaboration at all. In order to truly implement the premises of co-teaching, there must be time set aside for planning and discussion. Finally, inclusion is the process of including all

students in the classroom setting, but co-teaching should embody the manner in which they are educated (Friend et al., 2010; Isherwood & Barger-Anderson, 2008).

In order to truly foster an environment where parity between educators is observable, a great deal of planning and communication must be done before the model is implemented. Both teachers must understand their own and the other's expectations and beliefs regarding the process. An honest discussion of roles, space, strengths and weaknesses, and shared responsibility must take place. Any tensions or differences in philosophy must be discussed and addressed (Bouck, 2007).

There are a variety of indicators that illustrate the existence of a classroom environment that is shared by two educators. The shared classroom is strengthened by a set planning time on the weekly calendar, both teachers' names indicated on the syllabus or in the classroom, teachers conferencing during the lesson, modeling of respect in conversation, and students approaching both teachers for guidance in academic or behavioral questions (Friend et al., 2010; Rea & Connell, 2005). A lesson plan containing visible input from both educators should be readily accessible. The adults in the classroom provide the example for acceptable behavior, and there is evidence that both participants are prepared and familiar with the content covered (Friend et al., 2010; Rea & Connell, 2005). Other observable practices in the co-taught classroom may be the participation of both teachers in creating and grading assessments, contacting parents, and correcting mistakes made by the other without incident (Angelides et al., 2008; Carter et al., 2009; Linz et al., 2008; Worrell, 2008). While some of these practices were outside of the scope of this instrument, they are worthy of noting.

Teacher-to-Student Interaction

Teacher-to-student interaction has surfaced in discussions of best practices of co-teaching frequently. Just as it is necessary for educators to treat each other with respect, it is imperative that students receive that same respect in the classroom setting. Results of respectful communication are positive regardless of whether the student has a disability or not. Meaningful teacher interaction affects student success, and this should be taken into consideration. Positive feedback and reinforcement impacts both academic and behavioral responses from students (Goodman & Burton, 2010; Ripski et al., 2011). Educators should make an effort to know the background and interests of the children in their classroom. Quality interaction allows students to feel that they are important. This is evidenced by students being spoken to by name, students asking for assistance and input without hesitation, students being given the opportunity to take responsibility for or redirect their own behavior, positive reinforcement and praise, and respectful tone of voice (Goodman & Burton, 2010; Ripski et al., 2011). Another key component for observation is non-verbal communication when addressing students' questions or comments. There should be no inappropriate comments regarding disability utilized in the classroom setting such as singling children out as not meeting requirements or specifically referring to their disability in the classroom, as this infringes upon confidentiality (Rea & Connell, 2005). Students in co-taught classrooms with a positive climate tend to report more positive feelings toward attending school and feelings regarding their own abilities (Pugach & Wesson, 1995).

Existing tools for measuring teacher-student interaction in the co-taught setting are primarily self-report rather than observation instruments. There are instruments developed for use in other settings such as the Classroom Observations of Student-Teacher Interactions (COSTI) (see Appendix A), which was developed for evaluation of reading instruction

(Smolkowski & Gunn, 2012). This instrument allows teacher feedback and positive interactions to be factored into the effective teaching of reading. The Teacher-Pupil Observation Tool (T-POT) (see Appendix B) was developed and validated in order to assess the quality of interactions between teachers and students. It was recognized that this interaction influences the academic and behavioral outcomes for students (Martin et al., 2012). The Teacher-Student Relationship Inventory (TSRI) (see Appendix C) is another such tool (Ang, 2005). While these are all valuable instruments, there is a need in co-taught classrooms for a validated instrument to assess not only teacher to student interaction specific to co-teaching but also teacher parity, instructional roles and strategies, individualized instruction, and classroom management practices of both the general education and the special education teacher. Further investigation of the degree to which co-teaching strategies are utilized rather than the number of students enrolled in co-taught classrooms could then be undertaken.

Instructional Roles

The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). There are various forms of instruction that take place in a classroom and if effective collaboration has taken place, both educators should be equipped to step into any necessary classroom role. Co-teachers should plan for which teacher will take the lead role in various parts of each lesson; however, this is subject to change during the course of instruction. This can take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, presenting information from varying viewpoints, and instituting the co-teaching models of station, parallel, alternative, and team teaching (Carter et al., 2009; Cook & Friend, 1995; Linz et al., 2008).

Vaughn, Jeanne, and Arguelles (1997) argued that there is more to the roles of co-teachers than "tag-team teaching and grazing" (p. 5). Vaughn et al. described grazing as one teacher moving about the classroom attempting to keep students on task and emphasized "teaching on purpose" (p. 5). This phrase is indicative of teaching partners who employ record keeping strategies of collecting data on the deficits and intervention plans of students with special needs and addressing these needs during instruction. Regardless of the role assumed by either teacher, each should be prepared for this activity. There is also speculation that the roles of teachers fall in the categories of instructor for either a whole group or an individual, disciplinarian for either the group or an individual, manager (handling paperwork), supporter, gatekeeper (controlling entrance and exit), or confidant (Bouck, 2007). These roles carry distinct expectations from students and staff.

Instructional Strategies

Instructional strategies are key in the success of all students. Students with disabilities are permitted the accommodations prescribed by the Individual Education Program (IEP). At the same time, all students learn differently and a variety of techniques can benefit students in the classroom (Friend et al., 2010). The willingness to use a range of strategies as well as the comfort in doing so is a strength in a co-taught setting. In this environment, research-based instructional strategies driven by assessment data are key. There should be some indication in the classroom that assessment data is collected and utilized (King-Sears, 1997; Muscott, 1995; Sanacore, 1996).

There are a variety of observable strategies that may be evident for many students. Cooperative learning groups, brain-based learning systems, and teaching students to generalize skills to other areas are all possibilities for classroom strategies that reach beyond those

necessitated by an IEP. Activities requiring peer collaboration or tutoring have been deemed effective, and students report enjoying the process of working in pairs and small groups (Scruggs & Mastropieri, 1995; Solis et al., 2012). Guided notes are another such strategy that might be utilized for students with disabilities. Guided notes allow students to follow along and fill in the blanks, and the decreased time spent attempting to copy written material allows more focus on the important aspects of content while providing context clues for guidance. These and other strategies are often accompanied by choral response, response cards, or graphic organizers (Konrad et al., 2011).

Directions should be given in one step when appropriate and repeated or paraphrased and student groups should be flexible and purposeful. The instructional pacing should be appropriate for all students, and activities should capitalize on the strengths of students. Reinforcement and re-teaching is evident in successful classrooms as well as adequate modeling and student independent practice (King-Sears, 1997; Muscott, 1995; Rea & Connell, 2005). Scruggs and Mastropieri (1995) described a model for structuring instruction called the PASS (prioritize, adapt, SCREAM, systematically monitor) framework. Educators should prioritize the important pieces of the curriculum that are foundational and adapt the materials to fit the needs of the learners. It is then suggested that they follow the SCREAM model for delivery which is structure, clarity, redundancy, enthusiasm, appropriate pace, and maximize student engagement. The final component is ongoing assessment and utilization of this data to ensure success for all students. This review of literature did not find that these elements were occurring frequently in the classroom setting (Kauffman, 2010; Scruggs & Mastropieri, 1995).

It would be feasible to expect a variety of technologies to be utilized, student choice in activity to be evident, and task segmentation or scaffolding to be occurring in the co-taught

environment. Technology in the classroom can prove beneficial to all children including students with disabilities in instruction, assessment, and monitoring data (Coleman, 2009; Maccini, Gagnon, & Hughes, 2002). There are indications that technology assists in keeping students engaged in learning, and increases comprehension, retention of information, calculation, and completion of word problems (Coleman, 2009; Maccini, Gagnon, & Hughes, 2002). One such philosophy stresses the TECH framework (Coleman, 2009). The foundation of this approach is target student need (T), examine the available technology and choose what to utilize (E), create an opportunity to combine the technology with other instruction (C), and handle the implementation and monitor outcomes (H). The drawback to this approach is the fact that teachers must do the research and choose a technological approach (Kennedy & Deshler, 2010). There are many approaches available, and there is some indication that computers allow students to complete independent practice while increasing or maintaining motivation (Coleman, 2009).

Meyen and Greer (2010) examined the framework of Blending Assessment with Instruction (BAIP), which had various components that could be incorporated from online lessons to tutorials. This study utilized a control group (n = 36,222) and two experimental groups. One experimental group prescribed the participants (n = 6,029) the online lessons. The other group (n = 5,561) utilized all components including the tutorials which gave immediate feedback and transmitted the data to the instructor, as well. The framework was field tested for two consecutive years, and findings indicated an increase in achievement; however, the effect size was small, ranging from .07 to .29 in subgroups.

The incorporation of student choice into classroom assignments serves to intrinsically motivate students (Llewellyn, 2013). The majority of the day in an educational setting is outside of the students' realm of control. Schedule, rules, and expectations are all in place before they

arrive. Effective teachers understand differences in learning styles and provide choices that are conducive to these preferences. It is possible to offer several options for assignments to demonstrate an understanding of one particular standard. These choices may be presented for research approaches in science labs, mode of presentation, areas of study, and roles of group members. By offering this menu of assignment options teachers are able to differentiate, thus offering support to some and a challenge to others (Llewellyn, 2013).

Scaffolded instruction is defined as "the systematic sequencing of prompted content, materials, tasks, and teacher and peer support to optimize learning" (Larkin, 2001, p. 30). A great deal of support is required in the beginning stages of acquiring a new skill. Support may come in the form of prompting, cueing, questioning, modeling, telling, or discussing. Spaced practice, defined as the ability to learn a concept over several sessions rather than one long session, is a vital component as it allows the learning to take place over time and be retained (Larkin, 2001; Truscott & Truscott, 2004). It is important that the educator encourages and reminds students of past successes while keeping them focused on the desired outcome, as many students have come to expect failure. As the student increases in skill and confidence, the support is gradually withdrawn or faded (Larkin, 2001; Truscott & Truscott, 2004). It is important that the support not be removed too quickly. During the process, students may be educated on how to self-monitor and correct errors on their own as well as how to generalize the skills to other settings or tasks (Larkin, 2001).

Individualized Instruction

There needs to be evidence in the co-taught classroom that instruction is individualized based on documented needs and that accommodations and/or modifications are being provided to individual students or groups (Konrad et al., 2011). Kauffman (2010) stated, "Instruction is the

most important variable in special education, but it is often overlooked. Special instruction is what makes special education work, yet it is often neglected" (p. 180). This particular concern is often cited by parents as the factor that leads them to question an inclusion placement with a co-taught approach. There is a fear that the specialized individual instruction will not be delivered in the general education classroom as it had been in the special education classroom (Garrick-Duhaney & Salend, 2000).

In order to individualize instruction well, educators must understand the needs of the students they serve. Data must be collected and analyzed before completing an IEP, and once written those accommodations and modifications must be followed consistently. Accommodations are a change in delivery or the materials used but not a change in curriculum content (McLaughlin, 2012; Scruggs & Mastropieri, 1995). An opportunity is extended for a student with a disability to gain access to the instruction or the materials on an evaluation (McLaughlin, 2012). Examples of accommodations include reading aloud an assignment or a test that is not measuring reading ability or decreasing the number of problems to be completed. Modifications entail a change in content or curriculum (McLaughin, 2012; Scruggs & Mastropieri, 1995). Examples of modifications include only requiring the student to complete the simplest math problems on a page or testing single digit rather than two digit multiplication. It is important to view the interventions mandated by the IEP in order to assure that each student is receiving the required assistance. These may include extended time, reading assistance, use of a calculator, concrete examples, drill and practice, one-to-one instruction, modified pace, reinforcers, mnemonics, modified environment, and peer assistance (McLaughin, 2012; Scruggs & Mastropieri, 1995).

The need for social and character education is often obvious among students with disabilities and must be approached from an individualized perspective as well (Kauffman, 2010). Student behaviors that may be perceived as inappropriate continue to be a major concern for classroom teachers (McCray & McHatton, 2011). Appropriate behavior expectations are easily integrated into other classroom activities in order to instill social skills as well. It is important that educators take full advantage of opportunities to set up social settings in the form of appropriate social interaction, turn taking, and problem solving. This can be accomplished through activities such as games and role playing (Terpstra & Tamura, 2008).

Special education is designed to offer individualized assistance based upon the strengths and needs of each individual child. This is true whether the need arises in academics or behavior. Kauffman (2010) indicated,

> The disgrace is that we have come to believe that special education is so not-special that it can be delivered by a generalist, busy teaching 25 other students a curriculum that was generated at the school board, or state, or federal level. The disgrace is that we have forgotten that special education is supposed to be special and that wherever it is delivered, it is supposed to be different. That's what we fought for. (p. 181)

The importance does not lie with the room in which a child is educated. Success is mediated by the manner in which the child is educated and the strategies employed to reach that particular child no matter what barriers may exist.

Classroom Management

Effective classroom management is invaluable in preserving the learning environment and modeling good behavior for all who enter. It is vital that co-teachers share a philosophy on

the application of classroom management in order to provide a consistent environment for students as this has been shown to assist in building more effective co-teaching relationships (Gerst, 2012). While there are several components working together in classroom management, the majority of literature focuses on control and student behavior (Garrahy et al., 2005).

The integration of good time management by teachers assists in establishing classroom expectations. One study showed that about half of a special education teacher's day is spent in instruction, instructional support, and paperwork (Vannest & Hagan-Burke, 2010). The variety of diverse roles taken on by these educators contributes to this time management issue; however, educators must be organized and structure their days in a productive and meaningful manner. It has been determined that the blurred lines between home and work resulting in little time for a personal life is a factor contributing to burnout in the profession (Robertson, Hancock, & Allen, 2006).

It is necessary that transitioning is taught in classroom expectations and enforced. When a teaching team executes good management skills, there is more opportunity for learning in that room (Nichols et al., 2010). Expectations can be clearly communicated while maintaining a positive approach, as there has been some evidence of humor influencing classroom management in a positive way when it is utilized appropriately (Gerst, 2012; Goodman & Burton, 2010). It is important for co-teachers to discuss expectations and maintain consistent expectations for student behavior. If there is a difference in philosophy, the students will pick up on that discrepancy. This consistent classroom management will be evidenced by students making requests of either teacher, students complying with requests made by either teacher, both teachers offering praise and redirection in the classroom setting to any student, a posted set of expectations, and on task behavior from students (Goodman & Burton, 2010; Linz et al., 2008;

Mastropieri et al., 2005). The noise level should be adequate for work to continue given the current educational activity, there should be consistent consequences, teacher support for each other in class decisions, and all behaviors should be addressed quickly and with little disruption to the learning environment (Rea & Connell, 2005).

Classroom management is identified as a process rather than an immediate skill. The process of developing a well-managed classroom can be an even more complex undertaking when considering melding the philosophies of two educators together in one classroom (Gerst, 2012). Teachers feel that classroom management is something that is learned from experience and not from teacher preparation programs according to interview data (Garrahy et al., 2005). This data shows that educators cannot remember the specifics that they were taught as best practices but have great belief in the practices individually utilized in their own classrooms that resulted in improved behavior and increased time on task for learning. Teachers were proponents of more practicums in teacher preparation programs in order to allow for real life experience in the process (Garrahy et al., 2005).

There are scales developed to examine the behavior of *students* within a classroom setting, but there are not validated instruments to measure *teacher* practices. While I did not find anything that specifically targeted co-taught classrooms, the existing scales were still largely self-report. One such study sought to develop an instrument to measure student disruptive behavior from the student perspective (Kulinna, Cothran, & Regualos, 2003). This was thought to be an area missing from the majority of literature. The limitations of questionnaires were still inherent in this undertaking.

Theoretical Framework

The theoretical framework provides the foundation for this research study. The role of this framework is to guide the study in a theoretically appropriate direction by utilizing the information that is already established to move toward discovery of areas that need to be further developed. Attitude theory (Eagly & Chaiken, 1993), states that there are cognitive, affective, and behavioral components to attitude. These processes work together to form attitudes and conversely, are the vehicles for responses related to the attitudes held. Thoughts are held in the cognitive realm while feelings are found in the affective and actions in the behavioral. The review of literature for this study revealed this behavioral component, which is also a component of practice is the missing piece (Eagly & Chaiken, 1993; Gherardi, 2001).

Having much in common with attitude theory (Eagly & Chaiken, 1993), the theory of planned behavior (Ajzen & Fishbein, 1980) was derived from the earlier theory of reasoned action (Ajzen & Fishbein, 1980). Perceived behavioral control, subjective norms, which are the effects of the social environment, and intentions are the primary factors outlined in the theory of planned behavior, which allow behavior to be explained and predicted. Changes in beliefs are positively correlated with changes in behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 2009). Behavioral intentions are defined as a way to, "obtain a measure of the person's attitude toward his own performance of the behavior in question" (Ajzen & Fishbein, 1980, p. 56). Many general education teachers lack confidence in their ability to effectively teach students with disabilities while reaching all of the other students in the classroom (Brackenreed, 2008; Hwang & Evans, 2011). Feelings of inadequacy can impact the intentions teachers hold regarding whether or not to pursue co-teaching strategies for the growth of students with disabilities. Subjective norms are defined as a person's "perceptions that most people who are important to

him think he should or should not perform the behavior in question" (Ajzen & Fishbein, 1980, p. 57). Adults can be influenced by a form of peer pressure whether explicitly stated or not. In a school where co-teaching is not readily accepted, it is difficult to show support for this practice openly. All components of the theory of planned behavior are applicable to the co-teaching process as the expectations of supervisors, knowledge relating to the practice, and intentions based on prior experience will impact the behaviors observed (Kudlaeek, Valkova, Sherrill, Myers, & French, 2002; Kuyini & Desai, 2007).

Both the theory of planned behavior (Ajzen & Fishbein, 1980) and the attitude theory (Eagly & Chaiken, 1993) were derived in part from Bandura's (1997) social cognitive theory (SCT). SCT indicates that behaviors are observed and imitated thus illustrating learning. The observed consequences and/ or reinforcers also play a role in this process (Bandura, 1969, 1997). The components of attitude referenced by Eagly and Chaiken (1993) are referred to as schema, which is also a component of Bandura's SCT (1969; 1997). Schema referrs to pieces of information that can be linked together as learning occurs in order to associate meaning.

SCT lays the groundwork for the necessity in understanding behavior and has been the theoretical basis for research regarding each of the six dimensions of teacher practice in this study. SCT offers support for the effective development of instructional roles, strategies, individualized instruction, classroom management, collaboration, and interaction (Abulibdeh & Hassan, 2011; Anderson et al., 2009; Dibapile, 2012; Fok-Han et al., 2009; Greener, 2009; Woodcock & Vialle, 2010). Educators tend to operate on norms established earlier in their career. They may have learned the aversion to co-teaching practices from other educators. This could be in part due to the desire to maintain the control of their own classrooms, as they are held accountable for those outcomes. Teachers have a tremendous responsibility to exhibit behavior

that is worthy of being modeled by students. The classroom climate is impacted by the attitudes of both administration and educator alike (Bunch & Valeo, 2004). Students imitate behaviors, and student behavior will either disrupt or enhance the learning environment. There is an increase of socially acceptable behaviors being demonstrated after the observation of an example. A behavior change accompanied by an attitude change will be more sustainable over time (Bandura, 1969).

Summary

IDEA (IDEA of 2004, 2004) requires students with disabilities to be educated in the general education classroom alongside their non-disabled peers to the greatest extent possible. Classroom teachers have been referenced as the most important indicator of the success of the co-taught classroom, and positive attitudes toward co-teaching play a role in student success (Batu, 2010; Rix et al., 2009). Teachers may work harder to carry out good co-teaching strategies if they believe in the task at hand. It is difficult to substantiate this concept without valid data regarding which co-teaching practices are observable within the classroom setting. With this in mind, the resulting practices are vital in understanding how to measure successful co-taught classrooms. Key indicators of successful co-teaching programs include collaboration, quality teacher/student interaction, ability to change roles fluidly, utilization of a variety of instructional techniques, individualized instruction, and consistent classroom management (DeVore & Russell, 2007; Worrell, 2008).

This study generated the Co-Teaching Observation Instrument (CTOI). This study was conducted because while it is possible to ascertain the academic success of students in the co-taught setting, there was no validated instrument to assess the implementation of co-teaching strategies. The mere placement of a student with a disability in a classroom that is labeled as a

co-teaching environment does not ensure that best practices are being utilized consistently. With the addition of this instrument, the practices of both the general and special education teacher may be observed and in future studies correlated to any number of other occurrences (e.g., attitudes, student achievement, etc.). This data can be utilized to direct planning for future educational programming for students and professional development for educators. The next chapter addresses the methods used to conduct this research.

CHAPTER THREE: METHODOLOGY

Introduction

Teachers have varying perceptions of co-teaching, and a wide array of researchers have addressed these attitudes (Avramidis & Norwich, 2002; de Boer et al., 2011), but there have been no validated instruments for observing how these perceptions translate to teacher practices (Brackenreed, 2008; Horne & Timmons, 2009; Ocloo & Subbey, 2008). The purpose of this study was to develop and validate an observation instrument that measures both general and special education teacher co-teaching practices in co-taught environments across kindergarten through twelfth grade levels. This chapter outlines the design, research questions, participants, setting, instrumentation, procedures, and analyses conducted for this research study.

Design

This study design was instrument development and used multiple procedures and analyses in order to create and establish the validity and reliability of the instrument. Specifically, face validity, content validity, construct validity, and internal consistency were evaluated. This process was completed in three phases of research.

Phase 1: Instrument Development

The first phase in the research included the development of the initial instrument. In order to create this instrument, a comprehensive review of literature was completed in order to identify gaps in the current research and identify the core elements of effective co-teaching practices. There was also a review of existing instruments that included the Classroom Observations of Student-Teacher Interactions (COSTI), the Teacher-Pupil Observation Tool (T-POT), and the Teacher-Student Relationship Inventory (TSRI). It was determined that no instrument had been developed or validated to measure co-teaching practices in the co-taught classroom. The review

of literature identified practices that were equated with effective co-taugth classrooms; therefore, those practices were integrated into the initial instrument as items for observation (see Table 2). This initial instrument consisted of 48 items comprised of 44 Likert-type scale items and four checklist items. The 44 questions included items related to the six dimensions of effective co-teaching: (a) teacher parity/collaboration, (b) teacher to student interaction, (c) instructional roles, (d) instructional strategies, (e) individualized instruction, and (f) classroom management.

Phase 2: Expert Review-Face and Content Validity

During Phase 2 of the study, an expert review was conducted on the 48 item instrument in order to establish face and content validity. *Face validity* is defined as how well an instrument appears to measure what it is intended to measure, or its face value (Kucuk & Walters, 2009). The definition of *content validity* takes analysis one step farther and refers to whether the items in the instrument actually measure what they are stated to measure (Delgado-Rico, Carretero-Dios, & Ruch, 2012).

During the expert review, 10 experts in the field of special education were asked to participate. These experts were asked to pilot the instrument in one classroom and complete the two section evaluation document. These experts were asked to give feedback on the readability, suitability, and intelligibility of the instrument and its items. They were asked to indicate whether items were critical, beneficial, or extraneous in assessing the components in the study (Tabachnick & Fidell, 2007) via a three point Likert type scale (Appendix I).

The resulting instrument derived from analysis of the data produced from the expert review was a 43 item instrument consisting of 39 five point Likert-type scale items and 4 checklist items that an observer completes during classroom observation. This scale ranged from

practices done very poorly or not observed to practices done well or consistently observed during the observation.

Phase 3: Field Testing, Construct Validity, and Reliability

Following the expert review, the 43-item instrument was field tested. Observers used the instrument to observe 160 pairs of co-teacher participants in co-taught classrooms across the state of Georgia. The data collected from the field underwent quantitative analyses to examine the construct validity and reliability for the instrument. *Construct validity* is defined as whether or not the instrument measures what it claims to measure based on proven relationships between the variables determined during data analysis (Salkind, 2000). Principal Component Analysis (PCA) was used to examine this construct validity and allowed a reduction of variables while retaining the maximum variance (DeCoster, 1998; Tabachnick & Fidell, 2007). The Cronbach's alpha coefficient and Spearman-Brown prophecy formula were used to examine the internal consistency and reliability of the instrument (Cohen, 1992; Pedhazur & Schmelkin, 1991). These forms of analyses were most appropriate for this study as they encompass the recommended method of data analysis for determining if certain items impacted responses in the expected manner. PCA was chosen rather than exploratory or confirmatory factor analysis due to the fact that this research sought to determine the components based on the measured responses rather than determining the responses based on the components (DeCoster, 1998; Kahn, 2006; Smolkowski & Gunn, 2012).

Questions and Hypotheses

The research questions for this study were**:**

RQ1: Does the Co-Teaching Observation Instrument (CTOI) have face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher

interaction, instructional roles, instructional strategies, individualized instruction, and classroom management?

RQ2: Does the Co-Teaching Observation Instrument (CTOI) have content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management?

RQ3: What is the underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study?

RQ4: Does the Co-Teaching Observation Instrument (CTOI) show internal consistency for the composite scale and its subscales?

The following were the research hypotheses:

$H_1$1: The Co-Teaching Observation Instrument (CTOI) has face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$2: The Co-Teaching Observation Instrument (CTOI) has content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$3: The underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will be co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_14: The Co-Teaching Observation Instrument (CTOI) shows internal consistency for the composite scale and its subscales.

Alternatively, the following were the null hypotheses:

H_01: The Co-Teaching Observation Instrument (CTOI) does not have face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_02: The Co-Teaching Observation Instrument (CTOI) does not have content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_03: The underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will not be co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_04: The Co-Teaching Observation Instrument (CTOI) does not show internal consistency for the composite scale and its subscales.

Participants

There were two distinct groups of participants in this research study. In order to analyze face and content validity (Phase 2), a participant group of 10 experts were invited to evaluate the initial instrument. This constituted the participant group for Phase 2 of the research. Phase 3 was the field testing portion of the study, which allowed the analysis of construct validity and reliability. For this phase, the participants were observers or raters and 160 pairs of observees.

Due to the fact that the observations were submitted via Qualtrics, I did not collect the actual number of observers participating. .

Phase 2: Expert Review - Face and Content Validity

The participants for face and content validation of the instrument consisted of 10 experts in the field of special education. These individuals were purposefully selected based on the following criteria: a Ph.D. or Ed.D. in educational leadership, educational psychology, or special education; five or more years of experience in their field to include personal teaching experience of at least 2 years in a co-taught classroom; and evidence of a research background in the field of special education (i.e., publication of a peer reviewed article or presentation within the last 2 years). This criteria was assessed via a self-report demographics sheet (see Appendix J). Participants were invited via email (see Appendix D) from professional organizations including the Council for Administrators of Special Education (CASE), Council for Exceptional Children (CEC), state departments of education, Georgia Learning Resources System (GLRS), and professors of special education currently employed in higher education.

Once individual or department contact information was obtained, the email invitation containing all of the information about the study, a demographic data sheet, and the informed consent was sent to the each prospective participant. Participants were asked to email back a signed informed consent along with the demographic data sheet if they were interested in participating in this study. As experts began to send in the informed consents or respond with regrets that they could not participate, they were questioned to determine if they knew others who might be interested in participating in this study, thus initiating a snowball or chain sampling approach in which others were contacted from referrals by initial contacts. The pool of participants was a purposeful, volunteer sample comprised of key experts and practitioners I was

able to access. The sampling frame was convenient; however, the above mentioned criteria had to be met in order for participants to be involved. There were multiple occurences where individuals were unable to be reached and emails would come back as undeliverable; therefore, it was necessary to look for additional professionals to contact. Workforce mobility contributed to the difficultly in obtaining current email lists, a challenge noted in the literature (Heckathorn, 1997).

Fifteen candidates responded to the email requesting participants and consented to take part in the study. Twelve of those 15 returned the informed consent. Ten participants were chosen based on the greatest variance in experience, research backgrounds, and current employment (see Table 1). There is little to no theoretical foundation regarding sample size noted among researchers for face and content validity. Research varies in the recommendation, and many times no reference is given at all to sample size. The minimum noted in the review of literature was two (Anthoine, Moret, Regnault, Sébille, & Hardouin, 2014).

Table 1

Credentials of Expert Review Participants

Reviewer	Degree	Years of Experience	Co-Teaching Experience	Research Background
1-female	Ph.D. in Special Education	13	2	Current research in the area of math disabilities to include publications and presentations
2-male	Ph.D. in Special Education	13	4	Over 25 peer reviewed publications and present nationally on research methods and statistical approaches on EBD
3-female	Ph.D. in Curriculum and Instruction with Special Education emphasis	17	3	Current research with a focus on collaboration in teacher preparation programs to include publications and presentations
4-female	Ph.D. in Special Education	39	2	Current research on co-teaching and program evaluation to include publications and presentations
5-female	Ph.D. in Special Education	34	3	Current research to include publication of 100 articles and 8 books
6-female	Ed.D. in Educational Leadershiop	20	2	Current research practices with a focus on leadership experience in special education to include publications and presentations
7-female	Ed.D. in Special Education	46	4	Current research in academic interventions/effective instruction for SWD to include publications and presentations
8-male	Ed.D. in Special Education	46	4	Current research in education covering the last 39 years to include publications and presentations
9-female	Ph.D. in Special Education	24	15	Current research with a focus on communication between co-teachers to include publications and presentations
10-female	Ph.D. in Special Education	16	5	Current research in several aspects of special education to include publications and presentations

Next, evaluation documents were sent via email to each of the 10 reviewers, and it was requested that the documents be returned within three weeks. After repeated attempts, I was unable to obtain review results from one of the experts chosen, and that position was filled with one of the remaining two respondents not initially chosen out of the eligible participant pool. The expert participants in Phase 2 were instrumental in determining if the instrument had face and content validity. A second distinct set of participants was used for Phase 3.

Phase 3: Field Testing, Construct Validity, and Reliability

The next phase of this research study was the field testing portion of the instrument to determine construct validity and reliability. As the instrument was intended to be used for observations, participant raters were recruited for participation in order to utilize the instrument for observing the co-teaching pairs. The observees were the pairs of co-teachers in each observed classroom which included 160 pairs of participants from co-taught classrooms in school districts across the state of Georgia. The observees remained anonymous throughout the study; therefore, they were not required to complete an informed consent.

Observers/raters. In order to elicit observers for the study, a list of email addresses for superintendents and/or special education directors was obtained from professional organizations or public websites including the Council for Administrators of Special Education (CASE), Council for Exceptional Children (CEC), state departments of education, and Georgia Learning Resources System (GLRS). An email was sent (see Appendix E) to all of the individuals on the lists obtained ($N = 159$) requesting their participation in the field testing portion of this study. All information regarding the specific guidelines of conducting the observations as well as the significance of this study were included in this email along with an informed consent, which was signed by either the observer or district personnel (see Appendix F). The Georgia membership of

CASE allowed me to present a synopsis of this study at the fall conference in 2015 to solicit participation for field testing (see Appendix P). When speaking to this group, I explained the gaps in the literature and the need to provide the best possible instruction to students in co-taught classrooms with a focus on the benefits this instrument could provide to districts. It was then explained that they would receive a follow up email containing a recap of all information as well as an informed consent for participation in the study..

There were 159 counties in the state of Georgia that were informed of this study via an email to either the Superintendent or Special Education Director. Of the 159 districts contacted for participation in the field testing portion of this study, 13 districts in the state chose to participate. All districts agreeing to participate were included in this phase of the research. It was requested that they ensure the individuals observing classrooms for their district met the following requirements: (a) possess at least a bachelor's degree in special education, educational psychology, or educational leadership and (b) have at least five years of experience in the educational setting. It was explained that if data were submitted by participants who did not meet this criteria, it would not be suitable for the study. There was no guidance given on how the districts were to invite the observers to participate. They were just asked to ensure that observers possessed the appropriate credentials and received the instructional guidance for administration included in the email.

Those observers choosing to participate were asked to return the informed consent via email. They then received an email containing the Co-Teaching Observation Instrument (CTOI) with specific instructions (see Appendix G) for administering the observation instrument in the co-taught classrooms. The observers had the discretion of choosing the classrooms that would be observed based on the criteria given for the observees in the section below; they were also

invited to observe multiple classrooms. All observation data was submitted electronically via Qualtrics.

Observer demographic information such as age, gender, ethnicity, years of teaching experience, and years of experience with co-teaching was collected (see Table 2).

Table 2

*Demographics for Observations *(N =160)*

Variable	Category	*n*	%
Gender	Male	6	4%
	Female	154	96%
Age	20-30	0	0%
	31-40	21	13%
	41-50	104	65%
	51-60	35	22%
	61+	0	0%
Years Teaching	1-5	0	0%
	6-10	66	41%
	11-15	46	29%
	16-20	13	8%
	21-25	22	14%
	26-30	5	3%
	30+	8	5%
Years Co-teaching	1-5	51	32%
	6-10	93	58%
	11-15	16	10%
	16-20	0	0%
	21-25	0	0%
	26-30	0	0%
	30+	0	0%
Highest Degree	Bachelors	0	0%
	Masters	66	41%
	Ed.S.	80	50%
	Ed.D.	14	9%

Note. * This demographic information is for the observers; however, due to the fact that the results were returned via Qualtrics, I did not collect information regarding how many observations each observer completed. For this reason, *N*=160 describes the total number of observations rather than the total number of observers. That number is unknown as observers were encouraged to complete multiple observations.

Observees. The observees were the 160 pairs of co-teachers. The sampling frame was convenient as the observers who consented to participate in the study chose the observees for participation based on the criteria provided (see Appendix G), and the observees were not required to give informed consent due to their anonymity. The required sample size for a PCA ranges from 50 to 400, with most researchers suggesting a minimum of 150 participants (Baggaley, 1983; Barrett & Cline, 1981; Comfrey & Lee, 1992; Gorusch, 1983; Guadagnoli & Velicer, 1988; Hatcher, 1994; Pedhazur, 1997). Given this recommendation, this sample that consisted of 160 pairs of co-teachers (320 participants in total) was deemed sufficient.

The majority of the observees were females, with the highest percentage of participants between the ages of 30 and 40. The largest percentage of those participating held a masters degree. The demographic information is provided for the observees (see Table 3).

Table 3

Observers Demographics (N = 320)

Variable		Category	*n*	%
Special Education				
	Gender	Male	45	28%
		Female	115	72%
	Age	20-30	19	12%
		31-40	50	31%
		41-50	51	32%
		51-60	38	24%
		61+	2	1%
	Years Teaching	1-5	31	19%
		6-10	38	24%
		11-15	32	20%
		16-20	21	13%
		21-25	14	9%
		26-30	19	12%
		30+	5	3%
	Years Co-teaching	1-5	78	49%
		6-10	59	36%
		11-15	14	9%
		16-20	3	2%
		21-25	6	4%
		26-30	0	0%
		30+	0	0%
	Highest Degree	Bachelors	35	22%
		Masters	56	35%
		Ed.S.	63	39%
		Ed.D.	6	4%
General Education				
	Gender	Male	51	32%
		Female	109	68%
	Age	20-30	29	18%
		31-40	51	32%
		41-50	38	24%
		51-60	34	21%
		61+	8	5%
	Years Teaching	1-5	32	20%
		6-10	30	19%
		11-15	34	21%
		16-20	26	16%
		21-25	18	11%
		26-30	11	7%

	31+	9	6%
Years Co-Teaching	1-5	65	41%
	6-10	60	38%
	11-15	21	13%
	16-20	8	5%
	21-25	1	1%
	26-30	5	3%
	31+	0	0%
Highest Degree	Bachelors	42	26%
	Masters	74	46%
	Ed.S.	43	27%
	Ed.D.	1	1%

Setting

Both Phase 2 (expert review) and Phase 3 (field testing) of the study took place in the United States (U.S.).

Phase 2: Expert Review- Face and Content Validity

The experts completed the trial observation and corresponding documentation for their evaluation in locations of their choice as well as one classroom observation also in a location of their choice.. The experts resided in a variety of locations including Utah, Florida, Georgia, Tennessee, Texas, Alabama, Virginia, and North Carolina and were all professors in the college or university setting in the field of special education. The experts were asked to examine the instrument within a three-week window and return their responses via email.

Phase 3: Field Testing, Construct Validity, and Reliability

Field testing of the instrument took place in K-12 public school settings in the state of Georgia. Attempts were made to include school districts across the United States, but no systems outside the state of Georgia returned the informed consent despite repeated contacts (see Appendix P). Even in the state of Georgia, these settings could be extremely diverse since the co-teaching environment may be approached differently in each school system. For this reason, the qualifying criteria was included to guide administration of the instrument. The instrument was

tested in general education, co-taught classrooms across all grade levels. These classrooms included all content areas where both the general education and the special education teachers held valid teaching certificates in their field and worked together a minimum of 45 minutes in an IEP-mandated academic course. This encompassed co-taught classrooms in suburban (5%) and rural settings (95%) across the state of Georgia, as no urban school systems returned the informed consent in order to participate in the study. The elementary setting made up 36% (n = 58) of the observations, while there were 34% (n = 54) in middle school and 30% (n = 48) in high school. The observations took place in a variety of subject areas: math-29% (n = 46), English Language Arts-28% (n = 45), science-19% (n = 30), social studies-14% (n = 22), reading-6% (n = 10), and other settings-4% (n = 7).

Procedures

There were three phases of research taking place during the course of this study. Phase 1 consisted of initial instrument development via review of the literature and other observation instruments. Phase 2 was defined by an expert review carried out by 10 experts in the field of special education in order to determine face and content validity. Phase 3 was the field testing portion of the observation instrument completed by observers from 13 school districts with 160 pairs of co-teachers in order to determine construct validity and reliability.

Phase 2: Expert Review-Face and Content Validity

A request was submitted (via application) to Liberty University's Institutional Review Board (IRB) on 11/20/13 to conduct this study. The IRB designated the study as exempt from further review and granted approval for the study on 2/4/14 (see Appendix K). Following this approval, I began Phase 2 of the research. The participants for face and content validation

consisted of 10 experts in the field of special education meeting specified criteria explained above.

Evaluation documents were then sent via email to each of the 10 expert reviewers, and it was requested that the documents be returned within three weeks. These participants were recruited using the procedures explained in the Participants section of this chapter. The items in the first portion of the evaluation document addressed face validity (see Table 3). Content validity was addressed in the second portion of this document (see Appendix I). Reminder emails were sent at three weeks if needed. Once data was received, it was analyzed in accordance with the procedures outlined in the Instrumentation and Data Analysis sections below.

Phase 3: Field Testing, Construct Validity, and Reliability

Participants were recruited using the procedures explained in the Participants section of this chapter. Membership lists were obtained from professional organizations and emails were sent to either the superintendent or special education of each district to request participation in this phase of the study. For the field testing portion of this study, observers conducted classroom observations of observees using the revised Co-Teaching Observation Instrument (CTOI). The observers had the discretion of choosing the classrooms that they would observe based on the criteria given for the observations. All observation data was submitted electronically via Qualtrics. This allowed observers to submit the information immediately upon completion of each observation and ensured the anonymity of each participant. Due to the fact that observers submitted the observation data into Qualtrics, data was not collected in order to ascertain how many observations were completed in each district or how many schools participated in each district. The observer also remained anonymous for the purposes of the observation, as there was no specific identifying data collected through the instrument. The observer was only identified

using general demographic information rather than names. For this reason, the data was not collected to determine how many observerations were completed by each observer.

There was no guidance offered regarding how observers would inform observees of the process, so that was left up to each individual observer based on existing school norms. There was no data collected regarding whether the observations were scheduled or unannounced. The observees were not asked to do anything other than carry out the normal classroom activities in the co-taught classroom.

Instrumentation and Data Analysis

This study design was instrument development and was conducted using multiple analyses in order to determine face validity, content validity, construct validity, and reliability. As the research design was instrument development, the instrumentation and the data analysis procedures are discussed here concurrently. The Co-Teaching Observation Instrument (CTOI) (see Appendix G) was developed and validated as a result of this study. Instrumentation and data analysis were each divided into three distinct phases during this research. Phase 1 was instrument development, Phase 2 was an expert review in order to determine face and content validity, and Phase 3 was field testing in order to determine construct validity and reliability.

Phase 1: Instrument Development

The CTOI was developed beginning with a review of similar observational scales. Many of the available instruments were self-report, which was not comparable to the focus of this study on measuring overt behaviors. The observational instruments reviewed were primarily related to teacher-student interaction and included the Classroom Observations of Student-Teachers Interaction (COSTI) (see Appendix A), Teacher-Pupil Observation Tool (T-POT) (see Appendix B), and Teacher Student Relationship Inventory (TSRI) (see Appendix C) (Ang, 2005; Martin et

al., 2010; Smolkowski & Gunn, 2012). While these were beneficial tools, they did not cover the full scope intended in this study; therefore, they were used to determine the gaps in existing instruments. The literature review offered support for the appropriateness of the items chosen and assisted in determining the definition of each instrument item (for a summary, see Table 4).

The CTOI was developed to measure both general education and special education teacher practices in co-taught environments across kindergarten through twelfth grade. The review of literature was utilized to determine the dimensions of effective co-teaching practices and inform item development. Six themes of co-teaching were recurrent in the literature: (a) *Teacher collaboration/parity* was measured by items related to teacher relationships and interactions (Friend et al., 2010; Knight, 2011); (b) s*tudent to teacher interaction* was assessed with items regarding teacher relationships and communication, both verbal and nonverbal, with students (Goodman & Burton, 2010; Ripski et al., 2011); (c) *instructional roles* were measured with items related to the duties of each teacher in relation to the student instructional grouping (Carter et al., 2009; Cook & Friend, 1995; Linz et al., 2008); (d) *instructional strategies* were measured with items regarding a variety of research based strategies and approaches utilized during instruction (Friend et al., 2010; King-Sears, 1997; Muscott, 1995; Rea & Connell, 2005; Sanacore, 1996); (e) *indivualized instruction* was assessed using items related to accommodations, modifications, and assessment of these interventions (Kauffman, 2010; Konrad, Joseph, & Itoi, 2011); and (f) *classroom management* was measured with items regarding maintaining instructional control of behavior and environmental factors (Gerst, 2012). The development of items was based on review of the literature, review of other instruments, and personal experience with co-taught classrooms both as a teacher and an observer.

The initial developed CTOI included 48 items (see Table 4) measuring effective co-teaching. Forty-four items had answers recorded on a five-point, Likert-type scale. The scale was as follows: 1-done very poorly or not observed, 2-done poorly or carried out almost never during the observation, 3-considered average or carried out some of the time, 4-done well or carried out most of the time, and 5-done very well or carried out carried out consistently all of the time. The remaining four items were answered using a checklist indicating strategies or approaches that were observed.

Table 4

Item Construction

#	Item	Literature Support
1.	Teachers conference during lesson.	The shared classroom is strengthened by a set planning time on the weekly calendar, both teachers' names indicated on the syllabus or in the classroom and teachers conferencing during the lesson (Friend et al., 2010; Isherwood & Barger-Anderson, 2008; Murawski & Swanson, 2001; Rea & Connell, 2005).
2.	Communication (both verbal and non verbal) between teachers is respectful and professional.	When this collaboration is effective the result is respectful interactions between educators and parity in the classroom setting. The relationship is established between teachers and the result is observable in the way that they interact, conference, and respond to each other both in and out of the classroom (Friend et al., 2010; Rea & Connell, 2005).
3.	Lesson plans indicate duties for both general and special education teacher.	A lesson plan containing visible input from both educators should be readily accessible. This allows both teachers to contribute information from their own expertise and knowledge base and provide the most benefit to students (Fenty, McDuffie-Landrum, & Fisher, 2012; Friend et al., 2010; Murawski & Lochner, 2011; Rea & Connell, 2005).
4.	Evidence exists of tensions between teachers.	Both teachers must understand their own and the others' expectations and beliefs regarding the process. An honest discussion of roles, space, strengths and weaknesses, and shared

		responsibility must take place. Any tensions or differences in philosophy must be discussed and addressed (Bouck, 2007).
5.	Both teachers are present for the majority of the lesson.	Both teachers should be present during instruction, and there should be evidence that both participants are prepared and familiar with the content covered (Friend et al., 2010; Rea & Connell, 2005).
6.	Whole group instructional leadership is shared.	Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
7.	There is a designated planning time indicated for the co-teaching team.	Collaboration requires that educators sharing a classroom also share planning time and responsibility (Friend et al., 2010; Rea & Connell, 2005).
8.	Students appear to view teachers as equals within the classroom.	The adults in the classroom provide the example for acceptable behavior. There is modeling of respect in conversation and students approaching both teachers for guidance in academic or behavioral questions (Friend et al., 2010; Rea & Connell, 2005).
9.	Both teachers are prepared and familiar with the content covered.	Both should be present during instruction, and there should be evidence that both participants are prepared and familiar with the content covered (Friend et al., 2010; Rea & Connell, 2005).
10.	Students respond to instruction from the general education teacher.	A positive climate also results in students responding well to both teachers in all situations. In this climate, students approach both teachers for guidance in academic or behavioral questions. (Friend et al., 2010; Pugach & Wesson, 1995).
11.	Students respond to instruction from the special education teacher.	A positive climate also results in students responding well to both teachers in all situations. In this climate, students approach both teachers for guidance in academic or behavioral questions. (Friend et al., 2010; Pugach & Wesson, 1995).
12.	Students respond to redirection from the general education teacher.	A positive climate also results in students responding well to both teachers in all situations. In this climate, students approach both teachers for guidance in academic or behavioral questions. (Friend et al., 2010; Pugach & Wesson, 1995).

13.	Students respond to redirection from the special education teacher.	A positive climate also results in students responding well to both teachers in all situations. In this climate, students approach both teachers for guidance in academic or behavioral questions. (Friend et al., 2010; Pugach & Wesson, 1995).
14.	General education teacher interacts with all students.	Meaningful teacher interaction affects student success and this should be taken into consideration. This is evidenced by students being spoken to by name, students asking for assistance and input without hesitation, and respectful tone of voice (Goodman & Burton, 2010; Ripski et al., 2011).
15.	Special education teacher interacts with all students.	Meaningful teacher interaction affects student success and this should be taken into consideration. This is evidenced by students being spoken to by name, students asking for assistance and input without hesitation, and respectful tone of voice (Goodman & Burton, 2010; Ripski et al., 2011).
16.	Students are positively reinforced with praise and encouragement by the general education teacher.	Positive feedback and reinforcement impacts both academic and behavioral responses from students. This is evidenced by students being given the opportunity to take responsibility for or redirect their own behavior, positive reinforcers and praise, and respectful tone of voice (Goodman & Burton, 2010; Ripski et al., 2011).
17.	Students are positively reinforced with praise and encouragement by the special education teacher.	Positive feedback and reinforcement impacts both academic and behavioral responses from students. This is evidenced by students being given the opportunity to take responsibility for or redirect their own behavior, positive reinforcers and praise, and respectful tone of voice (Goodman & Burton, 2010; Ripski et al., 2011).
18.	Special education students are singled out verbally in class.	Another key component for observation is non verbal communication when addressing students' questions or comments. There should be no inappropriate comments regarding disability utilized in the classroom setting such as singling children out as not meeting requirements or specifically referring to their disability in the classroom as this infringes upon confidentiality (Rea & Connell, 2005).
19.	Special education students are segregated	Special education students should not be

	from non-disabled peers by the physical setting of the room.	consistently seated or grouped together. There should be flexible grouping to allow interaction with a variety of peers and activities. Grouping the students with disabilities together every day only serves to promote a special education section of a general education classroom (Kluth, 2013).
20.	The special education teacher is leading whole group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
21.	The special education teacher is leading small group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Small groups benefit students by lowering the student to teacher ratio and providing focus for specific academic skills (Whittaker, 2012).
22.	The special education teacher is assisting whole group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and

		styles of instruction (Friend et al., 2010; Fenty et al., 2012).
23.	The special education teacher is assisting small group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Small groups benefit students by lowering the student to teacher ratio and providing focus for specific academic skills (Whittaker, 2012).
24.	The special education teacher is assisting individual student.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). There are two teachers in the room to address individual needs of students as necessary (Murawski & Dieker, 2008).
25.	The special education teacher is non instructional.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Teachers who do not believe in the process may not be working with students and this is not co-teaching (Murawski & Lochner, 2011).
26.	The general education teacher is leading whole group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or

		paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
27.	The general education teacher is leading small group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Small groups benefit students by lowering the student to teacher ratio and providing focus for specific academic skills (Whittaker, 2012).
28.	The general education teacher is assisting whole group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
29.	The general education teacher is assisting small group.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Small groups benefit students by lowering the student to teacher

		ratio and providing focus for specific academic skills (Whittaker, 2012).
30.	The general education teacher is assisting individual student.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). There are two teachers in the room to address individual needs of students as necessary (Murawski & Dieker, 2008).
31.	The general education teacher is non-instructional.	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). Duties take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, and presenting information from varying viewpoints (Carter et al., 2009; Friend, 1995; Linz et al., 2008). Teachers who do not believe in the process may not be working with students and this is not co-teaching (Murawski & Lochner, 2011).
32.	Co-Teaching models used: (Please choose one or more)	There are several accepted models for the organization of content in a co-taught classroom. Friend et al (2010) defines six which are commonly accepted.
	a. One teach/one observe (One teacher collecting data)	*One teach, one observe* and *one teach, one assist* lend support to the perception of special education teacher as aide. In one teach, one observe one teacher is collecting some type of data while instruction occurs (Friend et al., 2010).
	b. One teach/one support (One teacher assisting students as needed)	*One teach, one observe* and *one teach, one assist* lend support to the perception of special education teacher as aide. In one teach, one assist a teacher is moving among students offering help as the lesson is taught. This assistance can be in the form of academic, behavioral, or on task reminders (Friend et al., 2010).
	c. Alternative (Small group being	Small group instruction may occur through the

remediated, enriched, or assessed)	use of *alternative teaching*. One teacher leads a portion of the class in order to remediate, enrich, or assess (Friend et al., 2010).
d. Station (Students transition between small group centers that are led by one teacher or independent)	*Station teaching* indicates that instruction has been divided into groups that may be teacher led or independent in nature and students transition to these various areas (Friend et al., 2010).
e. Parallel (Both educators teaching same content to smaller group)	In order to decrease the student to teacher ratio or offer an opportunity for differentiation, *parallel teach* can be employed. This allows the teachers to divide the class and provide instruction on the same content (Friend et al., 2010).
f. Team with small groups (Sharing instructional roles)	*Team teaching* requires both educators to work together in order to provide instruction to small groups in a shared instructional role (Friend et al., 2010). Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
g. Team with whole groups (Sharing instructional roles)	*Team teaching* requires both educators to work together in order to provide instruction to the whole group in a shared instructional role (Friend et al., 2010). Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
h. No evidence of co-teaching	Teachers who do not believe in the process may not be working with students and this is not co-teaching (Murawski & Lochner, 2011).
33. Which strategies were observed?	
a. Goal setting	It is important to teach students how to monitor their own successes by self-awareness and setting goals. They can learn to self-advocate for themselves in all settings (Hart & Brehm, 2013).
b. Timed practice of basic skills	Timed practice of basic skills allows monitoring of whether special education students are making progress in areas of service (Coulter, Shavin, & Gichuru, 2009).

c. Student interest/choice	The majority of the day in an educational setting is outside of the students' realm of control. Schedule, rules, and expectations are all in place before they arrive. Effective teachers understand differences in learning styles and provide choices that are conducive to these preferences (Llewellyn, 2013).
d. Rubrics and graphic organizers	Graphic organizers offer students a more concrete example that they are able to visualize for more abstract concepts. Rubrics are also beneficial for allowing students to visualize expectations while guiding educators in the grading process (McCollin, O'Shea, & McQuiston, 2010; Strickland & Maccini, 2010; van Garderen, Scheuermann, & Jackson, 2013).
e. Checking for understanding	Using activities to check for understanding and teaching to mastery will assist students in maintaining learning that takes place (Scheeler, 2008).
f. Higher level thinking skills	Students involved in more complex activities such as discussion, problem solving, and hands on activities improve higher level thinking skills and test scores (Villanueva & Hand, 2011).
g. Vocabulary instruction	Vocabulary may be an area of weakness for those with poor reading skills. Improvement in this area can contribute to more meaningful reading and greater comprehension as well as self-efficacy (McCollin et al., 2010).
h. Teach in pieces/teach practice	Students are able to practice skills following instruction so that teachers can evaluate progress and reteach or offer guidance if needed (McDougall, Morrison, & Awana, 2012).
i. Interactive questions and summarizing activities	Interactive questions and summarizing activities will assist in monitoring mastery of materials presented in order to maintain the learning that has occurred (Scheeler, 2008).
j. Teachers use think aloud strategies	Think alouds are used to allow students to follow the process behind arriving at an answer. This can be considered an accommodation (Roach, Beddow, Kurz, Kettler, & Elliott, 2010).
k. Guided notes	Guided notes are another such strategy that might be utilized for students with disabilities.

	Guided notes allow students to follow along and fill in the blanks, and the decreased amount of time spent attempting to copy written material allows more focus on the important aspects of content while providing context clues for guidance (Konrad et al., 2011).
34. What instructional grouping is used?	
a. Whole group	Co-teachers sharing whole group instruction allows students to benefit from different perspectives, approaches, and styles of instruction (Friend et al., 2010; Fenty et al., 2012).
b. Small group	Small groups benefit students by lowering the student to teacher ratio and providing focus for specific academic skills (Whittaker, 2012).
c. Independent	Re-teaching is evident in successful classrooms as well as adequate modeling and student independent practice (King-Sears, 1997; Muscott, 1995; Rea & Connell, 2005).
d. Collaborative Pairs	Activities requiring peer collaboration or tutoring have been deemed effective, and students report enjoying the process of working in pairs and small groups (Scruggs & Mastropieri, 1995; Solis et al., 2012).
e. Testing	Testing environments can be disrupted if an observation is attempted.
f. Other	
35. Accommodations are observable for students with disabilities.	There needs to be evidence in the co-taught classroom that instruction is individualized based on documented needs and that accommodations and/or modifications are provided to individual students or groups (Konrad et al., 2011). Accommodations are a change in delivery or the materials used but not a change in curriculum content. An opportunity is extended for a student with a disability to gain access to the instruction or the materials on an evaluation. Examples of accommodations would be reading aloud an assignment or test that is not measuring reading ability or lowering the number of problems to be completed (McLaughlin, 2012).

36.	Modifications are observable for students with disabilities.	Modifications entail a change in content or curriculum. Some examples of modifications would be only requiring the student to complete the simplest math problems on a page or removing two of the four multiple choice questions (McLaughin, 2012; Scruggs & Mastropieri, 1995).
37.	There is documentation in the room of student IEP's.	It is important to view the interventions mandated by the IEP in order to assure that each student is receiving the required assistance. These may include extended time, reading assistance, use of a calculator, concrete examples, drill and practice, one-to-one instruction, modified pace, reinforcers, mnemonics, modified environment, and peer assistance (McLaughin, 2012; Scruggs & Mastropieri, 1995).
38.	There is documentation of student progress, interventions, and success of such.	It is important to view the interventions mandated by the IEP in order to assure that each student is receiving the required assistance. Interventions should be documented and progress monitoring completed routinely in order to determine the success or lack of success for each. (McLaughin, 2012; Scruggs & Mastropieri, 1995; Vannest, Burke, Payne, Davis, & Soares, 2011). Research based instructional strategies that are driven by assessment data are key. There should be some indication in the classroom that assessment data is collected and utilized (King-Sears, 1997; Muscott, 1995; Sanacore, 1996).
39.	What interventions are observed?	
	a. Task analysis/ chunking	Task analysis or chunking similar materials together allows students to attribute meaning and generalize skills to other areas (Liber, Frea, & Symon, 2008).
	b. Multi-modal instruction	Technology in the classroom can prove beneficial to all children including students with disabilities in instruction, assessment, and monitoring data. There are indications that technology assists in keeping students engaged in learning, and increases comprehension, retention of information, calculation, and

	completion of word problems (Coleman, 2009; Maccini et al., 2002). Effective teachers understand differences in learning styles and provide choices that are conducive to these preferences (Llewellyn, 2013).
c. Use of a calculator	Use of a calculator as an accommodation should only make it possible for students to access the test and show what they know rather than receiving an undue advantage in the test (Scarpati, Wells, Lewis, & Jirda, 2011).
d. Multiple types and modes of responses	Effective teachers understand differences in learning styles and provide choices that are conducive to these preferences. It is possible to offer several options for assignments to demonstrate an understanding of one particular standard. These choices may be presented for research approaches in science labs, mode of presentation, areas of study, roles of group members. By offering this menu of assignment options teachers are able to differentiate thus offering support to some and a challenge to others (Llewellyn, 2013).
e. Modeling	Modeling is evident in successful classrooms as well as adequate re-teaching and student independent practice (King-Sears, 1997; McCollin et al., 2010; Muscott, 1995; Rea & Connell, 2005).
f. Testing in small groups	Small group testing is an accommodation offered to some students in order to decrease distractions and student to teacher ratio. There doesn't seem to be any evidence that this influences the validity of test measurement (Abedi, 2009).
g. Repetition of instruction	Re-teaching is evident in successful classrooms as well as adequate modeling and student independent practice (King-Sears, 1997; Muscott, 1995; Rea & Connell, 2005).
h. Extended time for assignments	Some students are able to demonstrate their content knowledge with the accommodation of extended time. It must be considered whether or not this is necessary on an individual basis or it could interfere with the validity of testing (Lovett, 2011).
i. Modified environment or seating	Students may be allowed preferential seating

		or adaptive furniture for the purposes of safety, comfort, or lessening distraction (Examples of allowable IEP supports, 2006).
	j. Peer assistance	Activities requiring peer collaboration or tutoring have been deemed effective, and students report enjoying the process of working in pairs and small groups (Scruggs & Mastropieri, 1995; Solis et al., 2012).
	k. Materials read aloud	Read aloud accommodations are designed for students who have a reading disability and are in essence non readers. This is intended to grant access to instruction and assessment rather than give an unfair advantage (Report Roundup, 2010).
	l. Memory strategies	Mnemonic devices and other strategies are taught to student in order to help them learn the steps of a problem or pieces of a concept. This is beneficial to students who have a hard time with sequencing (Miller, Stringfellow, Kaffar, Ferreira, & Mancl, 2011).
	m. Tiered assignments/activities	It is possible to offer several options for assignments to demonstrate an understanding of one particular standard. These choices may be presented for research approaches in science labs, mode of presentation, areas of study, roles of group members. By offering this menu of assignment options teachers are able to differentiate thus offering support to some and a challenge to others (Llewellyn, 2013).
40.	General education teacher redirects inappropriate behavior.	Students must be redirected when their behavior is not consistent with the classroom expectation. The expectations should be referenced in order to teach the desired behavior (Carter & Pool, 2012).
41.	Special education teacher redirects inappropriate behavior.	Students must be redirected when their behavior is not consistent with the classroom expectation. The expectations should be referenced in order to teach the desired behavior (Carter & Pool, 2012).
42.	General education teacher reinforces appropriate behavior and work ethic.	Appropriate behaviors that follow the guidelines of the classroom expectations are reinforced with praise and other reinforcers. This increases the likelihood that these behavior will reoccur (Carter & Pool, 2012).

43.	Special education teacher reinforces appropriate behavior and work ethic.	Appropriate behaviors that follow the guidelines of the classroom expectations are reinforced with praise and other reinforcers. This increases the likelihood that these behavior will reoccur (Carter & Pool, 2012).
44.	Transitions are fluid between activities.	It is necessary that transitioning is taught in classroom expectations and enforced. When a teaching team executes good management skills, there is more opportunity for learning in that room (Nichols et al., 2010).
45.	Students are on task and engaged.	Consistent classroom management will be evidenced by students making requests of either teacher, students complying with requests made by either teacher, both teachers offering praise and redirection in the classroom setting, a posted set of expectations, and on task behavior from students (Good & Burton, 2010; Linz et al., 2008; Mastropieri et al., 2005).
46.	Both teachers exhibit the same expectations for behavior.	It is vital that co-teachers share a philosophy on the application of classroom management in order to provide a consistent environment for students as this has been shown to assist in building more effective co-teaching relationships (Gerst, 2012).
47.	Both speak the language of the classroom rules.	The language of the classroom expectations should be used by teachers, students, and parents in order to clearly focus on the expected behavior and define examples and non examples (Carter & Pool, 2012).
48.	Rituals and routines are obvious and adhered to by students.	Classroom rituals and routines dictate classroom order (Diehl & McFarland, 2012).

Phase 2: Expert Review of Face and Content Validity

Once the instrument was constructed, reviewed, and approved by my dissertation committee and IRB approval granted, the face and content validity were investigated using an expert review. Experts in the field of special education evaluated the face and content validity of the instrument. These 10 experts examined whether the instrument measured what it was intended to measure and recommended changes to the instrument. These experts were asked to

give feedback on the scale as a whole as well as individual items (Tabachnick & Fidell, 2007) (Appendix I). .

Experts were provided an evaluation document which had two portions. The first portion consisted of 11 items related to the face validity of the instrument (see Table 5). The response choices included strongly agree (3), neutral (2), and strongly disagree (1). In this section of the evaluation document, scores of neutral (2) or strongly agree (3) were considered to indicate that the instrument adequately addressed that issue. Any areas receiving a score of strongly disagree (1) from two or more experts was considered to be an area of concern. The second portion was related to content validity and asked the experts to respond to whether each item in the instrument was essential, useful but not essential, or not necessary (see Appendix I) (Lawshe, 1975). The response choices for each item on the instrument were essential (3), useful but not essential (2), and not necessary (1) in assessing the co-teaching practices (Tabachnick & Fiddell, 2007). Any items receiving a score of *not necessary* or *useful but not essential* by three or more experts was considered for removal.

Table 5

Items from Expert Review Evalaution Document

Number	Item
1.	Does the scale measure what it is intended to measure?
1a.	Does it adequately address the component of teacher collaboration/parity?
1b.	Does it adequately address the component of teacher-to-student interaction?
1c.	Does it adequately address the component of instructional roles?
1d.	Does it adequately address the component of instructional strategies?
1e.	Does it adequately address the component of individualized instruction?
1f.	Does it adequately address the component of classroom management?
2.	Is it simple and time effective to administer in the classroom?
3.	Is the data gained useful in evaluating the teachers in the co-taught classroom?
4.	Does the result give information regarding strengths and weaknesses that could be addressed?
5.	Could this be beneficial to school districts? Is yes, how?

The original instrument that was sent to the experts included a section for recording how many times each item was observed during the course of the observation. The observer was to utilize tally marks beside the Likert-type scale items in order to keep this data. The number of tally marks would then translate into the score received on the Likert-type scale. Five of ten experts questioned whether it was necessary to collect this data and whether more instances of a practice occuring would always equate with more a effective practice. Additionally, there were two Likert-type scales on the same instrument consisting of a 1 to 5 or 0 to 4 scale. Six experts

suggested that the instrument be revised to include only one scale. In addition to rating the overall instrument and items, experts were provided with the option to provide written feedback via a comments section on the evaluation document (see Appendix L). This written feedback resulted in revisions which are detailed in the section regarding Null Hypotheses One and Two in Chapter Four.

The removal, addition, and modification of items based on analysis of expert review data resulted in 43 items remaining on the instrument as reviewers overwhelmingly agreed that 43 of 48 items demonstrated strong face and content validity (see Appendix O). This included 39 items scored on a five-point, Likert-type scale and four items scored on a checklist to document strategies observed.

Phase 3: Field Testing, Construct Validity, and Reliability

In Phase 3, the 43 item instrument was analyzed using Principal Component Analysis (PCA) due to the goal of determining components based on the measured responses to the items (DeCoster, 2003). Prior to conducting the PCA for Phase 3, assessment of the suitability of the data for the analysis was conducted in order to ensure that the data was suitable for the analysis. The Likert-type scale construction satisfied the need for continuous variables. A correlation matrix showed the strength of the association among items (see Appendix M). The majority of items were related at or above a .3 level, demonstrating that items could be assessed using a factor analysis (Tachchnick & Fidell, 2007). The Kaiser-Meyer-Olkin (KMO) and the Barlett's test were used to determine factorability of the data. The overall KMO had to be .60 or larger (Stevens, 2002) and Bartlett's Test of Sphericity needed to be significant (Bartlett, 1954) in order for the data to be appropriate for anaylsis. The results of the KMO on this data was 0.751, exceeding the .60 criteria, and the Bartlett's Test of Sphericity was significant ($p < 0.1$),

supporting the factorability of the correlation matrix and assumption of multivariate normality. These results suggested that it was acceptable to continue with the PCA.

The instrument was further examined and refined using principal component analysis (PCA), including both factor extraction and direct oblimin rotation. PCA was utilized with the purpose of reducing a large number of items down to the minimum number of components while analyzing all of the variance between the variables (Kahn, 2006; Tabachnick & Fidell, 2007). This model allowed the testing of linear relationships as it assists in determining linear components within the data and then analyzing how a variable loads onto an individual component (Stevens, 1996). This analysis provided the necessary information to evaluate relationships among variables and describe the variables by referencing the common dimensions that surfaced (Gorsuch, 1983). In determining the appropriate analysis, there were other forms of factor analysis considered. Factor Analysis (FA), consisting of Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), is based on the assumption that the measured responses are based on the underlying factors while the PCA assumes the exact opposite to be true. As this research sought to determine the components based on the measured responses, PCA was the most appropriate choice for the purposes of this study, as it was the recommended method of data collection for determining if certain items impact responses in the expected manner (DeCoster, 2003).

Based on a review of eigenvalues, the scree plot, parallel analysis, and a conceptual understanding of the literature, a four-component solution was forced. A rotated factor loading of under .3 indicated that the factor loading was not salient; thus, three items were deleted that did not load onto any of the four components (Tabachnick & Fidell, 2007). In order to consider the reliability of each item, communality was analyzed to determine the variance that was

explained in each item and identify items that scored less than .,3 indicating a poor fit. Eight items scored below .3 in extraction and were removed from the instrument due to the poor fit (see Table 11). This analysis resulted in a 35-item instrument comprised of 31 items scored on a five-point, Likert-type scale, and four items scored on a checklist to document strategies observed. Cronbach's alpha and the Spearman-Brown coefficient were calculated and found to indicate good reliability and internal consistency (Pedhazur & Schmelkin, 1991).

The final instrument included four subscales: (a) *classroom interaction*, (b) *classroom management*, (c) *instructional strategies*, and (d) *instructional roles*. The *classroom interaction* subscale contains 12 items that assess the interaction between teachers as well as teacher to student interaction. Items 1, 4, 5, 7, 9, 11, 13, 36, 38, 40, 41, and 42 assess classroom interaction. The *classroom management* subscale is made up of six items that assess the management of classroom behavior and instructional time. Items 6, 8, 10, 12, 35, and 37 assess classroom management. The *instructional strategies* subscale is comprised of 11 items that assess the range of instructional strategies utilized with students. Items 17, 19, 23, 25, 28, 29, 30, 31, 32, 33, and 34 assess instructional strategies. The *instructional roles* subscale is made up of six items that assess the duties of the co-teachers during instruction. Items 16, 18, 20, 22, 24, and 26 assess instructional roles (see Table 14). For items 28, 29, 30, and 34, the items are scored on a checklist based on whether each strategy was observed. All remaining items are scored on a five-point, Likert-type scale: 1-done very poorly or not observed, 2-done poorly or carried out almost never during the observation, 3-considered average or carried out some of the time, 4-done well or carried out most of the time, and 5-done very well or carried out consistently all of the time. The four checklist items that discuss specific instructional strategies, co-teaching models, and instructional grouping were retained throughout the validation process. These items were not

included in the PCA but were considered essential by the experts assisting in the review in Phase 1, and all were utilized during the field testing in Phase 2.

Summary

The Co-Teaching Observation Instrument (CTOI) was developed and validated through the research methods presented in this chapter. There were three phases of research that took place during the course of this study. Phase 1 was initial instrument development via review of the literature and other observation instruments. Phase 2 consisted of an expert review carried out by 10 experts in the field of special education in order to determine face and content validity. Necessary changes were made to the instrument based on the resulting feedback. Phase 3 was the field testing portion of the observation instrument. The field testing was completed with 160 pairs of co-teachers in order to determine construct validity and reliability. Based on the analysis of the eigenvalues, screeplot, parallel analysis, and the results of the PCA along with the review of the literature, it was determined that a four-component solution would be forced (Stevens, 2002). To examine the reliability and internal consistency of the instrument, Cronbach's alpha and the Spearman-Brown coefficient were calculated and found to be above required limits indicating good results (Pedhazur & Schmelkin, 1991). The final instrument consisted of 35 items measuring the construct of effective co-teaching of which 31 were scored on a five-point, Likert-type scale, and the other four were scored on a checklist. The results of this study are presented in Chapter Four.

CHAPTER FOUR: FINDINGS

Introduction

There has recently been a great deal of conversation surrounding co-teaching practices, but prior to this study there were no validated instruments for observing teacher practices in this setting (Brackenreed, 2008; Horne & Timmons, 2009; Ocloo & Subbey, 2008). While social cognitive theory (Bandura, 1997) indicates there is a link between attitude and behavior, self-report surveys cannot provide a clear understanding of the degree of this relationship without observing actual practices (McCray & McHatton, 2011; Rakap & Kaczmarek, 2010). There must first be a tool that measures those practices that are observable in the classroom setting (de Boer et al., 2011). The purpose of this study was to develop and validate an observation instrument that measures both general education and special education teacher practices in co-taught environments across kindergarten through twelfth grade. The research supports the theory of planned behavior and the psychology of attitudes by providing the tools necessary to measure the behavior component of attitudes related to co-teaching (Eagly & Chaiken, 1993; Fishbein & Ajzen, 2009). The results of this study are discussed in this chapter.

Research Questions

The research questions for this study were**:**

RQ1: Does the Co-Teaching Observation Instrument (CTOI) have face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management?

RQ2: Does the Co-Teaching Observation Instrument (CTOI) have content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher

interaction, instructional roles, instructional strategies, individualized instruction, and classroom management?

RQ3: What is the underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study?

RQ4: Does the Co-Teaching Observation Instrument (CTOI) show internal consistency for the composite scale and its subscales?

Hypotheses

The following were the research hypotheses:

$H_1$1: The Co-Teaching Observation Instrument (CTOI) has face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$2: The Co-Teaching Observation Instrument (CTOI) has content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$3: The underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will be co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

$H_1$4: The Co-Teaching Observation Instrument (CTOI) shows internal consistency for the composite scale and its subscales.

Alternatively, the following were the null hypotheses:

H_01: The Co-Teaching Observation Instrument (CTOI) does not have face validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_02: The Co-Teaching Observation Instrument (CTOI) does not have content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_03: The underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will not be co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management.

H_04: The Co-Teaching Observation Instrument (CTOI) does not show internal consistency for the composite scale and its subscale.

Null Hypothesis One and Two: Face and Content Validity

The first and second null hypotheses stated that the Co-Teaching Observation Instrument (CTOI) does not have face or content validity for measuring co-teaching practices, including collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management (Angelides et al., 2008; Mastropieri et al., 2005; Ripski et al., 2011). In order to test null hypotheses one and two and examine the face and content validity of the instrument, 10 experts in the field of education reviewed the initial CTOI. The experts were asked to give feedback on the readability, suitability, and intelligibility of each item by responding to the items on the three-point, Likert-type scale (see Appendix I). The initial

Co-Teaching Observation Instrument (CTOI) contained two types of items: Forty-four items were structured to be answered on a Likert-type scale (28 items were designed for a response on a 0-4 scale, 16 items contained responses on a 1-5 scale); four items were designed as checklists to document strategies and approaches observed.

Experts ($N = 10$) reviewed all 48 items on the original instrument. The mean and standard deviation of the expert responses were calculated for each item (see Appendix N). Experts were also asked to include comments and suggestions in addition to the information requested via the evaluation document. Responses to the evaluation document were analyzed based on the criteria noted in Chapter Three. A written analysis was completed to include any additional clarifying comments, and these were considered and utilized for revision of the instrument. For the first section of the evaluation document, the only item in question following this analysis was #2: The scale is simple and time effective to administer in the classroom. The commentary from experts led to the discovery of areas of weakness that could have contributed to this low score, and these items are addressed in greater detail later in this section.

Based on evaluation criteria noted in Chapter Three, there were six items that were analyzed in order to determine removal or retention. They were #3 Lesson plans indicate duties for both general and special education teacher, #4: Evidence exists of tensions between teachers, #7 There is a designated planning time indicated for the co-teaching team, #8 Students appear to view teachers as equals within the classroom, #18 Special education students are singled out verbally in class, and #37 There is documentation in the room of student's IEP's (accommodations, modifications, goals/objectives).

The review of the comments attached to the evaluation documents indicated that the majority of these had been addressed by experts in this commentary (see Appendix L). It was

indicated by three reviewers that items three and seven were difficult to observe and could need additional interview or observation of documents. The comments of two experts indicated that item four was unnecessary due to the fact that this issue would surface in the observation and scoring of other items included. Two experts commented that item eight was more of an observation of the student than an observation of teacher practices. There was concern noted from four experts regarding the issues with student confidentiality if item 37 was readily observable in the classroom setting. Due to this input, these Likert-type scale items were removed from the instrument (see Table 7).

A review of the expert commentary continued resulting in the remaining revisions to the instrument prior to field testing. In reviewing item 18, it was determined that four experts expressed concern regarding the wording of items 18 and 19. The consensus was that these were worded negatively while the remainder of the instrument was worded in a positive manner. The suggestion for rewording these items was incorporated into the revised instrument, and therefore this item was retained in the revised state. Item one was also reworded to include the word communicate instead of conference as suggested by three experts during review. The suggestion was also incorporated to include age ranges on the demographic information sheet. There were individual comments that were not incorporated into the revised instrument such as rewording or adding definitions to items 44 and 45 due to the fact that only one expert made that suggestion as well as a review based on a conceptual review of the literature and personal experience (see Table 6).

Table 6

Items Receiving Multiple Comments from the Expert Review

Item	Comments
1. Teachers conference during lesson.	Reword to include more detail or the word communication instead of conference.
3. Lesson plans indicate duties for both general and special education teacher.	Difficult to observe and could require additional interview or observation of documents.
4. Evidence exists of tensions between teachers.	Unneccesary due to the fact that this would be evident in observation of other items.
7. There is a designated planning time indicated for the co-teaching team.	Difficult to observe and could require additional interview or observation of documents.
8. Students appear to view teachers as equals within the classroom.	This was more of an observation of student behavior than teacher practice.
18. Special education students are singled out verbally in class.	Worded negatively and should be restated
19. Special education students are segregated from non disabled peers by the physical setting of the room.	Worded negatively and should be restated
37. There is documentation in the room of student IEPs.	Concern regarding student confidentiality if this item was readily observable in the classroom setting.

These expert comments were also utilized to address the concerns related to the possibility that the instrument was too complex and time consuming. Due to expert concerns regarding the use of tally marks and inconsistent, Likert-type scales, revisions were made. These suggestions resulted in the tally marks being removed and the scale restructured to included one

scale of a one to five, Likert-type scale. The revisions helped to create an instrument that was more consistent and simpler to administer.

All remaining items received an essential score from a minimum of seven experts indicating that the item was essential for inclusion; therefore, the expert reviewers overwhelmingly agreed that 43 items demonstrated strong face and content validity. These 43 items included 39 items written on a Likert-type scale and four checklist items . Following the removal, addition, and modification of items in the original instrument, the result was a 43-item instrument for the observation of effective co-teaching practices that may be considered to exhibit strong content and face validity (see Appendix L); therefore, null hypotheses one and two were rejected.

Table 7

Items Removed from Instrument following Expert Review

Item	Category
7. There is a designated planning time indicated for the co-teaching team.	Collaboration
3. Lesson plans indicate duties for both general and special education teacher.	Collaboration
8. Students appear to view teachers as equals within the classroom.	Collaboration
4. Evidence exists of tensions between teachers.	Collaboration
37. There is documentation in the room of student IEPs.	Individualized Instruction

Null Hypotheses Three and Four: Construct Validity and Reliability

Null hypothesis three stated that the underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will not be co-teaching practices including

teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management. This was tested utilizing field testing and a Principal Component Analysis (PCA) in order to analyze those responses. Null hypothesis four stated that the Co-Teaching Observation Instrument (CTOI) does not show internal consistency for the composite scale and its subscale. Analysis was conducted using Cronbach's alpha and the Spearman Brown coefficient.

Descriptive Statistics

This 43-item Co-Teaching Observation Instrument (CTOI) (see Appendix O) was field tested for construct validity and reliability with 160 pairs of co-teachers, 320 teachers total. This instrument consisted of two types of items. Thirty-nine of the observation items required a response to be given on a five-point, Likert type scale. For these items, mean and standard deviation were calculated (see Table 8). The remaining four items required strategies to be checked off from a provided checklist. For these items, the percentage of participants responding affirmatively by choosing each item from the checklist provided was recorded (see Table 9). These statistics were calculated and categorized by the corresponding research component, which is outlined in the following tables.

Table 8

Descriptive Statistics (N = 160 Pairs)

Items	Statistics	
	M	*SD*
1. Teachers verbally communicate with each other regarding content and/or students during the lesson	3.96	1.37
2. Communication (both verbal and nonverbal) between teachers is respectful and professional.	4.59	1.07
3. Both teachers are present in the classroom.	4.75	.67
4. Instructional leadership is shared in content delivery.	4.14	1.23
5. Both teachers are prepared and familiar with content.	4.63	0.96
6. Students respond to instruction from the general education teacher.	4.65	0.80
7. Students respond to instruction from the special education teacher.	4.59	0.82
8. Students respond to redirection from the general education teacher.	4.47	1.04
9. Students respond to redirection from the special education teacher.	4.48	0.99
10. General education teacher interacts with all students during instruction and assignments.	4.61	0.83
11. Special education teacher interacts with all students during instruction and assignments.	4.34	1.13
12. Students are positively reinforced with praise and encouragement by the general education teacher.	4.41	1.00
13. Students are positively reinforced with praise and encouragement by the special education teacher.	4.40	1.00
14. There are no references made to students with disabilities out loud in the classroom environment.	4.22	1.56
15. Special education students sit with the general education students and share all parts of the environment	4.33	1.35
16. Leading whole group	2.06	1.28
17. Leading small group	2.44	1.55
18. Assisting whole group	2.60	1.43
19. Assisting small group	2.47	1.49
20. Assisting individual student	2.98	1.23
21. Non instructional	1.20	0.67
22. Leading whole group	3.51	1.38
23. Leading small group	2.15	1.48
24. Assisting whole group	2.74	1.50
25. Assisting small group	2.15	1.44
26. Assisting individual student	2.74	1.38
27. Non instructional	1.16	0.60
31. Accommodations (change in format, delivery, etc., such as math test read aloud) are provided for students with	3.29	1.77

disabilities.		
32. Modifications (change in content such as single digit multiplication instead of double digit) are provided for students with disabilities.	2.69	1.83
33. There is documentation of student progress, interventions, and success of such (data notebook, etc.).	3.78	1.73
35. General education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	4.38	1.15
36. Special education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	4.34	1.19
37. General education teacher reinforces appropriate behavior and work ethic.	4.48	0.97
38. Special education teacher reinforces appropriate behavior and work ethic.	4.41	1.06
39. Students move between activities appropriately with few distractions.	4.24	1.06
40. Students are on task and engaged.	4.42	0.67
41. Both teachers exhibit the same expectations for behavior.	4.69	0.78
42. Both teachers speak the language of the classroom rules.	4.59	1.00
43. Rituals and routines and procedures are obvious and adhered to by students.	4.69	0.57

Table 9
Response Percentages for Checklist Items

Items	Subcategories	*n*	Percentage
28. Co-teaching Models Used	One teach/one observe	22	14%
	One teach/one support	80	50%
	Alternative	42	26%
	Station	13	8%
	Parallel	29	18%
	Team with small group	37	23%
	Team with whole group	38	24%
	No evidence	5	3%
29. Please check the strategies observed	Goal setting	21	13%
	Timed practice	29	18%
	Student interest/choice	27	17%
	Rubrics and graphic organizers	24	15%
	Checking for understanding	134	84%
	High level thinking skills	54	34%
	Vocabulary instruction	66	41%
	Teach in pieces/teach practice	50	31%
	Interactive questions and summarizing activities	75	47%
	Teachers use think aloud	78	49%
	Guided notes	24	15%
	Other	22	14%
30. What instructional grouping is used?	Whole group	122	76%
	Small group	78	49%
	Independent	50	31%
	Collaborative pairs	26	16%
	Testing	18	11%
	Other	3	2%
34. Please check the strategies observed	Task analysis/Chunking	24	15%
	Multi-modal instruction	38	24%
	Use of a calculator	13	8%
	Multiple types and modes of response	54	34%
	Modeling	85	53%
	Testing in small group	19	12%
	Repetition of instructions	98	61%
	Extended time for assignments	45	28%
	Modified environment or seating	34	21%
	Peer assistance	67	42%
	Materials read aloud	74	46%
	Other	14	9%
	Memory strategies	38	24%
	Tiered assignments/activities	21	13%

Null Hypothesis Three

Demographics. During the field testing portion of the research in Phase 3, demographic data was collected from both the observers and the observees in order to document patterns and

limitations. The majority of all participants in this phase in all roles were females, which is consistent with demographics in Georgia; most of the observers were in the 40-50 age range and all possessed at least a master's degree.

Assessment of Suitability Data

In order to investigate the validity and structure of 39 Likert-type scale observation items in the Co-Teaching Observation Instrument (CTOI), a principal components analysis (PCA) with orthogonal rotation was conducted. As discussed in Chapter Three, necessary assumptions were met based on a KMO of 0.751 and indication that Bartlett's Test of Sphericity was significant ($p < 0.1$). These results indicated that the data was appropriate to continue with the principal component analysis (PCA).

There is little agreement among researchers in regards to the needed sample size. Numerous conventions for sample size exist, with Tabachnick and Fidell (2007) suggesting 300. Some experts have supported a requirement for a minimum sample size of 150 in order to ensure reliability in research (Comfrey & Lee, 1992; Guadagnoli & Velicer, 1988). Stevens (1996) indicates that with any sample above 100, there are no concerns related to the power of the test. With 160 pairs of participants, this number was exceeded in this study.

The decision made to retain components was based upon Kaiser's (1960) criterion of 1 for eigenvalues, Cattell's (1966) scree plot, Horn's (1965) parallel analysis, and a conceptual understanding of the literature. The Principal Component analysis (PCA) revealed the presence of 12 eigenvalues exceeding one, explaining 23.20%, 10.17 %, 8.58%, 6.60%, 5.14 %, 4.31%, 3.92%, 3.36%, 3.02%, 2.76%, 2.66%, and 2.58% of the variance, respectively, which accounted for 76.28% of the total variance. An inspection of the scree plot revealed a clear break after the first component, indicating that one component could be retained for analysis (see Figure 1). The

parallel analysis showed five components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of 43 variables and 160 pairs of participants (Horn, 1965).

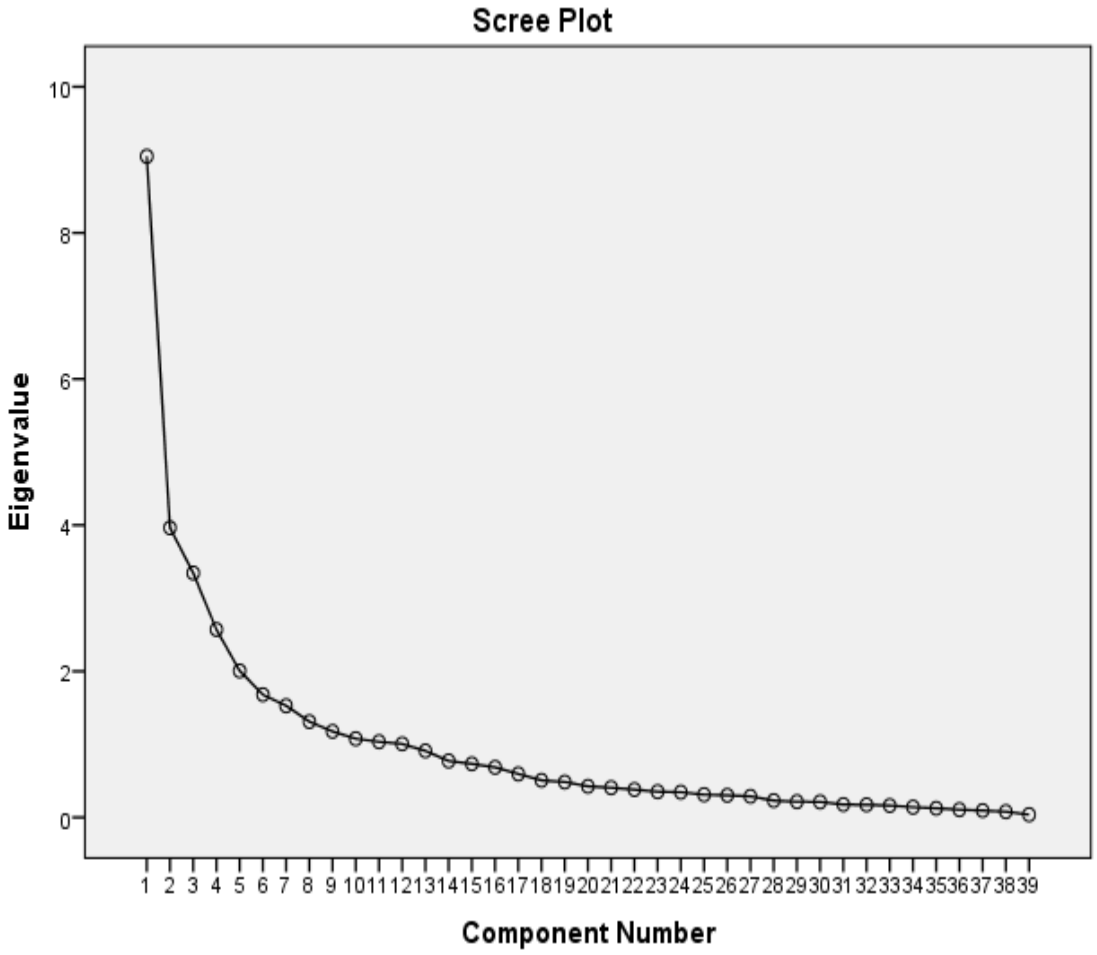

Figure 1. The scree plot indicates a clear break after the first component

Based on the results of three analyses in conjuction with a review of the literature on co-teaching, a fourcomponent solution was forced. A simple structure with few complexities was sought (Gorsuch, 1983; Kim & Mueller, 1978; Kline, 2002). The one component solution indicated by the scree plot was not considered due to the fact that it did not take into account the existence of multiple components while the 12 component solution had a great deal of overlap between components. In considering the five component solution indicated by the parallel analysis, analysis of the fifth component revealed that there were only four items loading onto it. Each of those four items loaded onto another component as well, meaning a five component solution did not support the pursuit of a simple structure due to the overlap of items (Gorsuch, 1983; Kim & Mueller, 1978; Kline, 2002).

The components for the four component solution were labeled as (a) *classroom interaction*, (b) *classroom management*, (c) *instructional roles*, and (d) *instructional strategies*, which were chosen based on the review of the literature (see Table 9). *Classroom interaction*. is defined as the climate of the classroom to include adult to adult and adult to student interaction (Carter et al., 2009; Ripski et al., 2011). The second component of *classroom management* is operationalized as the methods by which co-teachers manage the expectations for instruction and behavior in the classroom (Mastropieri et al., 2005). The component of individualized instruction loaded onto the third component of *instructional strategies,* which is defined as strategies utilized to increase learning and retention of knowledge to include individualized instruction for students with disabilities (King-Sears, 1997; Muscott, 1995; Sanacore, 1996). The fourth component of *instructional roles* is operationalized as the duties and responsibilities carried out by each co-teacher in the classroom environment (Linz et al., 2008) (see Table 10).

Table 10

Literature Supporting a Four Component Solution

Component	Review of the Literature
Classroom Interaction	The interaction between adults sets the tone for the student environment as well. Teacher collaboration is a construct that reappears in literature related to successful co-teaching for the past two decades. Collaboration, defined as time spent together with a focus on shared thoughts with time for reflection and feedback in order to utilize each educators strengths, requires that educators sharing a classroom also share planning time and responsibility for student success (Knight, 2011) . When this collaboration is effective the result is respectful interactions between educators and parity in the classroom setting (Friend et al., 2010). Just as it is necessary for educators to treat each other with respect, it is imperative that students receive that same respect in the classroom setting. Results of respectful communication are positive regardless of whether the student has a disability or not. Meaningful teacher interaction affects student success, and this should be taken into consideration. Positive feedback and reinforcement impacts both academic and behavioral responses from students (Goodman & Burton, 2010; Ripski et al., 2011).
Classroom Management	When a teaching team executes good management skills, there is more opportunity for learning in that room (Nichols et al., 2010). Expectations can be clearly communicated while maintaining a positive approach, as there has been some evidence of humor influencing classroom management in a positive way when it is utilized appropriately (Gerst, 2012; Goodman & Burton, 2010). It is important for co-teachers to discuss expectations and maintain consistent expectations for student behavior. If there is a difference in philosophy, the students will pick up on that discrepancy. This consistent classroom management will be evidenced by students making requests of either teacher, students complying with requests made by either teacher, both teachers offering praise and redirection in the classroom setting to any student, a posted set of expectations, and on task behavior from students (Goodman & Burton, 2010; Linz et al., 2008; Mastropieri et al., 2005). The noise level should be adequate for work to continue given the current educational activity, there should be consistent consequences, teacher support for each other in class decisions, and all behaviors should be addressed quickly and with little disruption to the learning environment (Rea & Connell, 2005).
Instructional Strategies	In order to individualize instruction well, educators must understand the needs of the students they serve. Data must be collected and

	analyzed before completing an IEP, and once written those accommodations and modifications must be followed consistently. Accommodations are a change in delivery or the materials used but not a change in curriculum content (McLaughlin, 2012; Scruggs & Mastropieri, 1995). An opportunity is extended for a student with a disability to gain access to the instruction or the materials on an evaluation (McLaughlin, 2012). Cooperative learning groups, brain-based learning systems, and teaching students to generalize skills to other areas are all possibilities for classroom strategies that reach beyond those necessitated by an IEP. Activities requiring peer collaboration or tutoring have been deemed effective, and students report enjoying the process of working in pairs and small groups (Scruggs & Mastropieri, 1995; Solis et al., 2012). Guided notes are another such strategy that might be utilized for students with disabilities. Guided notes allow students to follow along and fill in the blanks, and the decreased time spent attempting to copy written material allows more focus on the important aspects of content while providing context clues for guidance. These and other strategies are often accompanied by choral response, response cards, or graphic organizers (Konrad et al., 2011).
Instructional Roles	The instructional roles of the special education teacher and general education teacher in a co-taught classroom should be interchangeable (Carter et al., 2009). There are various forms of instruction that take place in a classroom and if effective collaboration has taken place, both educators should be equipped to step into any necessary classroom role. This can take the form of leading whole group, leading small groups, assisting students individually, redelivering or paraphrasing content, providing review, presenting information from varying viewpoints, and instituting the co-teaching models of station, parallel, alternative, and team teaching (Carter et al., 2009; Friend, 1995; Linz et al., 2008).

In order to determine the appropriate rotation, both an oblique and an orthogonal rotation were initially completed for this study (Pedhazur & Schmelkin, 1991; Tabachnick & Fidell, 2007). Despite the fact that there is little theoretical rationale for this approach, Pedhazur and Schmelkin (1991) recommended that both the oblique and orthogonal approaches be completed and the orthogonal method chosen if there is no correlation between the factors. As suggested by Tabachnick and Fiddell (2007), the correlation matrix for the oblique rotation was reviewed for

correlations at .32 or above (see Table 11). With correlation coefficients below a .32, the underlying constructs were assumed independent. Thus, the orthogonal rotation for the PCA was chosen as it allowed for the most interpretable structure.

Table 11

Component Correlation Matrix

	Component			
Component	1	2	3	4
1	1.000	.209	.159	-.029
2	.209	1.000	.055	-.051
3	.159	.055	1.000	.012
4	-.029	-.051	.012	1.000

The four factor solution explained 48.53% of the variance, with component 1 contributing 23.20%, component 2 contributing 10.17%, component 3 contributing 8.58%, and component 4 contributing 6.60%. The Varimax rotation was utilized. The rotated solution demonstrated a simple structure (Thurston, 1974) with most items loading strongly on one component.

The rotated component matrix was analyzed to determine the factor loadings based on the highest loading item on a component (see Table 12). This matrix was evaluated using a cutoff of .3 for acceptance of items for retention in the instrument. All scores below .3 were deleted from the data (Tabachnick & Fidell, 2007). There were items that did not load on any of the components that were part of this data as well.

Fifteen of the items loaded onto the first component, *classroom interaction*; seven loaded onto the second component, *classroom management*; eight loaded onto the third component, *instructional strategies*; and six loaded onto the fourth component *instructional roles* (see Table 12). This factor loading was prior to determining which items had poor fit due to the

communalities; therefore, some of these items were later determined to have poor fit and therefore, they were removed.

Table 12

Rotated Component Matrix

	Component			
Items	1	2	3	4
13. Students are positively reinforced with praise and encouragement by the special education teacher.	**.839**			
38. Special education teacher reinforces appropriate behavior and work ethic.	**.819**			
7. Students respond to instruction from the special education teacher.	**.779**			
9. Students respond to redirection from the special education teacher.	**.772**			
36. Special education teachers redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	**.769**			
11. Special education teacher interacts with all students during instruction and assignments.	**.732**			
4. Instructional leadership is shared in content delivery.	**.662**			
41. Both teachers exhibit the same expectations for behavior.	**.662**			
42. Both teachers speak the language of the classroom rules.	**.655**			
5. Both teachers are prepared and familiar with content.	**.591**			
1 Teachers verbally communicate with each other regarding content and/or students during the lesson.	**.505**	.412		
43. Rituals and routines and procedures are obvious and adhered to by students.	**.499**			
40. Students are on task and engaged.	**.423**			
20. Non instructional	**-.376**			
2. Communication (both verbal and nonverbal) between teachers is	**.319**			

respectful and professional.						
10. General education teacher interacts with all students during instruction and assignments.			**.869**			
37. General education teacher reinforces appropriate behavior and work ethic.			**.865**			
12. Students are positively reinforced with praise and encouragement by the general education teacher.			**.860**			
6. Students respond to instruction from the general education teacher.			**.841**			
8. Students respond to redirection from the general education teacher.			**.833**			
35. General education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.			**.757**			
3. Both teachers are present in the classroom.			**.522**			
23. Leading small group				**.772**		
17. Leading small group				**.728**		
25. Assisting small group				**.723**		
31. Accommodations (change in format, delivery, etc. such as math test read aloud) are provided for students with disabilities.	.313			**.688**		
19. Assisting small group				**.684**		
32. Modifications (change in content such as single digit multiplication instead of double digit) are provided for students with disabilities.	.330	.302		**.582**		
33. There is documentation of student progress, interventions, and success of such (data notebook, etc).	.338			**.410**		
15. Special education students sit with the general education students and share all parts of the environment.				**-.328**		
14. There are no references made to students with disabilities out loud in the classroom environment.						
26. Assisting individual student					**.694**	
24. Assisting whole group					**.660**	
20. Assisting individual student					**.620**	
16. Leading whole group	.383				**.545**	

18. Assisting whole group	**.539**
22. Leading whole group	**.419**
39. Students move between activities appropriately with few distractions.	
27. Non instructional	

Notes. Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

To assess the reliability of each item, communality was analyzed to determine the variance that is explained in each item and identify items that scored less than .3, indicating a poor fit. Eight items that scored below .3 in extraction and were removed from the instrument due to the poor fit (see Table 13). These items were # 2, 3, 14, 15, 21, 27, 39, and 43 (see Table 14). Two of the items that were removed were from the teacher collaboration and parity scale, two were from teacher to student interaction, two were from instructional roles, and two were from classroom management. Items 14, 27, and 39 did not load onto any of the components.

Table 13

Communalities

Items	Initial	Extraction
1 Teachers verbally communicate with each other regarding content and/or students during the lesson.	1.000	.442
2. Communication (both verbal and nonverbal) between teachers is respectful and professional.	**1.000**	**.179**
3. Both teachers are present in the classroom.	**1.000**	**.309**
4. Instructional leadership is shared in content delivery.	1.000	.503
5. Both teachers are prepared and familiar with content.	1.000	.391
6. Students respond to instruction from the general education teacher.	1.000	.740
7. Students respond to instruction from the special education teacher.	1.000	.613
8. Students respond to redirection from the general education teacher.	1.000	.733

9. Students respond to redirection from the special education teacher.	1.000	.607
10. General education teacher interacts with all students during instruction and assignments.	1.000	.757
11. Special education teacher interacts with all students during instruction and assignments.	1.000	.592
12. Students are positively reinforced with praise and encouragement by the general education teacher.	1.000	.789
13. Students are positively reinforced with praise and encouragement by the special education teacher.	1.000	.743
14. There are no references made to students with disabilities out loud in the classroom environment.	**1.000**	**.080**
15. Special education students sit with the general education students and share all parts of the environment.	**1.000**	**.143**
16. Leading whole group	1.000	.455
17. Leading small group	1.000	.577
18. Assisting whole group	1.000	.390
19. Assisting small group	1.000	.546
20. Assisting individual student	1.000	.396
21. Non instructional	**1.000**	**.181**
22. Leading whole group	1.000	.303
23. Leading small group	1.000	.606
24. Assisting whole group	1.000	.521
25. Assisting small group	1.000	.663
26. Assisting individual student	1.000	.545
27. Non instructional	**1.000**	**.099**
31. Accommodations (change in format, delivery, etc., such as math test read aloud) are provided for students with disabilities	1.000	.622
32. Modifications (change in content such as single digit multiplication instead of double digit) are provided for students with disabilities.	1.000	.553
33. There is documentation of	1.000	.330

student progress, interventions, and success of such (data notebook, etc.).		
35. General education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	1.000	.623
36. Special education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	1.000	.649
37. General education teacher reinforces appropriate behavior and work ethic.	1.000	.771
38. Special education teacher reinforces appropriate behavior and work ethic.	1.000	.732
39. Students move between activities appropriately with few distractions.	**1.000**	**.189**
40. Students are on task and engaged.	1.000	.319
41. Both teachers exhibit the same expectations for behavior.	1.000	.490
42. Both teachers speak the language of the classroom rules.	1.000	.465
43. Rituals and routines and procedures are obvious and adhered to by students.	**1.000**	**.284**

Table 14

Items Removed from Instrument following Evaluation of Factor Loadings

Item	Category
2. Communication (both verbal and nonverbal) between teachers is respectful and professional.	Collaboration
3. Both teachers are present in the classroom.	Collaboration
14. There are no references made to students with disabilities out loud in the classroom environment.	Teacher to Student Interaction
15. Special education students sit with the general education students and share all parts of the environment.	Teacher to Student Interaction
21. Special education teacher is non instructional	Instructional Roles
27. General Education teacher is non instructional	Instructional Roles
39. Students move between activities appropriately with few distractions.	Classroom Management
43. Rituals and routines and procedures are obvious and adhered to by students.	Classroom Management

The PCA resulted in a 35-item instrument to measure co-teaching practices. For this reason, the null hypothesis which stated, the underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will not be the construct of effective co-teaching including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management was rejected. While six dimensions of effective co-teaching were identified in a review of the literature, the final instrument is comprised of four components (i.e., subscales) including *classroom interaction*, *classroom management*, *instructional strategies*, and *instructional roles* (see Table 15).

Table 15

Loading of Each Item onto Component/Subscale

Components	Items
Classroom Interaction	
	13. Students are positively reinforced with praise and encouragement by the special education teacher.
	38. Special education teacher reinforces appropriate behavior and work ethic.
	7. Students respond to instruction from the special education teacher.
	9. Students respond to redirection from the special education teacher.
	36. Special education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.
	11. Special education teacher interacts with all students during instruction and assignments.
	4. Instructional leadership is shared in content delivery.
	41. Both teachers exhibit the same expectations for behavior.
	42. Both teachers speak the language of the classroom rules.
	5. Both teachers are prepared and familiar with content.
	1. Teachers verbally communicate with each other regarding content and/or students during the lesson.
	40. Students are on task and engaged.
Classroom Management	
	10. General education teacher interacts with all students during instruction and assignments.
	37. General education teacher reinforces appropriate behavior and work ethic.
	12. Students are positively reinforced with praise and encouragement by the general education teacher.
	6. Students respond to instruction from the general education teacher.
	8. Students respond to redirection from the general education teacher.
	35. General education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.
Instructional Strategies	
	23. General education teacher is leading small group.
	17. Special education teacher is leading small group.

	25. General education teacher is assisting small group. 31. Accommodations (change in format, delivery, etc., such as math test read aloud) are provided for students with disabilities. 19. Special education teacher is assisting small group. 32. Modifications (change in content such as single digit multiplication instead of double digit) are provided for students with disabilities. 33. There is documentation of student progress, interventions, and success of such (data notebook, etc.).
Instructional Roles	26. General education teacher is assisting individual student. 24. General education teacher is assisting whole group. 20. Special education teacher is assisting individual student. 16. Special education teacher is leading whole group. 18. Special education teacher is assisting whole group. 22. General education teacher is leading whole group.

Null Hypothesis Four

The fourth null hypothesis stated that the Co-Teaching Observation Instrument (CTOI) does not show internal consistency for measuring the construct of effective co-teaching practices. In order to examine the reliability and internal consistency of the instrument, Cronbach's alpha and the Spearman-Brown coefficient were calculated (Pedhazur & Schmelkin, 1991). The Cronbach's alpha for this data was .851, indicating good internal consistency as a measure of .7 or higher is required to support this construct. The Spearman Brown coeffiecient was .804 which indicated that this instrument has good reliability (Gall, Gall, & Borg, 2010). Cronbach's alpha was also calculated for the four subcales in order to examine the internal consistency of each. *Classroom interaction*, had a score of .907. *Classroom managagement* had a score of .928, and *instrsuctional strategies* had a Cronbach's alpha of .818. Each of these indicated good internal consistency, because they are above the required measure of 0.70. The fourth subscale, *instructional roles*, had a Cronbach's alpha of .673 which was slightly below the required

measure to indicate good internal consistency (Gall et al., 2010; Pedhazur & Schmelkin, 1991). The null hypothesis was rejected for the composite scale and the first three subscales of *classroom interaction*, *classroom management*, and *instructional strategies*. The null hypothesis for the subscale of *instructional roles* could not be rejected.

Summary

The purpose of this study was to develop and validate an observation instrument that measures both general education and special education teacher practices in co-taught environments across kindergarten through 12th grade. In Phase 1, the initial 48-item, six-dimension instrument was developed via the literature review. During Phase 2, the expert review portion of the research was completed with 10 reviewers. At the end of the analysis of the 48-item instrument, five items were removed due to lack of readability or deemed to not critical in assessing a component of effective co-teaching. During Phase 3, field testing was completed. Suitability testing was completed to ensure that the remaining items were compatible with the selected analysis, principal component analysis (PCA). Factorability of the correlation matrix and assumption of multivariate normality were found tenable. After analysis of the eigenvalues, scree plot, parallel analysis, and a review of literature, it was determined that a four-factor solution would be forced. As suggested by Tabachnick and Fiddell (2007), the correlation matrix for the oblique rotation was reviewed for correlations at .32 or above. With correlation coefficients below a .32, the underlying constructs were assumed independent. Due to this, the orthogonal rotation for the PCA was chosen, as it allowed for the most interpretable structure. Following this analysis, eight items were removed due to not loading onto a componenet or exhibiting a poor fit. This resulted in a 35-item instrument with (discuss the internal

consistency/reliability). Implications, limitations, and suggestions for future research are discussed in the following chapter.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The increase in co-teaching as a model for supporting the education of students with disabilities alongside their non-disabled peers has been a movement felt in most educational realms across the United States. While there has been great value placed on the education of students with disabilities, educators have not had a valid tool to measure the teacher practices behind the successes or failures of these students. The development of this instrument, the Co-Teaching Observation Instrument (CTOI), has the potential to address the missing component of behavioral practices since the majority of previous research has maintained a focus on perceptions, attitudes, and self-reported data. This chapter includes a discussion of the study hypotheses and findings, implications, limitations, and recommendations for future research.

Discussion

The purpose of this study was to develop and validate an observation instrument that measures both general education and special education teacher practices in co-taught environments across kindergarten through twelfth grade levels. In Phase 1, a 48-item instrument was first developed based on a review of the literature. Next it went through two additional phases of testing. In the Phase 2, an expert review was utilized in order to determine face and content validity. Analysis of data from the expert review resulted in a 43-item instrument. In Phase 3, the revised instrument was field tested with 160 pairs of co-teachers across 13 districts in the state of Georgia. A Principal Component Analysis (PCA) was conducted on the results of field testing this revised instrument to determine the final number of items that would be retained. The resulting instrument was the 35-item Co-Teaching Observation Instrument (CTOI) with four components or subscales. The instrument was found to be valid and reliable.

Hypothesis One and Hypothesis Two

The first and second null hypotheses stated that the Co-Teaching Observation Instrument (CTOI) does not have face and content validity for measuring co-teaching practices including teacher collaboration/parity, student teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management (Angelides et al., 2008; Mastropieri et al., 2005; Ripski et al., & Decker, 2011). In order to test the face and content validity of the instrument, the CTOI was sent to 10 experts in the field of education for review. Reviewers were requested to pilot the observation instrument in one classroom in order to assist them in developing their professional opinion. They were then asked to complete the evaluation document which consisted of two portions written on a three-point, Likert-type scale. The first portion of the evalution document consisted of 11 items to evaluate face validity, which is defined as how well a test appears to measure what it is intented to measure or its face value (Kucuk & Walters, 2009). This portion of the evaluation targeted each subscale of the instrument as well as the overall instrument. The second portion was utilized to evaluate the content validity or whether the items in the instrument actually measure what they are stated to measure (Delgado-Rico et al., 2012). This evaluation included each of the 48 items included in the instrument of which there were 44 items written on a Likert-type scale and four items designed as checklists to document strategies and approaches observed. Experts provided feedback on the readability, suitability, and intelligibility of the items and whether they were critical, beneficial, or extraneous in assessing the components in the study (Tabachnick & Fiddell, 2007) via the three-point, Likert-type scale (see Appendix I). Experts included comments and suggestions as they felt necessary.

Following the review of the evaluation documents as well as expert comments, five Likert-type scale items were removed from the instrument due to a lack of suitability for the instrument. Three items were reworded due to issues with readability and intelligibility. The Likert-type scale was restructured to a one to five scale for consistency throughout, and it was determined that tally marks were unnecessary to document the number of times that each item was observed during the observation period. These changes followed expert recommendations to make the instrument simpler and more time effective to administer in the classroom. Seven or more of the experts supported the face and content validity of the remaining instrument; therefore, null hypotheses one and two were rejected.

The determination of face and content validity for this instrument addressed some of the concerns with previous studies in this area. The perceptions of teachers in the co-taught setting have received a great deal of focus in research. When viewing attitudes from the perception of the three component theory (Eagly & Chaiken, 1993), it is stressed that perceptions and thoughts do not exist in isolation. The majority of current literature has a greater emphasis on teacher contentment than the resulting classroom practice (Kusuma-Powell & Powell, 2016; Welch et al., 1999). The failure to reject these hypotheses reflects positively on the validation of this instrument which will contribute to this area of the research.

These findings are in support Bandura's (1997) social cognitive theory as well as Eagly and Chaiken's (1993)attitude theory. Classroom teachers have been referenced as the most important indicator of the success of the co-taught classroom, and positive attitudes toward co-teaching have been shown to play a role in student success (Batu, 2010; Rix et al., 2009). It could be logically concluded that teachers may put more energy into frameworks they view as beneficial or ideas where they share ownership. In order to substantiate this concept, there would

have to be valid data regarding which co-teaching practices are observable within the classroom setting. There is consensus that the resulting practices are vital in understanding how to measure successful co-taught classrooms. Collaboration, quality teacher-student interaction, ability to change roles fluidly, utilization of a variety of instructional techniques, individualized instruction, and consistent classroom management have all been included in research as key indicators of successful co-teaching programs (DeVore & Russell, 2007; Friend et al., 2010; Gerst, 2012; Llewellyn, 2013; McLaughlin, 2012; Solis et al., 2012; Worrell, 2008). The decision to reject these null hypotheses impacts the movement toward a validated instrument to produce this measure.

Hypothesis Three

The third null hypothesis stated that the underlying factor structure of the Co-Teaching Observation Instrument (CTOI) used in this study will not be co-teaching practices including teacher collaboration/parity, student-teacher interaction, instructional roles, instructional strategies, individualized instruction, and classroom management. In order to make this determination, the CTOI was field tested with 160 pairs of co-teachers and the data was analyzed using Principal Component Analysis (PCA). This analysis was deemed appropriate based on a KMO of 0.751 and indication that Bartlett's Test of Sphericity was significant ($p < 0.1$). These results of the KMO and Bartlett's supported the factorability of the correlation matrix and assumption of multivariate normality (Bartlett, 1954; Stevens, 2002). The inclusion of 160 pairs of participants satisfied the requirement for a minimum sample size of 150 (Comfrey & Lee, 1992; Guadagnoli & Velicer, 1988).

The eigenvalues, screeplot, parallel analysis, and the results of the PCA were considered along with the review of the literature to determine which items should be retained for the

instrument design (Stevens, 2002). Based on these analyses, it was decided that a four-component solution would be forced. Both an oblique and orthogonal rotation were completed, and it was determined that there was not a great deal of correlation. Thus, the rotation chosen for the PCA was orthogonal and the Varimax rotation was utilized as it allowed for the most interpretable structure (Pedhazur & Schmelkin, 1991; Tabachnick & Fidell, 2007).

Following this analysis, it was determined that eight items would be removed from the observation instrument due to their poor fit. The remainder of the instrument was kept intact. The finalized instrument consists of 35 items that load onto four components:*classroom interaction*, *classroom management*, *instructional strategies*, and *instructional roles*. Due to the fact that the dimensions were all contained in the resulting items, the null hypothesis was rejected.

There is a great deal of literature that supports the inclusion of the four identified subscales or components in this instrument (Carter et al., 2009; Friend, 1995; Gerst, 2012; Goodman & Burton, 2010; Linz et al., 2008; Ripski et al., 2011; Solis et al., 2012). Despite this existence of research-based best practices, the majority of existing research had previously centered around educator attitudes toward and perceptions of co-teaching. Prior to this study there was no valid measure for the overt classroom practices of co-teachers. There could be a vast difference between perceptions recorded through self report and observable classroom practices, as there is no guarantee that the practices exhibited will be directly aligned to the perceptions reported (de Boer et al., 2011; Rakap & Kaczmarek, 2010). This instrument has the potential to influence the way teachers self-report in the future due to increasing the self-efficacy and self-awareness of co-teachers. However, a review of the literature reveals that practices related to successful co-taught classrooms include the four components that are central in the

final instrument. These are *classroom interaction*, which includes teacher to teacher and teacher to student interaction, *classroom management*, *instructional strategies*, and *instructional roles* (Angelides et al., 2008; Mastropieri et al., 2005; Ripski et al., 2011). Therefore, the decision to reject this null hypothesis does offer support for this framework. It was determined that instead of six dimensions as were named in the beginning of the research, there were only four components identified in the results. It seemed that some of teacher to student interaction and teacher collaboration/parity loaded onto the same components, indicating a larger category of *classroom interaction*. The dimension of individualized instruction loaded onto *instructional strategies* thus resulting in four components.

Hypothesis Four

The fourth null hypothesis stated that the Co-Teaching Observation Instrument (CTOI) does not show internal consistency for the composite scale and its subscales. In order to examine the reliability and internal consistency of the instrument, Cronbach's alpha and the Spearman-Brown coefficient were calculated (Pedhazur & Schmelkin, 1991). The Cronbach's alpha for this data was .851 indicating good internal consistency. The Spearman Brown coeffiecient was .804 which indicated that this instrument has good reliability (Gall et al., 2010). Cronbach's alpha was also calculated for the four subcales in order to examine the internal consistency of each. The first three subscales, *classroom interaction*, c*lassroom managagement*, and *instructional strategies* all had a Cronbach's alpha of indicative of good internal consistency. The fourth subscale, *instructional roles*, had a Cronbach's alpha which was slightly below the required measure to indicate good internal consistency (Gall et al., 2010; Pedhazur & Schmelkin, 1991). The null hypothesis was rejected for the composite scale and the first three subscales of

classroom interaction, *classroom management*, and *instructional strategies*. I failed to reject the null hypothesis for the subscale of *instructional roles*.

A review of the existing literature brought to light the need for an evaluation instrument for teacher practices in the co-taught classroom, which has now been created through this study. Scruggs et al. (2007) stated, "Classroom instructional practices have not changed substantially in response to co-teaching" (p. 412). This reinforces Murawski and Swanson (2001) who observed, "Few studies describe the actions of the special education teacher during the process of co-teaching" (p. 265), and additional data is needed in this area. The literature reinforces the idea that teachers report their own perception as a greater predictor of effective co-taught classrooms than factual knowledge; however, there has been no way to substantiate this relationship between thought and action previously (Pearce et al., 2009). The instrument in this study provides the means to measure co-teaching practices in k-12 settings. This data is necessary for future research to evaluate the impact that teacher perceptions have on the implementation of co-teaching strategies. There is the possibility to evaluate any resulting implications that these perceptions may have on student success. The decision to reject this fourth null hypothesis which states that the Co-Teaching Observation Instrument (CTOI) does not show internal consistency for the composite scale and its subscales assisted in the validation of this instrument and providing a tool for this purpose.

Implications

This study makes an important contribution to the field of education by developing an instrument that measures the overt practices of both general and special educators in co-taught settings across K-12. Co-teaching has been heralded as an effective mechanism utilized to educate all learners in one environment, provided effective instructional strategies are

consistently implemented (CCL, 2009; Rea et al., 2002; Solis et al., 2012), but more information is needed. Research indicates that students with special needs perform better in the co-taught setting than in the special education setting when individualized instruction is utilized (CCL, 2009; Rea et al., 2002; Solis et al., 2012). However, research also indicates that the general education setting is often the least individualized setting (Friend et al., 2010). Favorable outcomes in co-taught settings are still marginal or non-significant in most cases, which might indicate that individualized instruction is not actually being implemented or not being implemented to the degree students need to reach their full potential in the general education settings. Thus, it is very important to assess whether best co-teaching practices and the individualized instruction and other strategies are actually being employed in order to truly evaluate the placement (CCL, 2009; Madden & Slavin, 1983) and to pointpoint where improvements can be made.

Previous studies indicated that teacher perceptions regarding co-teaching practices range from negative to positive with some studies citing neutrality (Brackenreed, 2008; de Boer et al., 2011; Gal et al., 2010; Horne & Timmons, 2009; Solis et al., 2012). These findings indicated that there has been little consensus regarding perceptions in the area of co-teaching from those involved (de Boer et al., 2011; Horne & Timmons, 2009; Sari & Secer, 2009). There is a large variance in findings regarding perceptions of co-teachers, and it is difficult to give credence to the relationship between perception and practice without a validated measurement tool for co-teacher practices. This study contributes to this gap in the literature by providing this necessary instrument. In future research, the Co-Teaching Observation Instrument (CTOI) could assist in illustrating the resulting triangulation of cognitive, affective, and behavioral components of

attitudes in relation to co-teaching practices (Eagly & Chaiken, 1993; Hwang & Evans, 2011; Rakap & Kaczmarek, 2010).

There have been many practices recognized in the literature that contribute to the successful implementation of co-teaching strategies. These include collaboration, teacher parity, shared responsibility, and accommodations and active learning strategies for students (Patterson et al., 2008; Rix et al., 2009; Thousand et al., 1997). This instrument embodies all of those items. For this reason it could allow for the evaluation of the implementation of these practices with the success of co-taught classrooms. The instrument could be utilized to develop more effective co-teaching programs across all grade levels.

Professional development is an important part of the field of education in order to remain current on research based best practices. It is imperative to provide appropriate ongoing training and support for educators working with all students but specifically students with disabilities. While it is simple to provide education regarding what defines co-teaching and how to carry out various strategies and models, it can be difficult to pinpoint the areas of strength and weakness in each particular classroom using data to drive the process. That was an area that received attention during the expert review in Phase 1 as experts overwhelmingly agreed that the instrument could be utilized to identify areas of weakness and strength and could prove beneficial if utilized in school districts.

In utilizing this instrument, it would be possible to obtain data on not only the practices that are consistently occurring in the classroom but also those that are not visible at all. Administrators could identify the highest performing co-taught classrooms in the building and also determine what practices are consistently observed in this setting in order to replicate this success in other classrooms. The converse is also true. Lower performing co-taught classrooms

could be evaluated to determine what areas they need to target for improvement. In this manner, professional development becomes much more individualized and meaningful. This individualized professional learning could focus on practices specific to each subscale or even include drilling down to a particular item. This instrument also presents an opportunity for co-teachers to evaluate themselves. Classroom instruction could be recorded and the educators could evaluate themselves individually or collaboratively along with their co-teaching partner. Utilizing the instrument in this manner would allow co-teachers to reflect on their practices and determine areas of focus or improvement as well as celebrate areas of strength. The administrator becomes empowered due to the increase in available data and is in turn able to empower his/her teachers to take control of their own environment while guiding them toward the desired outcomes. The ability to determine where specific co-teaching weaknesses exist would be invaluable. This would allow targeted professional development activities that are no longer just an overview of co-taught practices but an individualized approach to a particular school or system issue.

In the process of data analysis, the relationships between certain practices and student success could be evaluated as well. The ability to draw these correlations is something that educators and administrators have not had access to in the past. Thus, the data provided by this instrument could be used to improve instruction.

An administrator would have access to the data from all of his or her co-teaching teams. When a classroom experiences a large percentage of growth, the option exists to identify what practices were working in that environment and share them with other teams. The CTOI offers another measure in support of teacher effectiveness, as it is not enough to just know that an

educator is effective without understanding the reason behind that success. There is no way to replicate this success without understanding and documenting how it was obtained.

This instrument will also offer support for the need for teacher collaboration and an environment that is respectful. In order for students to respect both educators as contributing to the classroom, the educators must operate from a system of parity (Friend et al., 2010). The data provided from this instrument could lend credence to this belief resulting in more trends toward allowing collaborative planning time or team building activities to promote healthy environments for both teams and students. Finally, the CTOI provides a means to truly assess the practices taking place in the co-taught setting as well as verbalize expectations for teacher practices to new and veteran teachers. Development of this instrument offers the possibility to affect a great change in the classroom thus impacting the achievement of not only students with disabilities but all students (Goodman & Burton, 2010; Smith, 2007).

Many times there may be unrealistic expectations from members of the co-teaching team regarding the partnership. Unmet expectations can impact the classroom environment and the experience of the students; therefore, increasing positive climate in classrooms and school buildings. There are many interventions that can be employed in order to make co-teaching a more productive and enjoyable partnership including building trusting relationships and setting clear expectations (Friend et al., 2010). This instrument can provide data that could be kept in order to determine how co-teaching has changed over time in an environment. Thus, the longitudinal data could be utilized to help new co-teaching teams to reflect on growth and develop new goals.

The education of students with disabilities carries with it an increased rate of teacher stress, burnout, and turnover (Buell et al., 1999; Daane et al., 2000; Diana, 2014; Koutrouba,

Vamvakari, & Steliou, 2006; Weilbacher & Tilford, 2015). Data generated from the CTOI may inform professional development with more specific guidance for professional growth; therefore, reducing the feelings of inadequacy and uncertainty. There are many reasons new or veteran teachers experience feelings that lead them to feel that they are not making a difference for students as they would desire. The reasons for teacher frustration could be linked to a misunderstanding of what is expected in the co-taught setting, a failure to carry out expected practices, or a co-teaching team that puts undue responsibility on one member. This instrument allows for these patterns to be brought to light and discussed in debriefing sessions with one or both members of the co-teaching team in order to effect change. A positive benefit could be higher teacher retention rates due to more targeted professional development and support.

Ongoing evaluation would help develop more classroom environments that epitomize best practices culminating in better results for students as well as healthier work environments for adults. The hope would be that the utilization of this instrument and the resulting data could contribute to higher teacher retention rates in this area of instruction as well. There is also the opportunity for further theoretical implications as a result of this study including support for the tenant of social cognitive theory (Bandura, 1997) and the role that behavior plays in social environments. The potential this data possesses to increase teacher self-efficacy and self-awareness has the power to change classroom climate and the student experience. The creation of this instrument closes a gap in educational research by providing a valid and reliable tool that was not available prior to this study. This study provides a validated instrument to observe practices in co-taught classrooms. While there are many instruments in existence for observation, it is vital that school systems utilize validated instruments in order to truly know that they are measuring what they intend to measure and that the data driving instruction is valid.

Limitations

The scope of this study was large and included multiple stages, so there are several limitations to note. Results were dependent on those choosing to participate in this study. While I attempted to enlist a large number of participants, some chose not to volunteer. There are a variety of possible reasons that a school system might have foregone this opportunity that may include a lack of staff to administer the instrument, time constraints, or reluctance to participate in additional, new projects. The reluctance of some districts to take part in the study subjected the study to non-ignorable non-response. Of those responding, there was some variance in demographics represented such as suburban, rural, and high poverty. Findings are limited, because all of the participants were from rural and suburban areas of Georgia. There were no participants from urban areas or outside the state limiting the generalizeability of the findings. There was good representation from across grade levels and subject areas; however, the number of reading classes observed was slightly lower than other academic areas. Various age groups, levels of teaching experience, levels of co-teaching experience, and degrees held existed in the study, but the number of doctorate-level professionals in both the observers and observees was a very small percentage. The majority of all observers (96%) and observees (Special Education 72%, General Education 68%) were female, and there was no data collected on ethnicity. Thus, these limitations must be considered when making any generalizations or assumptions based on these results.

Threats to internal or external validity were considered. As this study created a new instrument, there were possible threats to internal validity such as implementation. This implementation issue could have resulted if there were differences in the way that various participants utilized the instrument as individuals have differing approaches related to

professional and personal preferences. The attempt was made to limit the possibility of this threat by giving uniform instructions to be followed by each and every participant and following up with guidance as needed. It was requested that I be informed of any discrepancies in administration.

The fourth component of instructional roles did not show good internal consistency according to the Cronbach's alpha score of .673. This is a limitation due to the fact that I failed to reject the null hypothesis related to this subscale. In reviewing the items in this subscale, it is evident that they are broader than some of the other items. Also, due to the fact that these items deal with the specific role each teacher is filling during the observation, there is a great deal of variability. It is possible that certain aspects were not observed at all during certain observations.

Recommendations for Future Research

The development and validation of this instsrument opens the door for further research in many aspects. This study was conducted in the state of Georgia in predominantly rural districts. Future research should seek to include districts across the United States in more diverse regions. Additional studies should seek to include urban regions as well in order to have this representation.

The most beneficial research for future focus may be the use of this instrument in conjunction with other data in order to determine if correlations exist. It would offer great insight to be able to determine if the practices observed on this instrument were predicted by the perceptions of co-teaching that educators report. Research of this nature would allow the correlations to be drawn between perception and practice, teacher self efficacy, and classroom community and climate. Thus the possibility to further close the research gap in this area exists. Further studies that focus on the teacher practices and how those correlate to student academic

outcomes would also be very beneficial to the field. Future research using this instrument will assist in a more cohesive view of the interaction between attitudes and resulting practices that has the potential to not only impact the co-taught environment but the success of those learners as well.

Conclusions

This study produced a validated instrument that offers a means to evaluate co-teaching practices of special and general educators within K - 12 classroom environments. The Co-Teaching Observation Instrument (CTOI) is a 35-item observation instrument consisting of 4 subscales: *classroom interaction*, *classroom management*, *instructional strategies*, and *instructional roles*. The instrument has good reliability and internal consistency as evidenced by a Cronbach's alpha of .851 and a Spearman Brown coefficient of .804 (Gall et al., 2010; Pedhazur & Schmelkin, 1991). Each of the first three subscales was found to have good internal consistency with a Cronbach's alpha of .928 (*classroom interaction*), .907 (*classroom management*), and .818 (*instructional strategies*). The subscale of *instructional roles* had a Cronbach's alpha of .673, which was slightly below the required measure to indicate good internal consistency (Gall et al., 2010; Pedhazur & Schmelkin, 1991). The results of this study supported the decision to reject all of the four null hypotheses. These results indicate that this instrument provides a valid and reliable measure for teachers' co-teaching practices.

The literature bears out the need for this type of instrument as one did not previously exist. Co-teaching has received much attention in recent years, but the research has been largely surveys that rely on self-report. Discrepancies have been noted in many of these studies. The limitations of many research studies have included the need for observation, the lack of

reliability of self report, and the uncertainty of whether actions match self-report (de Boer et al., 2011; Rakap & Kaczmarek, 2010; Scruggs & Mastropieri, 1996).

Friend et al. (2010) discussed limitations and needs for further research in their examination of the existing research in the field of co-teaching and noted several concerns. The need for study of rigorous programs adhering to a specific definition of co-teaching across multiple grade levels was identified. Friend et al. (2010) stated:

> It is essential that the impact on students of high-quality co-teaching implemented consistently be determined. Teacher, students, and even parent perceptions of co-teaching outcomes are helpful in that they inform the field concerning priorities and beliefs of the implementers and recipients of co-teaching, but perceptions do not establish an evidence base. (p. 22)

It has become extremely evident that there must be a valid and reliable method to assess teacher practices in co-taught classrooms. The information provided by this instrument considered in relation to the academic achievement of students offers great benefit to the field of special education. Specifically, the the CTOI provides many benefits to districts, administrators, and educators including targeted professional development and support, improved instruction, teacher self efficacy, identification of practices associated with achievement, teacher reflection, and improved instruction.

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Appendix A

Appendix B

Appendix C

Appendix D

To Whom It May Concern:

I am conducting a research study in order to develop and validate an instrument for classroom observations in co-taught classrooms as part of the dissertation process for my EdD. Through Liberty University. A thorough review of the literature reveals that there have been many studies in the area of teacher perceptions of co-teaching and their self-reported behavior. The missing component is a reliable and valid instrument that would allow the comparison of these self-reports and the observed classroom practices. The addition of such an instrument would allow further studies to include the correlation between teacher attitudes and the resulting classroom practices as well as the correlation of classroom strategy and student achievement. This research could prove highly beneficial in the field of education by allowing continuous growth in co-taught classrooms resulting in greater achievement for students with disabilities.
I would appreciate your participation in the expert review portion of this research project. You will find attached the informed consent to participate form. If you would be interested in participating, please return this to me within a week and I will forward you the instrument and the questions regarding its validity.
Thank you so much for your time.

Sincerely,

Jill Rogers Ed.S.
706-537-6404
Jill.rogers@murray.k12.ga.us

Appendix E

To whom it may concern:
I am conducting a research study in order to develop and validate an instrument for classroom observations in co-taught classrooms as part of the dissertation process for my EdD. Through Liberty University. A thorough review of the literature reveals that there have been many studies in the area of teacher perceptions of co-teaching and their self-reported behavior. The missing component is a reliable and valid instrument that would allow the comparison of these self-reports and the observed classroom practices. The addition of such an instrument would allow further studies to include the correlation between teacher attitudes and the resulting classroom practices as well as the correlation of classroom strategy and student achievement. This research could prove highly beneficial in the field of education by allowing continuous growth in co-taught classrooms resulting in greater achievement for students with disabilities. This instrument has undergone the initial expert review in order to determine question validity.
I would appreciate your participation in the field testing portion of this research project. You will find attached the informed consent to participate form. If you would be interested in participating, please return this to me within a week and I will forward you the instrument and detailed administration instructions.
Thank you so much for your time.

Sincerely,

Jill Rogers Ed.S.
706-537-6404
Jill.rogers@murray.k12.ga.us

Appendix F

CONSENT FORM FIELD TESTING

Development and Validation of a Classroom Observation Instrument for Implementation of Co-Teaching Practices

Amy Jill Rogers
Liberty University
School of Education

You are invited to be in a research study in order to effectively develop and validate an observation instrument that measures both general education and special education teacher behaviors in co-taught environments across k-12 grade levels. You were selected as a possible participant because of your experience with or expertise in the area of Special Education. I ask that you read this form and ask any questions you may have before agreeing to be in the study. This study is being conducted by Amy Jill Rogers through the School of Education.

Background Information:

The purpose of this study is to develop and validate an observation instrument that measures both general education and special education teacher behaviors in co-taught environments across k-12 grade levels.

Procedures:

If you agree to be in this study, I would ask you to do the following things:

- Receive the instrument and instructions for administration via email.
- Conduct classroom observations of co-taught classrooms in your system using this instrument.
- Return the results to me within two weeks along with any comments you may have.

Risks and Benefits of being in the Study:

The study has minimal risks which are no more than the participant would encounter in everyday life.

The benefits to participation are far reaching. A thorough review of the literature reveals that there have been many studies in the area of teacher perceptions of co-teaching and their self-reported behavior. The missing component is a reliable and valid instrument that would allow the comparison of these self-reports and the observed classroom practices. The addition of such an instrument would allow further studies to include the correlation between teacher attitudes and the resulting classroom practices as well as the correlation of classroom strategy and student achievement. This research could prove highly beneficial in the field of education by allowing continuous growth in co-taught classrooms resulting in greater achievement for students with disabilities.

Compensation:

There will be no compensation for participation in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records.

Anonymity will be ensured in the write-up by disguising the identity of participants, districts, and all educators in each district in order to ensure that there will be no negative impact due to participation. The data will be stored in a locked file cabinet and disposed of by shredding at the end of the research.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.
Contacts and Questions:
The researcher conducting this study is Amy Jill Rogers. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at 706-537-6404 or ajrogers1119@yahoo.com. The advisor's name is Dr. Lucinda Spaulding, and she can be contacted at (434) 592-4307 or lsspaulding@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24502 or email at irb@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____
Date: _____

Signature of Investigator:_____
Date: _____

IRB Code Numbers: *(After a study is approved, the IRB code number pertaining to the study should be added here.)*

IRB Expiration Date: *(After a study is approved, the expiration date (one year from date of approval) assigned to a study at initial or continuing review should be added. Periodic checks on the current status of consent forms may occur as part of continuing review mandates from the federal regulators.)*

Appendix G

In order to use this instrument, you must obtain permission from Amy Jill Rogers prior to use. You may contact me at ajrogers1119@yahoo.com.

The Co-Teaching Observation Instrument (CTOI)

Instructions:

1. Administrators will choose which classrooms and teachers will be observed in their school district. Please choose 3 to 5 for observation in each building.
2. The classrooms observed must be settings where both the general education and the special education teacher hold a valid teaching certificate in their field.
3. All demographic information such as age, gender, ethnicity, years of teaching experience, and years of experience with inclusion will be collected. There will be no requirements for participation regarding demographics, but it will be helpful in data analysis.
4. Observers completing the scale must hold a degree in special education, educational psychology, or educational leadership and have at least 5 years of experience in the educational setting.
5. Please give each teacher an anonymous number instead of using names.
6. The observer will enter the classroom and formally observe for a period of exactly 30 minutes.
7. During this time, the observer will monitor the practices indicated on the Co-Teaching Observation Instrument (CTOI).
8. Most of the items are on a Likert-type scale, so observer will indicate the degree to which each practice is observed.
9. For the items with multiple choices, observer will indicate all that items observed in that category.
10. Please return the completed observation instruments to the researcher within two weeks. These will be returned by the observer via Qualtrics; however, the observer may scan these and return them as a PDF by email to jill.rogers@murray.k12.ga.us if preferred.

Final
Co-Teaching Observation Instrument (CTOI)

In order to use this instrument, you must obtain permission from Amy Jill Rogers prior to use. You may contact me at ajrogers1119@yahoo.com.

Date:	State:	Grade:
General Education Teacher Number:	Special Education Teacher Number:	Subject:
Time Observation Begins:	Time Observation Ends:	Location/Setting?

Demographics

Special Ed Teacher	**General Ed Teacher**	**Observer**
Age range: 20-30 50-60 30-40 60 + 40-50	Age range: 20-30 50-60 30-40 60 + 40-50	Age range: 20-30 50-60 30-40 60 + 40-50
Gender:	Gender:	Gender:
Ethnicity:	Ethnicity:	Ethnicity:
Years of teaching experience:	Years of teaching experience:	Years of teaching experience:
Years of experience co-teaching:	Years of experience co-teaching:	Years of experience co-teaching:
Highest degree held:	Highest degree held:	Highest degree held:
Current teaching certificate held and in what state:	Current teaching certificate held and in what state:	Current teaching certificate held and in what state:

Please circle one below:

Rural	Suburban	Urban

Please check one below:

Title One School: ☐**Yes** ☐**No**

There are five ratings for each Criterion.

Ratings	***Definitions of Ratings***
5	Performance in this area is considered to be done very well or consistently all of the time.
4	Performance in this area is considered to be done well or carried out most of the time.
3	Performance in this area is considered average or to be carried out some of the time.
2	Performance in this area is considered to be done poorly or carried out almost never.
1	Performance in this area is done very poorly or is not observed during the observation.

CRITERIA	5 All of the time	4 Most of the time	3 Some of the time	2 Almost never	1 Not observed at this time
1. Teachers commununicate with each other during the lesson.	☐	☐	☐	☐	☐
2. Instructional leadership is shared.	☐	☐	☐	☐	☐
3. Both teachers are prepared and familiar with content covered.	☐	☐	☐	☐	☐

Comments:

CRITERIA	5 Very well	4 Well	3 Average	2 Poorly	1 Very Poorly/ Not Observed
4. Students respond to instruction from the general education teacher.	☐	☐	☐	☐	☐
5. Students respond to instruction from the special education teacher.	☐	☐	☐	☐	☐
6. Students respond to redirection from the general education teacher.	☐	☐	☐	☐	☐
7. Students respond to redirection from the special education teacher.	☐	☐	☐	☐	☐
8. General education teacher interacts with all students.	☐	☐	☐	☐	☐
9. Special education teacher interacts with all students.	☐	☐	☐	☐	☐
10. Students are positively reinforced with praise and encouragement by the general education teacher.	☐	☐	☐	☐	☐
11. Students are positively reinforced with praise and encouragement by the special education teacher.	☐	☐	☐	☐	☐

Comments:

CRITERIA	5 All of the time	4 Most of the time	3 Some of the time	2 Almost Never	1 Not observed at this time
The special education teacher is:	☐	☐	☐	☐	☐
12. Leading whole group					
13. Leading small group	☐	☐	☐	☐	☐
14. Assisting whole group	☐	☐	☐	☐	☐

15. Assisting small group	☐	☐	☐	☐	☐
16. Assisting individual student	☐	☐	☐	☐	☐
The general education teacher is: 17. Leading whole group	☐	☐	☐	☐	☐
18. Leading small group	☐	☐	☐	☐	☐
19. Assisting whole group	☐	☐	☐	☐	☐
20. Assisting small group	☐	☐	☐	☐	☐
21. Assisting individual student	☐	☐	☐	☐	☐

Comments:

22. Co-teaching Models used: (May choose more than one)			
☐ One teach/one observe (One teacher collecting data)	☐ Alternative (Small group being remediated, enriched, or assessed)	☐ Parallel (Both educators teaching same content to smaller group)	☐ Team with whole group (Sharing instructional roles)
☐ One teach/one support (One teacher assisting students as needed)	☐ Station (Students transition between small group centers that are led by one teacher or independent)	☐ Team with small groups (Sharing instructional roles)	☐ No evidence of co-teaching

23. Please check the strategies observed:					
☐ Goal setting (personal efficacy)	☐ Student interest/choice	☐ Checking for understanding	☐ Vocabulary Instruction	☐Interactive questions and summarizing activities	☐ Guided notes
☐ Timed practice of basic skills	☐ Rubrics and graphic organizers	☐ Higher level thinking skills	☐ Teach in pieces: teach/ practice	☐ Teachers use think aloud strategies	☐ Other

24. What instructional grouping is used? (May choose more than one)		
☐ Whole group	☐ Independent	☐ Testing
☐ Small group	☐ Collaborative pairs	☐ Other (please describe)

Comments:

CRITERIA	5 All of the time	4 Most of the time	3 Some of the time	2 Almost never	1 Not observed at this time
25. Accommodations (change in *format*, delivery, etc., such as math test read aloud) are provided for students with disabilities.	☐	☐	☐	☐	☐
26. Modifications (change in *content* such as single digit multiplication instead of double digit) are provided for students with disabilities.	☐	☐	☐	☐	☐
27. There is documentation of student progress, interventions, and success of such (date notebooks, etc.).	☐	☐	☐	☐	☐

28. Please check the strategies observed: (May choose more than one)				
☐ Task analysis/chunking	☐ Multiple types and modes of responses	☐ Repetition of instruction	☐ Peer assistance	☐ Memory Strategies
☐ Multi-modal instruction	☐ Modeling	☐ Extended time for assignments	☐ Materials read aloud	☐ Tiered assignments/activities
☐Use of a calculator	☐Testing in small group	☐Modified environment or seating	☐Other?	

Comments:

CRITERIA	5 Very well	4 Well	3 Average	2 Poorly	1 Very poorly/not observed
29. General education teacher redirects inappropriate behavior.	☐	☐	☐	☐	☐
30. Special education teacher redirects inappropriate behavior.	☐	☐	☐	☐	☐
31. General education teacher reinforces appropriate behavior and work ethic.	☐	☐	☐	☐	☐
32. Special education teacher reinforces appropriate behavior and work ethic.	☐	☐	☐	☐	☐
CRITERIA	5 All of the time	4 Most of the time	3 Some of the time	2 Almost never	1 Not observed at this time
33. Students are on task and engaged.	☐	☐	☐	☐	☐
34. Both teachers exhibit the same expectations for behavior.	☐	☐	☐	☐	☐
35. Both teachers speak the language of the classroom rules.	☐	☐	☐	☐	☐

Comments:

Appendix H

CONSENT FORM EXPERT REVIEW

DEVELOPMENT AND VALIDATION OF A CLASSROOM OBSERVATION INSTRUMENT FOR IMPLEMENTATION OF CO-TEACHING PRACTICES

Amy Jill Rogers
Liberty University
School of Education

You are invited to be in a research study in order to effectively develop and validate an observation instrument that measures both general education and special education teacher behaviors in co-taught environments across k-12 grade levels. You were selected as a possible participant because of your experience with or expertise in the area of Special Education. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Amy Jill Rogers through the School of Education.

Background Information:

The purpose of this study is to develop and validate an observation instrument that measures both general education and special education teacher behaviors in co-taught environments across k-12 grade levels.

Procedures:

If you agree to be in this study, I would ask you to do the following things:

- Receive the instrument and corresponding survey via email.
- Give your expert opinions regarding the inclusion of items on the observation instrument under specific categories.
- View the proposed scale and respond to a series of five questions in order to assist in establishing validity.
- Return the results to me within three weeks.

Risks and Benefits of being in the Study:

The study has minimal risks which are no more than the participant would encounter in everyday life.

The benefits to participation are far reaching. A thorough review of the literature reveals that there have been many studies in the area of teacher perceptions of co-teaching and their self-reported behavior. The missing component is a reliable and valid instrument that would allow the comparison of these self-reports and the observed classroom practices. The addition of such an instrument would allow further studies to include the correlation between teacher attitudes and the resulting classroom practices as well as the correlation of classroom strategy and student achievement. This research could prove highly beneficial in the field of education by allowing continuous growth in co-taught classrooms resulting in greater achievement for students with disabilities.

Compensation:
There will be no compensation for participation in this study.

Confidentiality:
The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records.
Anonymity will be ensured in the write-up by disguising the identity of participants, districts, and all educators in each district in order to ensure that there will be no negative impact due to participation. The data will be stored in a locked file cabinet and disposed of by shredding at the end of the research.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:
The researcher conducting this study is Amy Jill Rogers. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at 706-537-6404 or ajrogers1119@yahoo.com. The advisor's name is Dr. Lucinda Spaulding, and she can be contacted at (434) 592-4307 or lsspaulding@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24502 or email at irb@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:
I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____
Date: _____

Signature of Investigator:_____
Date: _____

IRB Code Numbers: *(After a study is approved, the IRB code number pertaining to the study should be added here.)*

IRB Expiration Date: *(After a study is approved, the expiration date (one year from date of approval) assigned to a study at initial or continuing review should be added. Periodic checks on the current status of consent forms may occur as part of continuing review mandates from the federal regulators.)*

Appendix I

Validation Instrument for Expert Review

Please answer the questions below and provide feedback. This instrument is designed to measure the observable teaching behaviors in the co-taught classroom in order to provide information for further research and evaluate the success of our current programs.

CRITERIA	3-Strongly Agree	2-Neutral	1-Strongly Disagree
1. The scale measures what it is intended to measure.	☐	☐	☐
a. The scale adequately addresses the component of teacher collaboration/parity.	☐	☐	☐
b. The scale adequately addresses the component of teacher-to-student interaction.	☐	☐	☐
c. The scale adequately addresses the component of instructional roles.	☐	☐	☐
d. The scale adequately addresses the component of instructional strategies.	☐	☐	☐
e. The scale adequately addresses the component of individualized instruction.	☐	☐	☐
f. The scale adequately addresses the component of classroom management.	☐	☐	☐

2. The scale is simple and time effective to administer in the classroom.	☐	☐	☐
3. The data gained from the scale is useful in evaluating teachers in the co-taught classroom.	☐	☐	☐
4. The results of the scale give information regarding strengths and weaknesses that could be addressed.	☐	☐	☐
5. This scale could be beneficial to school districts.	☐	☐	☐
Comments:			

CTOI Evaluation

Question	Essential	Useful but not essential	Not necessary
1. Teachers conference during lesson .	☐	☐	☐
2. Communication (both verbal and nonverbal) between teachers is respectful and professional.	☐	☐	☐
3. Lesson plans indicate duties for both general and special education teacher.	☐	☐	☐
4. Evidence exists of tensions between teachers.	☐	☐	☐
5. Both teachers are present for the majority of the lesson.	☐	☐	☐
6.Whole group instructional leadership is shared.	☐	☐	☐
7. There is a designated planning time indicated for the co-teaching team.	☐	☐	☐
8. Students appear to view teachers as equals within the classroom.	☐	☐	☐
9. Both teachers are prepared and familiar with content covered.	☐	☐	☐
10. Students respond to instruction from the general education teacher.	☐	☐	☐
11. Students respond to instruction from the special education teacher	☐	☐	☐
12. Students respond to redirection from the general education teacher.	☐	☐	☐
13. Students respond to redirection from the special education teacher.	☐	☐	☐
14. General education teacher interacts with all students.	☐	☐	☐
15. Special education teacher interacts with all students.	☐	☐	☐
16. Students are positively reinforced with praise and encouragement by the general education teacher.	☐	☐	☐
17. Students are positively reinforced with praise and encouragement by the special	☐	☐	☐

education teacher.			
18. Special education students are singled out verbally in class.	☐	☐	☐
19. Special education students segregated from non disabled peers by the physical setting of the room.	☐	☐	☐
20. **The special education teacher is:** Leading whole group	☐	☐	☐
21. Leading small group	☐	☐	☐
22. Assisting whole group	☐	☐	☐
23. Assisting small group	☐	☐	☐
24. Assisting individual student	☐	☐	☐
25. Non instructional	☐	☐	☐
26. **The general education teacher is:** Leading whole group	☐	☐	☐
27. Leading small group	☐	☐	☐
28. Assisting whole group	☐	☐	☐
29. Assisting small group	☐	☐	☐
30. Assisting individual student	☐	☐	☐
31. Non instructional	☐	☐	☐
32. Co-teaching Models used: (Please choose one or more)	☐	☐	☐
33. Please check the strategies observed:	☐	☐	☐
34. What instructional grouping is used?	☐	☐	☐
35. Accommodations (change in format, delivery, etc. such as math test read aloud) are observable for students with disabilities.	☐	☐	☐
36. Modifications (change in content such as single digit multiplication instead of double digit) are observable for students with disabilities.	☐	☐	☐
37. There is documentation in the room of student IEP's (accommodations, modifications, goals/objectives)	☐	☐	☐
38. There is documentation of student progress, interventions, and success of such. (Data notebook, etc)	☐	☐	☐
39. Please check the strategies observed:	☐	☐	☐

40. General education teacher redirects inappropriate behavior.	☐	☐	☐
41. Special education teacher redirects inappropriate behavior.	☐	☐	☐
42. General education teacher reinforces appropriate behavior and work ethic.	☐	☐	☐
43. Special education teacher reinforces appropriate behavior and work ethic.	☐	☐	☐
44. Transitions are fluid between activities.	☐	☐	☐
45. Students are on task and engaged.	☐	☐	☐
46. Both teachers exhibit the same expectations for behavior.	☐	☐	☐
47. Both speak the language of the classroom rules.	☐	☐	☐
48. Rituals and routines are obvious and adhered to by students.	☐	☐	☐

Appendix J

Demographics and Credentials for Expert Panel Review Applicants

Name	
Degrees Held	
Occupational History	
Number of years in education	
Number of years in co-taught classroom setting	
What was your role in co-taught classroom?	
Please describe your most current background in research	

Appendix K

IRB Approval Letter

Dear Jill,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and that no further IRB oversight is required.

Your study falls under exemption category 46.101 (b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and that any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption, or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Please retain this letter for your records. Also, if you are conducting research as part of the requirements for a master's thesis or doctoral dissertation, this approval letter should be included as an appendix to your completed thesis or dissertation.

Sincerely,

Fernando Garzon, Psy.D.
Professor, IRB Chair
Counseling

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Appendix L

Results of Expert Review

Reviewer 1-female	PhD in Special Education; 13 years, 2 years co-teaching; Research background-Math disabilities	• On demographics section, indicate what state currently licensed. You can track licensure categories if needed. • Validation instrument: Strongly Agree-1, 1a, 1b, 1c, 1d, 1e, 1f, 3, 4, 5; Neutral-2 (some questions could require interview) • CTOI Evaluation: No questions marked not necessary. Useful but not essential-1, 6, 37, All others were essential. • Suggestions on instrument: 1.-define-is this talking to one another? 4. Not sure Likert scale works for this item 6. Is there a place to make notes if all station teaching 10-16-Good questions 18.-How will you know who they are? 19. Would suggest using "special education students required instruction from the special education teacher 32. Ask them to briefly describe the model. 39. Checklist? Self-regulation? Behavior management plan? 44. Classroom has

		routines? Classroom is organized?
Reviewer 2-male	PhD in Special Education; 13 years, 4 years co-teaching; over 25 peer reviewed publications and present nationally on research methods and statistical approaches on EBD	• Validation instrument-Strongly agree on 1a, 1b, 1c, 1d, 1e, 4, 5; Neutral-1, 1f, 3; Strongly disagree-2 • CTOI Evaluation-Useful but not essential: 1, 4, 16, 17, 25, 31, 37,38, 40, 41, 43, 47, 48; Not necessary: 2, 8, 18, 44; All others were essential
Reviewer 3-female	PhD Curriculum and Instruction with emphasis in Special Education, 17 years; 3 years co-teaching; Research with a focus on collaboration in teacher preparation	• Validation Instrument-Neutral 1, 1a, Strongly agree-1c • Have teachers complete the demographics and submit directly to me rather than to their supervisor. • 1-essential but change conference to communicate • Essential:-2, 5, 6, 9, 10, 14, 15, 16 • #3-Lesson plans may vary district to district in requirements. • #4-May not need-difficult to observe. Would be evident if number 2 was not present. • May need not observed at this time rating.-not necessarily a negative • #7 may not be

		observable • #8 Define how students would behave if this is true • #16-Should this be separate? Praise? Encouragement? • #18 Think about wording • #19-Convert negatively stated items to positively. • #20-Should say general education • #37-Questionable • #42-How to determine work ethic • #44-What do fluid transitions look like • #45-Define time? All the time? Part of the time?
Reviewer 4-female	PhD; 39 years; 2 years co-teaching; research on co-teaching and program evaluation	• Strongly Agree on all items. • Recommendation that do not use the tally marks and use Likert type scale with range only • Demographics-consider revising teacher number and change age to age range • Question1 & 2-scale doesn't match question • Check all questions to see that match the scale given • Question 7-Not observable • 18 & 19- scale doesn't match question • 33-What would be

		observed for goal setting? • Sort out accomodations, modifications, specially designed instruction to collect data accurately.
Reviewer 5-female	PhD.; 34 years; 3 years co-teaching; Published 100 articles and 8 books	• Validation instrument-Strongly agree: 1, 1a, 1b, 1d, 1e, 1f, 2, 3, 4, 5; Neutral-1c • Tallies don't match the observation • Some labels should be changed to All of the time, most, ….to none • CTOI Evaluation: Useful but not essential: 1, 9, 18, 33, 35, 36, 38, 39, 48; Not necessary: 37. Everything else is essential
Reviewer 6-female	Ed.D.; 20 years; 2 years co-teaching; Research focus on leadership-experience in special education	• Strongly Agree on all items. • Keep Likert scale consistent 1-5 or 0-4 • Remove tallies
Reviewer 7-male	EdD in Special Education; 46 years; 4 years co-teaching; Research in academic interventions/effective instruction for SWD	• Validation Instrument-Strongly agree-1, 1a, 1b, 1c, 1d, 1e, 1f, 2, Neutral: 3, 4, 5 • CTOI Evaluation: Useful but not essential: 18, 19, Not necessary: none • 18 & 19-State more positively (SPED students are included in class discussions. SPED students are included with non

		disabled peers in the physical setting of the room. • 20-Should state general education teacher • Make font size consistant • Questions about confidentiality of information in 37-38 • Is question number 1 needed or should be reworded?
Reviewer 8-female	EdD-Special Edcuation; 46 years; 4 years co-teaching; 39 years of research in education	• Strongly Agree on all items. • All essential and no suggestions for change
Reviewer 9-female	PhD Special Education; 24 years; 15 years co-teaching; research focus on communication between co-teachers	• Strongly Agree on all items. • Demographics-Is age necessary • Fix highest degree held • Put numbers or definition with rural, urban, suburban • On instructions, 8 and 9 are unclear. Change you to observer. Indicate electronic return. • Is definition of implementation levels needed? Font difficult to read. • 37-Remove • 39-Recheck wording-strategies? • Management-spelling • 44-Define fluid • 45-How to measure engaged

Reviewer 10-female	PhD Special Education; 16 years; 5 years co-teaching; research in all aspect of Special Education	• Strongly Agree on all items. • Question 1-Is conferencing necessary-change wording? • Tallies? May not be best in order to truly show what being measured. • Starting with question 3….some are yes no • 3 & 7-Not observable • 8, 10, 11, 12, 13-Student behavior not teacher behavior • 18 & 19-Change to positively stated • 34-May choose more than one

Appendix M

Correlation Matrix

	Teacher Collaboration/Parity-1. Teachers verbally communicate with each other regarding content and/or students during the lesson	Teacher Collaboration/Parity-2. Communication (both verbal and nonverbal) between teachers is respectful and professional	Teacher Collaboration/Parity-3. Both teachers are present in the classroom.	Teacher Collaboration/Parity-4. Instructional leadership is shared in content delivery.	Teacher Collaboration/Parity-5. Both teachers are prepared and familiar with content.	Teacher to Student Interaction-6. Students respond to instruction from the general education teacher.	Teacher to Student Interaction-7. Students respond to instruction from the special education teacher.	Teacher to Student Interaction-8. Students respond to redirection from the general education teacher.	Teacher to Student Interaction-9. Students respond to redirection from the special education teacher.	Teacher to Student Interaction-10. General education teacher interacts with all students during instruction and assignments	Teacher to Student Interaction-11. Special education teacher interacts with all students during instruction and assignments	Teacher to Student Interaction-12. Students are positively reinforced with praise and encouragement by the general education teacher.
Teacher Collaboration/Parity-1. Teachers verbally communicate with each other regarding content and/or students during the lesson	1	0.56	0.26	0.43	0.31	0.35	0.28	0.37	0.38	0.30	0.40	0.46

Teacher Collaboration/Parity-2. Communication (both verbal and nonverbal) between teachers is respectful and professional.	0.56	1	0.16	0.25	0.15	0.28	0.26	0.23	0.17	0.22	0.29	0.18
Teacher Collaboration/Parity-3. Both teachers are present in the classroom.	0.26	0.16	1	0.11	0.29	0.62	0.04	0.30	0.04	0.48	0.18	0.39
Teacher Collaboration/Parity-4. Instructional leadership is shared in content delivery.	0.43	0.25	0.11	1	0.49	0.09	0.52	0.14	0.50	0.03	0.52	0.15
Teacher Collaboration/Parity-5. Both teachers are prepared and familiar with content.	0.31	0.15	0.29	0.49	1	0.22	0.47	0.08	0.34	0.12	0.44	0.21

Teacher to Student Interaction-6. Students respond to instruction from the general education teacher.	0.35	0.28	0.62	0.09	0.22	1	0.24	0.68	0.20	0.76	0.32	0.71
Teacher to Student Interaction-7. Students respond to instruction from the special education teacher.	0.28	0.26	0.04	0.52	0.47	0.24	1	0.25	0.68	0.09	0.60	0.25
Teacher to Student Interaction-8. Students respond to redirection from the general education teacher.	0.375	0.234	0.303	0.149	0.089	0.688	0.255	1	0.351	0.672	0.296	0.744
Teacher to Student Interaction-9. Students respond to redirection from the special education teacher.	0.38	0.177	0.047	0.502	0.349	0.203	0.689	0.351	1	0.053	0.574	0.247
Teacher to Student Interaction-10. General education teacher interacts with all students during instruction and assignments.	0.302	0.221	0.486	0.031	0.129	0.762	0.096	0.672	0.053	1	0.319	0.756
Teacher to Student Interaction-11. Special education teacher interacts with all students during instruction and assignments.	0.408	0.293	0.189	0.527	0.447	0.322	0.609	0.296	0.574	0.319	1	0.303

Teacher to Student Interaction-12. Students are positively reinforced with praise and encouragement by the general education teacher.	0.468	0.189	0.393	0.151	0.212	0.715	0.255	0.744	0.247	0.756	0.303	1
Teacher to Student Interaction-13. Students are positively reinforced with praise and encouragement by the special education teacher.	0.504	0.241	0.187	0.522	0.547	0.286	0.662	0.255	0.672	0.145	0.598	0.433
Teacher to Student Interaction-14. There are no references made to students with disabilities out loud in the classroom environment.	0.004	-0.1	0.01	-0.14	0.005	-0.04	-0.09	-0.05	-0.12	0.023	-0.05	0.011
Teacher to Student Interaction-15. Special education students sit with the general education students and share all parts of the environment.	0.013	0.061	0.09	0.01	0.061	0.088	0.086	-0.05	0.119	0.025	0.22	-0.03
Instructional Roles-16. Leading whole group	0.292	0.174	-0.02	0.35	0.265	-0.05	0.246	0.001	0.229	-0.03	0.342	0.034
Instructional Roles-17. Leading small group	0.073	0.056	-0.03	0.191	0.164	-0.03	0.049	0.054	0.063	-0.06	-0.00	0.005
Instructional Roles-18. Assisting whole group	0.221	0.189	-0.00	0.08	0.097	0.069	0.22	0.123	0.215	0.062	0.355	0.074

Instructional Roles-19. Assisting small group	0.024	-0.01	-0.02	0.069	0.128	0.001	0.049	-0.06	-0.04	-0.04	-0.04	0.011
Instructional Roles-20. Assisting individual student	-0.04	-0.05	0.04	-0.00	0.085	-0.02	0.061	-0.09	0.044	-0.01	0.005	-0.02
Instructional Roles-21. Non instructional	-0.17	-0.01	-0.07	-0.19	-0.35	0.107	-0.20	0.108	-0.17	0.108	-0.15	0.056
Instructional Roles-22. Leading whole group	-0.08	-0.01	0.01	-0.22	0.023	0.055	-0.08	0.125	-0.13	0.073	-0.19	0.035
Instructional Roles-23. Leading small group	0.176	0.137	-0.01	0.233	0.075	0.108	0.061	0.129	0.084	0.13	0.146	0.149
Instructional Roles-24. Assisting whole group	0.066	0.148	-0.10	-0.26	-0.01	0.007	-0.10	0.16	-0.15	0.088	-0.04	0.079
Instructional Roles-25. Assisting small group	0.083	0.019	-0.04	0.133	0.068	0.1	0.041	0.091	0.007	0.076	0.111	0.105
Instructional Roles-26. Assisting individual student	-0.11	-0.18	0.044	-0.01	-0.03	-0.12	-0.21	-0.07	-0.14	-0.01	-0.09	-0.01
Instructional Roles-27. Non instructional	0.007	0.011	-0.23	0.089	0.092	-0.10	0.117	-0.07	0.118	-0.12	0.06	-0.04

Individualized Instruction-31. Accommodations (change in format, delivery, etc., such as math test read aloud) are provided for students with disabilities.	0.316	0.179	0.067	0.368	0.232	0.192	0.235	0.276	0.243	0.143	0.166	0.307
Individualized Instruction-32. Modifications (change in content such as single digit multiplication instead of double digit) are provided for students with disabilities.	0.309	0.166	0.186	0.359	0.213	0.268	0.238	0.273	0.239	0.257	0.308	0.326
Individualized Instruction-33. There is documentation of student progress, interventions, and success of such (data notebook, etc.).	0.276	0.138	-0.03	0.314	0.06	0.135	0.257	0.295	0.237	0.136	0.336	0.287
Classroom Management-35. General education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	0.384	0.16	0.227	0.122	0.111	0.557	0.169	0.671	0.234	0.548	0.21	0.687

Classroom Management-36. Special education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	0.463	0.167	0.02	0.53	0.272	0.203	0.548	0.267	0.705	0.008	0.564	0.226
Classroom Management-37. General education teacher reinforces appropriate behavior and work ethic.	0.411	0.153	0.339	0.031	0.114	0.661	0.121	0.741	0.14	0.718	0.239	0.797
Classroom Management-38. Special education teacher reinforces appropriate behavior and work ethic.	0.457	0.279	0.108	0.486	0.381	0.272	0.67	0.294	0.684	0.111	0.588	0.316
Classroom Management-39. Students move between activities appropriately with few distractions.	0.098	0.121	0.007	0.06	-0.01	0.153	0.173	0.187	0.237	0.088	0.272	0.119
Classroom Management-40. Students are on task and engaged.	0.272	0.318	-0.01	0.264	0.05	0.17	0.279	0.259	0.277	0.106	0.275	0.242
Classroom Management-41. Both teachers exhibit the same expectations for behavior.	0.355	0.163	0.378	0.31	0.534	0.337	0.461	0.182	0.39	0.119	0.41	0.203

Classroom Management-42. Both teachers speak the language of the classroom rules.	0.26	0.177	0.267	0.213	0.403	0.227	0.401	0.109	0.384	0.038	0.395	0.199
Classroom Management-43. Rituals and routines and procedures are obvious and adhered to by students.	0.209	0.201	-0.02	0.171	0.186	0.212	0.357	0.268	0.307	0.109	0.313	0.221

Teacher to Student Interaction-9. Students respond to redirection from the special education teacher
Teacher to Student Interaction-10. General education teacher interacts with all students during instruction and assignments
Teacher to Student Interaction-11. Special education teacher interacts with all students during instruction and assignments
Teacher to Student Interaction-12. Students are positively reinforced with praise and encouragement by the general education
[illegible]
positively reinforced with praise and encouragement by the special education
Teacher to Student Interaction-14. There are no references made to students with disabilities out
Teacher to Student Interaction-15. Special education students sit with the general education students and share all parts of the
Instructional Roles-16. Leading whole group
Instructional Roles-17. Leading small group
Instructional Roles-18. Assisting whole group
Instructional Roles-19. Assisting small group
Instructional Roles-20. Assisting individual student
Instructional Roles-21. Non instructional
Instructional Roles-22. Leading whole group
Instructional Roles-23. Leading small group

0.38	0.30	0.40	0.46	0.50	0.00	0.01	0.29	0.07	0.22	0.02	-0.04	-0.17	-0.08	0.176
0.177	0.22	0.29	0.18	0.241	-0.10	0.06	0.17	0.056	0.18	-0.01	-0.05	-0.01	-0.01	0.13
0.047	0.48	0.18	0.39	0.187	0.01	0.09	-0.02	-0.03	-0.01	-0.02	0.04	-0.07	0.01	-0.01
0.502	0.03	0.52	0.15	0.522	-0.14	0.01	0.35	0.191	0.08	0.06	-0.01	-0.19	-0.22	0.233

0.349	0.12	0.44	0.21	0.547	0.01	0.06	0.26	0.164	0.09	0.12	0.085	-0.35	0.023	0.075
0.203	0.76	0.32	0.71	0.286	-0.04	0.08	-0.05	-0.03	0.06	0.00	-0.02	0.10	0.055	0.108
0.689	0.09	0.60	0.25	0.662	-0.09	0.08	0.24	0.049	0.22	0.04	0.061	-0.20	-0.08	0.061
0.351	0.67	0.29	0.74	0.255	-0.05	-0.05	0.00	0.054	0.12	-0.06	-0.09	0.10	0.125	0.129

1	0.05	0.57	0.24	0.672	-0.12	0.11	0.22	0.063	0.21	-0.04	0.044	-0.17	-0.13	0.084
0.053	1	0.31	0.75	0.145	0.02	0.02	-0.03	-0.06	0.06	-0.04	-0.01	0.10	0.073	0.13
0.574	0.31	1	0.30	0.598	-0.05	0.22	0.34	-0.01	0.35	-0.04	0.005	-0.15	-0.19	0.146

0.247	0.75	0.30	1	0.43	0.01	-0.03	0.03	0.00	0.07	0.01	-0.02	0.05	0.035	0.149
0.672	0.14	0.59	0.43	1	-0.00	0.07	0.27	0.14	0.18	0.08	0.06	-0.31	-0.18	0.104
-0.12	0.02	-0.05	0.01	-0.00	1	0.52	-0.07	-0.09	-0.19	-0.16	0.01	0.00	0.012	-0.07

0.119	0.02	0.22	-0.03	0.07	0.52	1	0.00	-0.17	0.06	-0.24	0.08	0.11	-0.01	-0.01
0.229	-0.03	0.34	0.034	0.27	-0.07	0.00	1	-0.04	0.36	0.064	0.19	-0.11	0.064	0.147
0.063	-0.064	-0.009	0.005	0.149	-0.092	-0.178	-0.046	1	-0.1411	0.462	-0.112	-0.177	-0.157	0.649
0.215	0.062	0.355	0.074	0.184	-0.194	0.068	0.364	-0.141	1	0.018	0.147	0.038	0.284	-0.007
-0.041	-0.043	-0.044	0.011	0.08	-0.165	-0.242	0.064	0.462	0.018	1	0.16	-0.107	0.002	0.397
0.044	-0.013	0.005	-0.024	0.068	0.012	0.087	0.193	-0.112	0.1147	0.16	1	-0.057	0.047	-0.043
-0.172	0.108	-0.158	0.056	-0.317	0.006	0.115	-0.117	-0.177	0.038	-0.107	-0.057	1	0.195	0.083

-0.138	0.073	-0.195	0.035	-0.182	0.012	-0.012	0.064	-0.157	0.284	0.002	0.047	0.195	1	-0.201
0.084	0.13	0.146	0.149	0.104	-0.074	-0.006	0.147	0.649	-0.007	0.397	-0.043	0.083	-0.201	1
-0.152	0.088	-0.047	0.079	-0.122	-0.05	-0.097	0.247	0.002	0.384	0.229	0.257	0.04	0.363	0.063
0.007	0.076	0.111	0.105	0.08	-0.171	-0.077	0.267	0.404	0.124	0.657	0.226	0.021	-0.048	0.618
-0.147	-0.014	-0.099	-0.013	-0.083	0.024	-0.072	0.294	-0.072	0.141	0.243	0.566	0.091	0.121	0.087
0.118	-0.128	0.06	-0.043	0.126	0.057	0.116	0.028	0.006	0.118	-0.026	0.184	0.235	-0.021	0.065
0.243	0.143	0.166	0.307	0.346	-0.087	-0.143	0.097	0.449	0.019	0.357	0.04	-0.156	-0.062	0.457

0.239	0.257	0.308	0.326	0.344	-0.095	-0.073	0.043	0.329	0.055	0.213	0.034	-0.123	-0.091	0.413
0.237	0.136	0.336	0.287	0.364	-0.101	-0.023	0.049	0.126	0.155	0.108	0.022	0.049	-0.145	0.231

0.234	0.548	0.21	0.687	0.235	0.069	0.047	0.005	0.058	0.1115	-0.125	-0.168	0.106	0.037	0.154
0.705	0.008	0.564	0.226	0.674	-0.04	0.182	0.258	0.191	0.2311	0.038	-0.047	-0.109	-0.217	0.185
0.14	0.718	0.239	0.797	0.274	-0.012	-0.043	-0.004	-0.009	0.144	-0.018	-0.014	0.044	0.129	0.063

0.684	0.111	0.588	0.316	0.791	-0.118	0.052	0.24	0.142	0.283	0.149	0.011	-0.177	-0.165	0.149
0.237	0.088	0.272	0.119	0.146	-0.017	0.116	-0.062	0.11	0.115	-0.041	-0.006	0.037	-0.125	0.101
0.277	0.106	0.275	0.242	0.379	0.026	0.05	0.057	0.093	0.058	0.029	-0.067	-0.09	-0.105	0.114
0.39	0.119	0.41	0.203	0.534	0.067	0.151	0.165	0.064	0.119	-0.014	0.053	-0.289	-0.014	0.008

Instructional Roles-24. Assisting whole group	0.384	0.307												
Instructional Roles-25. Assisting small group	0.038	0.109												
Instructional Roles-26. Assisting individual student	0.395	0.313												
Instructional Roles-27. Non instructional	0.199	0.221												
Individualized Instruction-31. Accommodations (change in format, delivery, etc., such as math test read aloud) are	0.52	0.362												
Individualized Instruction-32. Modifications (change in content such as single digit multiplication instead of double digit) are provided for students with disabilities.	-0.067	-0.014												
Individualized Instruction-33. There is documentation of student progress, interventions, and success of such (data notebook, etc.)	0.128	-0.039												
Classroom Management-35. General education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	0.202	0.163												
Classroom Management-36. Special education teacher redirects inappropriate behavior in accordance with classroom rules and consequences are consistent.	0.005	0.008												
Classroom Management-37. General education teacher reinforces appropriate behavior and work ethic.	0.21	0.13												
Classroom Management-38. Special education teacher reinforces appropriate behavior and work ethic.	-0.021	0.062												
Classroom Management-39. Students move between activities appropriately with few distractions.	0.143	-0.026												
Classroom Management-40. Students are on task and engaged.	-0.373	-0.196												
Classroom Management-41. Both teachers exhibit the same expectations for behavior.	-0.17	-0.13												
Classroom Management-42. Both teachers speak the language of the classroom rules.	-0.034	-0.033												
Classroom Management-43. Rituals and routines and procedures are obvious and adhered to by students.														

0.066	0.083	-0.115	0.007	0.316	0.309	0.276	0.384	0.46	0.41	0.45	0.09	0.27	0.35	0.26	0.20
0.148	0.019	-0.183	0.011	0.179	0.166	0.13	0.16	0.167	0.153	0.279	0.121	0.318	0.163	0.177	0.201
-0.103	-0.045	0.044	-0.23	0.067	0.186	-0.03	0.227	0.02	0.339	0.108	0.007	-0.017	0.378	0.267	-0.024
-0.266	0.133	-0.011	0.089	0.368	0.359	0.31	0.122	0.53	0.031	0.486	0.06	0.264	0.31	0.213	0.171

-0.016	0.068	-0.032	0.092	0.232	0.213	0.06	0.111	0.272	0.114	0.381	-0.009	0.05	0.534	0.403	0.186
0.007	0.1	-0.129	-0.108	0.192	0.268	0.135	0.557	0.203	0.661	0.272	0.153	0.17	0.337	0.227	0.212
-0.103	0.041	-0.212	0.117	0.235	0.238	0.257	0.169	0.548	0.121	0.67	0.173	0.279	0.461	0.401	0.357
0.16	0.091	-0.076	-0.078	0.276	0.273	0.295	0.671	0.267	0.741	0.294	0.187	0.259	0.182	0.109	0.268

-0.152	0.007	-0.147	0.118	0.243	0.239	0.237	0.234	0.705	0.14	0.684	0.237	0.277	0.39	0.384	0.307
0.088	0.076	-0.014	-0.128	0.143	0.257	0.136	0.548	0.008	0.718	0.111	0.088	0.106	0.119	0.038	0.109
-0.047	0.111	-0.099	0.06	0.166	0.308	0.336	0.21	0.564	0.239	0.588	0.272	0.275	0.41	0.395	0.313

0.079	0.105	-0.013	-0.043	0.307	0.326	0.287	0.687	0.226	0.797	0.316	0.119	0.242	0.203	0.199	0.221
-0.122	0.08	-0.083	0.126	0.346	0.344	0.364	0.235	0.674	0.274	0.791	0.146	0.379	0.534	0.52	0.362
-0.05	-0.171	0.024	0.057	-0.087	-0.095	-0.101	0.069	-0.04	-0.012	-0.118	-0.017	0.026	0.067	-0.067	-0.014

-0.097	-0.077	-0.072	0.116	-0.143	-0.073	-0.023	0.047	0.182	-0.043	0.052	0.116	0.05	0.151	0.128	-0.039
0.247	0.267	0.294	0.028	0.097	0.043	0.049	0.005	0.258	-0.004	0.24	-0.062	0.057	0.165	0.202	0.163
0.002	0.404	-0.072	0.006	0.449	0.329	0.126	0.058	0.191	-0.009	0.142	0.11	0.093	0.064	0.005	0.008
0.384	0.124	0.141	0.118	0.019	0.055	0.155	0.115	0.231	0.144	0.283	0.115	0.058	0.119	0.21	0.13
0.229	0.657	0.243	-0.026	0.357	0.213	0.108	-0.125	0.038	-0.018	0.149	-0.041	0.029	-0.014	-0.021	0.062
0.257	0.226	0.566	0.184	0.04	0.034	0.022	-0.168	-0.047	-0.014	0.011	-0.006	-0.067	0.053	0.143	-0.026
0.04	0.021	0.091	0.235	-0.156	-0.123	0.049	0.106	-0.109	0.044	-0.177	0.037	-0.09	-0.289	-0.373	-0.196

0.363	-0.048	0.121	-0.0211	-0.062	-0.091	-0.145	0.037	-0.217	0.129	-0.165	-0.125	-0.105	-0.014	-0.17	-0.13
0.063	0.618	0.087	0.0655	0.457	0.413	0.231	0.154	0.185	0.063	0.149	0.101	0.114	0.008	-0.034	-0.033
1	0.227	0.337	0.1116	0.06	-0.016	0.012	0.079	-0.186	0.152	-0.087	-0.043	-0.122	-0.103	-0.047	-0.037
0.227	1	0.342	0.089	0.34	0.283	0.175	0	0.102	0.101	0.149	-0.008	0.032	-0.036	-0.022	-0.011
0.337	0.342	1	0.1644	0.034	0.01	0.039	-0.131	-0.145	-0.004	-0.146	-0.115	-0.194	-0.077	0.012	-0.096
0.116	0.089	0.164	1	0.122	0.045	0.1	-0.04	0.146	-0.033	0.147	-0.021	0.024	0.065	0.077	0.015
0.06	0.34	0.034	0.1222	1	0.74	0.44	0.312	0.385	0.265	0.398	0.2	0.305	0.135	0.218	0.245

-0.016	0.283	0.01	0.045	0.74	1	0.477	0.336	0.375	0.329	0.371	0.336	0.35	0.214	0.239	0.164
0.012	0.175	0.039	0.1	0.44	0.477	1	0.19	0.366	0.198	0.416	0.363	0.374	0.084	0.1	0.254

0.079	0	-0.131	-0.04	0.312	0.336	0.19	1	0.411	0.708	0.209	0.332	0.138	0.173	0.195	0.159
-0.186	0.102	-0.145	0.1466	0.385	0.375	0.366	0.411	1	0.196	0.747	0.329	0.272	0.44	0.435	0.312
0.152	0.101	-0.004	-0.033	0.265	0.329	0.198	0.708	0.196	1	0.359	0.161	0.25	0.225	0.251	0.249

-0.087	0.149	-0.146	0.1477	0.398	0.371	0.416	0.209	0.747	0.359	1	0.181	0.433	0.49	0.498	0.469
-0.043	-0.008	-0.115	-0.0211	0.2	0.336	0.363	0.332	0.329	0.161	0.181	1	0.354	0.162	0.161	0.292
-0.122	0.032	-0.194	0.0244	0.305	0.35	0.374	0.138	0.272	0.25	0.433	0.354	1	0.229	0.223	0.54
-0.103	-0.036	-0.077	0.0655	0.135	0.214	0.084	0.173	0.44	0.225	0.49	0.162	0.229	1	0.666	0.371

-0.047	-0.022	0.012	0.077	0.218	0.239	0.1	0.195	0.435	0.251	0.498	0.161	0.223	0.666	1	0.432
-0.037	-0.011	-0.096	0.015	0.245	0.164	0.254	0.159	0.312	0.249	0.469	0.292	0.54	0.371	0.432	1

Appendix N

Descriptive Statistics for Expert Review Data

Item	*M*	*SD*
1 The scale measures what it is intended to measure	2.80	0.42
1a. The scale adequately addresses the component of teacher collaboration/parity.	2.90	0.32
1b. The scale adequately addresses the component of teacher to student interaction.	2.80	0.63
1c. The scale adequately addresses the component of instructional roles.	2.90	0.32
1d. The scale adequately addresses the component of instructional strategies.	2.80	0.63
1e. The scale adequately addresses the component of individualized instruction.	2.80	0.63
1f. The scale adequately addresses the component of classroom	2.70	0.67

management.		
2. The scale is simple and time effective to administer in the classroom.	2.50	0.85
3. The data gained from the scale is useful in evaluating teachers in the co-taught classroom.	2.60	0.70
4. The results of the scale give information regarding strengths and weaknesses that could be addressed.	2.70	0.67
5. This scale could be beneficial to school districts.	2.70	0.67
1. Teachers conference during the lesson.	2.70	0.48
2. Communication (both verbal and non verbal) between teachers is respectful and professional.	2.80	0.63
3. Lesson plans indicate duties for both general and special education teacher.	2.60	0.84

4. Evidence exists of tensions between teachers.	2.70	0.67
5. Both teachers are present for the majority of the lesson.	3.00	0.00
6. Whole group instructional leadership is shared.	2.90	0.32
7. There is a designated planning time indicated for the co-teaching team.	2.40	0.97
8. Students appear to view teachers as equals within the classroom.	2.60	0.70
9. Both teachers are prepared and familiar with content covered.	2.90	0.32
10. Students respond to instruction from the general education teacher.	2.90	0.32
11. Students respond to instruction from the special education teacher.	2.80	0.42
12. Students respond to redirection from the	2.80	0.42

general education teacher.		
13. Students respond to redirection from the special education teacher.	2.80	0.42
14. General education teacher interacts with all students.	3.00	0.00
15. Special education teacher interacts with all students.	3.00	0.00
16. Students are positively reinforced with praise and encouragement.	2.90	0.32
17. Students are positively reinforced with praise and encouragement by the special education teacher.	2.80	0.42
18. Special education students are singled out verbally in class.	2.50	0.71
19. Special education students are segregated from non disabled peers by the physical setting of the room.	2.80	0.42

20. Special education teacher is leading whole group.		2.90	0.32
21. Leading small group		2.90	0.32
22. Assisting whole group.		2.90	0.32
23. Assisting small group		2.90	0.32
24. Assisting individual student		2.90	0.32
25. Non instructional		2.80	0.42
26. The general education teacher is leading whole group.		2.90	0.32
27. Leading small group	2.90		0.32
28. Assisting whole group	2.90		0.32
29. Assisting small group	2.90		0.32
30. Assisting individual student	2.90		0.32
31. Non instructional	2.80		0.42
32. Co-teaching models used	2.90		0.32
33. Please check the strategies observed.	2.80		0.42
34. What instructional grouping is used?	2.90		0.32
35. Accommodations (change in format, delivery, etc.,such as math test read	2.80		0.42

aloud) are observable for students with disabilities.		
36. Modifications (change in content such as single digit multiplication instead of double digit) are observable for students with disabilities.	2.80	0.42
37. There is documentation in the room of student's IEP's (accommodations, modifications, goals/objectives).	2.20	0.92
38. There is documentation of student progress, interventions, and success of such (Data notebook, etc.)	2.70	0.48
39. Please check the strategies observed.	2.80	0.42
40. General education teacher redirects inappropriate behavior.	2.80	0.42

41. Special education teacher redirects inappropriate behavior.	2.80	0.42
42. General education teacher reinforces appropriate behavior and work ethic.	2.90	0.32
43. Special education teacher reinforces appropriate behavior and work ethic.	2.80	0.42
44. Transitions are fluid between activities.	2.70	0.67
45. Students are on task and engaged.	2.90	0.32
46. Both teachers exhibit the same expectations for behavior.	2.90	0.32
47. Both speak the language of the classroom rules.	2.80	0.42
48. Rituals and routines are obvious and adhered to by the students.	2.70	0.48

Appendix O

CTOI for Field Testing

Teacher Collaboration/Parity					
CRITERIA	**5 All of the time**	**4 Most of the time**	**3 Some of the time**	**2 Almost never**	**1 Not observed at this time**
1. Teachers commununicate with each other during the lesson.	☐	☐	☐	☐	☐
2. Communication (both verbal and nonverbal) between teachers is respectful and professional.	☐	☐	☐	☐	☐
3. Both teachers are present.	☐	☐	☐	☐	☐
4. Instructional leadership is shared.	☐	☐	☐	☐	☐
5. Both teachers are prepared and familiar with content covered.	☐	☐	☐	☐	☐

Comments:

Teacher-to-Student Interaction					
CRITERIA	5 Very well	4 Well	3 Average	2 Poorly	1 Very Poorly/ Not Observed
6. Students respond to instruction from the general education teacher.	☐	☐	☐	☐	☐
7. Students respond to instruction from the special education teacher.	☐	☐	☐	☐	☐
8. Students respond to redirection from the general education teacher.	☐	☐	☐	☐	☐
9. Students respond to redirection from the special education teacher.	☐	☐	☐	☐	☐
10. General education teacher interacts with all students.	☐	☐	☐	☐	☐
11. Special education teacher interacts with all students.	☐	☐	☐	☐	☐
12. Students are positively reinforced with praise and encouragement by the general education teacher.	☐	☐	☐	☐	☐
13. Students are positively reinforced with praise and encouragement by the special education teacher.	☐	☐	☐	☐	☐

CRITERIA	5 All of the time	4 Most of the time	3 Some of the time	2 Almost never	1 Not observed at this time
14. There are no references made to students with disabilities out loud in the classroom environment.	☐	☐	☐	☐	☐
15. Special education students sit with the general education students and share all parts of the environment.	☐	☐	☐	☐	☐

Comments:

Instructional Roles					
CRITERIA-	**5 All of the time**	**4 Most of the time**	**3 Some of the time**	**2 Almost Never**	**1 Not observed at this time**
The special education teacher is:					
16. Leading whole group	☐	☐	☐	☐	☐
17. Leading small group	☐	☐	☐	☐	☐
18. Assisting whole group	☐	☐	☐	☐	☐
19. Assisting small group	☐	☐	☐	☐	☐

20. Assisting individual student	☐	☐	☐	☐	☐
21. Non instructional	☐	☐	☐	☐	☐
The general education teacher is: 22. Leading whole group	☐	☐	☐	☐	☐
23. Leading small group	☐	☐	☐	☐	☐
24. Assisting whole group	☐	☐	☐	☐	☐
25. Assisting small group	☐	☐	☐	☐	☐
26. Assisting individual student	☐	☐	☐	☐	☐
27. Non instructional	☐	☐	☐	☐	☐

Comments:

Instructional strategies
28. Co-teaching Models used: (Please choose one or more to include all that apply.)

☐ One teach/one observe (One teacher collecting data)	☐ Alternative (Small group being remediated, enriched, or assessed)	☐ Parallel (Both educators teaching same content to smaller group)	☐ Team with whole group (Sharing instructional roles)
☐ One teach/one support (One teacher assisting students as needed)	☐ Station (Students transition between small group centers that are led by one teacher or independent)	☐ Team with small groups (Sharing instructional roles)	☐ No evidence of co-teaching

29. Please check the strategies observed:					
☐ Goal setting (personal efficacy)	☐ Student interest/choice	☐ Checking for understanding	☐ Vocabulary Instruction	☐Interactive questions and summarizing activities	☐ Guided notes
☐ Timed practice of basic skills	☐ Rubrics and graphic organizers	☐ Higher level thinking skills	☐ Teach in pieces: teach/ practice	☐ Teachers use think aloud strategies	

30. What instructional grouping is used? (May choose more than one)		
☐ Whole group	☐ Independent	☐ Testing
☐ Small group	☐ Collaborative pairs	☐ Other (please describe)

Comments:

Individualized Instruction					
CRITERIA	**5 All of the time**				
31. Accommodations (change in format are observable for students with disabilities.	☐	☐	☐	☐	☐
32. Modifications (change in content such as single digit multiplication instead of double digit) are observable for students with disabilities.	☐	☐	☐	☐	☐
33. There is documentation of student progress, interventions, and success of such. (Data notebook, etc)	☐	☐	☐	☐	☐

34. Please check the strategies observed:				
☐ Task analysis/chunking	☐ Multiple types and modes of responses	☐ Repetition of instruction	☐ Peer assistance	☐ Memory Strategies
☐ Multi-modal instruction	☐ Modeling	☐ Extended time for assignments	☐ Materials read aloud	☐ Tiered assignments/activities
☐Use of a calculator	☐Testing in small group	☐Modified environment or seating		

Comments:

CRITERIA-	5 Very well	4 Well	3 Average	2 Poorly	1 Very poorly/not observed
35. General education teacher redirects inappropriate behavior.	☐	☐	☐	☐	☐
36. Special education teacher redirects inappropriate behavior.	☐	☐	☐	☐	☐
37. General education teacher reinforces appropriate behavior and work ethic.	☐	☐	☐	☐	☐
38. Special education teacher reinforces appropriate behavior and work ethic.	☐	☐	☐	☐	☐

Classroom Management

CRITERIA	5 All of the time	4 Most of the time	3 Some of the time	2 Almost never	1 Not observed at this time
39. Both teachers exhibit the same expectations for behavior.	☐	☐	☐	☐	☐
40. Both speak the language of the classroom rules.	☐	☐	☐	☐	☐
41. Rituals and routines are obvious and adhered to by students.	☐	☐	☐	☐	☐
42. Students are moving between activities appropriately with few distractions.	☐	☐	☐	☐	☐
43. Students are on task and engaged.	☐	☐	☐	☐	☐

Comments:

Appendix P

Professional Organizations Contacted for Participation

- North Central Georgia GLRS-Accepted and provided access to member districts
- Council for Exceptional Children (CEC)-Contacted multiple times. Responded that they would participate but never provided consent for the IRB.
- Council for Administrators of Special Education- Contacted multiple times. Responded that they would participate but never provided consent for the IRB.
- Southeast Georgia GLRS-Accepted and provided access to member districts
- Coastal GLRS-Accepted and provided access to member districts
- Northwest Georgia GLRS-Accepted and provided access to member districts
- Georgia Council for Administrators of Special Education-Accepted and provided access to member districts
- Georia Department of Education-No response
- Texas Department of Education-No response
- New York Department of Education-No response
- California Department of Education-No response
- Florida Department of Education-No response
- Illinois Department of Education –No response