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# Simultaneous Parent-Child Interaction Therapy (PCIT) and Teacher-Child Interaction Training (TCIT) interventions using distance coaching: A pilot study

Kirstin Drucker

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Simultaneous Parent-Child Interaction Therapy (PCIT) and Teacher-Child Interaction  
Training (TCIT) Interventions Using Distance Coaching: A Pilot Study

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A Dissertation submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

Doctor of Psychology

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## **Dedication**

This is dedicated to my nephews, Nathan Scott, Samuel Clay, Benjamin David, and Jackson David. The four of you are my inspiration every day. My favorite title of all time will always be “Aunt Kirstin” (“Aunt Chicken” and “Aunt Kitten” as well 😊).

This dissertation is also dedicated in memory of my father, David “D2” Drucker. I hope I have made you proud!

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## Abstract

When providing intervention to children with emotional and behavioral difficulties, it is important to consider how to best address the child's behaviors across a number of contexts. Parent-Child Interaction Therapy (PCIT) and Teacher-Child Interaction Training (TCIT) have been shown effective at reducing a child's behavioral difficulties by improving the relationship between the child and their caregiver (parent or teacher). This feasibility study adds to the research on interventions for young children with emotional and behavioral difficulties by addressing parent and teacher interaction techniques simultaneously. Using HIPAA-compliant software, a coach provided instruction to a parent and a teacher, to implement a modified Child Directed Interaction (CDI) portion of PCIT and TCIT. Social validity results indicated this model of joint intervention to be a feasible intervention that demonstrated similar results to traditional PCIT and TCIT regarding the parent and teacher behaviors (i.e., an increase in "Do Skills" and a decrease in "Don't Skills"). The child's behaviors, as evaluated through standardized rating scales, showed minimal improvement. This study points to the benefits of using distance coaching with simultaneous use of PCIT and TCIT as a way to provide intervention to families who would otherwise be unable to access these resources. Future directions are also discussed.

*Keywords:* Parent-Child Interaction Therapy, Teacher-Child Interaction Training, telehealth, ecological systems theory, pilot study.

## Chapter I

### INTRODUCTION

A well-known theory of child development today is taken from Bronfenbrenner's (1977) focus on a child's development incorporating a multi-systemic approach to conceptualization and intervention. Often, research on interventions for children has a limited focus on one setting or problem without consideration of the larger context in which a child is embedded. Bronfenbrenner introduces a perspective, the ecology of human development, which stemmed from observations on research with children, traditionally focused on one setting that was either too contrived to be generalized or based on naturalistic observations that lacked experimental control. His perspective instead insists for a focus on larger, systemic impacts on that child's development.

Bronfenbrenner described a child's "ecological environment" (p. 514) as nested structures (i.e., subsystems such as family members, schools, communities, etc.) embedded within each other. The most inner layer, the "microsystem" (p. 514), is a child's interactions with his or her immediate environment, traditionally home or school. The mesosystem (p. 515) refers to the interrelations among the major settings that surround the developing child. This typically involves the interactions between a child's family members, school and peer group. The mesosystem could be considered a "system of microsystems" (p. 515). The exosystem (p. 515) is an extension of the mesosystem, and involves other social structures that may not directly influence the developing child, but instead impact the mesosystem or microsystem of that child. These would be larger bodies of regulating governments, such as the school district or local government agencies. Finally, the macrosystem (p. 515) refers to the overall situational patterns of the

surrounding culture, such as the larger educational or political systems, that explicitly and implicitly influence and motivate the agencies embedded within them.

Using this nested structure to identify the key environments and people involved in a child's development, Bronfenbrenner discussed ecological experiments (p. 517) in which reciprocal interactions of a child's multi-systemic environments and their effects on the child's development are analyzed. The purpose of such an experiment is to take into account the multilayered impacts of different systems on a child's development. This expanded the focus from one interaction (i.e., a parent's interactions with their child) to a larger focus (i.e., the child and parent's interactions occurring at the same time as interactions between a child and his or her teacher). An ecological experiment allows for experimental control to better analyze the interaction effects of the different environments. An additional recommendation from Bronfenbrenner was to create experiments that are innovative and combine a child's ecological systems in new ways. Innovative experiments allow for the development of interconnections between subsystems that typically work in isolation.

### **Children with Emotional and Behavioral Difficulties**

Research has a long history of studying the academic, emotional, and social effects for children with emotional and behavioral difficulties including poor academic outcomes, social adjustment difficulties (poor peer relationships, negative interpersonal interactions, etc.), and higher rates of suspension (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004; Bradley, Henderson, & Monfore, 2004). Research on the long-term outcomes for this population suggest that early intervention may provide more opportunities for success later in life (Gleason, et al., 2016; Robinson, et al., 2017).

One main area that remains a barrier, however, is the accessibility of services for children with emotional and behavioral difficulties (Henning-Smith & Alang, 2016). In addition, much of the literature has focused on interventions that are multifaceted and complex in their implementation, addressing behaviors in only one setting (i.e., home, clinic, or school), or interventions with a limited focus in outcome assessment (Hoagwood, et al., 2007). Because young children spend almost equal amounts of time at home and school, it would be valuable to evaluate interventions that involve addressing a child's behaviors in both settings that are easy to implement.

The current study utilized the approach discussed by Bronfenbrenner with a child who had emotional and behavioral difficulties and provided a modified version of evidence-based interventions in an innovative way.

### **Purpose of the Current Study**

The current study adds to the research on interventions for young children with emotional and behavioral difficulties by addressing parent and teacher interaction techniques. Specifically, the purpose of the current study was to evaluate the feasibility of using distance technology to provide a modified version of Parent-Child Interaction Therapy (PCIT) and Teacher -Child Interaction Training (TCIT), simultaneously, to a child who displayed emotional and behavioral difficulties in both the home and school settings.

Consistent with evidence-based practice, the current study utilized coaching strategies from PCIT and TCIT, evidence-based parent and teacher training programs for externalizing behaviors, and modified the Child Directed Interaction (CDI) intervention to meet the unique needs of the referred child. The "Do Skills" and "Don't Sills" of CDI

for PCIT and TCIT were the focus of the study as they are essentially the same across therapies, lending to their ability to be taught and coached to a parent and teacher, simultaneously. Additionally, because accessibility remains a barrier for this population and teletherapy has become more commonplace, it was important to determine if videoconferencing platforms could be utilized as a way to extend the reach of behavioral interventions to better address the accessibility barrier to care.

The current study incorporated both direct measures of parent-child and teacher-child interactions through observation of the interactions and of child behavior change, along with indirect measures through parent and teacher report on norm-referenced rating scales. Additionally, a social validity scale was utilized to determine the perceived usefulness of this intervention from the perspective of the parent and teacher.

### **Research Question**

The primary research question was whether the use of distance technology (HIPAA-compliant software) is a feasible method of coaching the parent and teachers in a modified version of PCIT and TCIT. This data was collected through the administration of a social validity measure completed by the teacher and parent at the end of the intervention. The hypothesis was that the teacher and parent would report this to be a helpful and effective strategy.

In addition to evaluating the feasibility of distance coaching, the research examined the potential benefits of simultaneous use of traditional PCIT and TCIT, with both the teacher and parent present. Behavioral data was collected during each phase (baseline and intervention) to determine if the expected outcomes from PCIT and TCIT were obtained. The expected outcomes from PCIT and TCIT are listed below.

**Parent behavior.**

1. There will be an increase in the frequency of positive parent behaviors as measured by the modified CDI “Do Skills” (labeled praise, unlabeled praise, reflection, behavior description, imitation, and positive touch).
2. There will be a decrease in the frequency of negative parent behaviors as measured by the modified CDI “Don’t Skills” (negative talk, direct command, indirect command, and questions).

**Teacher behavior.**

1. There will be an increase in the frequency of positive teacher behaviors as measured by the modified CDI “Do Skills” (labeled praise, unlabeled praise, reflection, behavior description, imitation, and positive touch).
2. There will be a decrease in the frequency of negative teacher behaviors as measured by the modified CDI “Don’t Skills” (negative talk, direct command, indirect command, and questions).

**Child behavior.**

1. The child’s behavior difficulties as measured by the norm-referenced rating scales completed by the parent and teacher will reflect positive behavior change from pre-intervention to post-intervention.



## Chapter II

### LITERATURE REVIEW

When evaluating the public education system today, it is commonly accepted that student success is one of the many factors that is considered. An important question to ask then is, what components are necessary to help achieve student success? This has been a prominent question for policy makers since Lyndon B. Johnson first signed the Elementary and Secondary Education Act (ESEA) into law in 1965. ESEA was the first federal legislation that provided funds for education (Jacob & Hartshorne, 2011).

Although the states were primarily in charge of providing funds for public education, this law allowed the federal government to provide secondary aid to the states, especially for economically disadvantaged schoolchildren. Since ESEA, George W. Bush signed the No Child Left Behind Act of 2001 that included updated amendments to ESEA. The No Child Left Behind Act of 2001 had the main goal of closing the achievement gap between children from disadvantaged homes and children afforded more opportunity. Today, the most updated version of this federal law, the Every Student Succeeds Act (ESSA), was signed into law on December 10<sup>th</sup>, 2015 by President Barack Obama (Mathis & Trujillo, 2016). One big shift brought about with ESSA was a focus not just on student academic success but on broader educational standards. Throughout history we have seen that success in schools is more than just academic performance.

#### **Social-Emotional Development Impact on Academic Success**

An additional area of focus that relates to student success, and has long been studied, is a child's social and emotional development. Cohen (2006) argued for a stronger focus in the schools on social, emotional, and ethical competencies. He pointed

to these as foundational areas of competency which allow for true student success. Further, he highlighted that a focus on emotional development as part of a child's curriculum has been shown to positively impact overall learning, which leads to student success. Increasing social-emotional competencies was a way to create a stronger climate of learning for students.

Gumora and Arsenio (2002) investigated the academic impact of emotions in middle school students. The study evaluated 103 middle school adolescents' mood, emotion regulation, and academic-related affect. Findings indicated that a student's emotional development plays a crucial role in academic performance. More specifically, it was noted that children who self-reported more negative affect at school had lower GPAs, lower academic competence, and lower achievement scores overall. This study also highlighted that a student's mood, emotion regulation, and academic-related affect individually impacted a student's GPA more than other cognitive variables such as academic achievement (as measured by state standardized testing).

In a similar manner, Valiente, Swanson, and Eisenberg (2012) reviewed research on the indirect relationship between emotions and emotionality and students' academic achievement. Specifically, they pointed to three types of mediators that play a role in this relationship: cognitive processes, motivational processes, and interpersonal resources. With regards to interpersonal resources, the research indicated that students with more negative affect (i.e., anger, anxiety, withdrawal) had a more difficult time developing friendships and other types of relationships in the classroom leading to a more negative experience in the school setting.

Eklund, Kilpatrick, Kilgus, and Haider (2018) reviewed current standards regarding social-emotional learning across all 50 states and the District of Columbia. Findings suggested that the implementation of state standards for social-emotional learning is present for preschool in all states, however, only eleven states have standards for kindergarten through twelfth grades. This review indicated that while social-emotional learning continues to be an area of focus in the schools, there continues to be room for improvement.

**Teacher-student relationships.** A common theme from much of the research on social-emotional development in children is how important relationships (peers and teachers) are to the academic success of students. Children's relationships in the school setting have been evaluated to determine correlation with academic achievement. Pianta (1999) reviewed the importance of positive student-teacher relationships including why they are essential, how the relationships impact more than just the student, and how to move towards improving these relationships. Hamre and Pianta (2001) used longitudinal data to evaluate the extent to which kindergarten teachers' perceptions of their relationship with students predicted school outcomes. With a sample of 179 children, results indicated poor math and reading grades across time points were related to high levels of perceived conflict between a teacher and the student in kindergarten. This was especially apparent for male students with high levels of behavior problems in kindergarten.

Much of the research demonstrated that the relationship between a teacher and a student is linked to positive outcomes. Pianta, Steinberg, and Rollins (1995) evaluated the impacts on adjustment influenced by the type of relationship between a kindergarten

teacher and their students. Results indicated that children who had warm, close, and communicative relationships with their teacher were better adjusted and more positive in second grade. Birch and Ladd (1998) demonstrated that the relationship between a student and his or her teacher was related to improved academic performance. Murray and Greenburg (2001) showed that lower levels of student problem behavior correlated with strong relationships between a student and his or her teacher. Knowles (2017) evaluated the importance of the working alliance between teachers and their students and found that a working alliance was associated with student engagement. Sulkowski and Simmons (2018) studied the protective nature of positive teacher-student relationships and found that positive relationships protected against psychosocial distress associated with peer victimization.

As established in attachment theory regarding the parent-child relationship, Pianta (1999) suggests the teacher-child relationship can be viewed in the same light. Pianta pointed to a positive teacher-child relationship as another opportunity for a child to develop a “secure base.” Similar to the secure base of a parent, when a child has a secure base at school the child is more likely to explore his or her environment, seek out help when needed, develop a stronger sense of self-assurance, and perform better on academic tasks. Pianta recommended interventions in the school setting should increase the focus on the teacher-student relationship.

### **Home-School Collaboration**

Cox (2005) defined home-school collaboration as, “the relationship between families and schools where parents and educators work together to promote the academic and social development of children” (p. 473). Another definition comes from Esler,

Godber, and Christenson (2002) who defined it as “establishing and maintaining productive, working relationships between families and schools to facilitate children’s learning” (p. 389). No matter the specific definition used, the focus is on incorporating input from families and schools to improve student outcomes. Since children spend the majority of their time at home and school it makes sense for the adults in a child’s life to use similar strategies to manage behavior problems.

Home-school collaboration has long been identified as a necessary practice to improve student success in the classroom. Research has studied the types of communication which work most effectively (Cox, 2005), the types of parental involvement which proves to be most effective (Kyriakides, 2005), the different effects of home-school collaboration (Esler, Godber, & Christenson, 2008), and the subject areas which are most impacted (Van Voorhis, Maier, Epstien, & Lloyd, 2013).

Cohen argued for improved home-school collaboration as a way to increase effective social-emotional competencies for children. He highlighted that the most effective interventions for building social-emotional competencies in children begins with all members of a child’s life using common vocabulary and shared goals.

Christenson, Rounds, and Franklin (1992) identified three main points to explain the importance of using a partnership approach to improve student learning: 1) schools cannot meet all children’s needs alone; 2) learning, growth, and development happen both at school and home; and 3) a true educative community is formed when the home, school, and community environments are linked together and coordinated to serve the developmental needs of individuals.

Home-school collaboration is more than just parental involvement. It implies shared goals of all parties involved. The underlying rationale is that the two systems together can accomplish more than each system alone.

**Barriers.** As one might expect, there are barriers that come with home-school collaboration. Peacock and Collett (2010) discussed three main barriers that are typically encountered when initiating home-school collaboration in the schools: 1) systems-level barriers, 2) low parent involvement, and 3) resistance among families. Some of the recommendations provided to address these potential barriers included addressing and creating small, shared goals that work towards a larger, system-level change, collect data to demonstrate effectiveness of the intervention, think practically, and normalize participation for families who may be hesitant.

Additional barriers arise when consultation and collaboration extend to outside providers, such as mental health professionals. Thornberg (2014) identified differences in professional interpretations and assumptions as one of the main barriers to consultation with outside professionals. This can lead to significant resistance to change and can limit opportunities for outside providers to deliver support to the schools. Peacock and Collett explained that most families viewed the school as a safe place and the opinions of teachers and other staff as trustworthy. Building on these relationships, mental health providers have an opportunity to create working relationships with families within the school setting.

**School as a central location.** Peacock and Collett identified practical issues that arise when providing home-school collaboration. Often parents are not active participants partnering in their child's education. An additional layer of difficulty is added when

collaboration involved outside providers. Peacock and Collett emphasized the importance of being flexible and accommodating so parents can participate as often as possible. One way to accomplish this is to provide intervention at a location central to all parties: the school.

Research has identified the benefits for providing mental health interventions in the school setting (Cohen, 2006). Many of the core principals behind social-emotional learning align with the interventions provided by mental health workers. When mental health interventions are provided in the school setting, more of a child's needs are addressed in one setting, therefore limiting barriers to comprehensive care. Further, using the school as a central location to provide interventions positively addresses accessibilities issues and allows parents, teachers, and outside providers to develop comprehensive and collaborative plans to deliver the most effective services to children.

### **Children with Emotional and Behavioral Difficulties**

Communication between the schools and families is important for all children. Research has pointed to children with behavioral difficulties as being the most frequent referral group for consultation in the schools (Kampwirth, 2006). The Individuals with Disabilities Education Improvement Act of 2004 (IDEIA 2004) identifies multiple categories under which students with emotional, developmental, and behavioral concerns could receive additional educational services (Emotional Disability, Autism, and Other Health Impairment). However, during the 2015-16 school year, less than 3% of school students were served under these categories leaving the rest of the population struggling with behavioral and emotional difficulties to be served in general education (U.S. Department of Education, 2017).

**Social and academic impacts.** Welsh, Parke, Widaman, and O'Neil (2001) analyzed the interaction between a child's social competence and his or her academic achievement using a longitudinal research design. The hypothesis was that a reciprocal interaction existed between these two variables. Results supported the hypothesis and indicated that children with poor social skills had poor academic achievement which in turn led to worse peer relationships.

Gresham (2002) described social challenges that are typically demonstrated by a child with emotional and behavioral difficulties. These included: acquisition deficits (a child's inability to understand and discriminate the appropriateness of his or her behavior), performance deficits (a child's failure in performing a behavior despite having the ability to do so), and fluency deficits (a child's demonstrated difficulty in using a known skill at appropriate times). According to Cook et al. (2008), these social challenges can negatively affect social relationships among students with emotional and behavioral difficulties into secondary grades (i.e., grades five and above).

Reid et al. (2004) completed a meta-analysis of the academic performance of children identified as having emotional and behavioral difficulties. Results from this study indicated that children with emotional and behavioral difficulties had significant deficits in academic performance when compared to their peers without noted difficulties. These deficits were greater for older children than younger children. Further, Nelson, Benner, Lane, and Smith (2004) highlighted that children with externalizing behaviors, as compared to internalizing behaviors, perform worse in reading, math, and writing.



**Interventions**

Externalizing problems such as inattention, hyperactivity, aggression, impulsivity, and defiance are common characteristics of developmental and disruptive behavior disorders such as oppositional defiant disorder (ODD), attention deficit/hyperactivity disorder (ADHD), and autism spectrum disorder (ASD; American Psychiatric Association, 2013). Extensive research has been conducted on which interventions work in home and school settings for populations with developmental, emotional, and behavioral challenges (Eyberg, Nelson, & Boggs, 2008; Lyon, Gershenson, Farahmand, Thaxter, Behling, & Budd, 2009; Scudder, Herschell, & McNeil, 2016). What is clear from the research is a need for integration between interventions in both settings.

**Parent-Child Interaction Therapy.** Parent-Child Interaction Therapy (PCIT) is an evidence-based intervention for families with children who have been identified as having behavior challenges (Eyberg, Nelson, & Boggs). The roots of PCIT stem from the Hanf two-stage operant conditioning model of parent training (Reitman & McMahon, 2013). This training consisted of two stages: “child’s game” and “mother’s game.” The key behavioral strategy emphasized during “child’s game” was differential parental attention for appropriate behavior using descriptive statements and rewards. This was paired with selective ignoring of inappropriate behavior. After a 5-minute observation, the mothers would be trained by the researchers on how to build a repertoire of new parenting strategies. After training, the mothers would be coached, via bug-in-the-ear device, while practicing these new skills with the child in the room. Homework was assigned and continued practice would be monitored before moving into “mother’s

game” phase. During “mother’s game” mothers were taught positive discipline and timeout procedures to manage noncompliance.

PCIT was created in the 1970’s by Shelia Eyberg and colleagues as a behavioral family therapy approach for the treatment of young children with disruptive behaviors. The emphasis of PCIT is on coaching specialized skills to parents to help shape their child’s behaviors. The parental strategy emphasized is a mixture of positive parental warmth and firm limit setting (Scudder, Herschell, & McNeil, 2016). PCIT is informed by attachment, social learning, and operant learning theories (Herschell, Calzada, Eyberg, & McNeil, 2002). More specifically, attachment theory principles focus on building a strong and warm relationship between parent and child as a basis for future skills development. Using a social learning perspective, PCIT addresses behavioral problems through the parent modeling appropriate behaviors. Additionally, operant principles teach parents how to differentially reinforce desirable behaviors while extinguishing undesirable ones.

PCIT is broken into two phases, like those of the Hanf two-stage model. During the first phase, Child Directed Interactions (CDI), parents are explicitly taught “Do” skills designed to enhance the parent-child relationship (Eyberg & Funderburk, 2011). These skills are designed to make interactions between parent and child more reinforcing to the child. The “Do” skills are explained to the parent using the acronym P.R.I.D.E.: praise appropriate behaviors, reflect appropriate verbal content, imitate appropriate play, describe the child’s appropriate play actions, and show enjoyment during play. During the CDI phase, parents are also taught to avoid the “Don’t” skills that include: criticism, questions, or commands. Finally, during CDI parents are also taught to ignore minor non-

aggressive/non-destructive behaviors and enthusiastically attend to appropriate behaviors. After training has been completed without the child present, the parent and child dyad are brought into the clinic where the parent is coached in real-time through a bug-in-the-ear device. The coach uses verbal praise and positive comments in a manner that models the desired behaviors in CDI.

The second phase of PCIT, Parent Directed Interaction (PDI), begins once the parent has met the CDI Mastery criteria. This typically involves the parent giving 10 behavior descriptions, 10 reflective statements, and 10 labeled praises while providing no more than 3 questions, commands, or criticisms (Eyberg & Funderburk). During this phase, parents are taught to use effective instructions in the form of direct, positively-stated, developmentally appropriate single commands. Before the parent-child dyad returns to the clinic, the parent is taught and practices the command sequence with the clinician. The sequence begins when the parent provides an appropriate command to the child and then pauses for 5-seconds to allow the child time to comply. The parent is then taught how to manage consequences for either the child's compliance or non-compliance.

*Efficacy of PCIT.* As stated previously, PCIT is an evidence-based treatment protocol for children with disruptive behaviors between the ages of 2 and 7 years of age (Eyberg & Funderburk, 2011). The efficacy of PCIT has been established through randomized control trials (RCTs) and single-case experimental studies. Eyberg, Nelson, and Boggs (2008) looked at a range of treatments for children with behavioral concerns such as noncompliance, aggression, disruptive classroom behavior, and delinquent behavior. Among other treatments studied, PCIT was one of the parenting programs considered as a most efficacious treatment for children.

PCIT has been shown to be effective across a wide range of behavioral difficulties in young children. Schuhmann, Foote, Eyberg, Boggs, and Algina (1998) studied the effects of PCIT for preschool-aged children diagnosed with oppositional defiant disorder. Results indicated parents in this study had more positive interactions and more compliance from their children as compared to a waitlist control group. Additionally, parents reported lower parenting stress and a more internal locus of control. Solomon, Ono, Timmer and Goodlin-Jones (2008) demonstrated the effectiveness of PCIT in reducing parent perception of problem behaviors in children. PCIT has also been modified to address internalizing problems in young children (Carpenter, Puliafico, Kurtz, Pincus, & Comer, 2014). Finally, PCIT has been shown effective in improving children's emotion regulation (Rothenberg, Weinstein, Dandes, & Jent, 2019).

**Teacher-Child Interaction Training.** Teacher-Child Interaction Training (TCIT) was developed as a variation of PCIT for the school setting due to observations of low levels of treatment completion of PCIT in the community mental health setting (Lyon & Budd, 2009). McIntosh, Rizza, and Bliss (2000) adapted the protocol from PCIT to fit a school setting. As with PCIT, TCIT has two phases: CDI and TDI (Teacher Directed Interaction). Using a case study approach, McIntosh et al. found TCIT to be effective in increasing the teacher's PRIDE skills along with reducing the child's problem behaviors. Additionally, the child's compliance also increased. Similar to PCIT, in-vivo coaching was provided to the teacher.

Filcheck, McNeil, Greco, and Bernard (2004) assessed the effectiveness of PCIT adapted for a whole classroom (TCIT) and a token economy ("Level System") intervention to compare the effects of the two approaches. Child disruptive behaviors

decreased with the implementation of the “Level System” and decreased even further with the implementation of CDI and PDI. During implementation of both interventions, the teacher increased her use of praise. However, during the TCIT intervention phase, the results indicated a greater reduction of critical statements and child non-compliance as compared to the “Level System” intervention. In-vivo coaching was provided during both interventions.

In a study comparing the use of behavior management techniques from PCIT in Head Start classrooms to Head Start classrooms where these techniques were not utilized, Tiano and McNeil (2006) found that behaviors improved for both groups, however, teachers in the treatment group increased their use of praise more than the control group. Additionally, Lyon, Budd, and Gershenson (2009) provided evidence that TCIT was an effective approach to influence teacher behaviors as well as promoting a more positive classroom environment. McIntosh (2010) described a case study where TCIT used in a preschool classroom was effective in increasing positive interactions between the child and the teacher leading to a decrease in the child’s disruptive behaviors.

Lyon et al. used a whole classroom approach (The DePaul TCIT model) in a preschool setting. Teachers were trained to use PRIDE skills and to avoid criticism during the CDI phase. One difference from traditional PCIT was that teachers were encouraged to reduce but not fully eliminate questions and commands since these are requirements in the classroom. In TDI, teachers were trained to use effective commands and different methods to increase compliance from students. Results indicated an increase in teachers’ use of positive behaviors and an overall approval in ratings from teachers to use this intervention in the classroom. A follow-up study further supported the

effectiveness of TCIT as a universal intervention for young children with problem behaviors by targeting the relationship between the teacher and the child (Garbacz, Zychinski, Feuer, Carter, & Budd, 2014).

The goal of PCIT and TCIT is similar, to improve relationships between children and their caregivers by improving positive attention skills. Schaffner, McGoey, and Venesky (2016) studied the effects of the first phase of TCIT on four preschool children's behavior in an urban preschool. Results indicated that TCIT positively influenced the frequency of a child's disruptive behaviors and improved prosocial behaviors. Additionally, the intervention increased the teacher's use of positive attention skills.

From the research discussed, it is clear that PCIT and TCIT are worthwhile and effective interventions for children with emotional and behavioral difficulties. The goals of home-school collaboration also align closely with the goals of these two interventions. Therefore, combining PCIT and TCIT aligns well with a home-school collaboration model.

### **Teletherapy**

In a world that today has a large focus on technology, it makes sense that more therapeutic services are being offered using telecommunication software. The American Psychological Association (APA; 2013) defined telepsychology as "the provision of psychological services using telecommunication technologies" (np). APA also noted that technology allows for an increase in high quality psychological service delivery, especially to clients with limited access to service providers due to geographic location, medical condition, psychiatric diagnosis, financial constraints, or other barriers.

Backhaus et al. (2012) reviewed 65 articles researching videoconferencing psychotherapy (VCP). This review found the VCP is not only a feasible therapeutic format but it also has been used with a variety of diverse clients. Additionally, VCP is associated with good user satisfaction and typically has similar outcomes as face-to-face therapy.

The use of telepsychology is becoming more common. Parsonson and Stokes (2013) reviewed some of the advantages, risks, and applications of telepsychology today. Some of the benefits of telepsychology include providing a range of services to a larger sample of the population, allowing for in the moment guidance and support, allowing the practitioner to work with the client in different settings to increase generalization of skills, and providing evidence-based interventions to populations who are located at a great distance (Parsonson & Stokes, 2013; Witt, Stokes, Parsonson, & Dudding, 2018; Barkaia, Stokes, & Mikiashvili, 2017). The number one risk involved with using telepsychology is the issue of confidentiality. Luxton, Kayl, and Mishkind (2012) provided an overview of modern data security solutions that can allow a provider to meet HIPPA compliance standards that can be followed easily upon implementation of a telepsychology intervention including the use of HIPPA-compliant software.

Research using telepsychology and PCIT is beginning to come to the forefront. Wilsie and Breton-Knight (2012) provided consultation for trainees of PCIT using the Video Analysis Tool (VAT). Using this HIPAA-compliant tool allowed the Parent-Child Research Lab at Auburn University to provide specific feedback to trainees across the United States and Singapore. Comer et al. (2015) detailed the effective use of internet-based delivery of PCIT to families in their homes.

One differentiating feature of PCIT as compared to other parent training therapies is the use of in-vivo coaching. Families that have limited access to service delivery can still benefit from a parent training therapy like PCIT if they can access it in their homes as opposed to an outpatient clinic. Additionally, providing services to families in their homes allows for service to a wider population. However, there are still limitations if families do not have internet access. This is where a central location, like a school, is beneficial.



### Chapter III

## METHODOLOGY

### Confidentiality and Human Research Participants

This study was approved by James Madison University's Institutional Review Board. Technology used for distance coaching can have limits regarding confidentiality and therefore HIPPA-compliant software (VSee) and encryption was used throughout data collection. According to the VSee website, this platform uses end-to-end FIPS 140-2 certified 256-bit Advanced Encryption Standard ("HIPAA and VSee", 2017). Each session was recorded using the screen recording software QuickTime Player on a MacBook Pro laptop computer. These recordings were saved to an encrypted, password-protected USB drive. This USB drive was stored in a locked filing cabinet in a locked research and records room at James Madison University to which only approved researchers involved in the study had access.

The Wi-Fi connection at both locations (local elementary school and university) were secure networks in which access was only granted to those employed by or attending either location. The local elementary school Wi-Fi network was controlled and monitored by the local school division and the Wi-Fi network at the university is only accessible to individuals who were provided usernames and passwords. This ensured the security of the internet connection during sessions.

### Participants

**Coach.** The intervention was provided by a doctoral student in a clinical and school psychology Psy.D. program under the supervision of a licensed clinical psychologist with training as a PCIT and TCIT therapist. The doctoral student had

participated in a 10-hour web course produced by the University of California-Davis PCIT Training Center and had two years of experiential training in a supervised clinical setting.

**Teacher.** The teacher asked to participate in this study was a preschool teacher with a long standing history of working in the local school district. She was a general education teacher who had been teaching collaborative preschool classes (a class with one general education teacher and one special education teacher working collaboratively to provide instruction to students) for the past three years. She had previously received training in the procedures used in this study, those of Teacher-Child Interaction Training (TCIT). Since her initial training, she participated in monthly consultations with the faculty advisor for this study to maintain the skills learned (e.g., “Do Skills”). She was asked to participate in the current study by the principal investigator via email. An in-person meeting was then held to address any questions or concerns and to obtain signed consent.

**Child.** The child asked to participate in this study, David (pseudonym), was a five-year-old white male referred by the teacher. David was referred to this study due to behavioral concerns in the classroom setting which were further observed by his parents in the home setting. The behavioral difficulties included attention difficulties and non-compliance with requests. No internalizing behavioral difficulties were reported.

Based on the initial interview with his father, his mother had an uncomplicated pregnancy and delivery. David had noted developmental delays with regards to his speech, gross motor, and fine motor skills. He was diagnosed with autism early in his development, although his father was unsure of his exact age at diagnosis. During the

study, he was receiving Applied Behavior Analysis (ABA) therapy, Occupational Therapy, Speech Therapy, and Physical Therapy multiple times a week both in school and in outpatient clinic settings. David had an Individualized Education Program (IEP) that placed him in the collaborative setting where he received half of his instruction in the general education classroom (with the help of an aid) and half of his instruction in the special education classroom. It is worth noting, as it will be important to the results of this study, that David was non-verbal and unable to communicate his wants or needs.

**Parent.** The parent in this study was the biological father of the child. The mother was unable to participate due to her work schedule. The father's work schedule was flexible and allowed for him to come into the school several times a week, if needed. Both parents were in their mid-forties and would be considered middle-class. No maternal or paternal mental health concerns were reported. The parents were referred to this study by the teacher. Once consent had been obtained by the teacher to provide contact information to the principal investigator, initial contact was made via email. The principal investigator then scheduled a meeting with the parent to discuss any questions or concerns and have initial paperwork (i.e., consent and rating scales) completed.

Once implemented, removal of the treatment would not return the parent and teacher behaviors to baseline functioning due to the skills learned during the implementation of the intervention (i.e., once the skills are learned, the parent and teacher cannot forget the knowledge obtained).

### **Setting and Materials**

**Location.** The teacher, parent, and child were located in the teacher's classroom at the elementary school in which the child received his general education instruction.

The teacher, parent, and child jointly participated in a number of different activities throughout the classroom including eating breakfast, brushing teeth, reading stories, and playing in the sensory bins.

The coach was located in an office at the Alvin V. Baird Attention and Learning Disabilities Center (Baird Center) at the university approximately 3-miles away from the elementary school. The coach had VSee (connected to the teacher's iPad in the classroom) and QuickTime Player open on a laptop with her cell phone connected to the teacher's cell phone in the classroom.

**Technology.** VSee, a HIPPA-compliant video-conferencing platform compatible across multiple devices (i.e., desktop computer, laptop computer, iPad/tablet, iPhone/Android phone), was used for the distance coaching. The principal investigator had VSee installed on a laptop to be used at the Baird Center and the teacher had an iPad in the classroom with the VSee application downloaded to be used at the school. A research assistant was in the classroom to move the iPad as a way to track the interactions between the child and adults due to the child's high levels of activity during sessions. Both the teacher and the parent wore Bluetooth earpieces connected to either the iPad or teacher's cell phone as a way for both participants to hear the coach at all times. The teacher's cell phone was used to connect the second Bluetooth earpiece as technology did not yet support two Bluetooth devices being connected to one audio stream simultaneously.

### **Experimental Design**

In order to evaluate the effectiveness of an intervention like the one in the current study, Cooper, Heron, and Heward (2007) recommended the use of a multiple baseline

across participants design. While recruiting for this study continued after the first participant, no additional families were recruited by the end of the study and therefore this approach was unable to be implemented. Using visual analysis of the data collected, the results were analyzed to determine effectiveness of the intervention as a single case evaluation within a time series (Parsonson, 2003).

### **Procedures**

Teachers who had previous training in TCIT and had continued with monthly consultations with the licensed psychologist who provided the initial TCIT training were asked to participate. A child could qualify for participation in the study if he or she displayed behavioral difficulties in the classroom and home settings including non-compliance, aggression, inattention, and/or hyperactivity. Teachers were asked to contact the licensed psychologist if they had students in their classroom who met this criteria. Once this referral was made, the licensed psychologist would conduct a classroom observation. If the licensed psychologist noted similar concerns as the teacher, the teachers were asked to contact the family members to obtain consent for the researchers to contact the families.

One family was referred and met criteria to participate in this current study. The family agreed to be contacted by the researchers and an in-person meeting was scheduled. The principal investigator completed a classroom observation and met with the child's father to gather additional background information. Informed consent was obtained during this meeting from the parent and teacher. Both were provided with rating scales to complete and return before the baseline sessions were scheduled.

**Baseline.** To obtain baseline data for teacher and parent behaviors, the first sessions were conducted with no coaching. The baseline sessions were approximately 15-minutes in length. The first 5-minute segment was an opportunity for the participants to familiarize themselves with their surroundings. This involved the child participating in his typical morning routine of entering the classroom, greeting his teacher with either a high five or a hug, and putting his belongings (backpack and jacket) away in his cubby. The next 10-minutes were used to conduct two, 5-minute observations, using 10-second partial interval recording. During this time, David, his father, and his teacher participated in a number of activities typical of David's morning routine. These activities included eating breakfast (already set out on a table in the classroom), brushing his teeth, playing in the sensory bin, sitting in the reading corner, or sitting in the rocking chair at the front of the classroom. David typically engaged in most activities independently, although his father and teacher would follow him around the classroom and engage with him when appropriate (i.e., aiding in brushing his teeth, opening breakfast items, reading to him, playing with items in the sensory bin with David, and rocking him in the rocking chair).

During each coaching session, partial interval recording and frequency counts were utilized to collect the frequency of times and at what intervals the teacher and parent used "Do Skills" and "Don't Skills." This was collected using a 10-second partial interval recording procedure. Appendix A provides a sample coding sheet used to collect parent and teacher behavioral data.

To obtain a baseline measure of the child's behaviors, the scores from the outcome measures were used.

*Outcome measures.* The child behaviors were assessed using behavioral observations and by standardized rating scales completed by the teacher and the parent. The parent rating scales included: 1) the Devereux Early Childhood Assessment for Preschoolers, Second Edition (DECA-P2); 2) the Eyberg Child Behavior Inventory (ECBI); and 3) the Child Behavior Checklist (CBCL). The teacher rating scales included: 1) DECA-P2 and 2) CBCL. These rating scales were administered prior to the first baseline session and after the final intervention session. Appendix C has a list of the scales and their descriptions, as provided by the administration manual.

*Devereux Early Childhood Assessment for Preschoolers, Second Edition (DECA-P2).* The DECA-P2 is primarily used to assess protective factors and behavior concerns in children between the ages of 2 and 5 (LeBuffe & Naglieri, 1999). It has mainly been used to help identify children who are low on protective factors or exhibiting behavioral concerns to help determine appropriate, targeted interventions. It is also used to assist in measuring progress and performance.

Internal reliability coefficients for the DECA-P2 range from .79 (Behavioral Concerns parent form) to .95 (Total Protective factors teacher form; LeBuffe & Naglieri). Test-retest reliability across a 6-8 day span ranged from .78 (Behavioral Concerns, parent form) to .95 (Total Protective Factors, teacher form). When compared to the *Preschool Behavioral and Emotional Rating Scale (PreBRES)* Strength Index, the DECA-P2 Total Protective Factors scale correlated strongly between both the parent (corrected  $r = .65$ ) and the teacher forms (corrected  $r = .78$ ; LeBuffe & Naglieri). Additionally, when compared to the *Conners Early Childhood Scale (Conners EC)* Global Index, a negative

correlation was found in comparison to the DECA-P2 Total Protective Factors scale (Parent corrected  $r = -.37$  and Teacher corrected  $r = -.42$ ).

*Eyberg Child Behavior Inventory (ECBI)*. The ECBI is a 36-item rating scale that measures conduct and other externalizing problems in children ages two through sixteen (Eyberg & Pincus, 1999). It is considered a brief measure and is completed via paper-and-pencil by the parent or guardian to assess behaviors in the home setting. Each behavior is rated on an intensity scale and on a problematic scale (i.e., does the parent view these behaviors as problematic). This scale is commonly used in PCIT research.

Eyberg and Pincus discussed reliability and validity data based on the original standardized studies. Internal consistency coefficients were .95 for both the Intensity and Problems scales. Test-retest reliability coefficients across a three week interval ranged from .86 and .88. The ECBI has been shown to have strong correlations with the CBCL and the *Parenting Stress Index (PSI)*; Boggs, Eyberg, & Reynolds, 1990; Abidin, 1995 as cited in Eyberg & Pincus), supporting convergent validity.

*Child Behavior Checklist for Ages 1 ½ - 5 (CBCL)*. The CBCL is part of the Achenbach System of Empirically Based Assessment (ASEBA) series. It is a standardized measure used to evaluate the competencies and problems of children through ratings from different informants (Achenbach & Rescorla, 2000).

The CBCL 1 ½ - 5 has strong reliability and validity (Achenbach & Rescorla). Correlations with other measures of preschool child behavior problems range from .56 to .77, supporting convergent validity. Additionally, test-retest reliability (across an eight day span) ranged from .87 (Externalizing Problems Scale) to .90 (Internalizing Problems and the Total Problems Scales).



**Training.** As outlined in the PCIT protocol (Eyberg & Funderbunk, 2011), the parent and teacher participated in a teaching session to learn, review, and practice the “Do Skills” and “Don’t Skills.” Training took place across one 20-minute session and occurred immediately after the baseline data had been collected. Prior to the training session, a document with a description of the behaviors were emailed to the parent and teacher to review with the coach during the training session (*See Appendix B: Skills for Participants*).

Training was held using distance technology (VSee). The coach spent approximately ten minutes reviewing the definition and examples of the skills. The teacher had previous training in TCIT and therefore the teaching session primarily focused on the parent. Once the definitions and examples had been reviewed, the parent and teacher jointly practiced the skills via role-play, directed by the coach. During this training, the teacher initially acted as herself and the parent took on the role of the child as they played in the sensory bin (a preferred activity of David’s). The teacher acted as a model for the skills and the coach provided examples of the “Do Skills” during this training as needed. After approximately five minutes, the parent then practiced the role of himself while the teacher acted as the child. Once the teacher and parent reported to be comfortable with the skills and all questions and concerns had been addressed, the training session ended. As instructed in the PCIT protocol, the parent was then asked to practice these skills for 5-minutes a day between sessions. The teacher was also strongly encouraged to practice these skills, daily, while interacting with this student in her classroom.

**Intervention.** After training was complete, coaching began the following session. This involved the coach, located at the University a few miles away, providing verbal comments to the parent and teacher via VSee software. Each intervention session was approximately 20-minutes long. During the first 5-minute interval, the teacher and parent were instructed to play with the child but were not coached. In the second 5-minute interval, coaching began and was focused on either the parent or the teacher. During the third 5-minute session, the coach focused attention towards the other participant (i.e., if the teacher was coached first then the parent was coached second). The final 5-minute session involved coaching directed towards both teacher and parent. The participant who was coached first, the parent or the teacher, was alternated each intervention session.

Due to David's activity level, he moved around the classroom and engaged in a variety of different activities during these intervention sessions. Similar to the baseline sessions, David participated in eating breakfast, brushing his teeth, playing in the sensory bin, sitting in the reading corner, or sitting in the rocking chair at the front of the classroom. Different than the baseline sessions, David's father and teacher were more interactive with David. David's father and teacher actively engaged in the activities with him more than during baseline.

***Simultaneous coaching.*** The parent and teacher each wore a Bluetooth earpiece connected to audio feeds of the coach, allowing for each participant to hear the coaching of the other. Eyberg and Funderbunk (2011) recommended in PCIT having each parent, when two parents are present, observe the coaching of the other as a way to provide additional opportunities to learn and observe the skills being taught. This study utilized a similar approach by allowing the teacher and the parent to hear the coaching being

provided to the other participant. Additionally, each participant received coaching directed specifically to their interactions with David for an equal amount of time.

As instructed in the PCIT and TCIT manuals, the coach provided positive comments and feedback to the participants regarding the skills they were practicing (i.e., “Very good labeled praise.”; “Great positive touch! You can tell David really responds well to your touch because he keeps coming back for more and smiling each time.”). The coaching used in PCIT and TCIT is designed to demonstrate the same “Do Skills” as the participants in that the feedback is mostly positive and avoids criticism, commands, questions, and negative talk. This provided another opportunity for the parent and teacher to observe the use of positive interaction skills. The coach also provided additional comments on ways the participants could change the “Don’t Skills” they were using to “Do Skills” (e.g., “The question you just used (“You’re swinging in the chair, aren’t you?”) can be turned into a behavior description by dropping the “aren’t you” at the end.”). At the end of each session, the coach would pick one or two skills to have the participants focus their practice between sessions.

### **Independent Variable**

**Parent-Child Interaction Therapy (PCIT).** The PCIT treatment protocol for Child Directed Interaction (CDI) (Eyberg & Funderburk, 2011). was used for the current study and modified for a non-verbal preschool child with autism VSee software was used to provide distance-coaching (i.e., all aspects of the modified PCIT protocol were conducted through teletherapy).

**Teacher-Child Interaction Training (TCIT).** TCIT, a variation of PCIT (Lyon & Budd, 2009) modified for the classroom setting, was used in terms of setting and

providing coaching to the teacher. The teacher had previous training and ongoing consultation using TCIT and therefore required little re-teaching of the skills after the baseline sessions.

### **Dependent Variables**

**Social validity.** A seven item questionnaire was created to evaluate the parent and teacher's attitude and the perceived effectiveness and helpfulness of the intervention (*See Appendix D: Research Evaluation Forms*). This questionnaire used five Likert-type items that range from Strongly Agree to Strongly Disagree. The questions on this scale evaluated the parent and teacher's perceptions of the impact of the intervention on their interactions with the child. The scale further evaluated how much the participants learned and how useful the sessions were overall. Finally, the scale evaluated the participant's experience of the coach and coaching behaviors. The questionnaire was administered to the teacher and parent after the last session.

**Direct observation data.** In order to evaluate the effectiveness of the intervention on the parent and teacher behaviors, their behaviors were observed and tracked using a modified version of the Dyadic Parent Child Interaction Coding System, Fourth Edition (DPICS-IV; Eyberg, Nelson, Ginn, Bhuiyan, & Boggs, 2013). Table 1 provides individual definitions of the selected parent and teacher behaviors monitored for the current study. To determine the impact of the intervention on the child's behaviors, pre- and post-scores from the standardized rating scales (outcome measures) were compared.

Table 1.

<b>Modified DPICS-IV Parent and Teacher Behavior Codes</b>	
<b>DO SKILLS</b>	
Labeled Praise (LP)	Provides a positive evaluation of a specific behavior, activity, or product of the child.
Unlabeled Praise (UP)	Provides a positive evaluation of the child, an attribute of the child, or a nonspecific activity, behavior, or product of the child. (Any positive comment about child or child's behavior; not specific)
Reflection (RF)	A declarative phrase or statement that has the same meaning as a preceding child verbalization. The reflection may paraphrase or elaborate on the child's verbalization but may not change the meaning of the child's statement or interpret unstated ideas.
Behavior Description (BD)	A non-evaluative, declarative sentence or phrase in which the subject is the other person and the verb describes that person's ongoing or immediately completed (< 5 sec.) observable verbal or nonverbal behavior.
Imitation (I)	Copying the same action a child is engaging in with the toys.
Positive Touch (PTO)	Any intentional positive physical contact between adult and child.
<b>DON'T SKILLS</b>	
Negative Talk (NTA)	A verbal expression of disapproval of the child or the child's attributes, activities, products, or choices. Negative talk also includes sassy, sarcastic, rude, or impudent speech.
Direct Command (DC)	A declarative statement that contains an order or direction for a vocal or motor behavior to be performed and indicates that the child is to perform this behavior.
Indirect Command (IC)	A suggestion for a vocal or motor behavior to be performed that is implied or stated in question form. ("Can you")
Question (Q)	A verbal inquiry that is distinguishable from a declarative statement by having a rising inflection at the end and/or by having the sentence structure of a question. Questions request an answer but do not suggest that a behavior is to be performed by the child.

\*not coded: Questions in play through play character (i.e., Mr. Pig asks, how is your day Mrs. Pig??)

### **Data Collection**

Sessions were conducted using distance video technology and were recorded using screen recording software (QuickTime Player). Prior to coding the sessions, the principal investigator provided in depth training to the undergraduate research assistant

on the definitions of the behaviors being monitored. Using practice videos, the undergraduate research assistant and principal investigator coded behaviors listed in Table 1 using coding sheets created by the primary investigator for this research (*See Appendix A*), separately, and calculate Inter-Observer Agreement (IOA). Once IOA was 95% or better on the practice videos, consistently, the undergraduate research assistant independently coded the videos collected for this study

**Child behaviors.** The child's behaviors were evaluated by calculating the differences in scores from pre- and post- assessment measures (*See Appendix C: Description of Scales*).

**Teacher and parent behaviors.** Each of the teacher behaviors ("Do Skills" and "Don't Skills") was coded using 10-second partial interval recording and frequency counts.

## Chapter IV

### RESULTS

#### Social Validity

To address the research focus on the feasibility of this intervention, the parent and teacher completed a social validity scale at the conclusion of the intervention. Both raters acknowledged a personal skill set improvement, especially as it related to their interactions with the child (providing “strongly agree” ratings to the questions: *“These sessions taught me skills I can use in my interactions with my child [children in my class]”* and *“These sessions make me feel better able to communicate with my child [children in my class].”*). Additionally, both raters indicated the coaching was clear and provided answers to questions or concerns as they arose throughout the study and felt the sessions to be useful overall (providing “strongly agree” ratings to the questions: *“The coach was clear in expectations and approachable for any questions/concerns I had throughout the experience.”* and *“Overall, these sessions were useful.”*). Both raters indicated they had noticed themselves using the skills taught outside of sessions, although the parent rating it to a slightly lesser degree than the teacher (i.e., “Somewhat Agree” instead of “Strongly Agree”). Finally, the parent rated “No Opinion” for noticing a change in his child’s behavior while the teacher rated this as “Strongly Agree”.

#### Parent and Teacher Behaviors

To evaluate the traditional expected outcomes from PCIT and TCIT, a visual analysis of graphed data was used. In single-case research design, it is common to use visual inspection as it focuses on the observable effects of an independent variable on the dependent variable (Baer, 1977; Kazdin, 2011). Parsonson (2003) makes

recommendations for visual analysis that were utilized in this study. These recommendations included assessing: 1) changes in levels and trends, 2) stability and variability of the data paths, 3) potential patterns, 4) cycles or sequences, 5) potential overlap and range of the data points and 6) the number of data points.

**Interobserver agreement.** The percent of agreement between two observers using the frequency counts was used to obtain Interobserver agreement (IOA) for this study. IOA was assessed using two trained observers recording independently. Observers were an undergraduate research assistant (primary coder) and the principal investigator (secondary coder). IOA criterion was 80% or better. Interobserver Agreement (IOA) was obtained from 100% of the baseline sessions and 40% of the intervention sessions for parent behaviors and teacher behaviors. IOA was calculated using the frequency counts from the two observers. IOA was obtained by dividing the smaller frequency count by the larger frequency count and multiplying by 100 to obtain a percent agreement between the two observers. Tables 2 and 3 show IOA for “Do Skills” and “Don’t Skills” across the baseline and intervention phases for parent and teacher behaviors. During baseline, IOA was 100% for “Do Skills” and “Don’t Skills” for the parent behaviors while it ranged from 86% (“Don’t Skills” intervention data point 2) to 100% for the teacher behaviors. During the intervention sessions, parent behaviors IOA ranged from 90% - 100% and 86% - 100% for teacher behaviors.



Table 2.

IOA of Parent Behaviors		
5-Minute Observations	Do Skills	Don't Skills
Baseline Data Point 1	100	100
Baseline Data Point 2	100	100
Baseline Data Point 3	100	100
Baseline Data Point 4	100	100
Intervention Data Point 1	100	90
Intervention Data Point 2	100	100
Intervention Data Point 5	100	94
Intervention Data Point 6	92	100

Table 3.

IOA of Teacher Behaviors		
5-Minute Observations	Do Skills	Don't Skills
Baseline Data Point 1	92	100
Baseline Data Point 2	95	86
Baseline Data Point 3	94	94
Baseline Data Point 4	97	100
Intervention Data Point 1	100	97
Intervention Data Point 2	86	96
Intervention Data Point 5	92	87
Intervention Data Point 6	87	96

### Interval Data

Figures 1 and 2 show the number of intervals that contained at least one “Do Skill” and number of intervals that contained at least one “Don’t Skill” for the parent and teacher, respectively. There was a total of 30 intervals per 5-minute observation.

**Parent interval data.** Based on the parent interval data (Figure 1), it is clear to see that the parent had minimal interactions (both “Do Skills” and “Don’t Skills”) in the baseline phase and increased his interactions during the intervention phase. In the baseline phase, the number of intervals that contained a “Do Skill” (positive touch, imitation, behavior description, labeled praise, unlabeled praise, and reflection) ranged from 0 intervals (baseline point 3) to 4 intervals (baseline point 2) and the number of intervals that contained a “Don’t Skill” (questions, direct commands, indirect commands, and negative talk) ranged from 0 intervals (baseline points 1-3) to 5 intervals (baseline point 4). During the intervention phase, the number of intervals that contained a “Do Skill” increased and ranged from 9 intervals (intervention point 2 and 8) to 19 intervals (intervention point 5). The number of intervals that contained a “Don’t Skill” ranged from 3 intervals (intervention point 4) to 15 intervals (intervention point 1). Overall, parent interval data shows that the parent used “Do Skills” across more intervals than “Don’t Skills” and increased his interactions with his child more once the intervention was implemented.

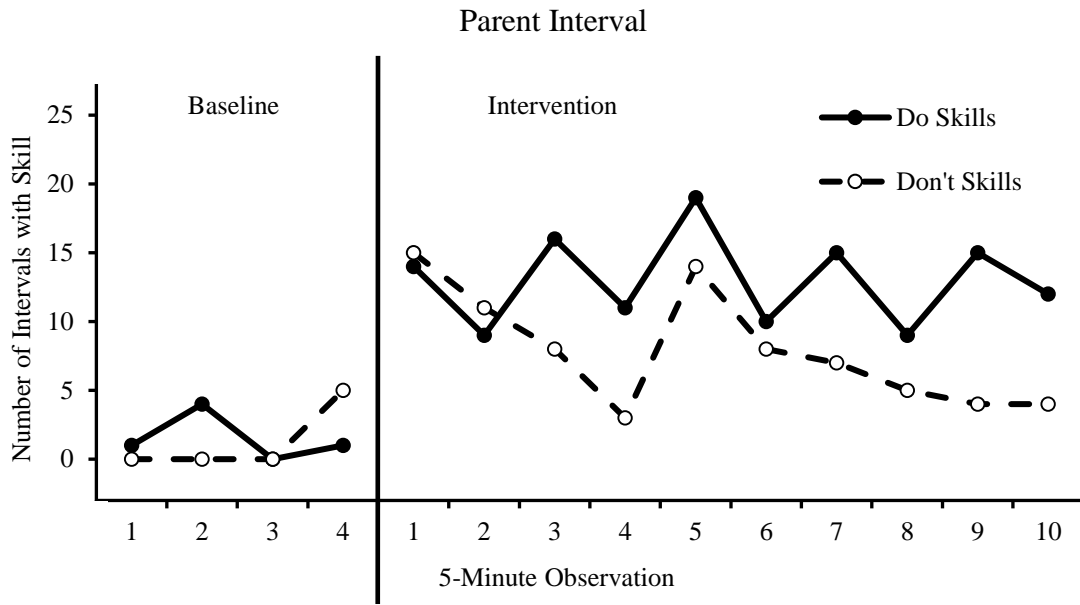


Figure 1. Number of intervals that contained at least one skill observed during a 5-minute observation using 10-second partial-interval recording

**Teacher interval data.** Figure 2 shows the number of intervals that contained a skill for the teacher. During the baseline phase, the number of intervals that contained a skill was variable. Once in the intervention phase, the teacher had more intervals that contained a “Do Skill” than intervals that contained a “Don’t Skill.” Across both phases, the teacher had more intervals that contained a skill than the parent overall. The number of intervals that contained a “Do Skill” ranged from 10 intervals (baseline point 3) to 21 intervals (baseline point 2) during baseline to 7 intervals (intervention point 2) to 24 intervals (intervention point 9) during the intervention phase. The number of intervals that contained a “Don’t Skill” ranged from 15 intervals (baseline point 4) to 23 intervals (baseline point 1) during the baseline phase to 4 intervals (intervention point 9) to 21 intervals (intervention point 1) during the intervention phase.

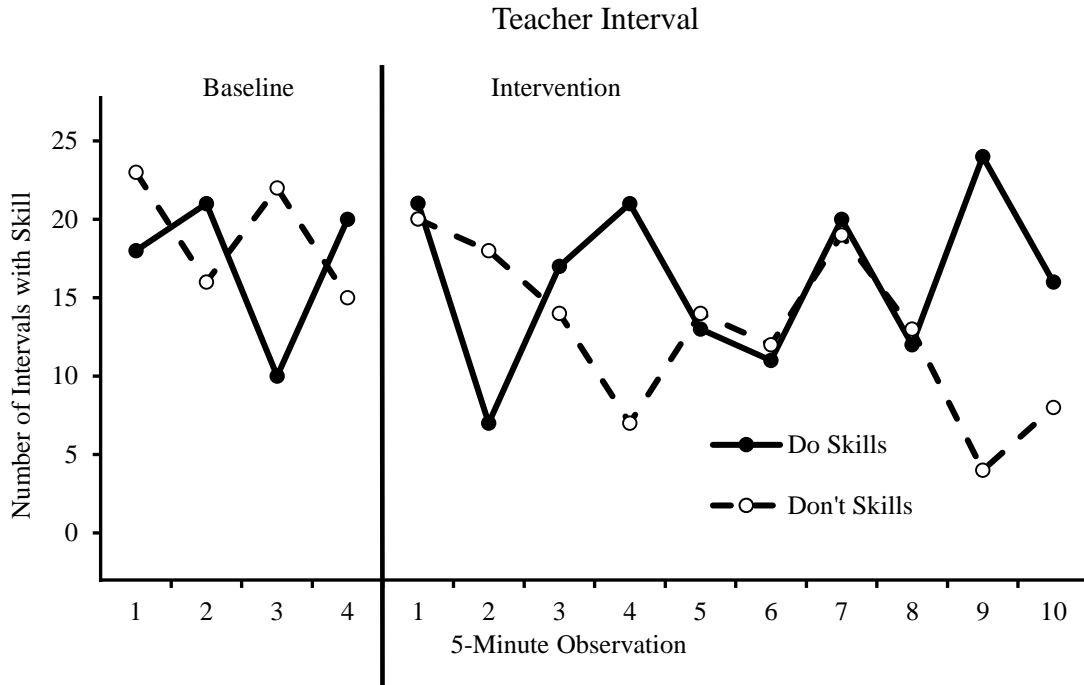


Figure 2. Number of intervals that contained at least one skill observed during a 5-minute observation using 10-second partial-interval recording.

**Frequency Data**

Figures 3 and 4 represent the frequency data of skills used during baseline and intervention sessions by the parent and teacher, respectively. These data are presented across 5-minute behavioral observations (i.e., baseline versus intervention sessions; x-axis). Frequency behavioral data for the parent and teacher were calculated by dividing the number of “Do Skills” by the total number of skills observed (both “Do Skills” and “Don’t Skills” combined) and multiplying by 100 to obtain a percent. Percent of “Don’t Skills” were calculated the same way. These calculations resulted in the percent a behavior (“Do Skill” or “Don’t Skill”) occurred out of the total number of behaviors recorded across a 5-minute observation using frequency recording (y-axis).

**Parent frequency.** During baseline, the parent's use of all skills occurred at variable levels (Figure 3). The use of "Do Skills" ranged from 0% (baseline point 3) to 100% (baseline points 1-2) and the use of "Don't Skills" ranged from 0% (baseline point 1-3) to 75% (baseline 4). During the intervention phase, parent behaviors were noted to become more stable, with a higher occurrence of "Do Skills" than "Don't Skills" overall. During the intervention phase, "Do Skills" ranged from 46% (intervention point 2) to 83% (intervention point 9). "Don't Skills" ranged from 17% (intervention point 9) to 54% (intervention point 2).

**Teacher frequency.** During baseline, the teacher "Do Skills" and "Don't Skills" were inconsistent (Figure 4). Once the intervention was implemented, the teacher "Do Skills" began increasing and the "Don't Skills" began decreasing, although, there continued to be some inconsistency. Teacher "Do Skills" during baseline phase ranged from 25% (baseline point 3) to 67% (baseline point 2) and "Don't Skills" ranged from 33% (baseline point 2) to 75% (baseline point 3). During intervention phase, "Do Skills" ranged from 35% (intervention point 2 & 6) to 91% (intervention point 9) and "Don't Skills" ranged from 9% (intervention point 9) to 65% (intervention point 2 & 6).

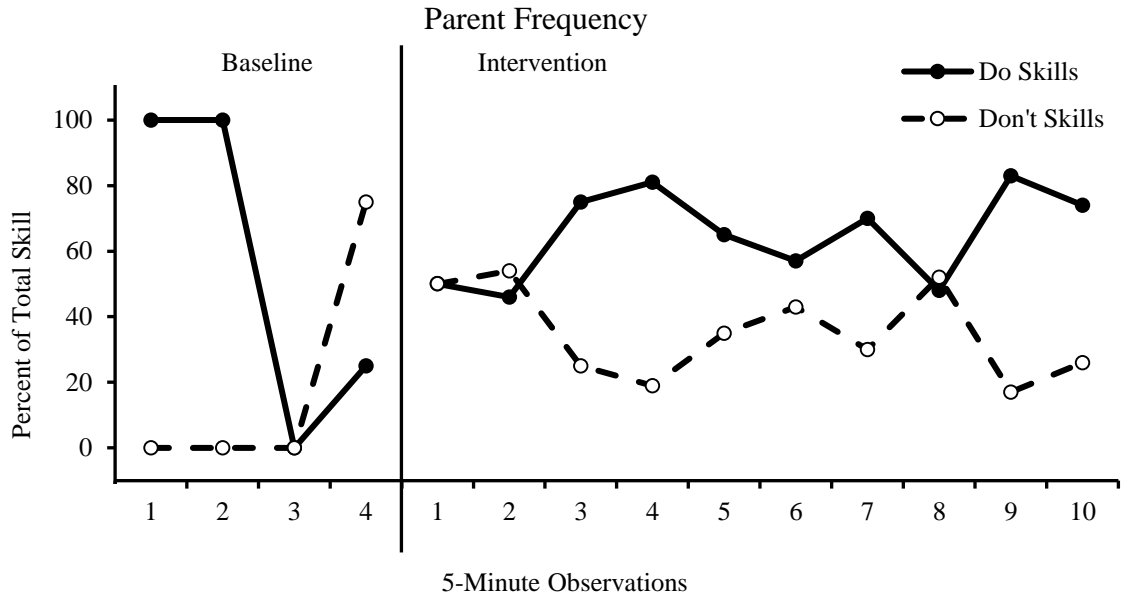


Figure 3. Percent a skill occurred out of total skills recorded during a 5-minute observation using frequency recording.

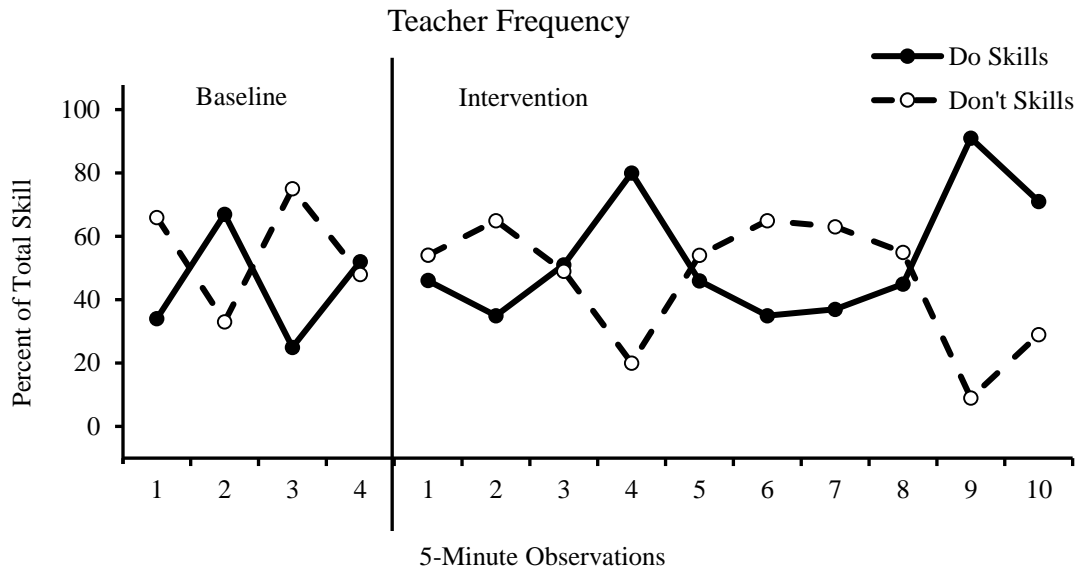


Figure 4. Percent a skill occurred out of total skills recorded during a 5-minute observation using frequency recording.

Figures 5 and 6 show the frequency data for the baseline and intervention phases with trendlines for the parent behaviors and teacher behaviors, respectively. Trendlines were obtained using the Microsoft Excel for Mac (version 16.25) which calculates trendlines using the method of least squares. Figure 7 displays that the “Do Skills” trended negatively during baseline and positively during intervention for the parent behaviors. Additionally, the use of “Don’t Skills” trended positively during baseline and negatively during intervention. The trendlines in Figure 5 show a clear pattern of increasing “Do Skills” and decreasing “Don’t Skills” with the implementation of the intervention. Figure 6 shows that during baseline, the teacher’s use of “Do Skills” and “Don’t Skills” had a small trend in the desired direction (i.e., “Do Skills” trending positively and “Don’t Skills” trending negatively). Once the intervention was implemented, this trend became more apparent.

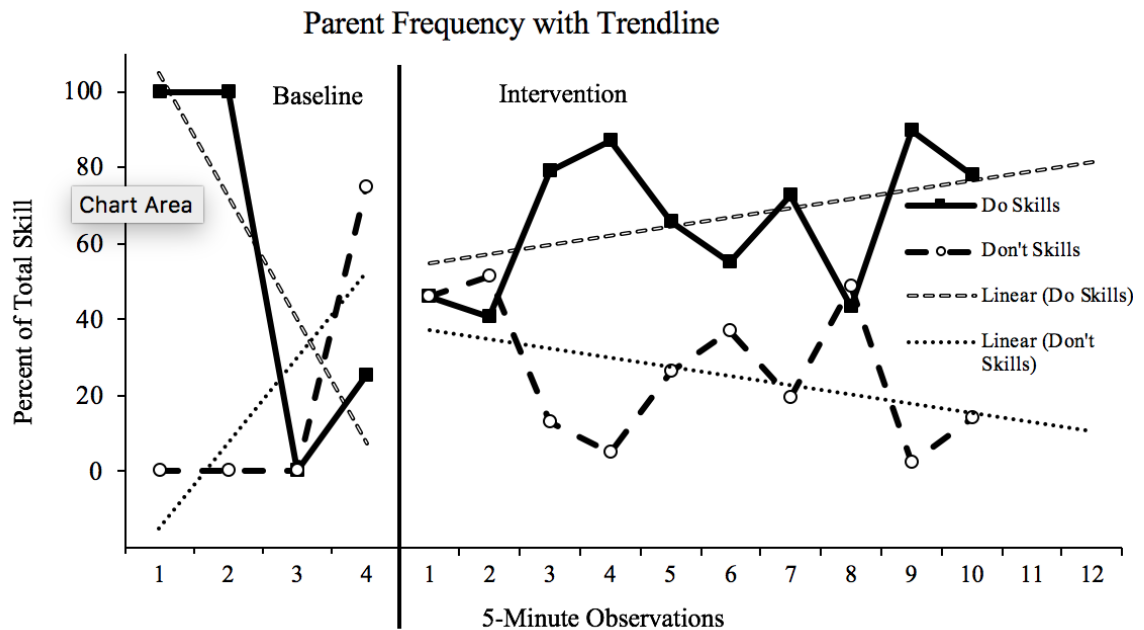


Figure 5. Parent frequency data with trendlines.

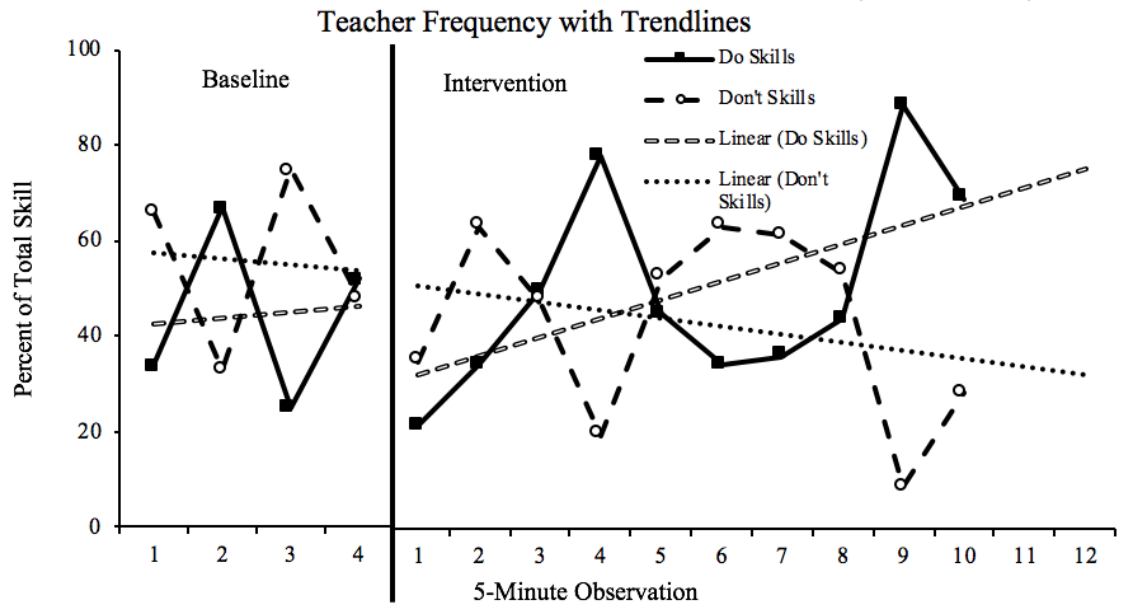


Figure 6. Teacher frequency data with trendlines.

**Individual Skills**

**Parent “Do Skills”.** The parent “Do Skills” are presented as percent of occurrence across baseline and intervention sessions (x-axis). Behavioral data were calculated by dividing the number of occurrences of a specific behavior by the total number of behaviors observed (either “Do Skills” or “Don’t Skills” depending on the specific skill) multiplied by 100. These calculations resulted in a percent of the total skills observed using a 10-second partial-interval recording (y-axis). Figure 7 displays all “Do Skills” across the baseline and intervention sessions.



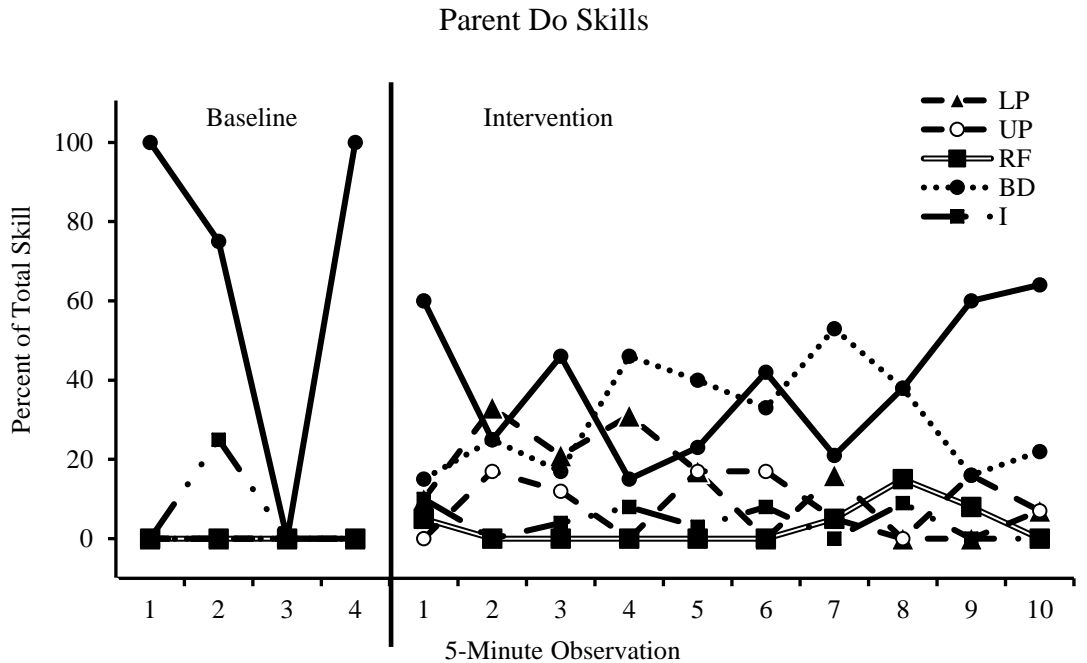


Figure 7. Percent of specific individual “Do Skill” out of total “Do Skills” observed, collected using a 10-second partial-interval recording.

**Positive touch, labeled praise, unlabeled praise, and behavior descriptions.**

Figure 8 shows the change in parent positive touch, labeled praise, unlabeled praise, and behavior descriptions. Due to the limited changes noted in imitation and reflections, these behaviors are not discussed in detail. Positive touch remained the most often used “Do Skill” across both baseline and intervention sessions. Positive touch ranged from 15% (Intervention point 4) to 100% (baseline points 1 & 4). Labeled praise changed from baseline to intervention with 0% during baseline to the highest percentage of 33% during intervention (intervention point 2). Unlabeled praise is noted to change from 0% in baseline to the highest point of 17% (intervention points 2, 5 & 6). Finally, behavior descriptions increased from 0% in baseline to 53% in intervention (intervention point 7).

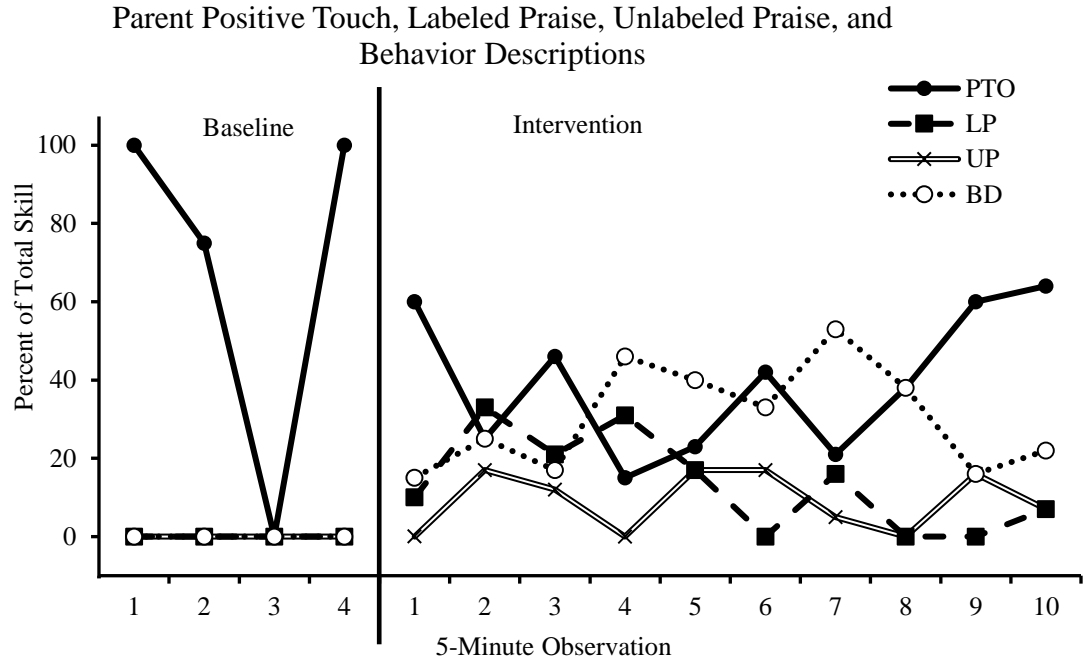


Figure 8. Percent of positive touch, labeled praise, unlabeled praise, and behavior descriptions out of total “Do Skills” observed, collected using a 10-second partial-interval recording.

**Parent “Don’t Skills”.** The parent “Don’t Skills” are presented as percent of occurrence across baseline and intervention sessions (x-axis). Figure 9 displays all parent “Don’t Skills” across all baseline and intervention sessions.

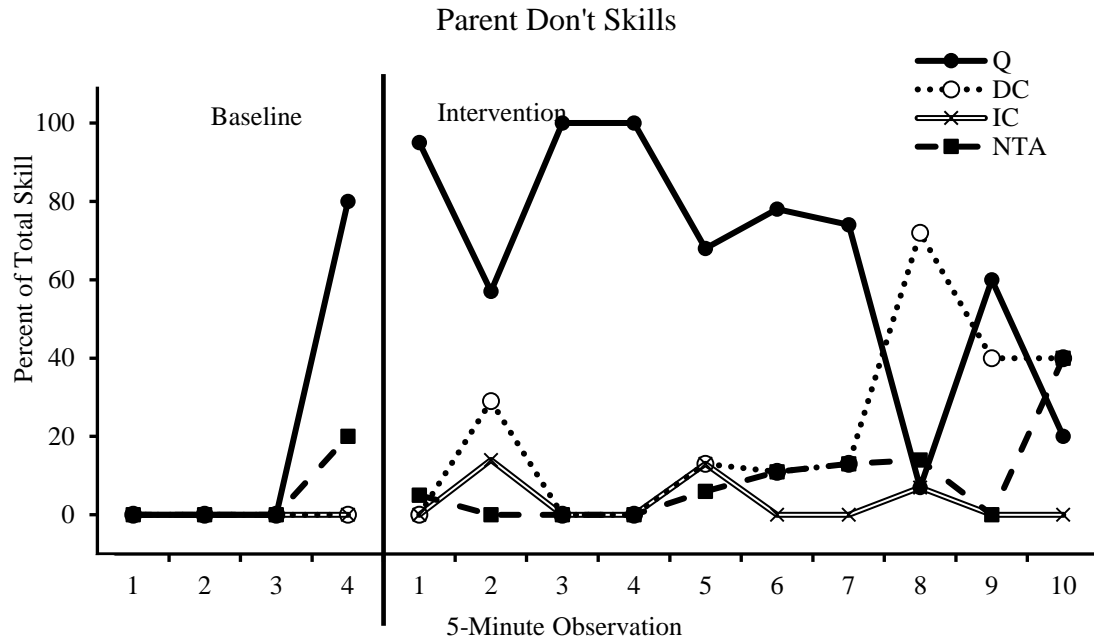


Figure 9. Percent of individual “Don’t Skill” out of total “Don’t Skills” observed, collected using a 10-second partial-interval recording.

**Questions and direct commands.** Figure 10 shows the change in parent questions and direct commands across all baseline and intervention sessions. The percent of questions used across sessions remained high. The percent of questions ranged from 0% (baseline points 1-3) to 100% (intervention points 3 & 4). Direct commands increased across intervention sessions from 0% occurrence during baseline to the highest occurrence of 72% (intervention point 8).

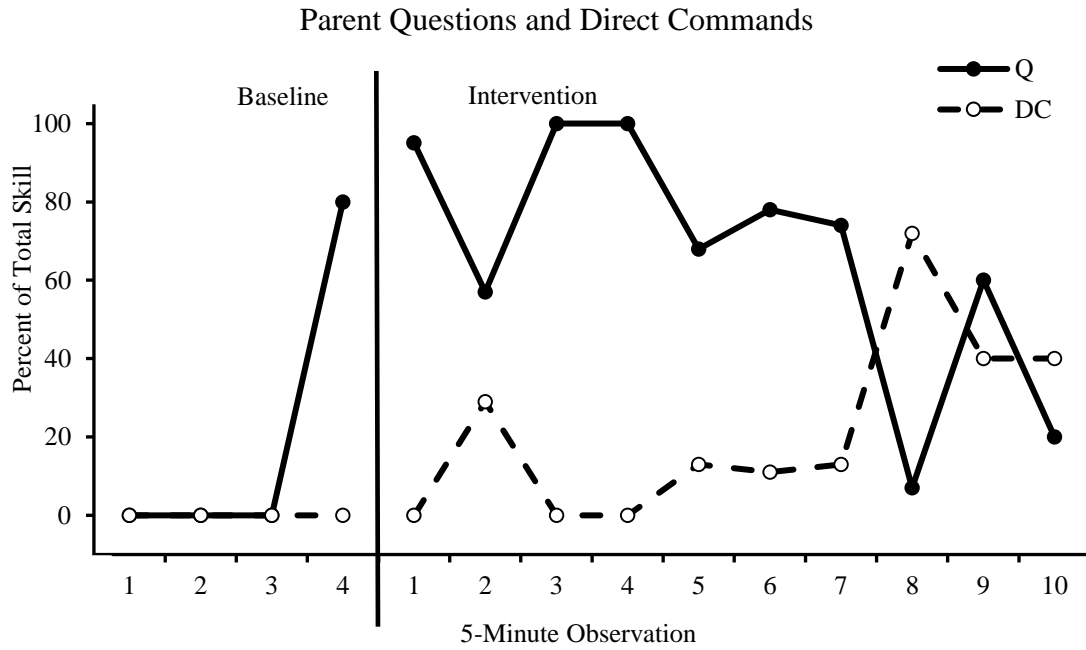


Figure 10. Percent of questions and direct commands out of total “Don’t Skills” observed, collected using a 10-second partial-interval recording.

**Teacher “Do Skills”.** The teacher “Do Skills” are presented as percent of occurrence across baseline and intervention sessions (x-axis). Figure 11 displays all teacher “Do Skills” across all baseline and intervention sessions.

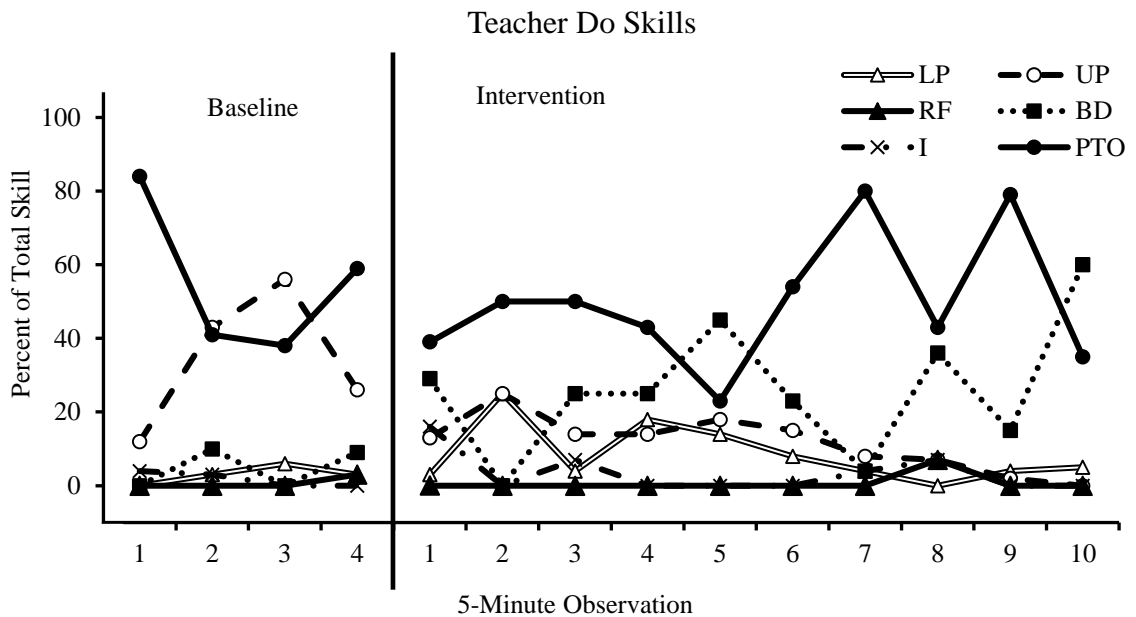


Figure 11. Percent of individual “Do Skill” out of total “Do Skills” observed, collected using a 10-second partial-interval recording.

**Positive touch, unlabeled praise, and behavior descriptions.** Figure 12 shows the change in teacher positive touch, unlabeled praise, and behavior descriptions. Similar to the parent data, positive touch remained the “Do Skill” that occurred the most throughout baseline and intervention phases ranging from 23% (intervention point 5) to 84% (baseline point 1). Unlabeled praise decreased in occurrence from the baseline phase to the intervention phase ranging from 0% (intervention point 10) to 56% (baseline point 1). Behavior descriptions increased in occurrence from the baseline to the intervention phase ranging from 0% (baseline points 1 & 3 and intervention point 2) to 60% (intervention point 10).

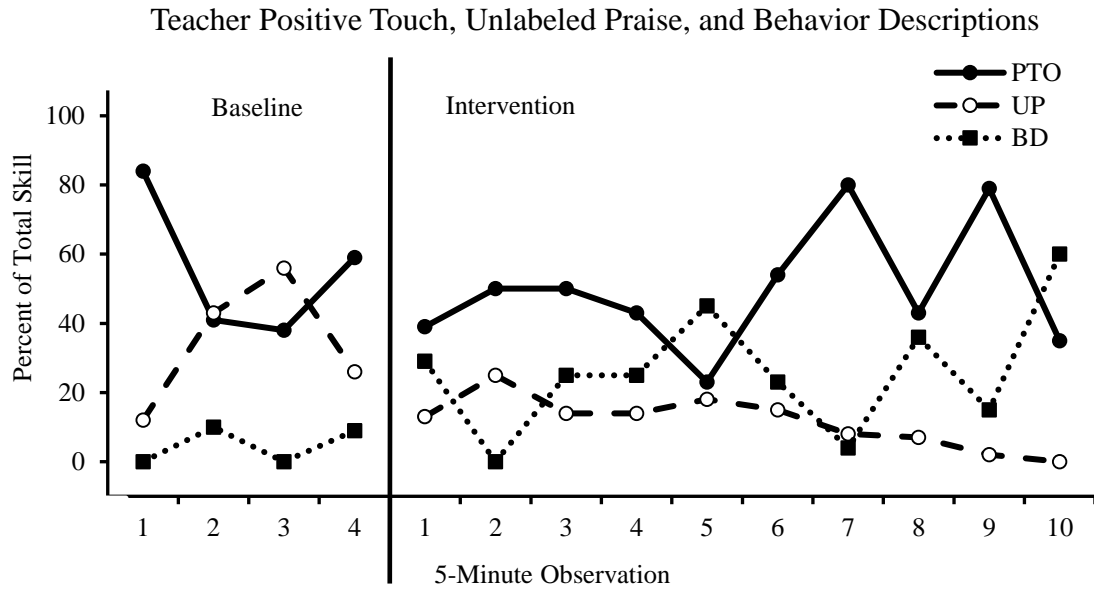


Figure 12. Percent of positive touch, unlabeled praise, and behavior descriptions out of total “Do Skills” observed, collected using a 10-second partial-interval recording

**Teacher “Don’t Skills”.** The teacher “Don’t Skills” are presented as percentage of occurrence across baseline and intervention sessions (x-axis). Figure 13 displays all teacher “Don’t Skills” across all baseline and intervention sessions.

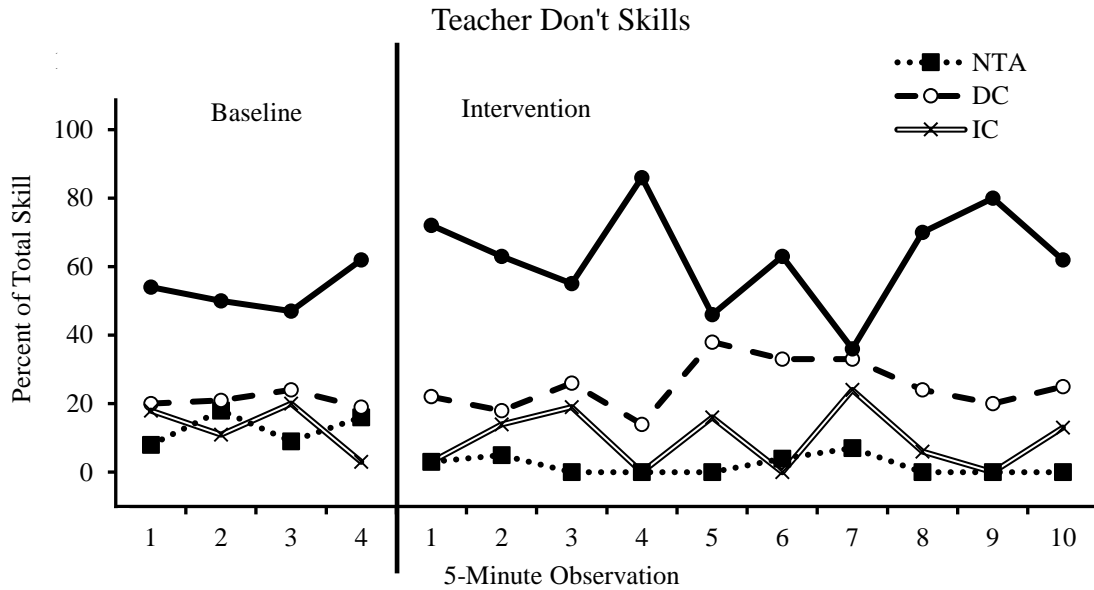


Figure 13. Percent of individual “Don’t Skill” out of total “Don’t Skills” observed, collected using a 10-second partial-interval recording.

**Questions and direct commands.** Figure 14 shows the change in teacher questions and direct commands across all baseline and intervention sessions. Both behaviors remained relatively stable across baseline and intervention sessions. Questions was the most often used “Don’t Skill” and ranged in occurrence from 36% (intervention point 6) to 86% (intervention point 4). Direct commands ranged from 14% (intervention point 4) to 38% (intervention point 5) and remained higher than baseline for the last half of the intervention sessions.

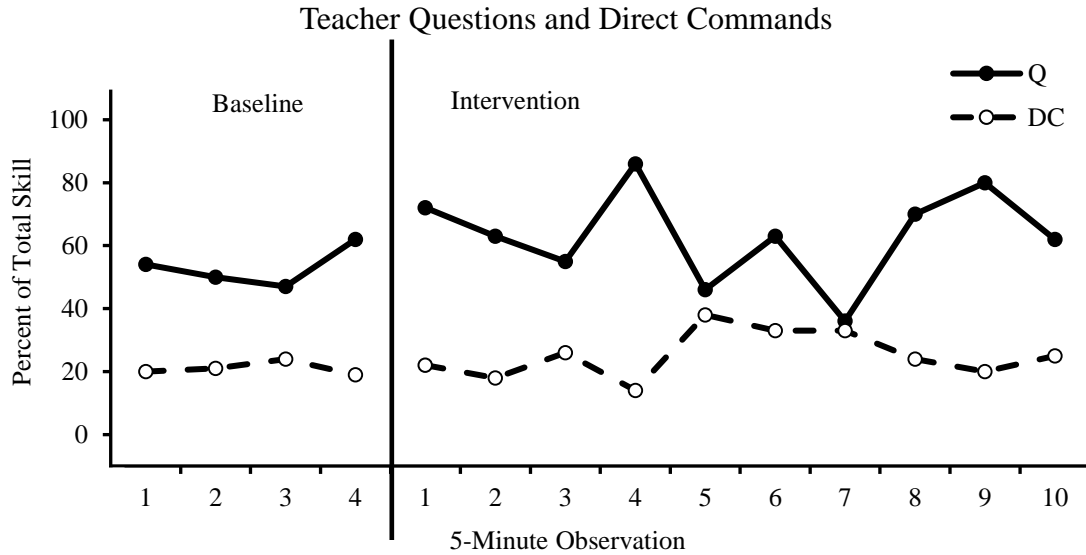


Figure 14. Percent of questions and direct commands out of total “Don’t Skills” observed, collected using a 10-second partial-interval recording.

**Comparison Interval Data**

Patterns in the parent and teacher behaviors were identified by overlaying the parent and teacher “Do Skills” (Figure 15) and “Don’t Skills” (Figure 16). From these figures, it is clear that the parent and teacher behaviors follow a similar response pattern. During the baseline phase, the parent has minimal interactions with the child, as indicated by low number of intervals containing “Do Skills” and “Don’t Skills”. Once the intervention is implemented, the parent’s behaviors increase and follow a similar response pattern to the teacher’s behaviors. The parent and teacher “Do Skills” are consistent and have a slight positive trend while the “Don’t Skills” are more distinct in their negative trend. It appears the teacher’s behaviors act as a model for the parent for both “Do Skills” and “Don’t Skills”.



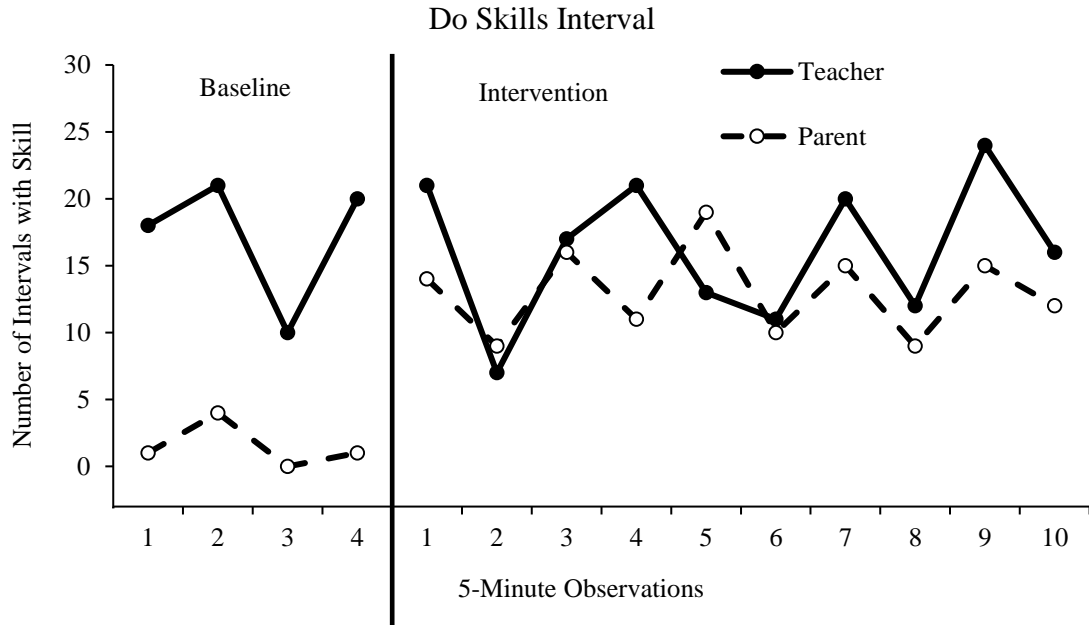


Figure 15. Number of intervals that contained a Do Skill observed during a 5-minute observation using 10-second partial-interval recording comparing parent and teacher behaviors.

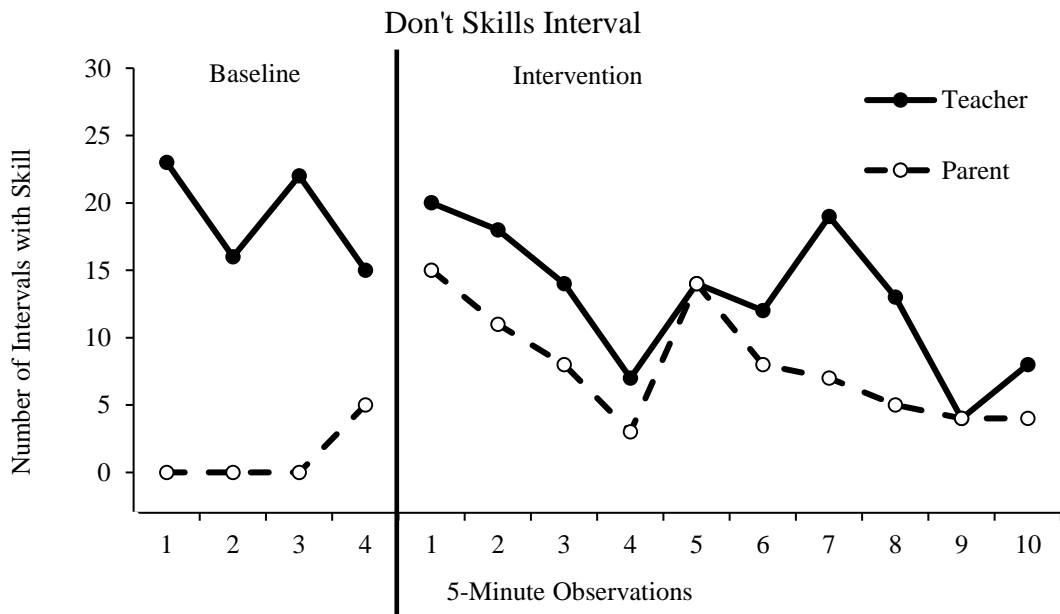


Figure 16. Number of intervals that contained a Don't Skill observed during a 5-minute observation using 10-second partial-interval recording comparing parent and teacher behaviors.

**Outcome measures**

Table 4 shows T-scores obtained from norm-referenced composite scales administered before and at the end of the study from the teacher and Table 5 shows T-scores obtained from the parent. T-scores have a mean of 50 and a standard deviation of 10.

**DECA-P2.** The DECA-P2 T-scores from the parent rating for Total Protective Factors and Behavioral Concerns did not change from pre-intervention to post-intervention. The teacher ratings on the Total Protective Factors increased by  $.3 SD$  from a T-score of 34 pre-intervention to a T-score of 37 post-intervention. An increase on this scale indicates an improvement (although, not clinical) in the child's skills. Additionally, the teacher ratings for Behavioral Concerns decreased by  $.4 SD$  from a T-score of 62 pre-intervention to a T-score 58 post-intervention. The scores from both raters on Total Protective Factors pre- and post-intervention fell below the cutoff indicating this to be an area of need. Ratings from the parent indicated Behavioral Concerns to fall above the cutoff highlighting an area of need both pre- and post-intervention. Teacher ratings for Behavioral Concerns pre-intervention is considered an area of need while post-intervention is considered typical, indicating a clinical improvement.

**ECBI.** The ECBI Intensity Scale T-score increased  $.2 SD$  from a T-score of 64 pre-intervention to a T-score of 66 post-intervention. Both scores fell above the cutoff indicating clinically significant scores. The ECBI Problem Scale T-score decreased  $.6 SD$  from a T-score 49 pre-intervention to a T-score 43 post-intervention. Both scores fell below the cutoff indicating average scores.

**CBCL.** The Externalizing Problems Scale, Internalizing Problems Scale, and Total Problems Scale either remained consistent or increased for both raters from pre-intervention to post-intervention. The parent rating for the Externalizing Problems Scale did not change (T-score 67, pre- and post-intervention). The Internalizing Problems Scale increased .2 *SD* from a T-score 64 to a T-score 66 between pre- and post-intervention on the parent rating. The Total Problems Scale remained consistent (T-score 53 pre- and post-intervention). The teacher rating for Externalizing Problems Scale and the Internalizing Problems Scales increased .1 *SD* from a T-score 57 to a T-score 58 and 61 to 62, respectively. The Total Problems Scale increased 1.0 *SD* from a T-score 53 to a T-score 63 pre- to post-intervention.

Table 4

Outcome Measure ( <i>M</i> = 50; <i>SD</i> = 10)	Teacher Report	
	Pre- T-score	Post T-score
DECA-P2 Total Protective Factors	34	37
DECA-P2 Behavioral Concerns	62	58
CBCL Externalizing	57	58
CBCL Internalizing	61	62
CBCL Total Problems	53	63

Note: DECA-P2 = The Devereux Early Childhood Assessment; CBCL = Child Behavior Checklist

Table 5

Parent Report		
Outcome Measure ( $M = 50$ ; $SD = 10$ )	Pre- T-score	Post T-score
DECA-P2 Total Protective Factors	28	28
DECA-P2 Behavioral Concerns	70	70
ECBI Intensity	64	66
ECBI Problem	49	43
CBCL Externalizing	67	67
CBCL Internalizing	64	66
CBCL Total Problems	53	53

Note: DECA-P2 = The Devereux Early Childhood Assessment; ECBI = Eyberg Child Behavior Inventory; CBCL = Child Behavior Checklist

## Chapter V

### DISCUSSION

The current pilot study utilized HIPPA-compliant software to provide distance coaching for a joint PCIT/TCIT intervention, for a child with behavioral and emotional difficulties noted across settings (home and school) to determine the feasibility of such an intervention. Using a social validity scale, positive feedback was provided from the parent and teacher pointing to this as a helpful and effective intervention. Though minimal behavior changes in the child were reported through standardized behavior rating scales, expected outcomes from the Child Directed Interaction (CDI) portion of traditional PCIT and TCIT were demonstrated (i.e., increased positive parent and teacher interactions (“Do Skills”) and decreased negative parent and teacher interactions (“Don’t Skills)). Additionally, results demonstrated an interaction between the parent and teacher throughout the intervention, highlighting a unique area of future research.

The findings are supported by a large body of research to support the use of Parent-Child Interaction Therapy (PCIT) to decrease problem behaviors in children (Eyberg & Funderbunk, 2011; Eyberg, Nelson, & Boggs, 2008; Schuhmann Foote, Eyberg, Boggs, & Algina, 1998; Solomon, Ono, Timmer, & Goodlin-Jones, 2008; Carpenter, Puliafico, Kurtz, Pincus, & Comer, 2014). Additionally, there is increasing research that supports the use of the school variation of PCIT, Teacher-Child Interaction Training (TCIT) in the classroom to address the same concerns (McIntosh, et al., 2000; Lyon, Budd, & Gershenson, 2009; Filcheck, McNeil, Greco, & Bernard, 2004). Educational research supports the collaboration between families and schools to increase a child’s academic success (Cox, 2005; Kyriakides, 2005; Esler, Godber, & Christenson,

2008; Van Voorhis, Maier, Epstien, & Lloyd, 2013). Finally, teletherapy, or the use of technology to provide therapies from a distance, has shown success similar to that of therapies provided in person (Backhaus et al., 2012; Comer et al., 2015).

### **Analysis of Expected Outcomes**

**Social validity.** The focus of this pilot study was on the feasibility of providing combined PCIT and TCIT using distance technology. Based on the results from the social validity scale completed by the parent and the teacher at the end of the intervention, both raters indicated this to be a helpful and effective intervention. Additionally, the teacher who participated in this study was so impressed by the ease of its implantation, she asked to have additional students in her classroom participate, however, due to time constraints of the primary researcher, this was unable to be conducted. Based on the feedback from the parent and teacher, the implementation of this intervention using distance technology is considered feasible.

**Comparison of Parent and Teacher Behaviors.** A unique feature of the current study is the simultaneous implementation of two separate therapies. PCIT and TCIT are typically done in isolation of each other even though the Child Directed Interaction (CDI) portion of the interventions are similar. Though this study presents data related to the expected outcomes of traditional PCIT and TCIT (i.e., increasing “Do Skills” and decreasing “Don’t Skills”), it was also important to highlight the influence of the behaviors of the two participants on each other. Analyzing the parent and teacher behaviors together provides a unique perspective on the impact of this intervention.

Evaluating the overlapping interval data presented here it is clear to see there is a relationship between the parent’s behaviors and the teacher’s behaviors. Though there is

no way to measure the direction of influence, the response pattern of the parent and the teacher indicate there to be a relationship between the two. During the intervention phase, it is clear to see the parent and teacher behaviors follow a very similar pattern of interactions with a clear negative trend in “Don’t Skills”. This study did not ask the teacher about her perceived role in the room, though this would be a recommendation for future research. Because the teacher had previous training in TCIT and the parent had never received parent management training before, there is a possibility the teacher viewed her role as a teacher of behavior in the room, impacting her interaction style.

**Parent outcomes.** From the baseline phase to the intervention phase there is a clear shift in the frequency of “Do Skills” versus “Don’t Skills” for the parent. During the baseline phase of the study, “Do Skills” and “Don’t Skills” were variable. Once the intervention was implemented, the parent’s use of “Do Skills” increased almost immediately and remained high for the remainder of the intervention. Additionally, the parent’s use of “Don’t Skills” decreased quickly and remained low for the duration of the intervention. The results from the parent behaviors suggest the intervention was successful in teaching the parent positive interaction skills to improve the interactions between him and his son.

Regarding specific “Do Skills” and “Don’t Skills”, data presents the parent’s strong use of positive touch throughout the study with an increase in labeled praise, unlabeled praise, and behavior descriptions from baseline to intervention. The child in the current study was nonverbal and therefore the other “Do Skills” of imitation and reflection were more difficult to practice because there were limited opportunities to engage those behaviors in management. When evaluating the individual “Don’t Skills”

used, questions remained the most utilized behavior with a noted increase in direct commands as the intervention sessions continued. Using the teacher as a model in this intervention likely had an impact on the parent's use of specific "Don't Skills" as the teacher consistently (i.e., during baseline and intervention) used questions the most out of any of the "Don't Skills". This is further highlighted in the overlapping interval data presented. The parent's use of direct commands increased across the intervention settings, also likely a reflection of the impact of the teacher's modeling on the parent's behaviors.

**Teacher outcomes.** Similar to the parent behaviors, during baseline, the teacher's behaviors were variable with a noted change during the intervention phase to a positive trend in her use of "Do Skills" and a negative trend in her use of "Don't Skills". It is worth noting the continued variability of her skills across the intervention sessions as well. This was unexpected due to her previous knowledge of TCIT. Because the researcher and teacher did not have a direct conversation about the teacher's role in this study, it is hypothesized the teacher saw herself as a model and teacher of the skills and therefore modified her interactions to better align with the parent. This would further explain the similar response patterns of both participants.

Similar to the parent's behaviors, the teacher used positive touch the most of any of the "Do Skills". The child in this study responded positively to touch and would seek it out from both the parent and teacher throughout the study. This response was pointed out to the parent and teacher (through coaching) and they were encouraged to increase this behavior, which the data shows occurred.



Regarding the use of “Don’t Skills”, the teacher also consistently used questions the most with direct commands being the second most utilized “Don’t Skill”. During coaching, the teacher was more difficult to redirect when using “Don’t Skills” such as questions and direct commands. The teacher is noted to be a verbally engaging teacher whose natural style uses questions frequently, making it difficult to shift away from this skill. A confounding factor was the teacher’s knowledge of how to give appropriate, direct commands (as taught in the Teacher Directed Interactions of TCIT as well as Applied Behavior Analysis therapy) that likely impacted her ability to refrain from using direct commands. Further, in the classroom setting, a teacher frequently uses questions as a way to engage her class, which likely impacted her ability to refrain from using them during this study.

**Child behaviors.** The child’s behaviors were evaluated using pre- and post-intervention norm-referenced measures (DECA-P2, ECBI, and CBCL). Comparing the outcome measures demonstrated some areas of improvement including the teacher’s ratings which showed a slight increase in protective factors and a decrease in behavioral concerns on the DECA-P2. The parent and teacher ratings on the other measures indicated most areas as remaining the same. It is worth noting on the teacher ratings of the CBCL Total Problems scale a full standard deviation increase. This indicates that an increase in problems was reported after the intervention in comparison to before the intervention. However, based on the results from the social validity scale, the teacher’s subjective observations indicated the opposite.

A major concern regarding these measures is the amount of time between administrations. While the EBCI is designed to be used frequently, the DECA-P2 is

recommended to be administered approximately four months apart (LeBuffe & Naglieri, 1999) and the CBCL is most accurate when used with a 6-month gap between administrations, however, it can be administered in as short as a 2-month timespan (Achenbach & Rescorla, 2000). Based on this, the results obtained from these measures do not suggest any significant findings.

### **Interobserver Agreement**

The interobserver agreement for the parent remains high from baseline through intervention, however, the teacher IOA had high variability. This is best understood by analyzing the rate of responses obtained from the parent and the teacher. The parent's rate (i.e., amount of "Do Skills" divided by 5 minutes) demonstrated the parent's minimal interactions. When analyzing the teacher's rate of response, it is clear she interacted at a much higher rate. The teacher spoke quickly and often, which made it difficult for the raters to consistently measure her behaviors accurately. The raters also struggled with differentiating questions versus indirect commands, which required each rater to review the teacher's videos multiple times before being confident they had accurate observations documented.

### **Strengths and Limitations**

**Training in TCIT and family recruitment.** The current study required the teacher who participated to have previous training in TCIT, limiting the number of available teachers, and therefore families, who were able to participate in the study. During recruitment, a second teacher was asked to participate who had previous training in TCIT, however, due to issues that arose with the family who was referred, the family and teacher were unable to participate. The teacher who was able to participate believed

this intervention was helpful and had asked to have other children and their families participate in the study. However, due to time constraints, the primary researcher was unable to have additional families participate.

While the requirement of having the teacher trained in TCIT is a limitation, TCIT has been shown to be an effective intervention in the schools (McIntosh, et al., 2000; Lyon, Budd, & Gershenson, 2009; Filcheck, McNeil, Greco, & Bernard, 2004). Rossi (2015) demonstrated TCIT as an effective intervention to promote positive behavior in the classroom setting. Bandi, Simonds, Stankus, Wehr, and McGoey (2018) discussed the role a school psychologist can play in implementing TCIT as a school-wide intervention and provided guidelines for doing so. This pilot study highlights the relative ease in implementing an intervention like this and feedback points to it being helpful for parents and teachers alike.

Recruiting families to participate in this study was difficult for a number of reasons. As mentioned, the limitation of which teachers can participate leads to limiting the number of families who can be referred. Additionally, research has found parent engagement in parent training programs is impacted by numerous factors (Fernandez & Eyberg, 2005; Gross, Blecher, Budhathoki, Ofonedu, & Uveges, 2018; Klatt, Harding, & Roulstone, 2019). Fernandez and Eyberg suggested logistics (i.e., difficulty finding transportation, location of the clinic, child care, etc.) as reasons parents prematurely dropout of PCIT treatment. Gross et al., indicated parent psychological factors, such as parent depression, and higher psychosocial adversities (i.e., low SES, no high school education, unemployment, and receiving Medicaid) negatively affected a parent's likelihood of completing PCIT. Four themes were identified through interviews with

speech and language therapists who provide PCIT of their experiences of engagement from parents including mutual understanding, collaborative relationships between therapist and parents, parental empowerment, and barriers (logistics like distance of travel and childcare and biopsychosocial barriers such as depression, illness, and substance use).

A strength of the current study is using a central location (the child's school) and distance technology to provide the intervention. Most of the time, children attend schools located close to their house. Clinics that offer parent training interventions, such as PCIT, tend to be difficult to find. Using distance technology and a central location, such as was used in the current study, allows for this evidence-based treatment to be provided to families who would otherwise not have access to it. Further, as many of the studies above note, treatment attrition is impacted by logistics such as location of the clinic.

**Differing roles of a parent and a teacher.** Though a parent and a teacher share many important features including providing healthy relationships to children to foster their development, it is understood that a parent and a teacher have distinct and unique relationships with children. It could be stated that a limitation of the current study is the intervention's focus on coaching a parent and a teacher to use the same interaction techniques when each of their relationships with the child is different and therefore required different interaction techniques to be taught. However, many of the interactions known to improve relationships and positively influence a child's behavior are universal. Additionally, when the same interaction techniques are used across caregivers and settings, behaviors are better generalized (Stokes & Osnes, 1989). Because TCIT was developed from PCIT, these interventions were easily combined. The focus of CDI in

both therapies is to strengthen the relationship between the caregiver and child which in turn positively influences the child's behaviors in both settings.

This study highlighted the feasibility of implementing an intervention like this. This intervention allows the parent and teacher to work together to form a shared repertoire of interactions techniques which can be viewed as home-school collaboration. Research has consistently discussed the importance of home-school collaboration and this intervention is an easy way to increase this, positively influencing a child's academic performance.

**Technology.** A strength of the study was the use of technology to implement the intervention. In many ways technology has improved the ability to provide interventions to those who are unable to access clinics or offices that provide these interventions. It has been shown to be as effective as in-person therapies (Backhaus et al., 2012; Comer et al., 2015). For this study, technology also came with its flaws as there required two Bluetooth connections to one audio stream, one for the parent and one for the teacher, and this technology currently does not exist. Because of this, outside of the iPad, a cellphone connection was also required. This caused some delay on the day of intervention sessions due to limited wireless service.

Additionally, because the child in the current study was very active and mobile, an additional research assistant was needed to move the camera on the iPad around to track the interactions. A piece of technology called BeamPro (a remote controlled robotic device that can be controlled from a distance) was considered for this study, however, due to limitations with connecting the device to a Bluetooth connection, this was not utilized. Future research should investigate technology similar to BeamPro that has

Bluetooth connectivity and the possibility of connecting multiple Bluetooth devices to one audio output.

**Internal validity.** Internal validity refers to the extent to which extraneous variables have been ruled out as the cause of outcomes (Kazdin, 2011). This study had limitations regarding the selection of participants which could be considered a threat to internal validity (selection bias). With only a few teachers having been previously trained in TCIT, the selection of participants was limited. Additionally, because this study relied on referrals from the teacher, the bias could have been towards choosing families who were more engaged and more likely to participate in a study, therefore impacted the results. For future studies, it is recommended that a larger sample of teachers be trained in TCIT prior to implementation of the simultaneous intervention of the current study. Additionally, having a more specific participation criteria may be helpful in reducing the possible selection bias.

Another noted threat to internal validity is the experimental design. While initially the design was to be a multiple baseline design that would allow for comparison between participants, only one family was successfully recruited for the current study. Quasi-single-case experimental design, such as the one used in the current study, can provide useful data and information when true experimental designs cannot be implemented due to the nature of the behaviors being evaluated (Kazdin, 2011). For example, the current study assessed the effectiveness of increasing certain parent and teacher behaviors. To evaluate their effectiveness, one cannot erase their knowledge of the skills learned (i.e., “Do Skills”) to go back to baseline and compare.

To improve the quality of the inferences from quasi-single-case designs, Kazdin (2011) recommends five steps, even if all cannot be followed: 1) collect systematic data, 2) assess behavior on multiple occasions, 3) consider past and future projections of performance, 4) consider the type of effect associated with treatment, and 5) use multiple and heterogeneous participants. The current study was able to follow three of the five recommended steps including collecting systematic data, considering past and future projections or performance, and considering the type of effect. The rating scales collected from multiple informants allowed for the collection of systematic data. Collecting information from both the teacher and the parent allowed for a more thorough evaluation of the effectiveness of the intervention. Using baseline data collection allowed for analysis of past and future projections and for the analysis of how quickly the effects were noted once the intervention was implemented (i.e., the quick spike in “Do Skills” and drop in “Don’t Skills” almost immediately after the intervention was implemented). With a larger sample size (i.e., more families), a multiple-baseline design could have been implemented, further strengthening the inferences regarding the effectiveness of the intervention.

**External validity.** External validity refers to the extent to which the results of this study can be generalized to other situations and to other people (Kazdin, 2011). The largest threat to external validity for this study is the small sample size. Kazdin (2011) points to the need for single-case research as it adds to the literature regarding interventions and ideas that would be impossible to implement with large samples. This current study demonstrated the feasibility of this intervention. The future directions of

this current study would benefit from focusing on implementing this intervention to more families across different schools.

### **Implications**

Student academic success continues to be a focus for many in the world today. It has been well researched that emotional and behavioral difficulties impact a child's academic success and behavioral interventions have become an important focus in our schools today. The collaboration between families and schools is also linked to this success, especially regarding behavioral interventions. The current study presents a feasible way to integrate home-school collaboration to address behavioral and emotional difficulties.

Parenting children with behavioral and emotional difficulties can be challenging. The intervention in the current study provides parents with concrete actions to take in beginning to manage their child's behaviors at home. Often times, teachers and parents provide different consequences to behaviors at home which effects the way a child behaves in each setting. The current study's intervention allows the parents and teachers to implement the same approaches at home and school that will facilitate the child's generalization of behaviors across both settings (Stokes & Baer, 1977; Stokes & Osnes, 1989).

Regarding a teacher's perception of a child, many times children with behavioral and emotional difficulties are perceived differently than their peers without these difficulties. The intervention of this study provides a new frame on behavior for a teacher in the classroom setting. The intervention has a strong focus on positive behaviors and reduces the focus on a child's negative behaviors, allowing the teacher a more positive



perception of the child. Providing this intervention in the classroom setting would allow the teacher and child to connect in a more positive manner, improving the teacher-child relationship and therefore increasing the student's academic success.

The use of teletherapy is increasing in the field of applied psychology. Interventions such as PCIT and TCIT are designed in a manner that allow implementation through distance technology. Teletherapy helps provide services to populations that are unable to receive these services otherwise. Interventions as in the current study demonstrate the effectiveness of using distance technology to provide evidence-based therapies to a wider range of populations.

### **Future Directions**

The focus of this current study was to determine the feasibility of implementing PCIT and TCIT simultaneously using distance technology. Based on the results from this study, it is clear this is a feasible intervention. The in-vivo coaching of PCIT and TCIT lend themselves nicely to the use of HIPAA-compliant software to implement these interventions from a distance. Further, because these interventions have a similar protocol, it is feasible to implement them simultaneously. Discussed here are some recommendations for building on this current study.

Future research would benefit from focusing on a two-step model of this intervention: 1) implementing TCIT in a school setting (grade level by grade level first before school wide) and 2) completing the PCIT/TCIT simultaneous intervention described here at the same time for multiple families (i.e., one family per classroom) allowing for the recommended multiple baseline across participant research design (Cooper, Heron, and Heward, 2007). Kanine, Jackson, Huffhines, Barnett, and Stone

(2018) demonstrated the effectiveness of Universal Teacher-Child Interaction Training (U-TCIT) providing support for continued research in this area. After TCIT has been implemented at the school level, the families can be incorporated into the classroom setting, similar to the model used here.

Another recommended area of focus would be on the feasibility of simultaneously implementing the Parent Directed Interactions (PDI) and Teacher Directed Interactions (TDI) portions of PCIT and TCIT. The child's behaviors in the current study demonstrated minimal improvements, which could be related to the implementation of only the Child Directed Interactions (CDI) portion of these interventions. It is hypothesized that a child's behaviors would improve with the implementation of the full PCIT and TCIT protocol. The PDI and TDI phases would have to be modified from traditional PCIT and TCIT to be adapted to being taught and coached simultaneously.

Due to the nature of this current study, specific child participant criteria was not created. This current study required the child to meet a one or more behavioral difficulties from a broad range of behaviors. It is recommended that future research create a specific selection criteria for child participants that will focus on behaviors of interest. This can be accomplished with a larger population from which to select child participants (i.e., if more teachers are trained in TCIT allowing for more referrals to this intervention).

The unique feature of conducting two therapies simultaneously is the influence participants have on each other. This study highlighted the similar pattern of interactions from the parent and teacher with the child and future research can build on this by clarifying the teacher's role. In this study, the teacher was used as a model for the parent because she had previous training in the skills taught. However, this was never directly

discussed with the teacher and her specific role was not clarified. Future studies are encouraged to specify the teacher's role and have discussions with the teacher prior to, and throughout, the implementation of the intervention. This data can then be highlighted further to evaluate the influence of a teacher's behavior on a parent's behavior.

Due to the unique needs of this child, the activities in which he participated were not specified or limited like they would be in traditional PCIT and TCIT. Future research would benefit from evaluating the effectiveness of this intervention with pre-determined activities, especially those that occur across settings (i.e., academic tasks that would be completed for homework). It would be beneficial for a parent and teacher to use the same interaction techniques across activities to improve a child's generalization of skills.

Finally, because this is a feasibility study, future research should evaluate the effectiveness of this intervention through an outcome study analyzing the change in a child's behaviors. One way to evaluate the effectiveness would be to randomly assign four children (and their parent(s) and/or teacher) who meet a pre-determined criteria to one of four treatments: 1) a child involved in traditional PCIT with his or her parent(s) only, 2) a child involved in TCIT with his or her teacher only, 3) a child involved in the current intervention, and 4) a child to act as a control and receive typical behavioral interventions in the school setting through traditional methods (i.e., behavior plans, Individual Education Program (IEP), Positive Behavior Interventions and Supports (PBIS), child study plans, etc.).

Appendix A  
Coding Sheets

Parent Interval Coding Sheet											
Date (of session): _____						Client: _____					
Observer ID: _____						Observer for IOA: Primary			Secondary		
Video Time: _____						Baseline/Intervention Session Number: _____					
<b>Minute 1</b>	Parent Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 2</b>	Parent Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 3</b>	Parent Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 4</b>	Parent Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 5</b>	Parent Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Frequency</b>											
<b>Intervals</b>											

Interval with Skill	Frequency of Skill	Rate of Skill
Do: /30 =	Do: / =	Do: /5 =
Don't: /30 =	Don't: / =	Don't: /5 =

Teacher Interval Coding Sheet											
Date (of session): _____				Client: _____							
Observer ID: _____				Observer for IOA: Primary				Secondary			
Video Time: _____				Baseline/Intervention Session Number: _____							
<b>Minute 1</b>	Teacher Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 2</b>	Teacher Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 3</b>	Teacher Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 4</b>	Teacher Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Minute 5</b>	Teacher Codes										
		LP	UP	RF	BD	I	PTO	NTA	DC	IC	Q
	1										
	2										
	3										
	4										
	5										
6											
<b>Frequency</b>											
<b>Intervals</b>											

Interval with Skill

Do: /30 =

Don't: /30 =

Frequency of Skill

Do: / =

Don't: / =

Rate of Skill

Do: /5 =

Don't: /5 =

## Appendix B

## Skills for Participants

**DO SKILLS:** We want to see a lot of these

<b>DO SKILLS</b>	<b>REASON</b>	<b>EXAMPLES</b>
<p><b>Labeled Praise (LP)</b> Labeled praises tell your child exactly what you like</p>	<ul style="list-style-type: none"> <li>Increases the behavior that is praised</li> <li>Shows approval</li> <li>Improves child's self-esteem</li> <li>Makes child feel good</li> </ul>	<ul style="list-style-type: none"> <li>Good job building that tower</li> <li>I like how gently you're playing with those blocks</li> <li>Good job sitting in your seat</li> </ul>
<p><b>Unlabeled Praise (UP)</b> Similar to labeled praise only it is less specific</p>	<ul style="list-style-type: none"> <li>Increases the behavior that is praised</li> <li>Shows approval</li> <li>Improves child's self-esteem</li> <li>Makes child feel good</li> </ul>	<ul style="list-style-type: none"> <li>Nice job</li> <li>Thank you</li> <li>Great work</li> </ul>
<p><b>Reflection (RF)</b> Reflections repeat or paraphrase what your child says</p>	<ul style="list-style-type: none"> <li>Lets child lead the conversation</li> <li>Shows interest</li> <li>Demonstrates acceptance and understanding</li> <li>Improves child's speech</li> <li>Increases verbal communication</li> </ul>	<ul style="list-style-type: none"> <li>Child: Doggy has a black nose Parent: The dog's nose is black</li> <li>Child: I like to play with blocks Parent: You're having fun with the blocks</li> <li>Child: I drew a tree Parent: Yes, you made a tree</li> </ul>
<p><b>Behavior Description (BD)</b> Behavior descriptions say what your child is doing</p>	<ul style="list-style-type: none"> <li>Lets child lead the play</li> <li>Shows interest</li> <li>Teaches concepts</li> <li>Models good speech and vocabulary</li> <li>Holds child's attention on the task</li> <li>Organizes child's thoughts about the activity</li> </ul>	<ul style="list-style-type: none"> <li>You're making a tower</li> <li>You drew a square</li> <li>You are dressing Mr. Potato Head</li> <li>You put the girl inside the fire truck</li> </ul>
<p><b>Imitation (I)</b> Imitation copies what your child is doing with the toys</p>	<ul style="list-style-type: none"> <li>Lets your child lead.</li> <li>Shows child you approve of his/her game</li> <li>Makes the game fun for your child</li> <li>Increases the child's imitation of the things that you do</li> <li>Teaches your child how to play with others and take turns</li> </ul>	<ul style="list-style-type: none"> <li>Child: I put a nose on the potato head. Parent: I'm putting a nose on Mr. Potato Head too.</li> <li>Child: (drawing circles on a piece of paper). Parent: I'm drawing circles on my paper just like you.</li> </ul>
<p><b>Positive Touch (PTO)</b> Positive touch is any positive physical</p>	<ul style="list-style-type: none"> <li>Provides physical comfort to the child</li> <li>Shows the child you care for him/her</li> </ul>	<ul style="list-style-type: none"> <li>Hugs</li> <li>High fives</li> <li>Tickling</li> </ul>

contact between you and your child	<ul style="list-style-type: none"> <li>• Provides a physical form of praise</li> </ul>	<ul style="list-style-type: none"> <li>• Picking the child up when the child reaches for you</li> </ul>
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**DON'T SKILLS:** We want to try to avoid these whenever possible.

<b>DON'T SKILLS</b>	<b>REASON</b>	<b>EXAMPLES</b>
<p><b>Negative Talk (NTA)</b> Negative talk expresses disapproval of your child</p>	<ul style="list-style-type: none"> <li>• Gives attention to negative behavior</li> <li>• Lowers your child's self-esteem</li> <li>• Causes angry feelings between you and your child</li> <li>• Teaches your child negative social behavior</li> </ul>	<ul style="list-style-type: none"> <li>• That was really stupid</li> <li>• I don't like your attitude</li> <li>• Don't color the sky pink</li> <li>• Stop it</li> <li>• Your tower isn't straight enough</li> </ul>
<p><b>Direct Command (DC)</b> Direct commands tell your child what to do in a direct manner</p>	<ul style="list-style-type: none"> <li>• Takes the lead away from your child</li> <li>• Can cause conflict</li> </ul>	<ul style="list-style-type: none"> <li>• Give me the pigs</li> <li>• Please sit down next to me</li> <li>• Look at this.</li> </ul>
<p><b>Indirect Command (IC)</b> Indirect commands tell your child what to do but in a manner that is vague and possibly unclear</p>	<ul style="list-style-type: none"> <li>• Takes the lead away from your child</li> <li>• Can cause conflict</li> <li>• Can confuse the child on what is expected</li> </ul>	<ul style="list-style-type: none"> <li>• Let's play with the farm animals</li> <li>• Could you tell me what animal this is?</li> </ul>
<p><b>Question (Q)</b> Questions call for your child to give an answer</p>	<ul style="list-style-type: none"> <li>• Leads the conversation</li> <li>• Many questions are commands and require an answer</li> <li>• May seem like you aren't listening to your child or that you disagree</li> </ul>	<ul style="list-style-type: none"> <li>• We're building a tall tower, aren't we?</li> <li>• What sounds does the cow make?</li> <li>• What are you building?</li> <li>• Do you want to play with the train?</li> </ul>

## Appendix C

## Description of Scales

*Eyberg Child Behavior Inventory (ECBI) Scales*

Scale	Defined
<b>Intensity</b>	Assess the frequency with which the child displays the behaviors
<b>Problem</b>	Assesses whether the parent considers the behavior as a problem for him or herself

*Descriptions taken from Eyberg & Pincus, 1999*

*Devereux Early Childhood Assessment for Preschoolers-Second Edition (DECA-P2)**Scales*

Scale	Defined
<b>Total Protective Factors (TPF)</b>	Composite of Initiative, Self-control and Attachment; overall strength of child's protective factors
<b>Behavior Concerns (BC)</b>	Address social and emotional problems

*Descriptions taken from LeBuffe, & Naglieri, 1999*

*Child Behavior Checklist (CBCL) Teacher and Parent Scales*

Definitions were not provided for these scales



Appendix D

Research Evaluation Forms  
 Research Evaluation Form—Parent Version

School: \_\_\_\_\_

Semester: \_\_\_\_\_

**Directions:** Please check the box that reflects your agreement with the following statements.

	<b>Strongly Agree</b>	<b>Somewhat Agree</b>	<b>No Opinion</b>	<b>Somewhat Disagree</b>	<b>Strongly Disagree</b>
1. These sessions taught me skills I can use in my interactions with my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. These sessions made me feel better able to communicate with my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I've noticed a change in my child's behavior at home from the beginning of these sessions to now.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I noticed myself using the skills taught outside of sessions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The coach was knowledgeable and experienced in the topic covered.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The coach was clear in expectations and approachable for any questions/concerns I had throughout this experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Overall, these sessions were useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Research Evaluation Form—Teacher Version

School: \_\_\_\_\_

Semester: \_\_\_\_\_

**Directions:** Please check the box that reflects your agreement with the following statements.

	<b>Strongly Agree</b>	<b>Somewhat Agree</b>	<b>No Opinion</b>	<b>Somewhat Disagree</b>	<b>Strongly Disagree</b>
1. These sessions taught me skills I can use in my interactions with children in my class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. These sessions made me feel better able to communicate with children in my class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I've noticed a change in this student's behavior at school from the beginning of these sessions to now.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I noticed myself using the skills taught outside of sessions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The coach was knowledgeable and experienced in the topic covered.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The coach was clear in expectations and approachable for any questions/concerns I had throughout this experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Overall, these sessions were useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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